

# **Ungulate Information Gaps: The Keeyask Generation Project**

Submitted by  
Manitoba Métis Federation

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## Acronyms

AEA	Adverse Effects Agreement
ATK	Aboriginal Traditional Knowledge
CEA	Cumulative Affects Assessment
CEAA	Canadian Environmental Assessment Agency
CEC	Clean Environment Commission
CNP	Cree Nation Partners
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPP	Environmental Protection Plan
FLCN	Fox Lake Cree Nation
GS	Generating Station
HRWHQM	Habitat Relationships and Wildlife Habitat Quality Models
IR	Information Request
KCN	Keeyask Cree Nations
KHLP	Keeyask Hydropower Limited Partnership
KIP	Keeyask Infrastructure Project
LSA	Local Study Area
MB	Manitoba
MCWS	Manitoba Conservation and Water Stewardship
MHSP	CNP Moose Harvest Sustainability Plan
MIT	Manitoba Infrastructure and Transportation
MMF	Manitoba Métis Federation
MSES	Management and Solutions in Environmental Science
R to EIS	Response to EIS Guidelines
RSA	Regional Study Area
SLRMA	Split Lake Resource Management Area
SV	Supporting Volume
TCN	Tataskweyak Cree Nation
TEMP	Terrestrial Effects Monitoring Plan
TE SV	Terrestrial Environment Supporting Volume
TLU	Traditional Land Use
TLUKS	Traditional Land Use and Knowledge Study
VEC	Valued Environmental Component
WLFN	War Lake First Nation
YFFN	York Factory First Nation

## 1.0 Introduction

The Manitoba Métis Federation (MMF) requested that Management and Solutions in Environmental Science Inc. (MSES) review and assess the analyses and results of the Environmental Impact Statement (EIS) of the Keeyask Generation Project (the Project) proposed by the Keeyask Hydropower Limited Partnership (KHLP or the Partnership) consisting of Manitoba Hydro, Tataskweyak Cree Nation (TCN), War Lake First Nation (WLFN), York Factory First Nation (YFFN), and Fox Lake Cree Nation (FLCN); collectively referred to as the Partnership).

For the purpose of developing the Round 1 Information Requests (IRs), MSES reviewed all components of the Project EIS relating to moose and caribou. Relevant EIS documents include:

- Response to EIS Guidelines
  - Ungulates (278 Pages)
- Supporting Volumes
  - Project Description & Terrestrial Environment (428 Pages)

MSES provided Round 1 IRs in May 2013. The Partnership provided responses to the Round 1 IRs in July 2013 in a report titled *Responses to Information Requests – CEC [Clean Environment Commission], Round 1* (KHLP 2013a). MSES reviewed this document and relevant referenced documents, as necessary, and provided Round 2 IRs in July 2013. The Partnership provided responses to the Round 2 IRs in August 2013 in a report titled *Responses to Information Requests – CEC, Round 2*. For the purpose of developing this final report, we completed a review of Manitoba Hydro's *Responses to Information Requests – CEC, Round 2* (KHLP 2013b) and relevant referenced documents. Additional efforts were made to review draft reports provided by the Partnership subsequent to receipt of Round 2 IR responses (e.g., *Habitat Relationships and Wildlife Habitat Quality Models for the Keeyask Region-September 2013*, *Moose Harvest Sustainability Plan-September 2013*). This report identifies gaps that were found to be still outstanding after our technical review and after the response by the Partnership to our Round 1 and 2 Information Requests.

## 2.0 The Keeyask Project

### 2.1 Overview of Keeyask Project

The Project includes the development of a 695 megawatt hydroelectric generating station (GS) at Gull (Keeyask) Rapids on the lower Nelson River in northern Manitoba. The Project will have an average annual production of 4,400 gigawatt-hours of electricity (power to approximately 400,000 homes) and energy produced by the GS will be sold to Manitoba Hydro for distribution. Permanent associated infrastructure includes: north and south access roads, cofferdams, tower spur, rock groins, communication tower, boat launches, a portage, borrow areas and associated roads. Temporary associated infrastructure includes: a main camp, work areas, landfill, water and sewage treatment facilities, explosives magazine, cofferdams, ice boom, borrow areas and associated roads, and placement areas for excess excavated materials. The closest nearby communities include Split Lake and Gillam, Manitoba (MB).

## 2.2 Foundation of Review

The foundation of our review centred on how the proponents determined significance of an impact. Significance was determined based on the assumption that mitigation will be successfully and effectively implemented. Therefore, it is critical to measure whether or not mitigation actually works as predicted. For that reason, follow-up and monitoring programs must be credible and objective.

Impact predictions, no matter how solid or robust, need to be tested during monitoring and follow-up programs (Morrison-Saunders and Arts 2004). To help improve our confidence in the predictions made, we highlight potential gaps in the baseline data and requirements for additional information to enable a better understanding of the effectiveness of mitigation measures. Our gap analysis is aligned with the EIS Scoping Document on p. 7-1: *“The monitoring programs will determine effects of the Project, including: whether they are consistent with the analysis in the environmental impact assessment; whether they assess the effectiveness of remedial measures; and whether they allow for adaptive management and mitigation measures to be implemented if unforeseen impacts occur”* (KHLP 2011). However, we understand that sometimes baseline information cannot be collected and a qualitative prediction must be made. Moreover, we understand that most predictions are made with some degree of uncertainty, no matter how good the baseline information may be, and decisions must be made in light of that uncertainty (Burgman et al. 2005). For that reason, the Government of Canada (2003) provides guidelines on the application of scientific rigor to reduce uncertainty in decision making. In our review we highlight the gaps in the scientific foundation required to make informed decisions.

For the ongoing comparison with baseline data and for the detection of effects that were not predicted, the most fundamental necessity is that both the baseline and the monitoring information must be quantifiable. For a useful follow-up and monitoring program, testable questions must be developed (Burns & Wiersma 2004, Canadian Environmental Assessment Agency (CEAA) 2009). Because of this fundamental necessity to provide certainty in the future environmental management of the proposed Project, we build the majority of our identified gaps on the need to develop testable questions for future monitoring programs. We also note that in order to measure the effectiveness of mitigation, the expectations of what effective mitigation would be must be clearly defined. We think that discussions which aim at gaining clarity on follow-up and monitoring programs are of utmost importance for the effective management of Project impacts.

## 3.0 Ungulates

### 3.1 High Level Gap Analysis

#### Significance of Effects

- The Partnership has not defined the point at which adverse effects on Manitoba Métis traditional resources are deemed significant. The Partnership would need to discuss with the Métis what the perceived impact might be and how that should be mitigated. Once mitigation measures have been designed, with input from the Métis, the significance of residual impacts would need to be rated by the Métis (please see CEC Rd 1 0003 / CEC Rd 2 MMF 0042 for more details).

Outstanding concerns with the Partnerships impact assessment for summer resident caribou include:

- The process used for model development and validation does not lend confidence in the reliability of the model. We cannot be sure that the model works as intended which results in uncertainty in the Partnerships claims that there is likely more habitat available than caribou are currently using. Availability of caribou calving habitat could be overestimated and corresponding impacts to caribou calving habitat could be underestimated (please see CEC Rd 1 MMF 0002 / CEC Rd 2 MMF 0041 for more details). Furthermore, based on the results of a power analysis completed by the Partnership, baseline data may be insufficient to detect changes in caribou use of islands in lakes and peatlands in future monitoring programs (please see CEC Rd 1 MMF 0001 / CEC Rd 2 MMF 0040 for more details).
- It is unclear what the summer resident caribou population can tolerate in terms of mortality because there is uncertainty regarding the affiliation or herd status of summer resident caribou. The Partnership cannot speak with high certainty with regard to what might constitute a population-level effect on these caribou (please see CEC Rd 1 0007 / CEC Rd 2 MMF 0046 for more details).
- The summer resident caribou population may or may not have stable or positive growth with the project based on the measures of intactness provided by the Partnership (please see CEC Rd 1 MMF 006b / CEC Rd 2 MMF 0045b for more details).
- The Partnership appears to be reliant on the assumption that summer resident caribou will still cross transmission lines, but by their own words, the extent of avoidance of linear features is still unknown (please see CEC Rd 1 MMF 0022 / CEC Rd 2 MMF 0061 for more details).

Outstanding concerns with the Partnerships impact assessment for caribou include:

- Expectations that caribou will return to the Project area in the long-term are not well supported. There is uncertainty as to whether caribou distribution and abundance has returned to pre-disturbance conditions in the local region (since Kettle GS constructed) and uncertainty as to what incremental impact the Keeyask project may have on caribou distribution and abundance. Without information on pre-hydroelectric resources and how resource conditions have been altered to date, the incremental effects of habitat loss and landscape fragmentation and the resultant increase in human access cannot be well understood (please see CEC Rd 1 MMF 0004 / CEC Rd 2 MMF 0043).

Outstanding concerns with the Partnerships impact assessment for moose include:

- It does not appear that any Métis moose harvest information was incorporated into the Moose Harvest Sustainability Plan (MHSP). As such, moose harvest numbers for the model in the MHSP may be underestimated which could result in an overestimate of available moose for sustainable harvest and subsequently could result in an unintentional overharvest in future years (please see CEC Rd 1 MMF 0011 / CEC Rd 2 MMF 0050 for more details). Métis-specific project effects with respect to moose are not well understood at this time.
- With respect to the off-system marsh mitigation, the Partnership did not provide literature that would support the prediction that a 100 m buffer on either side of the road will result in an unsubstantial increase in the risk of moose-vehicle collisions. Road crossings by moose may be more likely at the location of the off-system marsh despite the 100 m buffer (please see CEC Rd 1 MMF 0012 / CEC Rd 2 MMF 0051 for more details).

### Mitigation Measures

- Analyses presented for caribou calving and rearing habitat do not provide support for some of the proposed Project mitigation measures for caribou (please see CEC Rd 1 MMF 0001 / CEC Rd 2 MMF 0040 and CEC Rd 1 MMF 0002 / CEC Rd 2 MMF 0041 for more details).
- The EIS indicates a “*high confidence*” (TE-SV-7.0, Section 7.4.6.2.3, p. 7-124) in the ability to mitigate and manage potential Project effects on caribou and moose, yet details of some mitigation measures will not be available until after construction has started. It is difficult to understand residual Project effects without a complete understanding of the proposed mitigation measures and the expected effectiveness of those measures. Targets or definitions of mitigation success are not provided (please see CEC Rd 1 MMF 0009 / CEC Rd 2 MMF 0048 and CEC Rd 1 MMF 0012 / CEC Rd 2 MMF 0051 for more details).

### Cumulative Effects

- The Partnership does not provide any information on how its own data will add to and improve the knowledge of regional cumulative effects. The Partnership does not provide any information on how it will use the research results from government and resource boards to guide its operations. An update on the status and outcome of any long-term studies that have been initiated (as recommended by Scurrah and Schindler 2012) is requested. (please see CEC Rd 1 MMF 0022 / CEC Rd 2 MMF 0061 for more details).
- We are in agreement with the Clean Environment Commission (CEC) recommendation 13.2 (outcome of the Bipole III Transmission Project hearing): “Manitoba Hydro, in cooperation with the Manitoba Government, conduct a Regional Cumulative Effects Assessment for all Manitoba Hydro projects and associated infrastructure in the Nelson River subwatershed; and that this be undertaken prior to the licensing of any additional projects in the Nelson River sub-watershed after the Bipole III Project.” (please see CEC Rd 1 MMF 0004 / CEC Rd 2 MMF 0043).

### Monitoring, Follow-up, and Adaptive Management

- It is not clear if the Manitoba Métis will have the opportunity to work with Manitoba Hydro to develop community-specific Aboriginal Traditional Knowledge (ATK) monitoring programs for the Project. Keeyask Cree Nations (KCNs) are currently working on developing these programs (please see CEC Rd 1 MMF 0009 / CEC Rd 2 MMF 0048 for more details).
- To improve management of traditional resources, a formal process should be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs as per CEAA policy (CEAA 2011). The existing proposed process is vague and the Partnership only commits to “*considering*” information from the Métis (please see CEC Rd 1 MMF 0016 / CEC Rd 2 MMF 0055 for more details). This formal process should include:
  - The development of quantitative targets that define mitigation success.
  - Métis involvement in the design and implementation of adaptive management strategies and follow-up programs, as per CEAA policy (CEAA 2009; please see CEC Rd 1 MMF 0013 / CEC Rd 2 MMF 0052 for more details).
  - The dissemination of monitoring data and annual monitoring reports to the MMF. At a minimum, the MMF should be informed in a timely manner when monitoring data and annual monitoring reports are available for review (please see CEC Rd 1 MMF 0016 / CEC Rd 2 MMF 0055 for more details).

## 3.2 Detailed Concerns

### 3.2.1 Baseline and Impact Assessment

<b>MMF-IR-001 / 0040</b>	<i>Ungulate data, study design, and analyses</i>	
<b>EIS Volume #:</b> TE-SV-1.0 TE-SV-7.0 (Appendix 7A)	<b>Chapter/Section #:</b> Section 1.4.6 Section 7.5.1	<b>Pages #(s):</b> p. 1-27 p. 7A-7, 7-7, Map 7-2
<p><i>Keyask Generation Project Scoping Document Reference (KHLP 2011):</i></p> <p>4.1.3.6 Mammals: “The EIS will describe the following attributes in the applicable study area(s): ..Species composition, distribution and relative abundance of small mammals, furbearers, large carnivores and ungulates, in relation to habitat including seasonal changes.”</p> <p><i>EIS Guidelines Reference (CEAA 2012):</i></p> <p>6.2.1 Determination of Valued Ecosystem Components (VECs): “The proponent shall also demonstrate how traditional Aboriginal knowledge has been integrated with western science in the identification and analysis of VECs.”...” The proponent must also indicate the specific geographical areas or ecosystems that are of particular concern to interested parties, and the relationship of these areas to the broader regional environment and economy.” “The proponent shall also demonstrate how traditional Aboriginal knowledge has been integrated with western science in the identification and analysis of VECs.”</p> <p>7.2 Aboriginal Consultation: “The proponent will actively solicit Aboriginal concerns from groups other than the Keyask Cree Nations during the course of the EA. The proponent will examine opportunities to mitigate the adverse effects of the Project on Aboriginal groups’ current use of lands and resources for traditional purposes and other Aboriginal interests.”</p> <p>8.2.2 Terrestrial Environment: “The EIS will describe the following attributes in the applicable study area(s):</p> <ul style="list-style-type: none"> <li>• species composition, including species of cultural, spiritual, or traditional use importance to Aboriginal peoples and Aboriginal groups, distribution and relative abundance of small mammals, furbearers, large carnivores and ungulates, in relation to habitat including seasonal changes;</li> <li>• a determination of caribou use of the project and surrounding area, movements through or near the project area, and the seasonality of these movements.”</li> </ul> <p>9.1 Assessment Methodology: “All hypotheses and assumptions should be clearly identified and justified. All data collection methods, models and studies should be documented so that the analyses are transparent and reproducible. The degree of uncertainty, reliability and sensitivity of models used to reach conclusions should be indicated. Model calibration information should be available for independent review and assessment.”</p> <p>12.2 Follow-Up Program: “The conceptual-level monitoring design must include a statistical evaluation of the adequacy of existing baseline data to provide a benchmark against which to test for project effects, and the need for any additional pre-construction or preoperational monitoring to establish a firmer project baseline.”</p>		

#### Preamble

The Scoping Document (Section 4.1.3.6) sets out that the EIS will describe the composition, distribution, and relative abundance of ungulates. Appendix 7A makes reference to “statistical comparisons” with collected data (TE-SV-7.0, Appendix 7A, p. 7A-7). The Partnerships’ responses to information requests seeking additional information on statistical comparisons have been qualitative in nature. However, the Partnership indicates that “The report entitled *Habitat Relationships and Wildlife Habitat Quality Models for the Keyask Region* includes statistical comparisons for key results.... It will be made available to regulators and hearing participants on the

Partnership's website as soon as it is finalized". The MMF were provided with this document (hereafter HRWHQM) on September 13, 2013. Ideally, this information should have been presented with the submission of the EIS to improve transparency and efficiency in the hearing process. Regardless, after review of this document, we have found that statistical comparison for moose were made and were found to be significant (Use of riparian areas – moose sign was higher on off-system riparian areas as compared to Gull and Stephens lake riparian areas; Fire influence – moose densities were higher on grids dominated by fire <30 years old as compared to grids dominated by fire >30 years old). With respect to caribou use of islands, statistical tests (binary logistic regression) found that island area was a significant factor determining use of islands (i.e., caribou presence increases as island size increases), but distance to mainland was not. With respect to calving caribou, binary logistic regression found that “neither area nor distance to mainland appeared to be reliable indicators of island use” (HRWHQM, p. 5-36). However, there is an increasing probability of occupancy of islands by calving caribou with increasing size of islands in lake and peatland complex (HRWHQM, p. 5-38). These data were used to develop habitat quality models and inform expert information models. Additional comparisons were made through the evaluation of descriptive statistics and statistical analyses outlined in Appendix I of the HRWHQM. Some of the information presented provides support for some of the proposed mitigation measures for ungulates; however, some does not. Those mitigation measures informed by the results on the caribou calving and rearing habitat model may not be appropriate (please see CEC Rd 1 MMF 002 / CEC Rd 2 MMF 0041 for a discussion of the concerns regarding the caribou calving and rearing habitat model).

In consideration of future monitoring, the Partnership conducts a power analysis “to identify the statistical power available for determining the importance of island in lakes and island in peatland complexes” (HRWHQM, p. 5-47). Power refers to the probability that a statistical test will find a statistically significant difference when such a difference actually exists (Rao 1998). The Partnership concludes that they would be able to detect a significant difference 68% (power of 0.68) of the time for lake islands and 65% (power of 0.65) of the time for peatland complexes. Although there are no formal standards, it is generally accepted that power should be 0.80 or greater (80% chance of finding a statistically significant difference when there is one; Ellis 2010). The Partnership has been conservative in their power analysis (assumed low effect size) and they are limited by the number of islands available for sampling. However, the analysis indicates that there may be significant changes in caribou habitat use that would not be detected 32-35% of the time. In other words, there could be project impacts that are not detected. As a consequence, adaptive management actions may not be implemented when they are needed and impacts could go unmitigated. Caution needs to be used when interpreting monitoring results to ensure that Project effects to do not go undetected.

The Partnership indicates that mitigation for ungulates includes the implementation of the Cree Nation Partners (CNP) Moose Harvest Sustainability Plan (MHSP). However, the Partnership indicates that “Specific data on the magnitude of Métis harvest of moose in the Split Lake RMA [SLRMA] have not been gathered to date.” (CEC Rd 2 MMF 0040b). The Partnership commissioned a Traditional Land Use and Knowledge Study (TLUKS) after they submitted the Environmental Impact Assessment (EIA). Consequently, the effects on uses of lands and resources by Manitoba Métis have not yet been determined. The Partnership would need to

discuss with the Métis what the perceived impact might be and how that should be mitigated. Only with input from the Métis can the effects on uses of lands and resources for traditional purposes be assessed. Only after these effects have been assessed can the Métis meaningfully participate in the development of mitigation measures and a monitoring program. Management of Traditional Resources would be improved with data from all potential users, including Manitoba Métis.

### Recommendations

Based on the power analysis presented, we recommend that additional baseline data for caribou use of lake islands and peatland complexes be collected, if possible, such that the Métis can rely on future monitoring programs to successfully evaluate project impacts and mitigation measure success.

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs.

<b>MMF-IR-002 / 0041</b>	<i>Ungulate habitat models</i>	
<b>EIS Volume #:</b> TE-SV-7.0 (Appendix 7A)  Response to EIS Guidelines (R to EIS; Appendix 6A)	<b>Chapter/Section #:</b> Sections 7.2.5.1, 7.3.6, 7.4.6.2.1, 7.4.6.2.2, 7.5.1	<b>Pages #(s):</b> p. 7-7, 7-57, 7-75, 7-112, 7-120, 7-124
<p><i>Keyask Generation Project Scoping Document Reference (KHL P 2011):</i></p> <p>4.1.3.6 Mammals: “The EIS will describe the following attributes in the applicable study area(s): ..Species composition, distribution and relative abundance of small mammals, furbearers, large carnivores and ungulates, in relation to habitat including seasonal changes.”</p> <p><i>EIS Guidelines Reference (CEAA 2012):</i></p> <p>8.2.2 Terrestrial Environment: “The EIS will describe the following attributes in the applicable study area(s):</p> <ul style="list-style-type: none"> <li>• species composition, including species of cultural, spiritual, or traditional use importance to Aboriginal peoples and Aboriginal groups, distribution and relative abundance of small mammals, furbearers, large carnivores and ungulates, in relation to habitat including seasonal changes;</li> <li>• a determination of caribou use of the project and surrounding area, movements through or near the project area, and the seasonality of these movements.”</li> </ul> <p>9.1 Assessment Methodology: “All hypotheses and assumptions should be clearly identified and justified. All data collection methods, models and studies should be documented so that the analyses are transparent and reproducible. The degree of uncertainty, reliability and sensitivity of models used to reach conclusions should be indicated.”</p>		

### Preamble

The Scoping Document (Section 4.1.3.6) sets out that the EIS will describe the composition, distribution, and relative abundance of ungulates. The EIS states that additional efforts were made to design studies and collect sufficient data to construct and validate “statistically derived multivariate habitat models” for mammal Valued Ecosystem Components (VECs; TE-SV-7.0, Section 7.2.5, p. 7-7). The Partnership directs us to the document *Habitat Relationships and*

*Wildlife Habitat Quality Models for the Keeyask Region* for details of caribou and moose model generation and validation procedures. The MMF were provided with this document on September 13, 2013. As this was after the Round 2 IR process, we did not submit clarification questions on this document.

A specific concern with the caribou habitat models involves the determination of the suitability of islands and peatland complexes for calving caribou. The EIS states “*Evidence of calving was documented on approximately 10% of the island in Gull and Stephens lakes and only 5% of the peatland complexes surveyed in 2010 and 2011, indicating that there is likely more habitat available than caribou are currently using.*” (TE-SV-7.0, Section 7.4.6.2, p. 7-112). Alternatively, this may indicate that the unused islands and peatland complexes may have characteristics that result in caribou avoidance of these sites.

With respect to calving caribou, a binary logistic regression concluded that “*neither area nor distance to mainland appeared to be reliable indicators of island use*” (HRWHQM, p. 5-36). However, an evaluation of probability of occupancy found an “*increased use of islands in lakes and peatland complexes for caribou calving and rearing with increasing island in lake or peatland complex size*” (HRWHQM, p. 5-38). Figures 5-3 and 5-4 from the HRWHQM show trends in island use relative to island size, but the particular analysis used to evaluate these trends is not clear (i.e., is this a significant trend?). To validate the caribou and calving and rearing habitat model, comparisons of observed versus expected caribou use based on tracking and trail camera studies were made (HRWHQM, Tables 5-21 and 5-22). The basis for the expected occupancy values in this comparison is not clear. It appears that the expected occupancy values are “*derived using data from field studies in previous years*” (HRWHQM, p. 5-46). This suggests that the Partnership actually performed a comparison of caribou occupancy between years rather than model validation. The Partnership states that differences in observed versus expected caribou use were “*within those limits acceptable in examining variation in natural habitat use patterns by caribou*” (HRWHQM, p. 5-47), but does not appear to utilize any formal statistical tests for the comparison. The process used for model development and validation does not lend confidence in the reliability of the model. As such, we cannot be sure that the model works as intended which results in uncertainty in the Partnerships claims that “*there is likely more habitat available than caribou are currently using*” (TE-SV-7.0, Section 7.4.6.2, p. 7-112). Availability of caribou calving habitat could be overestimated and corresponding impacts to caribou calving habitat could be underestimated.

The Partnership states that “*...in cases where no quantitative data are available, qualitative information from the literature or expert opinion can be used to establish assumptions on which to base estimates of model parameters.*” (HRWHQM, p. 2-2). We are in agreement but stress that the EIS must be transparent about model accuracy. We are raising the issue for the MMF that predictions based on questionable models have a higher level of uncertainty associated with them. The Métis, and other interested parties, must be cautious and evaluate the uncertainty and risk associated with related impact predictions. They must determine what they are willing to accept as a risk.

## **Recommendations**

We recommend that additional baseline data for caribou use of lake islands and peatland complexes be collected, if possible, to inform the caribou calving and rearing habitat model (which in turn will inform the impact assessment and influence proposed mitigation measures).

We recommend that the Partnership provide clarification on the process used for model development and validation with respect to calving caribou.

<b>MMF-IR-003 / 0042</b>	<i>Evaluation of residual effects</i>	
<b>EIS Volume #:</b> TE-SV-1.0 R to EIS	<b>Chapter/Section #:</b> Section 1.4.4 Chapter 5, Section 5.5	<b>Pages #(s):</b> Table 1-4, p. 1-24 Figure 5-1, p. 5-9
<p><i>Keeyask Generation Project Scoping Document Reference (KHL P 2011):</i></p> <p>5.1.1 Criteria for Determining Significance: <i>“The following criteria will be used to determine the significance of residual adverse environmental effects on each VEC: Nature (i.e., positive or negative) of the effect; Magnitude (i.e., severity) of the effect; Temporal boundaries (i.e., duration); and Spatial boundaries (i.e., geographic extent)...In assessing the significance of environmental effects on a VEC, the EIS may also discuss the frequency of effects, ecological context and the reversibility, where relevant.”</i></p> <p><i>EIS Guidelines Reference (CEAA 2012):</i></p> <p>7.2 Aboriginal Consultation: <i>“The proponent will actively solicit Aboriginal concerns from groups other than the Keeyask Cree Nations during the course of the EA. The proponent will examine opportunities to mitigate the adverse effects of the Project on Aboriginal groups’ current use of lands and resources for traditional purposes and other Aboriginal interests.”</i></p> <p>8.2.2 Terrestrial Environment: <i>“The EIS will describe the following attributes in the applicable study area(s):</i></p> <ul style="list-style-type: none"> <li>• <i>species composition, including species of cultural, spiritual, or traditional use importance to Aboriginal peoples and Aboriginal groups, distribution and relative abundance of small mammals, furbearers, large carnivores and ungulates, in relation to habitat including seasonal changes;”</i></li> </ul> <p>9.1 Assessment Methodology: <i>“In describing the overall approach, the EIS should explain how each of: scientific, engineering, Aboriginal traditional knowledge and community knowledge were employed.”</i></p> <p>9.1.1 Precautionary Approach: <i>“the proponent shall consider the guiding principles set out in the Government of Canada Framework for the Application of Precaution in Science-based Decision Making About Risk (2003).”</i></p> <p>9.4 Determination of Significance: <i>“The proponent will provide a summary of the regional, provincial, Aboriginal or national objectives, standards or guidelines that have been used to assist in the evaluation of the significance of the identified adverse environmental effects.”</i></p>		

**Preamble**

The Partnership was asked to further describe the concept of “Regulatory Significance” (R to EIS, Section 5.5, p. 5-9). The Partnership responds that *“the term indicates that the analysis is prepared for the regulators in accordance with the EIS Guidelines. It does not indicate that the regulators agree in advance with what is submitted in accordance with the EIS Guidelines.”* (CEC Rd 2 MMF 0042a). Further to this point, the term also does not indicate that interested parties, such as the Métis, agree in advance with what is submitted and with the criteria established for determining significance.

The Partnership has not defined the point at which adverse effects on Métis traditional resources are deemed significant. To determine significance, the Partnership would need to ask the Métis communities about the value they put on traditional resources or activities. In the international EIA practice there is “considerable unanimity of views that consultation with ...the

local community should assist in ensuring that all potentially significant impacts are identified” (Wood 2003, p.161). The Government of Canada has likewise indicated that “There is an implicit need to identify, where possible, both the level of society’s tolerance for risks and potential risk-mitigating measures.” (GoC 2003). The determination of significance needs to be done collaboratively through effective public consultation (Lawrence 2007). That is, the Partnership would need to discuss with the Manitoba Métis what the perceived impact might be and how that should be mitigated. Once mitigation measures have been designed, with input from the Métis, the significance of residual impacts would need to be rated by the Métis. The Partnership has not yet done this, as confirmed by the commissioning of a Traditional Land Use and Knowledge Study (TLUKS) after the submission of the EIA.

The Partnership concludes long-term and irreversible terrestrial habitat effects for permanent infrastructure and flooded areas. In those areas where rehabilitation is possible, the Partnership indicates that target vegetation types will likely differ from pre-disturbance due to natural variability, giving preference to the most affected priority habitat types, and post-construction conditions. The Partnership does not have site-specific target vegetation types and time frames developed at this time nor do they provide examples of successful rehabilitation. Site-specific targets will be provided in the *Keeyask Generation Project Vegetation Rehabilitation Plan*, which will be completed once construction is underway and the extent of required rehabilitation is understood. As such, specific and detailed information on mitigation measures is not available until after project commencement and it is uncertain whether those habitat types expected to incur the “*highest cumulative effects*” (CEC Rd 2 MMF 0042c) can have the effects reduced through rehabilitation. Furthermore, with an incomplete understanding of what the landscape will look like during operations, it is difficult to understand what the impact might be on Métis Traditional Land Use (TLU).

### **Recommendations**

We recommend a determination of significance be done collaboratively through effective consultation between the Partnership and the MMF. That is, the Partnership would need to discuss with the Manitoba Métis what the perceived impact might be and how that should be mitigated. Once mitigation measures have been designed, with input from the Métis, the significance of residual impacts would need to be rated by the Métis.

We recommend that the MMF request that the Partnership demonstrate that vegetation targets have been achieved elsewhere.

We recommend that the MMF be involved in the development of vegetation targets. Vegetation targets should be quantitative such that mitigation effectiveness can be measured. For instance, similarity indices (for comparison with existing vegetation types) could be used for both trees and understory vegetation.

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs.

<b>MMF-IR-004 / 0043</b>	<i>Caribou – Project related disturbance - construction</i>	
<b>EIS Volume #:</b> TE-SV-7.0	<b>Chapter/Section #:</b> Sections 7.2.4.1, 7.4.6.2.2	<b>Pages #(s):</b> p. 7-5, 7-114
<p><u>Keyask Generation Project Scoping Document Reference (KHLP 2011):</u>                      5.1 Project Effects: <i>“In reporting on the assessment of potential environmental effects, the EIS will describe the approach and methods used to identify and assess the effects, and it will also provide a record of assumptions and analyses that support the conclusions.”</i></p> <p><u>EIS Guidelines Reference (CEAA 2012):</u>                      8 Existing Environment: <i>“The EIS will also describe trends and conditions in the current environmental setting. The description shall be in sufficient detail to permit the identification, assessment and a determination of the significance of potentially adverse environmental effects that may be caused by the Project...”</i></p> <p>9.1 Assessment Methodology: <i>“All hypotheses and assumptions should be clearly identified and justified...All conclusions regarding the receiving environment and predictions as well as the assessment of environmental effects should be substantiated...The EIS should identify all significant gaps in knowledge and explain their relevance to key conclusions drawn. The EIS should indicate the measures applied to address these gaps. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from Aboriginal traditional knowledge or community knowledge, the EIS should present the various points of view as well as a statement outlining the proponent’s conclusions. The consideration of views from the public and Aboriginal groups, including perceived changes attributed to the Project, must be recognized and addressed in the assessment method.”</i></p>		

**Preamble**

The Partnership was asked to provide evidence regarding caribou site fidelity. The Partnership provides quantitative evidence for caribou utilizing calving habitat during construction within 2-4 km of access roads and borrow areas for the Wuskwatim project. However, the Partnership was also asked to provide evidence that caribou return to an area once disturbance ends. This particular statement regarding the return of displaced caribou has yet to be confirmed as indicated in the Partnerships response regarding post-construction monitoring: *“Post-construction monitoring for the Wukswatim Generation Project has recently begun and no results are available at this time”*. The Partnership also acknowledges that *“The level of disturbance expected during construction could change animal distributions and influence migration rates”*. This is corroborated by Mahoney and Schaefer (2002) who concluded that hydroelectric development caused disruption of migration during construction and in the longer-term diminished caribou use of the range surrounding a project site.

A monitoring program will have to confirm the impact prediction regarding the return of displaced caribou. Without any supporting evidence, the Métis should be cautious about accepting the impact prediction and about their expectations regarding the return of caribou to the Project area in the long-term, particularly given the KCN observation that caribou are only now just returning to the local region since Kettle GS was constructed (38 years later).

**Recommendations**

We recommend caution in accepting the predicted negligible to small impacts of Project related disturbance on caribou, particularly over the long-term. In this case, we are left heavily reliant on monitoring programs and adaptive management actions, should they be necessary.

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs.

We recommend that Recommendation 13.2 from the CEC Report on Public hearing for the Bipole III Transmission Project (CEC 2013) be fulfilled: “Manitoba Hydro, in cooperation with the Manitoba Government, conduct a Regional Cumulative Effects Assessment for all Manitoba Hydro projects and associated infrastructure in the Nelson River subwatershed; and that this be undertaken prior to the licensing of any additional projects in the Nelson River sub-watershed after the Bipole III Project.”

<b>MMF-IR-005 / 0044</b>	<i>Caribou – access – construction &amp; operations</i>	
<b>EIS Volume #:</b> TE-SV-7.0	<b>Chapter/Section #:</b> Section 7.4.6.2.1, 7.4.6.2.2	<b>Pages #(s):</b> p. 7-113, 7-116, 7-121
<u>Keeyask Generation Project Scoping Document Reference (KHL P 2011):</u> Attachment C: “The Keeyask Generation Project (the Project) involves the operation of the following permanent infrastructure constructed as part of the Keeyask Infrastructure Project (KIP): North access road, including a clear-span bridge over Looking Back Creek and an upgrade at the intersection of the road.” (Attachment C, Scoping Document); 5.1 Project Effects: <i>In reporting on the assessment of potential environmental effects, the EIS will describe the approach and methods used to identify and assess the effects, and it will also provide a record of assumptions and analyses that support the conclusions.</i> <u>EIS Guidelines Reference (CEAA 2012):</u> 9.1 Assessment Methodology: <i>“All hypotheses and assumptions should be clearly identified and justified. All data collection methods, models and studies should be documented so that the analyses are transparent and reproducible. The degree of uncertainty, reliability and sensitivity of models used to reach conclusions should be indicated.”</i>		

### Preamble

Under the operations scenario, both the north and south roads are considered and the EIS predicts that the risk of wildlife-vehicle collisions is unlikely to change (TE-SV-7.0, Section 7.4.6.2.2, p. 7-121). It appeared that the north access road was not considered as an impact on sensory disturbance and mortality for caribou during construction. However, this was a typographical error and the Partnership clarified that the north access road was considered as a potential source of impact on sensory disturbance and mortality for caribou during construction.

### Recommendations

Issue resolved. No recommendations.

<b>MMF-IR-006 / 0045</b>	<i>Summer resident caribou – impact prediction rationale</i>	
<b>EIS Volume #:</b> TE-SV-7.0 R to EIS	<b>Chapter/Section #:</b> Section 7.4.6.2.1 Chapter 6, Section 6.5.8.1.1	<b>Pages #(s):</b> p. 7-117 p. 6-369
<u>Keeyask Generation Project Scoping Document Reference (KHL P 2011):</u>		

5.1 Project Effects: *“In reporting on the assessment of potential environmental effects, the EIS will describe the approach and methods used to identify and assess the effects, and it will also provide a record of assumptions and analyses that support the conclusions.”*

EIS Guidelines Reference (CEAA 2012):

8.2.2 Terrestrial Environment: *“The EIS will describe the following attributes in the applicable study area(s):*

- *fragmentation resulting from human linear features and other human footprints;*
- *distribution of linear features by feature type; and*
- *distribution and abundance of core areas.”*

9.1 Assessment Methodology: *“All hypotheses and assumptions should be clearly identified and justified. All data collection methods, models and studies should be documented so that the analyses are transparent and reproducible. The degree of uncertainty, reliability and sensitivity of models used to reach conclusions should be indicated.”*

9.4 Determination of the Significance of Residual Effects: *“The proponent shall also address the degree of scientific uncertainty related to the data and methods used within the framework of its environmental analysis.”*

### **Preamble**

The Partnership predicts that the effect of habitat disturbance on summer resident caribou is predicted to be adverse but small. This conclusion was reached, in part, using a 65% undisturbed habitat benchmark (intactness), as recommended in the caribou recovery strategy (Environment Canada 2012). Other factors contributing to this conclusion include physical habitat loss (including calving and winter habitat), linear feature density, and gray wolf density.

With respect to intactness, the Partnership presents calculations of disturbed habitat based on Study Zone 6 (Regional Study Area (RSA)) and Study Zone 5, making adjustments to the calculation method based on Environment Canada (2012). Study Zone 5 is described as being more appropriate to assess changes in intactness on a summer resident caribou population hypothesized to be boreal woodland caribou, while Study Zone 6 is chosen as the regional study area for all caribou types to account for the large ranges of migratory herds. Overall, there is uncertainty regarding the exact core range of summer resident caribou and uncertainty as to whether they are coastal, boreal woodland, or a mixture of both caribou types. The amount of undisturbed habitat with the Project within Zone 5 is 63.9% (36.1% disturbed) and within Zone 6 is 65.8% (34.2% disturbed) (CEC Rd 1 MMF-0006b). Depending on how the summer resident caribou herd is defined, the impact of the project either results in an exceedence of the EC threshold (Zone 5 calculation) or close to an exceedence (Zone 6 calculation). Given that:

- the amount of undisturbed habitat available in Zone 5 is below the recommended 65% in the recovery strategy
- the amount of undisturbed habitat available in Zone 6 is within 0.8% of the recommended 65% in the recovery strategy
- the uncertainty regarding the exact core range of summer resident caribou and uncertainty as to whether they are coastal, boreal woodland, or a mixture of both caribou types

there could be significant negative repercussions on the long-term viability of the summer resident caribou population.

According to Environment Canada (2012), the disturbance management threshold (65% undisturbed habitat) “marks the point below which (i.e., at lower levels of disturbance) range conditions are likely to meet the recovery goal with an acceptable level of risk”. In Environment Canada’s (2012) report, less than 65% undisturbed habitat corresponds to a “Moderate” level of risk and a population being “as likely as not” to achieve stable or positive population growth. In other words, the 65% undisturbed habitat threshold is a minimum threshold “because at 65% undisturbed habitat there remains a significant risk (40%) that local populations will not be self-sustaining.” (Environment Canada 2012). The Métis must consider the possibility that, given the uncertainty surrounding the impact prediction for summer resident caribou, the Keeyask project could significantly, negatively affect the long-term viability of the population.

**Recommendations**

We recommend the Métis determine what is considered a significant impact based on their view of resource use and what level of uncertainty (risk) they are willing to accept. (i.e., are the Métis satisfied with a summer resident caribou population that may or may not have stable or positive growth with the project?)

<b>MMF-IR-007 / 0046</b>		<i>Caribou – water level fluctuations - operations</i>	
<b>EIS Volume #:</b> TE-SV-7.0 FLCN 2012	<b>Chapter/Section #:</b> Section 7.4.6.2.2	<b>Pages #(s):</b> p. 7-121 to 7-122 p. 78-79	
<u>Keeyask Generation Project Scoping Document Reference (KHL P 2011):</u> 5.1 Project Effects: “In reporting on the assessment of potential environmental effects, the EIS will describe the approach and methods used to identify and assess the effects, and it will also provide a record of assumptions and analyses that support the conclusions.” <u>EIS Guidelines Reference (CEAA 2012):</u> 9.2 Mitigation Measures: “The proponent shall describe the technically and economically feasible mitigation measures and that will be applied throughout the implementation of the Project. The proponent shall describe its environmental protection plan and its environmental management system, through which it will deliver the plan. This section of the EIS describe how potentially adverse environmental effects would be minimized and managed over time...The EIS shall specify the actions to be employed during implementation of the Project including all project components (construction, operation, maintenance, decommissioning, reclamation or other undertaking related to the project) to eliminate or reduce the significance of adverse effects.”			

**Preamble**

The Partnership was asked to provide evidence from monitoring programs that would support conclusions that an altered ice regime is not anticipated to result in an increase in caribou drowning and to describe mitigation measures proposed to manage impacts of an altered ice regime on caribou mortality. The Partnership does not have any technical monitoring data from existing Generating Stations that could be used to evaluate the conclusion regarding altered ice conditions on caribou. In addition, the Partnership indicates that “There is no mitigation proposed that addresses potential impacts of an altered ice regime on caribou mortality, since no population-level effects as a result of accidents are expected from the reservoir, and since ice conditions in Stephens Lake downstream of Keeyask are not expected to change.” (CEC Rd I MMF 007a). When asked to clarify what would be considered a “population-level effect” on summer resident caribou, the

Partnership states that “Given the uncertainty regarding the affiliation or herd status of summer resident caribou, it is not possible to speak with high certainty with regard to population-level effects on these animals” (CEC-MMF-0046a). As a result, there is uncertainty regarding caribou mortality as it relates to an altered ice regime and there is no proposed mitigation for this potential effect.

The Partnership was asked to explain the likelihood of dam failure and the potential impact on caribou. The response we were referred to indicates that dam failure is “extremely unlikely” and does not discuss any impacts on caribou. A description of the impact of dam failure on caribou may be of interest to the MMF despite the fact that it is “extremely unlikely” to occur.

### Recommendations

Given the uncertainty associated with conclusions regarding caribou mortality due to an altered ice regime, we recommend that monitoring of caribou river crossing locations from winter 2013 be implemented to confirm the impact prediction (Caribou River Crossings Winter 2013, Map 7-22, Updated Caribou Sections Supplemental Filing July 2013, <http://keeyask.com/wp/wp-content/uploads/2013/07/02-Supplemental-Caribou-Information.pdf>). Currently, the Partnership only commits to investigate reported caribou drownings (CEC Rd I MMF 0046b).

<b>MMF-IR-008 / 0047</b>	<i>Caribou – hunting impact and mitigation</i>	
<b>EIS Volume #:</b> TE-SV-7.0	<b>Chapter/Section #:</b> Section 7.4.6.2.2	<b>Pages #(s):</b> p. 7-121
<u>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</u> 5.1 Project Effects: “Measures to mitigate potential effects that are technically and economically feasible will be identified. Potential effects that remain after the application of mitigation measures will be considered to be potential residual effects; <u>EIS Guidelines Reference (CEAA 2012):</u> 6.2.1 Determination of Valued Ecosystem Components (VECs): “The proponent shall also demonstrate how traditional Aboriginal knowledge has been integrated with western science in the identification and analysis of VECs.”...” The proponent must also indicate the specific geographical areas or ecosystems that are of particular concern to interested parties, and the relationship of these areas to the broader regional environment and economy.” 7.2 Aboriginal Consultation: “The proponent will actively solicit Aboriginal concerns from groups other than the Keeyask Cree Nations during the course of the EA. The proponent will examine opportunities to mitigate the adverse effects of the Project on Aboriginal groups’ current use of lands and resources for traditional purposes and other Aboriginal interests.” 9.1.3 Potential Effects on Aboriginal Groups: ...the proponent will identify “effects of the Project may have on current use of lands and resource for traditional purposes by Aboriginal peoples, including but not limited to hunting, fishing, navigation, trapping, gathering, cultural and other traditional uses of the land (e.g. collection of medicinal plants, use of sacred sites), as well as related effects on lifestyle, culture and quality of life of Aboriginal groups and measures to avoid, mitigate, compensate or accommodate effects on traditional uses;”		

### Preamble

The Partnership was asked to describe how the effect of harvest on caribou populations differs between barren-ground and summer resident caribou. The Partnership provides details on the effect of harvest on the different caribou populations. The assessment does not consider Métis traditional use because “to date caribou have not been explicitly identified as a large game species

harvested by Métis in any location in the Resource Use Regional Study Area.” (CEC Rd I MMF 008b). The Partnership was also asked if the impact assessment for caribou would be revisited and how residual adverse effects of harvesting on caribou populations would be offset for the Métis, should the Métis-specific TLUKS indicate traditional use of caribou in the Keeyask region. In response, the Partnership “remains committed to considering” (CEC Rd 2 MMF 0047b) information provided by the Métis on traditional use of resources in the Keeyask region. It is unclear if the Partnership would consider a reassessment of project impacts to caribou upon receipt of the Métis TLUKS. The Partnership has not determined the impacts on Métis traditional resources and interests as perceived by the Métis. The Partnership has not proposed any measures to manage, mitigate, or compensate effects of the Project on Métis-specific traditional resource use and interests.

### Recommendations

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs.

<b>MMF-IR-009 / 0048</b>	<i>Caribou mitigation – construction &amp; operations</i>	
<b>EIS Volume #:</b> TE-SV-7.0	<b>Chapter/Section #:</b> Sections 7.4.2.1.4, 7.4.6.2.1, 7.4.6.2.2, 7.4.6.2.3	<b>Pages #(s):</b> p. 7-90, 7-117, 7-121 to 7-124, Map 7-27
R to EIS	Chapter 6, Section 6.5.8.1.1	p. 6-371
R to EIS	Chapter 4, Section 4.6.3	p. 4-34
R to EIS	Chapter 6, Section 6.5.8	p. 6-367
Project Description SV	Section 3.3.2	p. 3-14
<b>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</b>		
5.1 Project Effects: “Measures to mitigate potential effects that are technically and economically feasible will be identified. Potential effects that remain after the application of mitigation measures will be considered to be potential residual effects;”		
<b>EIS Guidelines Reference (CEAA 2012):</b>		
9.2 Mitigation Measures: “The proponent shall describe the technically and economically feasible mitigation measures and that will be applied throughout the implementation of the Project. The proponent shall describe its environmental protection plan and its environmental management system, through which it will deliver the plan. This section of the EIS describe how potentially adverse environmental effects would be minimized and managed over time...The EIS shall specify the actions to be employed during implementation of the Project including all project components (construction, operation, maintenance, decommissioning, reclamation or other undertaking related to the project) to eliminate or reduce the significance of adverse effects.”		
12.2 Follow-Up Program: “Follow up programs provide an excellent opportunity to monitor the implementation of commitments made as part of the Aboriginal consultation process. RAs may include conditions in authorizations, permits, contracts, leases or other binding documents that relate to specific mitigation and follow-up measures related to the approval meant to accommodate adverse impacts to Aboriginal rights.”		

### Preamble

The Scoping Document (Section 5.1) sets out that measures to mitigate potential effects that are technically and economically feasible will be identified, but more specific details are required to

understand how Project impacts might be managed. . The EIS indicates a “*high confidence*” (TE-SV-7.0, Section 7.4.6.2.3, p. 7-124) in the ability to mitigate and manage potential Project effects on caribou, yet details of some mitigation measures will not be available until after construction has started. It is difficult to understand residual Project effects (and conclusions regarding the magnitude, extent, duration, and direction of residual effects) without a complete understanding of the proposed mitigation measures and the effectiveness of those measures. Targets or definitions of mitigation success are not provided. The Partnership indicates that several mitigation and follow-up actions will be addressed as follows:

- the upgraded and permanent north and south access roads are within the mandate of Manitoba Conservation and Water Stewardship (MCWS) during operations phase
- where caribou are present within the reservoir area during scheduled clearing, MCWS will be consulted for advice
- MCWS will be consulted for advice prior to blasting if caribou are present in immediate blasting areas
- areas in which debris is present or accumulating will be identified so that management activities may be prioritized and affected groups can request debris removal in Keeyask waterways
- coordination of caribou mitigation and monitoring activities would be available to the Métis for review. The Partnership directs us to a preliminary draft of the Terrestrial Effects Monitoring Plan (TEMP) and indicates that a Terrestrial Mitigation Implementation Plan would be forthcoming once construction is underway
- Keeyask Cree Nations (KCNs) are working with Manitoba Hydro to develop community-specific ATK monitoring programs for the project (CEC Rd 2 MMF 0048a). It is not apparent if a similar opportunity is available for the Métis
- operations phase monitoring activity associated with study zones 1, 2, 3, 4, 5, and 6, which includes the north and south access roads, will be conducted by the Partnership (CEC Rd 2 MMF 0048g) even though Manitoba Infrastructure and Transportation (MIT) will assume responsibility for the north and south access roads once construction is completed.

### **Recommendations**

We recommend that the Métis have the opportunity to work with MCWS in the development and implementation of mitigation measures relating to:

- effects on caribou as a result of increased access for the operations phase of the Project.
- effects on caribou during reservoir clearing.
- effects on caribou during blasting activities.

We recommend that the Métis have the opportunity to work with the Partnership and develop Métis community-specific ATK monitoring programs for the project.

We recommend the Métis community be made aware that requests for debris-removal can be submitted and will be considered by the Partnership.

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs. Quantitative targets that define mitigation success need to be established.

<b>MMF-IR-010 / 0049</b>		<i>Moose – sensory disturbance - construction</i>	
<b>EIS Volume #:</b> TE-SV-7.0 R to EIS	<b>Chapter/Section #:</b> Section 7.4.6.3.1 Chapter 6, Section 6.5.8.2.1	<b>Pages #(s):</b> p. 7-116 p. 6-378, Map 6-68	
<u>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</u> 5.1 Project Effects: <i>In reporting on the assessment of potential environmental effects, the EIS will describe the approach and methods used to identify and assess the effects, and it will also provide a record of assumptions and analyses that support the conclusions.”</i>			
<u>EIS Guidelines Reference (CEAA 2012):</u> 9.2 Mitigation Measures: <i>“The EIS shall specify the actions to be employed during implementation of the Project including all project components (construction, operation, maintenance, decommissioning, reclamation or other undertaking related to the project) to eliminate or reduce the significance of adverse effects. This should include monitoring activities that will be undertaken to evaluate the effectiveness of mitigation and the need for management response (adaptive management).”</i>			
12.2 Follow-Up Program: <i>“Follow up programs provide an excellent opportunity to monitor the implementation of commitments made as part of the Aboriginal consultation process. RAs may include conditions in authorizations, permits, contracts, leases or other binding documents that relate to specific mitigation and follow-up measures related to the approval meant to accommodate adverse impacts to Aboriginal rights.”</i>			

### Preamble

The EIS concludes that sensory disturbance on moose in the LSA are expected to be negligible to small. In response to our request, the Partnership directed us to the Mammal Monitoring Investigations for the Wuskwatim Generation Project Pre-construction and Construction Report (2004-2009; Wuskwatim 2011). This report indicates that there was no significant difference in moose activity adjacent to roads during road construction.

For the Keeyask Project, the northern access road appears to be within the largest concentration of primary moose habitat in the LSA (R to EIS, Map 6-68) and will be the primary access during construction of the GS (TE-SV-7.0, Section 7.4.6.2.1, p. 7-116). The Partnership indicated that *“the association between construction traffic and the use of habitat by moose near roads, including the north access road”* was considered in the EIS (CEC Rd 2 MMF 0010b).

Neumann et al (2013) suggests that moose may only select for habitat near roads during times when traffic volumes are generally lower. Therefore, periods of heavy road traffic could result in loss of effective habitat for moose (i.e., by avoidance of roads). Spatio-temporal patterns in moose movement in relation to roads were also found by Eldegard et al (2012). Moose moved closer to roads at night and closer to smaller roads, both movements due to lower traffic volumes. Moose have also been noted to present a seasonal response to roads. Moose crossed roads less frequently in the summer (Beyer et al. 2013) and were found further from roads in the summer during periods of higher food availability (Eldegard et al. 2012). Therefore, moose

exhibit behavioural adaptations to cope with roads and traffic and these adaptations can contribute to loss of effective habitat, particularly if high quality habitat is located near roads, as in the case of the Keeyask project. Monitoring programs will have to confirm impact predictions for moose during construction. The Métis should have the opportunity to meaningfully participate in the development and implementation of mitigation measures and a monitoring program.

### Recommendations

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects on moose through the design and implementation of mitigation measures and monitoring and follow-up programs.

<b>MMF-IR-011 / 0050</b>	<i>Moose – hunting impact and mitigation – construction &amp; operations</i>	
<b>EIS Volume #:</b> TE-SV-7.0 R to EIS	<b>Chapter/Section #:</b> Sections 7.3.6.4.3, 7.4.6.3.2 Chapter 6, Sections 6.5.8.2.1, 6.5.8.2.3	<b>Pages #(s):</b> p. 7-75, Table 7-26, 7-130 p. 6-379, 6-381
<p><u>Keeyask Generation Project Scoping Document Reference (KHL P 2011):</u>                      5.1 Project Effects: <i>“Measures to mitigate potential effects that are technically and economically feasible will be identified. Potential effects that remain after the application of mitigation measures will be considered to be potential residual effects;”</i></p> <p><u>EIS Guidelines Reference (CEAA 2012):</u>                      6.2.1 Determination of Valued Ecosystem Components (VECs): <i>“The proponent shall also demonstrate how traditional Aboriginal knowledge has been integrated with western science in the identification and analysis of VECs.”...” The proponent must also indicate the specific geographical areas or ecosystems that are of particular concern to interested parties, and the relationship of these areas to the broader regional environment and economy.”</i></p> <p>7.2 Aboriginal Consultation: <i>“The proponent will actively solicit Aboriginal concerns from groups other than the Keeyask Cree Nations during the course of the EA. The proponent will examine opportunities to mitigate the adverse effects of the Project on Aboriginal groups’ current use of lands and resources for traditional purposes and other Aboriginal interests.”</i></p> <p>9.1.3 Potential Effects on Aboriginal Groups: ...the proponent will identify <i>“effects of the Project may have on current use of lands and resource for traditional purposes by Aboriginal peoples, including but not limited to hunting, fishing, navigation, trapping, gathering, cultural and other traditional uses of the land (e.g. collection of medicinal plants, use of sacred sites), as well as related effects on lifestyle, culture and quality of life of Aboriginal groups and measures to avoid, mitigate, compensate or accommodate effects on traditional uses;”</i></p>		

### Preamble

The original IR asked about mitigation for the potential increase in harvesting pressure on moose due to increased access. The Partnership responded that Adverse Effects Agreement (AEA) offsetting programs are expected to reduce hunting pressures and redistribute KCNs domestic hunting activity over a larger land base. According to the Partnership, two types of Project-related monitoring are expected to capture the effects of the Project (both direct and indirect) on moose populations:

- “Monitoring Plans associated with the Partnership’s Environmental Protection Program, including the Terrestrial Effects Monitoring Plan (TEMP) and the Resource Use Monitoring Plan (RUMP), and
- The CNP Moose Harvest Sustainability Plan (MHSP).” (CEC Rd 2 MMF 0050).

It appears that the above mentioned monitoring plans have been designed in coordination with KCNs. It is not clear how Métis participation will fit into this design, including opportunities, responsibilities, and roles for Métis members with respect to harvest mitigation and monitoring. It is not clear how Métis requirements will be reconciled with KCN requirements, if necessary. Furthermore, the details of exactly how offsetting programs will function are still lacking, particularly with respect to Métis.

At the time of Round 2 responses, the MHSP was still being finalized through a community-approval process. A draft *Moose Harvest Sustainability Plan* was provided in October 2013. It does not appear that any Métis moose harvest information was incorporated into the MHSP. Preliminary results of the Métis TLUKS indicate Métis moose harvesting areas in the Keeyask study area and the Split Lake Regional Management Area (SLRMA). As such, moose harvest numbers for the model in the MHSP may be underestimated which could result in an overestimate of available moose for sustainable harvest and subsequently could result in an unintentional overharvest in future years. In addition, it is likely that the redistribution of domestic hunting activity as a result of the AEA offsetting program has the potential to impact Métis harvesting activities in the SLRMA through increased moose hunting activity and pressure.

The Partnership was asked if the impact assessment for moose would be revisited and how residual adverse effects of harvesting on moose populations would be offset for the Métis, should the Métis-specific TLUKS indicate traditional use of moose in the Keeyask region. In response, the Partnership “*remains committed to considering*” (CEC Rd 2 MMF 0050) information provided by the Métis on traditional use of resources in the Keeyask region. It is unclear if the Partnership would consider a reassessment of project impacts to moose upon receipt of the Métis TLUKS. The Partnership has not determined the impacts on Métis traditional resources and interests as perceived by the Métis. The Partnership has not proposed any measures to manage, mitigate, or compensate effects of the Project on Métis-specific traditional resource use and interests.

### **Recommendations**

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects on moose through the design and implementation of mitigation measures and monitoring and follow-up programs. This should include MMF participation in the determination of quantitative targets and definitions of mitigation success.

We recommend Métis have the opportunity to contribute domestic harvest information, if available, for use in the MHSP.

We recommend a determination of significance of project impacts on Métis traditional resources and interests be done collaboratively through effective consultation between the Partnership and the MMF.

<b>MMF-IR-012 / 005 I</b>		<i>Moose mitigation – construction &amp; operations</i>
<b>EIS Volume #:</b>	<b>Chapter/Section #:</b>	<b>Pages #(s):</b>
TE-SV-1.0	Section 1.5.1	p. 1-31
TE-SV-7.0	Sections 7.4.6.3.1, 7.4.6.3.2, 7.4.6.3.3	p. 7-127, 7-130, 7-131
R to EIS	Chapter 6, Sections 6.5.8, 6.5.8.2.1, 6.5.8.2.3	p. 6-367, 6-379, 6-381
R to EIS		Map 4-10
Project Description SV	Chapter 4, Section 4	Map 2-22
<b>Keyask Generation Project Scoping Document Reference (KHLP 2011):</b>		
5.1 Project Effects: <i>“Measures to mitigate potential effects that are technically and economically feasible will be identified. Potential effects that remain after the application of mitigation measures will be considered to be potential residual effects;”</i>		
<b>EIS Guidelines Reference (CEAA 2012):</b>		
9.2 Mitigation Measures: <i>“The proponent shall describe the technically and economically feasible mitigation measures and that will be applied throughout the implementation of the Project. The proponent shall describe its environmental protection plan and its environmental management system, through which it will deliver the plan. This section of the EIS describe how potentially adverse environmental effects would be minimized and managed over time.”</i>		

### **Preamble**

The Scoping Document (Section 5.1) sets out that measures to mitigate potential effects that are technically and economically feasible will be identified, but more specific details are required to understand how Project impacts might be managed. The EIS indicates a “*high confidence*” (TE-SV-7.0, Section 7.4.6.3.3, p. 7-131) in the ability to mitigate and manage potential Project effects on moose, yet details of some mitigation measures will not be available until after construction has started. It is difficult to understand residual Project effects (and conclusions regarding the magnitude, extent, duration, and direction of residual effects) without a complete understanding of the proposed mitigation measures and the effectiveness of those measures. Targets or definitions of mitigation success are not provided.

With respect to the upgraded and permanent north and south access roads, the Partnership indicates that no mitigation measures directed at effects of increased access by resource users are planned during operations and that this is within the mandate of Manitoba Conservation and Water Stewardship (MCWS). The impact assessment on moose considered that mitigation measures implemented in the construction phase will apply to operation phase effects (CEC Rd 2 MMF 0048a). It is not clear if the Métis will be able to review and contribute to MCWS proposed mitigation activities specifically relating to effects on resources as a result of increased access. The Partnership indicates that the Métis have the opportunity to request access to the north and south roads as “*designated resource harvesters*”.

The Partnership was asked to describe mitigation measures or plans to address Métis-specific concerns regarding moose harvest. Please refer to discussions and recommendations in CEC Rd 1 MMF 0011a / CEC Rd 2 MMF 0050 above.

The Partnership was asked if the Métis will have the opportunity to contribute to the development of the TEMP and if the Métis will be alerted to any activities relating to monitoring plan development, implementation, and reporting. Please refer to recommendation in CEC Rd 1 MMF 0016b / CEC Rd 2 MMF 0055b below.

With respect to the off-system marsh mitigation, the Partnership did not provide evidence that would support the prediction that a 100 m buffer on either side of the road will result in an unsubstantial increase in the risk of moose-vehicle collisions. Given that there may be “*more [moose] activity in primary habitat near roads (Yost and Wright 2001; Laurian et al. 2008)*” (CEC Rd 1 MMF 0010b) and that the wetland continues on either side of the road, road crossings by moose may be more likely at the location of the off-system marsh despite the 100 m buffer. Also, according to Eldegard et al (2012), moose moved closer to roads at night. Moose-specific mitigation measures could be implemented at this location.

Please also refer to discussion and recommendations in CEC Rd 1 0009g / CEC Rd 2 0048g regarding the TEMP and Terrestrial Mitigation Implementation Plan.

**Recommendations**

We recommend that the Métis have the opportunity to work with MCWS in the development and implementation of mitigation measures relating to effects on moose as a result of increased access for the operations phase of the Project.

We recommend Métis membership be made aware they have the opportunity to request access to the north and south roads as a “*designated resource harvester*”.

With respect to the off-system marsh mitigation, we recommend:

- Signage in this location to warn road users of potential moose crossings
- Lower night-time speed limits
- Monitoring success of mitigation.

**3.2.2 Monitoring, Follow-up, and Adaptive Management**

<b>MMF-IR-013 / 0052</b>	<i>Adaptive Management – Triggers</i>	
<b>EIS Volume #:</b> R to EIS	<b>Chapter/Section #:</b> Chapter 8, Section 8.1.3	<b>Pages #(s):</b> p. 8-7
<p><u>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</u> 7.0 Environmental Monitoring, Management and Follow-up: “<i>The monitoring programs will determine effects of the Project....To address relevant issues and concerns identified by KCN, other Aboriginal groups and other stakeholders; and To identify the role of KCN in implementing the plans.</i>”</p> <p><u>EIS Guidelines Reference (CEAA 2012):</u></p>		

9.2 Mitigation Measures: “The EIS shall specify the actions to be employed during implementation of the Project including all project components (construction, operation, maintenance, decommissioning, reclamation or other undertaking related to the project) to eliminate or reduce the significance of adverse effects. This should include monitoring activities that will be undertaken to evaluate the effectiveness of mitigation and the need for management response (adaptive management).”

12.1 Planning: “The finalization of detailed EMPs will occur through consultation with federal and provincial government agencies, Aboriginal groups, the public and other stakeholders. This may occur after the EA but must be consistent with the information presented in the EIS.”

12.2 Follow-Up Program: “Follow up programs provide an excellent opportunity to monitor the implementation of commitments made as part of the Aboriginal consultation process. RAs may include conditions in authorizations, permits, contracts, leases or other binding documents that relate to specific mitigation and follow-up measures related to the approval meant to accommodate adverse impacts to Aboriginal rights.”

### Preamble

The Partnership was asked how they intend to satisfy CEAA policy (CEAA 2009) regarding the development of adaptive management thresholds and if the MMF will have the opportunity to be involved in the development of thresholds. The Partnership argues that CEAA policy (CEAA 2009) does not require that adaptive management threshold be determined, but rather indicates that they “can be used to indicate when environmental performance is below an acceptable level and requires corrective management action” (CEC Rd 2 MMF 00521). The Partnership goes on to say that “in many cases it is not feasible to define specific measures at this time” and that the Partnership and regulatory authorities will assess variations in predicted and actual results identified through monitoring programs and will then determine mitigation adjustment and adaptive management actions (CEC Rd 2 MMF 00521). With respect to MMF involvement, the Partnership indicates that “The Partnership is responsible for developing and implementing monitoring and followup programs. At this time, the Partnership does not anticipate any role for the Manitoba Métis Federation (MMF) in the development of adaptive management thresholds associated with these programs.” (CEC Rd 2 MMF 0052).

CEAA Operational Policy on Adaptive Management states: “Aboriginal traditional knowledge, local community knowledge, and public participation are potentially important considerations that may influence the planning, design and implementation of adaptive management. It is important to understand communities' interests in the project and the potential role that they might wish to play in designing and implementing adaptive management strategies and follow-up programs.”...“Engaging local community members on a follow-up committee is one means to work together and monitor that mitigation is successfully implemented and any unforeseen environmental effects are identified and addressed through adaptive management measures that are then monitored” (CEAA 2009).

### Recommendations

We recommend a formal process be established for MMF participation in the management of Métis traditional resources. This includes involvement in the design and implementation of adaptive management strategies and follow-up programs, as per CEAA policy.

<b>EIS Volume #:</b> R to EIS	<b>Chapter/Section #:</b> Chapter 8, Section 8.2.3	<b>Pages #(s):</b> p. 8-23, 8-24
<p><u>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</u> 7.0 Environmental Monitoring, Management and follow-up: "The EIS will describe a preliminary outline of an environmental protection program for monitoring and managing the effects of the Project on the biophysical and socio-economic environments arising from the construction, operation, and decommissioning of the Project".</p> <p><u>EIS Guidelines Reference (CEAA 2012):</u> 9.2 Mitigation Measures: "The EIS shall specify the actions to be employed during implementation of the Project including all project components (construction, operation, maintenance, decommissioning, reclamation or other undertaking related to the project) to eliminate or reduce the significance of adverse effects. This should include monitoring activities that will be undertaken to evaluate the effectiveness of mitigation and the need for management response (adaptive management)." 12.2 Follow-Up Program: "The follow-up program shall include, at a conceptual level, a schedule indicating the frequency and duration of effects monitoring."</p>		

**Preamble**

The Partnership was questioned on the proposed temporal scope of monitoring programs for caribou and moose. They indicated that there is the opportunity for monitoring to be extended beyond the proposed 30 year timeframe should monitoring show deviations from benchmarks or uncertainties related to these effects.

**Recommendations**

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs. Quantitative targets that define mitigation success need to be established.

<b>MMF-IR-015 / 0054</b>		<i>Monitoring and Follow-up – Temporal Scale</i>
<b>EIS Volume #:</b> R to EIS	<b>Chapter/Section #:</b> Chapter 8	<b>Pages #(s):</b> p. 8-26
<p><u>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</u> 7.0 Environmental Monitoring, Management and follow-up: "The EIS will describe a preliminary outline of an environmental protection program for monitoring and managing the effects of the Project on the biophysical and socio-economic environments arising from the construction, operation, and decommissioning of the Project".</p> <p><u>EIS Guidelines Reference (CEAA 2012):</u> 9.2 Mitigation Measures: "The EIS shall specify the actions to be employed during implementation of the Project including all project components (construction, operation, maintenance, decommissioning, reclamation or other undertaking related to the project) to eliminate or reduce the significance of adverse effects. This should include monitoring activities that will be undertaken to evaluate the effectiveness of mitigation and the need for management response (adaptive management)." 12.2 Follow-Up Program: "The follow-up program shall include, at a conceptual level, a schedule indicating the frequency and duration of effects monitoring."</p>		

**Preamble**

The Partnership was questioned on the proposed temporal scope of monitoring programs for gray wolf. They indicated that there is the opportunity for monitoring to be extended beyond

the proposed 30 year timeframe should monitoring show deviations from benchmarks or uncertainties related to these effects.

### Recommendations

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs. Quantitative targets that define mitigation success need to be established.

<b>MMF-IR-016 / 0055</b>		<i>Monitoring and Follow-up – MMF Participation</i>	
<b>EIS Volume #:</b> TE-SV-7.0 R to EIS R to EIS	<b>Chapter/Section #:</b> Section 7.4.10 Chapter 5.0, Section 5.3.2.1 Chapter 8.0, Section 8.2.7	<b>Pages #(s):</b> p. 7-152 p. 5-7 p. 8-39	
<u>Keeyask Generation Project Scoping Document Reference (KHL P 2011):</u> 7.0 Environmental Monitoring, Management and Follow-up: <i>“The monitoring programs will determine effects of the Project....To address relevant issues and concerns identified by KCN, other Aboriginal groups and other stakeholders; and To identify the role of KCN in implementing the plans.”</i>			
<u>EIS Guidelines Reference (CEAA 2012):</u> 9.2 Mitigation Measures: <i>“The EIS shall specify the actions to be employed during implementation of the Project including all project components (construction, operation, maintenance, decommissioning, reclamation or other undertaking related to the project) to eliminate or reduce the significance of adverse effects. This should include monitoring activities that will be undertaken to evaluate the effectiveness of mitigation and the need for management response (adaptive management).”</i>			
12.1 Planning: <i>“The finalization of detailed EMPs will occur through consultation with federal and provincial government agencies, Aboriginal groups, the public and other stakeholders. This may occur after the EA but must be consistent with the information presented in the EIS.”</i>			
12.2 Follow-Up Program: <i>“Follow up programs provide an excellent opportunity to monitor the implementation of commitments made as part of the Aboriginal consultation process. RAs may include conditions in authorizations, permits, contracts, leases or other binding documents that relate to specific mitigation and follow-up measures related to the approval meant to accommodate adverse impacts to Aboriginal rights.”</i>			

### Preamble

The Scoping Document (Section 7.0) sets out that monitoring programs will address relevant issues and concerns identified by KCN, other aboriginal groups and other stakeholders. Unfortunately, neither the Scoping Document nor the EIS describe how relevant issues and concerns will be identified nor how Métis members will be involved.

With respect to MMF involvement, the Partnership indicates that *“The Partnership is responsible for developing and implementing monitoring and follow-up programs...At this time, the Partnership does not anticipate any role for the Manitoba Métis Federation (MMF) in the development or implementation of these programs.”* (CEC Rd 2 MMF 0055b).

CEAA Operational Policy on follow-up programs states: “Interested members of the public may be involved in the design and implementation of a follow-up program, as appropriate. Results of

the follow-up program should be conveyed to them. This is particularly important for large and potentially controversial projects” (CEAA 2011).

Please also refer to discussion and recommendations in CEC Rd 1 0013 / CEC Rd 2 0052 regarding MMF participation in adaptive management.

**Recommendations**

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs. The existing proposed process is vague and the Partnership only commits to "considering" information from the Métis.

We recommend that a concrete plan be developed for the dissemination of monitoring data and annual monitoring reports to the MMF. At a minimum, the MMF should be informed in a timely manner when monitoring data and annual monitoring reports are available for review.

<b>MMF-IR-017 / 0056</b>	<i>Monitoring and Follow-up - Details</i>	
<b>EIS Volume #:</b> R to EIS Preliminary Environmental Protection Program (EPP)	<b>Chapter/Section #:</b> Chapter 8	<b>Pages #(s):</b>
<p><u>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</u>            7.0 Environmental Monitoring, Management and follow-up: "The EIS will describe a preliminary outline of an environmental protection program for monitoring and managing the effects of the Project on the biophysical and socio-economic environments arising from the construction, operation, and decommissioning of the Project".</p> <p><u>EIS Guidelines Reference (CEAA 2012):</u>            12.1 Planning: "The finalization of detailed EMPs will occur through consultation with federal and provincial government agencies, Aboriginal groups, the public and other stakeholders. This may occur after the EA but must be consistent with the information presented in the EIS."            12.2 Follow-Up Program: "The EIS shall describe the proposed follow-up program plan in sufficient detail to allow independent judgment as to the likelihood that it will deliver the type, quantity and quality of information required to reliably verify predicted effects (or absence of them), and to confirm both the EA assumptions and the effectiveness of mitigation."</p>		

**Preamble**

The Partnership was asked to and did provide the TEMP for the Métis to review. In response CEC Rd 2 0048, the Partnership also indicates that a Terrestrial Mitigation Implementation Plan would be forthcoming. The Terrestrial Mitigation Implementation Plan was requested for review by the MMF once it became available. The Partnership responded that this plan will only be "developed once construction is underway and the actual extent of clearing and disturbance caused by construction of the Keeyask Generation Project are known" (CEC Rd 2 MMF 0048). As a result, specific and detailed information on some aspects of mitigation are not available until after project commencement. This makes it difficult for the Métis to gain a complete understanding of potential impacts to Métis TLU.

### Recommendations

To improve management of traditional resources, we recommend a formal process be established for MMF participation in the management of project effects through the design and implementation of mitigation measures and monitoring and follow-up programs. Quantitative targets that define mitigation success need to be established.

### 3.2.3 Cumulative Effects

<b>MMF-IR-018 / 0057</b>	<i>Cumulative Effects Assessment (CEA) – Lacking Clear Pre-disturbance Baseline</i>	
<b>EIS Volume #:</b> R to EIS	<b>Chapter/Section #:</b> Chapters 6 and 7	<b>Pages #(s):</b>
<p><u>Keyask Generation Project Scoping Document Reference (KHL P 2011):</u>                      5.2 Cumulative Effects: "The cumulative effects assessment will focus on VECs (as described in section 3.3.1) the may be adversely affected by the Project and will consider likely adverse effects caused by the other projects or human activities that overlap in time and space with those of the Project".</p> <p><u>EIS Guidelines Reference (CEAA 2012):</u>                      9.8 Cumulative Environmental Effects: "A cumulative environmental effect on a VEC may be important even if the assessment of the Project's environmental effects on this component reveals that the adverse residual environmental effect is insignificant... The EIS must describe the analysis of cumulative effects on identified VECs over the life of the Project, including the incremental contribution of all identified past, current and proposed projects and activities, in addition to that of the Project."</p>		

### Preamble

As requested, the Partnership provided historical information for moose and caribou. However, in CEC Rd 1 0004 / CEC Rd 2 0043, the Partnership was asked to provide evidence that caribou return to an area once disturbance ends, but this particular assertion regarding the return of displaced caribou has yet to be confirmed. We are left uncertain as to whether caribou distribution and abundance has returned to pre-disturbance conditions and uncertain as to what incremental impact the Keyask project may have on caribou distribution and abundance. Please refer to discussion and recommendations in CEC Rd 1 0004 / CEC Rd 2 0043 regarding pre-disturbance caribou distribution and abundance.

### Recommendations

See CEC Rd 1 0004 / CEC Rd 2 0043.

<b>MMF-IR-019 / 0058</b>	<i>Qualitative CEA</i>	
<b>EIS Volume #:</b> R to EIS R to EIS	<b>Chapter/Section #:</b> Chapter 6, Section 6.5.8.1.1 Chapter 7	<b>Pages #(s):</b> p. 6-137
<p><u>Keyask Generation Project Scoping Document Reference (KHL P 2011):</u>                      5.2 Cumulative Effects: "The cumulative effects assessment will focus on VECs (as described in section 3.3.1) the may be adversely affected by the Project and will consider likely adverse effects caused by the other projects</p>		

or human activities that overlap in time and space with those of the Project".  
EIS Guidelines Reference (CEAA 2012):  
 9.8 Cumulative Environmental Effects: "A cumulative environmental effect on a VEC may be important even if the assessment of the Project's environmental effects on this component reveals that the adverse residual environmental effect is insignificant... The EIS must describe the analysis of cumulative effects on identified VECs over the life of the Project, including the incremental contribution of all identified past, current and proposed projects and activities, in addition to that of the Project."

**Preamble**

The Partnership clarified that benchmark values for cumulative effects on VECs are the same as those for the effects assessment and discussed criteria used in regulatory significance determination. However, there is uncertainty surrounding the impact prediction for summer resident caribou and the long-term viability of the population which is discussed in detail in CEC Rd 1 0006b / CEC Rd 2 0045b. Likewise, there is uncertainty surrounding the cumulative effect of increased linear feature density on summer resident caribou which is discussed in detail in CEC Rd 1 0022 / CEC Rd 2 0061.

**Recommendations**

See CEC Rd 1 0006b / CEC Rd 2 0045b and CEC Rd 1 0022 / CEC Rd 2 0061.

<b>MMF-IR-020 / 0059</b>		<i>Cumulative Effects – Intactness</i>	
<b>EIS Volume #:</b> R to EIS	<b>Chapter/Section #:</b> Chapter 7, Section 7.5.2.2.1	<b>Pages #(s):</b> p. 7-28	
<u>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</u> 5.2 Cumulative Effects: "The cumulative effects assessment will focus on VECs (as described in section 3.3.1) the may be adversely affected by the Project and will consider likely adverse effects caused by the other projects or human activities that overlap in time and space with those of the Project". <u>EIS Guidelines Reference (CEAA 2012):</u> 1.4 Scope of Project for the Purpose of the EA: "In accordance with subsection 15(1) of the Act, the Keeyask Generation Project and the Keeyask Transmission Project will be considered to form a single project for the purpose of completing the comprehensive study." 8.2.2 Terrestrial Environment: "The EIS will describe the following attributes in the applicable study area(s): <ul style="list-style-type: none"> <li>• fragmentation resulting from human linear features and other human footprints;</li> <li>• distribution of linear features by feature type; and</li> <li>• distribution and abundance of core areas."</li> </ul> 9.8 Cumulative Environmental Effects: "A cumulative environmental effect on a VEC may be important even if the assessment of the Project's environmental effects on this component reveals that the adverse residual environmental effect is insignificant... The EIS must describe the analysis of cumulative effects on identified VECs over the life of the Project, including the incremental contribution of all identified past, current and proposed projects and activities, in addition to that of the Project."			

**Preamble**

The original IR requested clarification from the Partnership on how overlaying Project features on pre-existing cutlines would reduce the amount of linear disturbance leading to a positive effect on cumulative impacts. The Partnership acknowledges the offsetting negative effect in terms of reductions in core area size and number. It is worth noting that if the combined

incremental effect of the KIP, Keeyask GS, and Keeyask transmission project had been assessed as a single project, given that they are dependent upon each other, then some project effects of linear disturbance may indeed be significant. There is uncertainty surrounding the cumulative effect of increased linear feature density on summer resident caribou which is discussed in detail in CEC Rd I 0022 / CEC Rd 2 0061.

**Recommendations**

See CEC Rd I 0022 / CEC Rd 2 0061.

<b>MMF-IR-021 / 0060</b>	<i>CEA - Significance of cumulative effects</i>	
<b>EIS Volume #:</b> R to EIS	<b>Chapter/Section #:</b> Chapter 7, Section 7.5.2.2.3	<b>Pages #(s):</b> p. 7-29 & 7-30
<p><u>Keeyask Generation Project Scoping Document Reference (KHLP 2011):</u>                      5.2 Cumulative Effects: "The cumulative effects assessment will focus on VECs (as described in section 3.3.1) the may be adversely affected by the Project and will consider likely adverse effects caused by the other projects or human activities that overlap in time and space with those of the Project".</p> <p><u>EIS Guidelines Reference (CEAA 2012):</u>                      9.8 Cumulative Environmental Effects: "A cumulative environmental effect on a VEC may be important even if the assessment of the Project's environmental effects on this component reveals that the adverse residual environmental effect is insignificant... The EIS must describe the analysis of cumulative effects on identified VECs over the life of the Project, including the incremental contribution of all identified past, current and proposed projects and activities, in addition to that of the Project."</p>		

**Preamble**

The Partnership was asked to discuss the significance of total cumulative effects on caribou and moose in the presence and absence of the Project. Chapter 7 of the EIS primarily discusses Project specific effects relative to cumulative effects from past and current projects/activities, downplaying the importance of the total cumulative effect on the VEC in question. The Partnership explains that it assessed the incremental residual effects of the Project on each VEC in combination with the effects of past, current, and identified future project. However, there is uncertainty surrounding the impact prediction for summer resident caribou and the long-term viability of the population which is discussed in detail in CEC Rd I 0006b / CEC Rd 2 0045b. Likewise, there is uncertainty surrounding the cumulative effect of increased linear feature density on summer resident caribou which is discussed in detail in CEC Rd I 0022 / CEC Rd 2 0061. Furthermore, the Partnership has not determined, through collaboration with the Métis, the point at which adverse effects on Métis traditional resource use are deemed significant (please see CEC Rd I 0003a / 0042a for more details).

**Recommendations**

See CEC Rd I 006b / CEC Rd 2 0045b, CEC Rd I 0022 / CEC Rd 2 0061, and CEC Rd I 0003a / 0042a.

<b>MMF-IR-022 / 0061</b>	<i>Cumulative Effects – Future Projects</i>	
<b>EIS Volume #:</b>	<b>Chapter/Section #:</b>	<b>Pages #(s):</b>

R to EIS	Chapter 7, Section 7.5.2.3.3	p. 7-35
<p><u>Keeyask Generation Project Scoping Document Reference (KHL P 2011):</u>            5.2 Cumulative Effects: "The cumulative effects assessment will focus on VECs (as described in section 3.3.1) the may be adversely affected by the Project and will consider likely adverse effects caused by the other projects or human activities that overlap in time and space with those of the Project".</p> <p><u>EIS Guidelines Reference (CEAA 2012):</u>            9.8 Cumulative Environmental Effects: "A cumulative environmental effect on a VEC may be important even if the assessment of the Project's environmental effects on this component reveals that the adverse residual environmental effect is insignificant... The EIS must describe the analysis of cumulative effects on identified VECs over the life of the Project, including the incremental contribution of all identified past, current and proposed projects and activities, in addition to that of the Project."</p>		

**Preamble**

The original IR requested that literature or data be provided that would support the assumption that future increases in linear disturbance will not hinder movement or restrict the distribution of caribou in the region. The Partnership was asked and responded to clarification questions regarding the linear feature benchmark used for caribou and how linear feature density was calculated. However, a second part of the Round 2 IR was not addressed by the Partnership in their Round 2 response:

"The response from the Partnership states that *"Although avoidance of infrastructure development by caribou has been investigated by several research teams (i.e. Bradshaw et al. 1997; Wolfe et al. 2000; Dyer et al. 2001), the extent of avoidance of linear disturbances by boreal caribou remains poorly understood (Dyer et al. 2001; Scurrah and Schindler 2012)"*. The Partnership concludes that there is not enough research available to understand the potential impact of future transmission lines on caribou. Scurrah and Schindler (2012) summarizes the results of an expert workshop on boreal caribou attended by Manitoba Hydro staff, Manitoba Hydro consultants, and independent caribou experts. They recommend that long-term monitoring of populations be undertaken to understand the cumulative effects of linear development on caribou recruitment and mortality. The intention of the recommendation is to *"determine if there is a gradient effects of transmission line ROWs relative to range occupation and recruitment and if there is a negative response as a result of ROW development"*. The Keeyask Cumulative Effects Assessment (CEA) concludes small cumulative effect of increased linear feature density on caribou. Provincial and federal governments and multiple resource boards are working to manage and monitor all risks associated with range-wide cumulative effects associated with harvestable caribou populations (TE-SV-7.0, Section 7.4.8.2.3, p. 7-146). The Partnership intends to coordinate its monitoring activities with other stakeholders.

- Please describe and provide the status of any long-term studies (as recommended by Scurrah and Schindler 2012) that have been initiated that could improve the Partnerships understanding of cumulative effects of linear development on boreal caribou.
- Please describe and provide the status of any boreal caribou management, monitoring, and/or research initiatives that the Partnership is leading or collaborating on with stakeholders, governments or resource boards." (CEC Rd 2 MMF 061).

The MMF would still appreciate responses to these two outstanding IRs.

The Partnership appears to be reliant on the assumption that summer resident caribou will still cross transmission lines, but by their own words, the extent of avoidance of linear features by boreal caribou is still unknown. The Partnership does not provide any information on how its own data will add to and improve the knowledge of regional cumulative effects. The Partnership does not provide any information on how it will use the research results from government or resource boards to guide its operations.

### **Recommendations**

We recommend the Métis request responses to the two outstanding IRs:

- Please describe and provide the status of any long-term studies (as recommended by Scurrah and Schindler 2012) that have been initiated that could improve the Partnerships understanding of cumulative effects of linear development on boreal caribou.
- Please describe and provide the status of any boreal caribou management, monitoring, and/or research initiatives that the Partnership is leading or collaborating on with stakeholders, governments or resource boards.” (CEC Rd 2 MMF 0061).

We recommend the Métis determine what is considered a significant impact based on their view of traditional resources and what level of uncertainty (risk) they are willing to accept. (i.e., the Métis should consider that the EIS may underestimate the cumulative effect of increased linear feature density on summer resident caribou populations)

## **4.0 Closure**

The review of the selected biophysical components of the EIS for the Keeyask Generation Project reported herein presents the conclusions arrived at by MSES. Given our comments herein, we hope to gain further clarification on several details of the EIS to facilitate future deliberations by the MMF about the rigor of predictions and the ability of validating the predictions and effectively mitigating impacts of the Project on Métis traditional livelihoods.

## **5.0 Literature Cited**

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