

Keeyask Transmission Project Supplemental Information Request Responses



April 2013





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April 26, 2013

Bruce Webb
Environmental Approvals Branch
Manitoba Conservation and Water Stewardship
Suite 160, 123 Main Street
Winnipeg, MB R3C 1A5

Dear Mr. Webb:

Re: 5614.00 – Keeyask Transmission Project

Please find enclosed Manitoba Hydro's responses to supplemental information requests which were received from Darrell Ouimet on January 18th 2013.

We trust the enclosed responds appropriately to all information requests.

Should you have any questions or require further clarification of our comments and information requests please do not hesitate to contact me at 360-4394.

Yours truly,

A handwritten signature in black ink that reads 'Shannon Johnson'.

Shannon Johnson, Manager
Licensing & Environmental Assessment Department,
Transmission Planning & Design
Transmission

1 **REFERENCE: Volume: N/A; Section: Section 7.0 Effects Assessment**
2 **and Mitigation; Page No.: N/A**

3 **KTP-TAC Public Rd 1 CEAA-0001**

4 **PREAMBLE:**

5 The EAR is lacking a discussion and analysis on the effects of the environment on the
6 Project.

7 **QUESTION:**

8 CEAA requests that the proponent undertake an assessment of the effects of the
9 environment on the Project (e.g. severe weather events). For guidance on preparing this
10 assessment the proponent may wish to refer to the Environmental Impact Statement
11 Guidelines for the Keeyask Generation Project prepared by the Canadian Environmental
12 Assessment Agency in March 2012.

13 **RESPONSE:**

14 The main effects of the environment on the Project relate to high winds, ice accretion,
15 lightning and forest fires.

16 The Keeyask Transmission Project is not expected to be affected by other environmental
17 factors such as underlying geological conditions. Manitoba in general is an area of very
18 low seismicity. In particular, the Precambrian Shield, within which the Project is located,
19 is also of very low seismicity.

20 **Potential Effects**

21 Climate change effects on temperature, precipitation and evapotranspiration could
22 indirectly affect the Keeyask Transmission Project through facilitating the degradation of
23 permafrost, thereby affecting the substrate on which many transmission towers are
24 situated. Manitoba Hydro regularly patrols the transmission line and threats to tower
25 foundations would be detected and repaired.

26 Lightning is a natural condition that can potentially cause disruption of transmission.
27 Provisions such as electrical grounding facilities are in place to protect the Project.

28 Lightning can also cause forest fires. The Province has substantial experience in dealing
29 with forest fires in the general area, as forest fires are fairly common in the region.
30 There is low threat to the Project from forest fire.

31 The transmission line design allows for separation of lines on the tower and between
32 towers on the right-of-way such that there is protection from wind throw of the lines
33 and accidental arcing.

34 Manitoba Hydro has extensive experience in dealing with ice accretion on transmission
35 lines. It monitors the situation under icing conditions and has procedures to remove
36 problematic ice accretion.

37 The planning and design by Manitoba Hydro explicitly addresses potential effects that
38 the environment may have on the Keeyask Transmission Project, resulting in a low risk
39 to the Project itself from these factors, as well as a low risk to the environment and the
40 public.

1 **REFERENCE: Volume: KTP - Environmental Assessment Report;**
2 **Section: Chapter 7; Table 7-20; Page No.: 7-139**

3 **KTP-TAC Public Rd 1 DFO-0001**

4 **PREAMBLE:**

5 VEC - Fish Habitat - Residual Adverse Effects

6 **QUESTION:**

7 Details are required for water crossings proposed in the Keeyask Transmission Project.
8 Unclear as to what in water works are required. Proponent concludes impacts to fish
9 and fish habitat, but does not provide details of impacts or extent.

10 **RESPONSE:**

11 There is no in water work. Potential effects arise primarily from clearing of the riparian
12 area and stream crossings. Buffer Zones are set around waterbodies and work within
13 these areas is restricted.

14 Potential effects include:

- 15 • Increased erosion and sedimentation from riparian clearing
 - 16 ○ Mitigation includes only selective clearing permitted near waterways,
17 shrubs and grasses are left in place, only trees with the potential to
18 affect the Transmission Line are removed, therefore the potential for
19 erosion and sedimentation is minimal.
 - 20 ○ After mitigation, residual effect is potential increase in Total Suspended
21 Sediment downstream of the cleared area. Any potential increases will
22 be well within Water Quality Guidelines.
- 23 • Damage to the stream banks during river crossings. Stringing the conductor may
24 require machines to cross the river. Access down the banks may cause some
25 minor damage.
 - 26 ○ Mitigation includes the design and operation of all winter crossings as
27 per DFO Operational statement for Winter Crossings
 - 28 ○ Approach grades to waterbodies will be minimized to limit disturbance
29 to riparian areas.
 - 30 ○ After mitigation, residual effects will include slight rutting of the banks,
31 short disturbance of bank vegetation until it is reestablished.
- 32 • Loss of riparian vegetation.

- 33 ○ Mitigation includes only selective clearing permitted near waterways,
34 shrubs and grasses are left in place, only trees with the potential to
35 affect the Transmission Line are removed except at winter trail
36 crossings where all shrubs and trees are removed.

- 37 ○ Residual effect is a loss of large trees on both sides of the waterway for
38 the width of the ROW.

- 39 ○ All construction work and stream crossings are conducted under frozen
40 ground/water conditions.

1 **REFERENCE: Volume: N/A; Section: 2.5.3 - Access Roads and**
2 **Construction Camps; 2.5.4 - Transmission Line ROW Clearing and**
3 **Transmission Line Construction ; 4.1.1 - Terrain and Soils; 4.1.2 -**
4 **Groundwater; Page No.: 2-17, 2-18, 4-1, 4-3, 7-4**

5 **KTP-TAC Public Rd 1 EC-0001**

6 **PREAMBLE:**

7 Throughout the report and Appendix F it is mentioned that borrow materials will be
8 used in the construction of the access roads and other construction areas, however the
9 report does not clarify whether the Proponent plans to characterize the blast rocks,
10 quarry, and borrow pit materials to ensure they do not generate acid.

11 **QUESTION:**

12 EC requests that the Proponent confirm that any material used for the construction of
13 access roads, the construction of the foot print of the towers or any other use, does not
14 have the potential to generate acid.

15 **RESPONSE:**

16 The borrow material in the local area was subjected to Shake Flask Extraction tests,
17 which showed that all 25 water extractions associated with the granular materials were
18 neutral (lowest pH was 6.1) with sulfur concentrations below detection limits (<1 mg/L).
19 It was on this basis that the judgment was made that sulphide oxidation and acid
20 generation in borrow materials are expected to be negligible.

1 **REFERENCE: Volume: N/A; Section: 7.2.10 Birds; Page No.: 7-59 - 7-**
2 **61**

3 **KTP-TAC Public Rd 1 EC-0002**

4 **PREAMBLE:**

5 In this section the proponent indicates that "project activities will be restricted from
6 April 1 to July 31, to reduce the risk of nest destruction and sensory disturbance"; that
7 "searches for nests will be undertaken prior to spring or summer construction if the
8 timing of construction activity overlaps with sensitive time periods"; and that a 30m
9 setback distance would be applied for the nests of non-species at risk migratory birds, if
10 the timing of construction activity overlaps with sensitive time periods for breeding (p.
11 7-59). The proponent has also indicated that "vegetation management activities will be
12 limited from April to August 31 in areas where common nighthawk and other rare bird
13 species have the potential to occur" (p. 7-61). EC's mandate includes the protection of
14 migratory birds and their habitat. EC reminds the proponent of the federal Migratory
15 Birds Convention Act (MBCA) which protects migratory birds and their eggs and nests.
16 Section 5(1) of the Regulations prohibits the hunting of a migratory bird except under
17 authority of a permit. "Hunt" means chase, pursue, worry, follow after or on the trail of,
18 lie in wait for, or attempt in any manner to capture, kill, injure or harass a migratory
19 bird, whether or not the migratory bird is captured, killed or injured. Section 6 of the
20 regulations prohibits the disturbance, destruction, or taking of a nest, egg or nest
21 shelter of a migratory bird. Possession of a migratory bird, nest or egg without lawful
22 excuse is also prohibited. Section 5.1 of the MBCA prohibits the deposition of
23 substances harmful to migratory birds in waters or areas frequented by migratory birds,
24 or in a place from which the substance may enter such waters or such an area. EC's
25 website on Incidental Take ([http://www.ec.gc.ca/paom-](http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=FA4AC736-1)
26 [itmb/default.asp?lang=En&n=FA4AC736-1](http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=FA4AC736-1)) contains additional information as well as a
27 link to the MBCA and Regulations.

28 **QUESTION:**

29 EC requests that the Proponent confirm that they will include the month of August in
30 the habitat and wetland clearing/destruction avoidance period and to confirm that no
31 greater than one hectare in size will be cleared/destroyed if limited habitat destruction
32 must proceed during migratory bird breeding season.

33 **RESPONSE:**

34 As all clearing for the construction of the Keeyask Transmission Project is planned to
35 occur under frozen ground conditions (typically November to March) there are no
36 conflicts with the bird breeding season.

1 **REFERENCE: Volume: N/A; Section: 7.2.10 Birds; Page No.: 7-60**

2 **KTP-TAC Public Rd 1 EC-0003**

3 **PREAMBLE:**

4 The proponent has indicated that there will be permanent lighting at station sites. With
5 respect to any necessary security lighting on facilities and equipment, EC recommends
6 that this lighting is as minimal as possible, and be down-shielded to keep light within the
7 boundaries of the site. Consideration could also be given to turning these lights off at
8 night during migration, and during bad weather.

9 **QUESTION:**

10 EC requests that the Proponent discuss plans regarding lighting management on station
11 sites and other facilities.

12 **RESPONSE:**

13

14 Lighting used on the station and ancillary facilities will be limited to those fixtures
15 required for safety, security and operation requirements of the station. Two general
16 types of lights are utilized:

- 17 1. Ambient lights of approx 70-90 watts that are activated by photocells - These
18 lights cannot be turned off at night, as they are needed for performing
19 inspections, monitoring station equipment and, most importantly, to allow for
20 proper egress at the station in times of emergency. For similar safety reasons,
21 turning these lights off for extended periods, such as during inclement weather
22 or during migration, is not practicable.
- 23 2. Work lights of approx 120 to 500 watts that are activated by switch and angled
24 in a downward direction toward the work area to facilitate maintenance and
25 emergency repairs.

1 **REFERENCE: Volume: N/A; Section: 4.1.7 Amphibians and Reptiles;**
2 **4.1.8 Birds; 7.2.10 Birds; Page No.: 4-18, 4-24, 7-56, 7-59**

3 **KTP-TAC Public Rd 1 EC-0004**

4 **PREAMBLE:**

5 The EIS lists the Common Nighthawk, Olive-sided Flycatcher, Rusty Blackbird, Short-
6 eared Owl, Northern Leopard Frog, Little Brown Myotis, and Wolverine as species that
7 have been identified in the project area. In addition EC notes that Yellow Rail, and
8 Horned Grebe also have the potential to occur within the project area. On p. 7-59, the
9 proponent indicates that they will apply a setback distance of 300m for olive-sided
10 flycatcher, 200m for common nighthawk, and 100m for rusty blackbirds. The federal
11 Species at Risk Act (SARA) is directed towards preventing wildlife species from becoming
12 extinct or lost from the wild, helping in the recovery of species that are at risk as a result
13 of human activities, and promoting stewardship. The Act prohibits the killing, harming or
14 harassing of listed species; the damage and destruction of their residences; and the
15 destruction of critical habitat.

16 **QUESTION:**

17 EC requests that the Proponent confirm whether they intend to have an environmental
18 monitor on site during construction activities and the setbacks and timing restrictions
19 that will be used to avoid the nests of species at risk in the project area.

20 **RESPONSE:**

21 Manitoba Hydro intends to have Environmental/Construction Inspectors educated in
22 species at risk identification onsite during construction activities to monitor the
23 implementation of the Environmental Protection Plans as described in Appendix F –
24 Draft Environmental Protection Plan. Setbacks and timing restrictions are available in
25 Appendix F of the Draft Environmental Protection Plan. Manitoba Hydro will adjust the
26 Appendix F to reflect the following setbacks and timing windows for high intensity
27 activities for Species at Risk:

28 Canada warbler - May 1 to July 31 - 300 m

29 Common nighthawk -May 1 to August 31 - 200 m

30 Golden-winged warbler -May 1to July 31 - 300 m

31 Horned grebe -April 1 to August 31 - 100 m from the high water mark of the wetland or
32 waterbody containing the nest

33 Olive-sided flycatcher -May 1 to August 31 - 300 m

34 Whip-poor-will - May 1 to August 31 - 100 m

35 Rusty Blackbird – May 1 to July 31 – 300m.

1 **REFERENCE: Volume: KTP - Environmental Assessment Report;**
 2 **Section: 7.2.11 Mammals; Page No.: 7-70**

3 **KTP-TAC Public Rd 1 EC-0005**

4 **PREAMBLE:**

5 The EIS describes three groupings of caribou for the Project Study area: 1) barren-
 6 ground caribou from the Qamanirjuaq herd; 2) coastal caribou from the Pen Islands
 7 herd; and 3) "summer resident caribou" There are 6 geographically distinct populations
 8 of the forest-dwelling Woodland Caribou in Canada: Northern Mountain population,
 9 Southern Mountain population, Boreal population, Forest-Tundra population, Atlantic
 10 Gaspesie population, and the insular Newfoundland population. With the exception of
 11 the barren-ground caribou, EC considers the caribou in the project area to be part of the
 12 "forest-tundra" population, which are not SARA-listed and have not been assessed. EC
 13 notes that the project will result in the loss and alteration of caribou winter habitat, and
 14 that while no calving and rearing islands are directly affected by the project footprint,
 15 three islands occur with 2 km of the Keeyask Switching Station footprint (p. 7-70).
 16 Additionally, sensory disturbances associated with construction are expected to result in
 17 additional loss of effective winter habitat (p. 7-70), and a small loss of effective habitat
 18 in calving and rearing complexes near the Construction Power Transmission Line, Unit
 19 Transmission Lines, and the Generation Outlet Transmission Lines, including those in
 20 Stephens Lake (p. 7-71). Furthermore, the creation of cleared linear corridors
 21 (transmission line rights-of-way) are expected to increase both hunter and predator
 22 access to the project area (p. 7-71). EC encourages the proponent to consult with
 23 Manitoba Conservation to identify any plans to manage undisturbed caribou habitat in
 24 the project area. EC acknowledges the proponent plans to implement mitigation
 25 measures including:

- 26 • winter construction on transmission line (outside calving period) (p. 7-72);
- 27 • siting borrow areas to avoid calving and rearing complexes and reduce habitat loss
 28 (p. 7-72);
- 29 • routing access trails to avoid calving and rearing complexes and reduce effective
 30 habitat loss (p. 7-72);
- 31 • developing an Access Management Plan to reduce the effects on caribou mortality
 32 from increased access and harvest in the Project Area (p. 7-72);
- 33 • decommissioning right-of-way access trails, unless required for ongoing
 34 maintenance, to minimize access-related effects of harvest and predation (p. 7-76);
- 35 • avoiding the use of helicopters for maintenance activities on transmission lines near
 36 calving habitat from May 15 to June 30, to reduce effects of sensory disturbance on
 37 calving females and their young (p. 7-76); and

- 38 • monitoring of habitat alteration, use of calving and rearing islands, movement of
 39 caribou across the widest rights-of way, and harvest and predation effects
 40 associated with access (p.7-80).

41 In addition to these measures, EC recommends the reduction of sight lines along the
 42 access trails, and the continual restoration of project-related cleared areas, temporary
 43 transmission right of ways, trails, etc. as they are no longer in use. EC also recommends
 44 that the proponent consider additional mitigation measures (e.g., mitigation of noise,
 45 light, smells, vibrations; reduction of vehicle speeds, etc.) to minimize harassment of
 46 caribou in the project area, particularly from late winter to late spring and early
 47 summer, as this will be a stressful period for all of the caribou in the project area.

48 **QUESTION:**

49 EC requests that the Proponent discuss any plans to implement additional mitigation
 50 measures (e.g. mitigation of noise, light, smells, vibrations, reduction of vehicle speeds,
 51 etc.) to minimize harassment of caribou in the project area, particularly from late winter
 52 to late spring and early summer. EC requests that the Proponent discuss any plans to
 53 reduce sight lines along access trails and discuss restoration plans for project-related
 54 cleared areas, temporary transmission right of ways, trails, etc. EC also requests the
 55 Proponent discuss their plans to consult with the province.

56 **RESPONSE:**

57 Similar questions were asked concerning the Keeyask Generation Project. Please refer to
 58 TAC Public Rd 2 EC-003.

59 *Plans to reduce sight lines along access trails:*

60 Careful routing has minimized the need for the development of new access. Manitoba
 61 Hydro anticipates that very little new access development will be required. The
 62 transmission line Rights Of Ways (ROWs) will not require all-weather access. All access
 63 trails along the ROWs will remain seasonal with minimal improvements. Access during
 64 the construction and maintenance phases of the project will be managed by an Access
 65 Management Plan.

66 Aside from the above, a number of mitigation measures (that will in turn minimize the
 67 effects of access) have been identified by Manitoba Hydro specific to the construction,
 68 maintenance and decommissioning phases of the project, including:

- 69 • The location of the preferred routes for the GOT Transmission Lines and Unit
 70 Transmission Lines is located near the Keeyask Generation Project south access
 71 road, which minimizes the distance needed for any new access trails (if required);
 72 • Implementing buffers and setbacks from riparian areas (Section 7.2.4.1), and with
 73 limitations on clearing, can also function as wildlife corridors and line of sight
 74 barriers in some cases where shrub and tree growth is tall. The precise character
 75 and extent of buffer zones will be determined on a site-specific basis. In general,

- 76 existing (and potential future) tree heights will govern the amount of clearing that
 77 must be done in buffer zones to ensure the safe operation of the line.
- 78 • Limiting grubbing and winter clearing promotes vegetation re-growth, and
 79 eliminates sight lines on portions of trails (see KTP-TAC Public Rd 2 EC-0029; also see
 80 restoration plans for cleared areas and temporary trails below);
 - 81 • Vegetation management procedures (Section 2.6.1.3) that promotes vegetation re-
 82 growth will develop a stable, diverse, native species vegetation community. Portions
 83 of the ROW will allow taller shrub growth that will provide line-of-sight reductions;
 - 84 • Decommissioning of new access trails to the ROW when construction is complete if
 85 not required for maintenance access; and,
 - 86 • Creating line of sight barriers by developing indirect access routes onto the ROW if
 87 new access trails are needed.

88 *Discuss restoration plans for project-related cleared areas, temporary transmission right*
 89 *of ways, trails, etc.:*

90 As described in Keeyask Transmission Environmental Assessment Report Chapter 2,
 91 access for construction (and subsequent line maintenance) activities will generally occur
 92 along the right-of-way using existing public access roads or trails wherever possible. This
 93 enables maximum use of existing road access and minimizes the requirement for the
 94 development of new temporary trail access, and the associated environmental effects.

95 As described in the response to KTP-TAC Public Rd 2 EC-0029, cleared areas (including
 96 new trails) will be rehabilitated to native habitat types as quickly as is practicable after it
 97 is decided they are not required for Project operation. Since construction of temporary
 98 portions of the construction power line ROW involves winter clearing and no grubbing,
 99 this narrow band will be left for natural regeneration after removal of the temporary
 100 infrastructure.

101 *Plans to implement additional mitigation measures (e.g. mitigation of noise, light,*
 102 *smells, vibrations, reduction of vehicle speeds:*

103 Mitigation measures to minimize disturbance of caribou in the project area are
 104 discussed in the Keeyask Transmission Environmental Assessment Report (Section
 105 7.2.11.1) and the Mammals Technical Report (Section 5.2.2). Speed limits will be based
 106 on design criteria engineered to safely operate machinery and vehicles on temporary
 107 winter trails during construction. Minimizing the use of the trails by the public during
 108 construction via an Access Management Plan is expected to reduce traffic noise and
 109 exhaust during construction. As part of the Environmental Protection Plan, workers will
 110 be educated concerning the harassment of wildlife.

111 There are no plans to implement additional mitigation measures. Manitoba Hydro is
 112 willing to meet with Environment Canada and Manitoba Conservation and Water
 113 Stewardship to discuss other measures that could be used to reduce sensory
 114 disturbances (e.g., noise, light, smells, and vibrations) to caribou .

115 *Plans to consult with the province:*

116 Manitoba Hydro consults regularly with the Province concerning caribou, and is an
117 active partner participating on regional caribou committees and resource management
118 boards. Manitoba Hydro will be providing Environmental Protection Plans and
119 monitoring plans to the Province for review and approval. These plans include
120 mitigation measures for protection of caribou and other wildlife. The results of these
121 programs will be reported on annually and provided to Manitoba Conservation and
122 Water Stewardship and placed on the Projects website at [www.hydro .mb.ca](http://www.hydro.mb.ca).

1 **REFERENCE: Volume: KTP - Environmental Assessment Report;**
2 **Section: 7.2.9 Amphibians and Reptiles; Appendix F Table 28; Page**
3 **No.: 7-50; 3-35**

4 **KTP-TAC Public Rd 1 EC-0006**

5 **PREAMBLE:**

6 The proponent has indicated that they will retain a vegetated buffer around wetlands
7 and streams (7, 15 and 30 m), (p. 7-50) and, in Appendix F, Table 28, the proponent has
8 also indicated that project activities will avoid wetland areas to the extent possible.
9 Wetlands provide important habitat for both migratory birds and Species at Risk. EC
10 promotes the maintenance of the functions and values derived from wetlands
11 throughout Canada, enhancement and rehabilitation of wetlands in areas where
12 continuing loss or degradation of wetlands have reached critical levels, no net loss of
13 wetland functions for federal lands and waters, the recognition of wetland functions in
14 resource planning and economic decisions, and utilization of wetlands in a manner that
15 enhances prospects for their sustained and productive use by future generations. EC
16 recommends that the proponent take all reasonable measures to avoid wetlands, where
17 feasible, irrespective of whether they are wet or dry, and that buffers or setbacks
18 originate from the one in one hundred year high water mark. One hundred metre
19 setbacks should be utilized from the edge of the proposed development or associated
20 feature (e.g., access route) where feasible. EC refers the Proponent to 'The Federal
21 Policy on Wetland Conservation' which promotes the wise use of wetlands and elevates
22 concerns for wetland conservation to a national level. EC recommends that the
23 Proponent review this document to provide further guidance on reducing impacts to
24 wetlands.

25 **QUESTION:**

26 EC requests that the Proponent confirm the use of appropriate setbacks from wetlands
27 and discuss, for those wetlands where avoidance is not possible, what mitigation and
28 compensation measures will be implemented.

29 **RESPONSE:**

30 The information and methodology used for the Keeyask Transmission Project
31 environmental setting and project effects assessment was largely obtained from data
32 and other information developed for the Keeyask Generation Project effects assessment
33 (Keeyask Transmission Project Environmental Assessment Report Section 3.3.2; Keeyask
34 Transmission Project Terrestrial Habitat, Ecosystems and Plants Report Section 2 p. 2-1,
35 2-2). The Regional Study Area for the Keeyask Transmission Project wetland effects
36 analysis was the same as the most commonly used regional study area in the Keeyask
37 Generation Project terrestrial habitat, ecosystems and plants effects assessments.
38 Details pertaining to wetland distribution, abundance and functions are provided in the

39 Keyask Generation Project Response to EIS Guidelines and Terrestrial Environment
40 Supporting Volume documents. The Keyask Transmission Project addresses wetlands
41 primarily through the ecosystem diversity valued environmental component.

42 Wetlands account for approximately 90% of land area in the Keyask Transmission
43 Project Regional Study Area (Keyask Generation Project Terrestrial Environment
44 Supporting Volume Section 2.8.3.2.1 and the majority of these wetlands are naturally
45 functioning (Nelson River shoreline wetlands being the main exception; Keyask
46 Generation Project Response to EIS Guidelines Section 6.5.3.4.1; Keyask Generation
47 Project Terrestrial Environment Supporting Volume Section 2.8.3.2.1). Historical wetland
48 losses and alterations in the region from past and existing projects are estimated to be
49 less than 5% of the amount that existed prior to industrial development.

50 Given the very high proportion of natural wetland area, few land-based projects of any
51 type could proceed in the Keyask Transmission Project Regional Study Area if the
52 project was designed to provide a 100 m setback on all wetlands. It is anticipated that
53 some degree of wetland area loss can be absorbed without adversely affecting wetland
54 function in regions where wetlands are abundant and remain in a relatively pristine
55 condition (Keyask Generation Project Terrestrial Environment Supporting Volume
56 Section 2.8.1.1). In these situations the focus is on reducing total wetland area loss and
57 avoiding the particularly important wetland types. Particularly important wetland types
58 are essentially those types that make relatively high contributions to many wetland
59 functions and/or are regionally rare. Off-system marsh and swamp are the particularly
60 important, wetland types in the Regional Study Area given the high prevalence of
61 peatlands in the region. The Keyask Transmission Project's focus was on avoiding off-
62 system marsh (swamp is absent in areas potentially affected by the Project) and
63 minimizing effects on other wetlands to the extent practicable.

64 In this context, the Keyask Transmission Project minimized effects on wetlands using
65 the three-stage approach described in The Federal Policy on Wetland Conservation-
66 Implementation Guide For Federal Land Managers (i.e., avoid, minimize and
67 compensate). In some cases the reductions were implicitly achieved by a general
68 objective to reduce the total area of affected terrestrial habitat while in other cases
69 minimizing effects on wetlands and particular wetland types were among the criteria
70 used to select and then refine the preferred route.

71 The first two stages of Project design, which are the primary means for avoiding certain
72 wetland types and minimizing wetland effects, were identifying the alternative routes
73 and then selecting a preferred route from the alternatives. A key criteria for identifying
74 the Generation Outlet transmission alternative routes was minimizing effects on priority
75 terrestrial habitat types, many of which are wetland types. The alternative routes were
76 then evaluated for their effects on total wetland area and priority wetland types. Among
77 the priority wetland types was off-system marsh (the particularly important wetland
78 type in the region) and the riparian wetland types. The preferred routes for the

79 construction power and Generation Outlet Transmission (GOT) lines avoid mapped off-
 80 system marshes. Of the alternative routes, the preferred construction transmission line
 81 route includes the smallest amount of riparian wetland while the preferred GOT
 82 transmission line route includes the second smallest amount of riparian wetland. During
 83 the final design stage, avoiding and minimizing effects on priority wetlands will be
 84 among the criteria used to refine the preferred route through tower positioning.

85 Effects on riparian wetlands will be further minimized by winter construction, through
 86 standard environmental protection plan measures and through specific waterway
 87 crossing mitigation measures implemented for aquatic habitat. Stream crossing
 88 mitigation relevant for riparian wetlands includes: constructing lines over watercourses
 89 under frozen conditions or aerially; placing all structures (temporary and permanent)
 90 above the high water mark; establishing a machine free zone of 7 m from the high water
 91 mark of all waterbodies where harvesting or clearing machinery will not enter other
 92 than to cross the stream; establishing a riparian buffer of 7, 15 or 30 m (depending on
 93 fish habitat quality) where ground disturbance is minimized, and all shrub and
 94 herbaceous vegetation is retained. All waterway crossing locations will be inspected
 95 following construction to document compliance with prescribed mitigation, which
 96 includes maintaining riparian vegetation and a machine free zone in riparian areas
 97 except when crossing the stream.

98 Considering all of the above, it is anticipated that the Keeyask Transmission Project
 99 design process limited the increase in historical wetland loss and alteration to less than
 100 1% for every wetland type, and avoided area effects on some wetland types such as off-
 101 system marsh. The vast majority of wetlands potentially affected by the Keeyask
 102 Transmission Project are inland bogs (i.e., not adjacent to a waterbody; Keeyask
 103 Transmission Project Terrestrial Habitat, Ecosystems and Plants Report Section 5.1.1),
 104 which are wetland types that make low contributions to overall wetland function
 105 compared with other wetland types in the region (Keeyask Generation Project
 106 Terrestrial Environment Supporting Volume Section 2.8.4.1.1).

107 Setbacks from all wetlands are not feasible because most of the Project Footprint
 108 borders on wetlands (the vast majority of the region is wetland). Neither are they
 109 necessary considering the limited extent of Project effects and the relatively pristine
 110 state of regional wetlands outside of the Nelson River. On this basis, 100 m setbacks will
 111 be applied for off-system marsh wetlands (the only particularly important wetland type
 112 in the region) except at two locations where a portion of ROW is within 100m.
 113 Environmental protection plan maps will include off-system marsh locations so that
 114 temporary access trails (if any are needed) can maintain a 100 m setback from these
 115 wetlands. Environmental protection plans will also include riparian wetland locations so
 116 that towers can be located at least 100 m away where feasible. Additionally, DFO
 117 Operational Statements for overhead line construction and maintenance of riparian
 118 vegetation in existing rights-of-way will be adhered to at water course crossings,
 119 providing protection to riparian areas.

1 **REFERENCE: Volume: KTP - Environmental Assessment Report;**
 2 **Section: 4.1.5.4 Invasive Plants; 7.2.5 Terrestrial Habitat; Page**
 3 **No.: 4-16; 7-41**

4 **KTP-TAC Public Rd 1 EC-0007**

5 **PREAMBLE:**

6 Invasive species spread readily along disturbance corridors and once established are
 7 virtually impossible to eradicate. Section 4.1.5.4 mentions that “field studies detected
 8 all of the 19 invasive plants known to occur in the region” (p. 4-16). The construction
 9 and operation of the project may provide additional opportunities for invasive species
 10 to establish and spread (through dispersal of weed seeds on equipment and vehicles, or
 11 in reclamation materials brought to the site, etc.), disrupting native plant communities.
 12 EC acknowledges the proponent’s commitment on page 7-41 and 7-42 to 1) clean
 13 construction equipment and machinery recently used more than 150km from the
 14 project area prior to transport to the project area; 2) educate personnel working on the
 15 project about the importance of cleaning their vehicles, equipment and footwear before
 16 travelling to the area; 3) monitor the project area to confirm avoidance of spread of
 17 invasive plants; and 4) implement containment, eradication and/or control programs if
 18 monitoring identifies problems with invasive plants. In addition to the proponent’s
 19 commitments above, EC recommends: •that all vehicles and equipment are cleaned
 20 prior to entering the project areas; •that any areas containing noxious weeds be clearly
 21 marked, so that equipment operators can easily recognize when passing through weed
 22 infested areas, and so that the spread of species from these areas can be monitored;
 23 •that equipment and vehicles are thoroughly cleaned after passing through any such
 24 area in order to avoid transporting seed to other areas; and •that any seed mixtures
 25 used contain only native species and/or non-invasive introduced plant species.

26 **QUESTION:**

27 EC requests that the Proponent discuss: • if all vehicles and equipment will be cleaned
 28 prior to entering the project areas; • if areas containing noxious weeds will be clearly
 29 marked, so that equipment operators can easily recognize when passing through weed
 30 infested areas; • if vehicles and equipment will be cleaned after passing through areas
 31 containing noxious weeds; and • if seed mixtures to be used contain only native species
 32 and/or non-invasive introduced plant species.

33 **RESPONSE:**

34 *Background and Context*

35 There have been a number of previous developments and activities in the Project area
 36 that provide insight in terms of distribution of invasive plants. These include the
 37 development and use of two generating stations, two converter stations, the Town of
 38 Gillam, PR 280, a fiber optic line alongside PR 280, over ten years of Project-related

39 engineering and EA studies in the proposed Project area and the activities of area
 40 residents and visitors over many years. Within this context, all of the observed invasive
 41 plant patches were confined to human disturbed areas. Field studies did not find any
 42 evidence that invasive plant species were spreading into nearby native plant
 43 communities, likely due to the harsh climate, high prevalence of surface peat,
 44 established ground cover and other factors. The risk that the Project will spread invasive
 45 plant species into native plant communities appears to be low given past trends and the
 46 Project mitigation measures. To verify this, and to be in a position to respond quickly
 47 should any unexpected outbreaks occur, invasive plant distributions in the Project area
 48 will be monitored and colonizations that could become outbreaks will be eradicated
 49 where practicable and controlled elsewhere. Additionally, areas cleared during
 50 construction but not required for operation will be rehabilitated to native habitat types,
 51 which will eliminate colonization sites for invasive plants.

52

53 *If all vehicles and equipment will be cleaned prior to entering the project areas*

54 As stated in the Keeyask Transmission Project EA Report, construction equipment and
 55 machinery used more than 150 km away from the Project site will be cleaned prior to
 56 working on site. Other vehicles (i.e., personal cars and trucks) will not be required to be
 57 cleaned prior to arriving onsite. Contractors will be educated about the importance of
 58 supporting measures to limit the introduction and spreading of invasive plants.

59 *If areas containing noxious weeds will be clearly marked, so that equipment operators*
 60 *can easily recognize when passing through weed infested areas*

61 Areas where there are patches of noxious weeds will be flagged for avoidance if they are
 62 not contained in active construction areas. Monitoring and inspection programs will
 63 focus on the early detection of and rapid response to noxious weeds within the project
 64 footprint.

65 *If vehicles and equipment will be cleaned after passing through areas containing noxious*
 66 *weeds*

67 Clearly marking and avoiding noxious weed patches should eliminate the need to wash
 68 vehicles and equipment. If noxious weed patches are encountered within the Project
 69 ROW's during construction, designated corridors through noxious weed patches will be
 70 created and cleaned of noxious weeds and where corridors cannot be created, air
 71 cleaning stations will be utilized to clean equipment of noxious weeds seeds and
 72 material.

73 *If seed mixtures to be used contain only native species and/or non-invasive introduced*
 74 *plant species*

- 75 Seed mixtures used for revegetation will only contain native species and/or non-invasive
- 76 introduced plant species.

1 **REFERENCE: Volume: KTP - Environmental Assessment Report;**
2 **Section: 7.2.5 Terrestrial Habitat; Page No.: 7-30**

3 **KTP-TAC Public Rd 1 EC-0008**

4 **PREAMBLE:**

5 This section notes on page 7-30 that "stockpiled organic material removed from
6 temporarily cleared areas will be replaced to encourage re-growth of native vegetation",
7 that "right-of-way access trails will be decommissioned where not required for
8 maintenance activities", and also that "the portion of the construction power line right-
9 of-way allocated for the temporary power line will be left to regenerate to a natural
10 condition after removal of temporary infrastructure". Finally, "It was cautiously assumed
11 that approximately one half of the area would recover to the habitat types present
12 before construction". EC recommends:

- 13 • that any disturbed areas that are no longer in use are restored as quickly as
14 possible;
- 15 • that disturbed areas are restored to mimic native vegetation communities in the
16 surrounding area, and to provide similar habitat to pre-construction conditions;
- 17 • that the restoration materials be of local provenance, and be certified and
18 inspected to be free of both invasive and noxious weed materials; and
- 19 • that long-term monitoring and adaptive management to ensure restoration.

20 **QUESTION:**

21 EC requests that the Proponent:

- 22 • confirm that disturbed areas that are no longer in use will be restored as quickly
23 as possible;
- 24 • confirm that disturbed areas will be restored to mimic native vegetation
25 communities in the surrounding area, and provide similar habitat to pre-
26 construction conditions;
- 27 • discuss whether the restoration materials will be of local provenance, and be
28 certified and inspected to be free of both invasive and noxious weed materials;
29 and
- 30 • discuss any long-term monitoring and adaptive management plans to ensure
31 restoration.

32 **RESPONSE:**

33 Cleared and disturbed areas will be rehabilitated as quickly as is practicable after it is
34 decided which specific sites are not required for Project operation.

35 The target habitat types (combinations of vegetation type and ecosite type) for areas
36 not required for Project operation will be the native habitat types appropriate for the
37 post-construction conditions. In some locations the target habitat type will be the same
38 one that was there prior to clearing or disturbance. In other locations, it will not be
39 feasible to rehabilitate the area to the pre-construction habitat type. For example, it
40 would be very difficult to regenerate an aspen forest in a borrow area where the clay
41 overburden was removed, leaving coarse granular material. Another example is that
42 trees removed within the right of way will not be re-established, however where natural
43 regeneration of grasses and shrubs does not occur along the ROW, native species will be
44 used in any rehabilitation prescriptions.

45 Tree and tall shrub propagules will be of local provenance. Most other propagules will
46 likely be of local provenance since the majority will come from stockpiled materials that
47 are later spread. Fast-growing non-native grasses and forbs may be used in some
48 locations to meet temporary needs such as controlling erosion on steeper banks in
49 borrow areas. For these situations, the non-native species will eventually be displaced
50 with native plant species appropriate for the site conditions. This staged approach
51 maintains flexibility to use the most effective techniques to achieve the rehabilitation
52 objectives.

53 Seed mixtures obtained from commercial suppliers will meet the requirements of the
54 Canada Seeds Act for Certified Canada #1 seed for certified cultivars or Canada Common
55 #1 for common cultivars. Commercial seed suppliers will provide seed analysis
56 certificates verifying that the number of noxious seeds will not exceed the following
57 limits per 25 grams for species listed by the Weed Seeds Order: 0 prohibited noxious
58 weeds, 0 primary noxious weeds, 1 secondary noxious weeds, 25 total noxious weeds.
59 Commercial seed suppliers will provide seed analysis certificates verifying that the seed
60 mixture does not contain sweet clover or alfalfa seeds.

61 Monitoring will include confirming that rehabilitation to native broad habitat types in
62 areas not required for Project operation is successful. Vegetation and soils data will be
63 collected in the rehabilitated areas to assess degree of native habitat recovery.
64 Additional or alternative rehabilitation will be applied to the extent practicable in areas
65 not meeting rehabilitation targets.

1 **REFERENCE: Volume: KTP - Environmental Assessment Report;**
2 **Section: 7.2.10.3 Birds, Follow-up; 7.2.11 Mammals, Follow-up;**
3 **Page No.: 7-52; 7-65; 7-80; 7-44**

4 **KTP-TAC Public Rd 1 EC-0009**

5 **PREAMBLE:**

6 EC notes the proponent's plans to implement monitoring and follow-up plans regarding
7 the effects of the project on birds, including monitoring of species at risk populations
8 and an assessment of bird-wire collisions, caribou, and invasive species. EC recommends
9 also monitoring for the effects of the project on all other Species at Risk in the project
10 area, and the monitoring of wetlands impacted by the project. EC has a particular
11 interest in project effects on migratory birds, species at risk, and wetlands, the progress
12 of reclamation with native species in the project area, and the success in preventing the
13 incursion of invasive species.

14 **QUESTION:**

15 EC requests that the Proponent discuss their plans to monitor for all other Species at
16 Risk and wetlands impacted by the project. EC also requests confirmation from the
17 Proponent that the monitoring reports collected will be shared with EC.

18 **RESPONSE:**

19 Monitoring of species-at-risk will be conducted in the Keeyask Transmission Study Area
20 (Manitoba Hydro 2012, Map 1-1 and Map 2-2). This Species at Risk monitoring is
21 referred to in the Biophysical Monitoring Framework in the Keeyask Transmission
22 Environmental Assessment Report (Manitoba Hydro 2012, Appendix G, Table 3-1) and is
23 being planned for: priority plants, bird species of concern, and caribou. Further detail on
24 the monitoring is outlined in the various technical reports that support the
25 Environmental Assessment Report (ECOSTEM 2012, Stantec 2012, Wildlife Resources
26 Consulting Services 2012). Additional detail on the monitoring will be included in a
27 Monitoring Plan that is being developed in advance of Keeyask Transmission Project
28 construction and provided to regulatory agencies for review. It is currently anticipated
29 that much of the monitoring activities proposed for the Keeyask Transmission Project
30 will be coordinated and conducted, wherever feasible, in conjunction with monitoring of
31 species-at-risk that is being proposed for the Keeyask Generation Project, i.e., the sites
32 studied for several species (especially wide ranging animals) with respect to the Keeyask
33 Generation Project overlap with the Keeyask Transmission Project (Manitoba Hydro
34 2012, Map 1-1 and Map 2-2).

35 With respect to plants, proposed sampling plans include monitoring of priority plants.
36 None of the plant Species at Risk are either known to occur or are expected to occur in
37 the project area. Flooded jellyskin, which is the only remote possibility for the area, will

38 be searched for while conducting pre-construction rare plant surveys. Monitoring will
39 entail identifying the location of rare plants within the footprint of the Keeyask
40 Transmission Project.

41 Monitoring of wetland impacts will be done through the waterway crossing and
42 ecosystem diversity monitoring studies. All waterway crossing sites will be inspected
43 following construction to document compliance with prescribed mitigation, which
44 includes maintaining a machine free zone of 7 m from the high water mark of all
45 waterbodies where harvesting or clearing machinery will not enter, other than to cross
46 the stream; and establishment of a riparian buffer of 7, 15 or 30 m (depending on fish
47 habitat quality) where ground disturbance is minimized, and all shrub and herbaceous
48 vegetation is retained. Ecosystem diversity monitoring will document Project-related
49 changes in stand level ecosystem composition using habitat mapping, with particular
50 emphasis on the priority habitat types. Forty-one of the 57 native ecosystem types and
51 29 of the 43 priority habitat types are wetland types. Pre-construction surveys will
52 search for and mark these areas for avoidance where practicable. Ecosystem diversity
53 monitoring has two components. First, verifying that priority wetland types marked for
54 avoidance in the environmental protection plans are not disturbed. Second, verifying
55 the predicted amounts and composition of direct and indirect habitat loss, alteration
56 and disturbance during construction and operation. Additional information on these and
57 other monitoring studies would be provided in a monitoring plan developed in advance
58 of Keeyask Transmission Project construction.

59 With respect to birds, proposed monitoring anticipates breeding bird surveys and
60 deployment of recording devices in habitats identified as “key” for various species-at-
61 risk (e.g., olive-sided flycatcher, rusty blackbird and common nighthawk). Sampling of
62 olive-sided flycatcher, rusty blackbird, common nighthawk and other Species at Risk will
63 facilitate verification of key predicted effects of the Project on bird Species at Risk
64 (Manitoba Hydro 2012, Stantec 2012). Monitoring requirements for other bird Species
65 at Risk was not identified due to the lack of discernible overlap with the Keeyask
66 Transmission Project. This monitoring of listed species’ abundance and distribution is
67 expected to occur within the Keeyask Transmission Study Area and can be compared
68 with information collected within the region, most notably results generated through
69 the Keeyask Generation Project monitoring. Additional information on this and other
70 protocols for monitoring will be provided in a monitoring plan developed in advance of
71 Keeyask Transmission Project construction.

72 Manitoba Hydro commits to undertaking post-construction monitoring of bird collisions
73 to determine whether there are any project-related impacts on migratory birds
74 (Manitoba Hydro 2012, Appendix G, Table 3-1). These studies will help to determine
75 whether there are any significant project-related impacts on migratory birds.
76 Monitoring of bird / transmission line collisions will be conducted along the routes for
77 the Construction Power, Generation Outlet Transmission and Unit Lines. The focus of
78 this sampling will be at pre-selected portions of transmission lines that are identified as

79 having higher risk of bird collisions, e.g., near wetlands, river crossings and lake shores.
80 Sampling will include sites where mitigation measures are adopted in advance of the
81 transmission line construction, e.g., use of deflectors on conductors at waterbody
82 crossings having a higher risk of bird collisions. While some sampling is anticipated to
83 occur during the breeding season, most surveys are anticipated to occur around the
84 migration periods when the largest number of birds are present, are moving through
85 the study area and are most susceptible to colliding with transmission lines. It is
86 anticipated that a sampling grid will be defined along the transmission line right-of-way
87 that can be sampled periodically during key periods. This information may be
88 augmented by information on bird mortalities associated with transmission facilities
89 that are collected by others (e.g., Environmental Inspectors during the construction
90 phase and maintenance personnel during operations).

91 Reports will be generated annually, documenting the monitoring programs and the
92 results. Consideration will be given to adaptive management strategies, where feasible,
93 to avoid or further minimize the project effects on birds. This information will be shared
94 with Manitoba Conservation and Water Stewardship and any other regulatory agencies
95 with responsibility to review this monitoring program.

96 With respect to mammals, potential biophysical environmental effects have been
97 identified through the environmental assessment of the Project. Wolverine and little
98 brown myotis monitoring was not identified for the Keeyask Transmission Project
99 because of unlikely occurrences or limited Project overlap. No measureable effects are
100 expected in the Keeyask Generation Project Regional Study Area (see Response to
101 Keeyask Guidelines 6.5.8.8 and Mammals Supporting Volume Section 7.4.7). Local and
102 regional wolverine and little brown myotis monitoring plans are being developed in
103 conjunction with the Keeyask Generation Project to address uncertainties. Project
104 monitoring design is anticipated to incorporate the Keeyask Transmission Project Study
105 Area. A plan is being developed to coordinate caribou monitoring activities among
106 northern hydroelectric developments, as well as with government authorities and
107 existing caribou committees and management boards to address uncertainties
108 concerning summer resident caribou, coastal caribou and barren-ground caribou.
109 Additional information on these and other monitoring studies will be provided in a
110 monitoring plan developed in advance of Keeyask Transmission Project construction.

111 The information generated through these sampling programs will be documented under
112 the Monitoring Program for the Keeyask Transmission Project that will subsequently be
113 provided to Manitoba Conservation and Water Stewardship, who typically share this
114 information with other relevant regulatory agencies, e.g., CEEA and Environment
115 Canada. In addition to the monitoring that is being proposed for the Keeyask
116 Transmission Project, there will be monitoring occurring for the Keeyask Generation
117 Project. Relevant monitoring data collected for the Keeyask GS Project will be
118 considered, where appropriate, when assessing any potential impact from the Keeyask
119 Transmission Project.

120

121 **References**

122 ECOSTEM Ltd. 2012. Keeyask Transmission Project: Terrestrial Habitat, Ecosystems and
123 Plants Technical Report. ECOSTEM Ltd, October 2012.

124 Manitoba Hydro. 2012. Keeyask Transmission Project Environmental Assessment
125 Report. Manitoba Hydro, November 2012.

126 Stantec Consulting Ltd. 2012. Keeyask Transmission Project: Avian Technical Report.
127 Stantec, October 2012.

128 Wildlife Resources Consulting Services MB Inc. 2012. Keeyask Transmission Project:
129 Mammals Technical Report. WRCS MB, October 2012.

1 **REFERENCE: Volume: N/A; Section: Section 2.7.2 and Section**
2 **7.2.3.1; Page No.: p. 2-27, and pp. 7-15 to 7-16**

3 **KTP-TAC Public Rd 1 HC-0001**

4 **PREAMBLE:**

5 Section 2.7.2 (indicates that Manitoba Hydro applies a design guideline maximum for
6 audible noise of 50 dBA at the edge of the right of way, and that noise levels are
7 estimated to be in the range of 39.2 to 41.00 dBA. Additionally, Section 7.2.3.1 indicates
8 that audible noise emissions due to corona discharges from transmission lines are
9 typical, and that noise levels near certain equipment (e.g. transformers) can be in the
10 range of 45-83 dBA. Insufficient information has been provided in the EAR regarding the
11 potential for noise impacts to human health. The EAR should include basic information
12 regarding the location of permanent or seasonal dwellings along the right of way and
13 expanded converter station. Human receptors in this relatively rural/remote would
14 likely have a reasonable expectation of “peace and quiet”. Additionally, it is unclear if
15 the estimated noise levels apply to the expanded Radisson converter station, and how
16 the estimated noise levels were derived.

17 **QUESTION:**

18 HC advises that potential seasonal or permanent receptors be identified in the EAR.
19 Should any receptors be identified in close proximity to the project features, a noise
20 impact assessment (NIA) would be advised. NIAs typically include information on the
21 sensitive receptors, baseline sounds levels, noise source identification, modeling, and as
22 appropriate noise management and monitoring including complaint resolution. Please
23 consult HC’s guidance document entitled “Useful Information for Environmental
24 Assessments” for additional information on the assessment of noise effects at
25 http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/enviro_n_assess-eval/index-eng.php.

26 **RESPONSE:**

27 Health Canada’s definition of noise sensitive receptors from “Useful Information for
28 Environmental Assessments” includes residences, daycares, schools, hospitals, places of
29 worship, nursing homes, and First Nations and Inuit communities.

30 There are no potential seasonal or permanent receptors within 500 m of the proposed
31 route and no sensitive receptors within 1 km.

32
33 Manitoba Hydro has designed its transmission lines to allow for a maximum 50 dBA
34 audible noise level at the edge of the right of way. The 50 dBA noise level is comparable
35 to that experienced in a typical business office. Provincial guidelines in Manitoba specify
36 maximum one-hour equivalent noise levels for residential and commercial areas of 55
37 dBA and 45 dBA for daytime and nighttime periods respectively.

38

39 In the case of the Keeyask transmission lines, the levels of audible noise outside the
40 right-of-way are well below limits recommended by provincial, national and
41 international agencies.
42

1 **REFERENCE: Volume: KTP EA Report; Section: Section 2.0**

2 **KTP-TAC Public Rd 1 MB-0001**

3 **QUESTION:**

4 With respect to Client File 5614.00, please provide clarification as to why the proponent
5 is not proposing to run the “Construction Power Line” adjacent to the “Generation
6 Outlet Transmission Lines”. A second transmission corridor, even for only temporary
7 power supply, increases the environmental scope of the project, and results in a larger
8 environmental footprint. (Wildlife Branch)

9 **RESPONSE:**

10 As described in Section 2.2.1, the Construction Power Line is a permanent facility
11 required not only for construction purposes but also required for “blackstart” of the
12 Keeyask Generating station in the event of emergency shutdown. The source of power
13 for “Blackstart” is the KN36 Transmission line. There is also a requirement for physical
14 separation to the extent possible of the Construction Power Line and the Back-up
15 Construction Power Line (described in section 2.2.4). The separation is required to
16 minimize risks such as weather events, forest fire, etc that could affect the reliable
17 power supply requirements for construction, resulting in significant construction delays.

1 **REFERENCE: Volume: KTP EA Report; Section: Section 8.4**

2 **KTP-TAC Public Rd 1 MB-0002**

3 **QUESTION:**

4 In Section 8.4, fragmentation section is not clear, totals do not add up (Keeyask EAR 4-
5 12). It appears that the totals for fragmentation do not correspond with the sub-totals
6 fragmentation figures presented for roads, rail, cutblocks, etc. Please provide
7 clarification on fragmentation numbers presented (Peguis First Nation).

8 **RESPONSE:**

9 The tables below provide linear feature lengths (Table 1) and linear feature densities
10 (Table 2) in the Regional Study Area by linear feature type. These tables also provide a
11 breakdown of the Regional Study Area totals into two zones where linear feature
12 densities are considerably different (i.e., the Thompson area and the rest of the
13 Regional Study Area).

14 There is a typographical error in the first sentence of the second paragraph of the
15 fragmentation section in the KTP EA Report. The reported regional transportation
16 density of 0.13 km/km² should read 0.07 km/km² (Table 2). The 0.13 km/km² density is
17 the combined transportation and transmission line density.

18

Table 1: Linear Feature Density (km/km²) by Feature Type in the Regional Study Area and the Thompson portion of the Regional Study Area in 2010

Linear Feature Type	Overall	Thompson Area	Rest of the Regional Study Area
Highway	345	83	262
Road	244	117	127
Winter road	149	-	149
Rail line	149	4	145
Sub-total for transportation density	887	204	683
Transmission line	752	84	667
Dyke	21	-	21

Table 1: Linear Feature Density (km/km²) by Feature Type in the Regional Study Area and the Thompson portion of the Regional Study Area in 2010

Path	213	10	203
Cutline	3,755	1,865	1,891
Sub-total for other linear features	4,741	1,959	2,782
All linear features	5,628	2,163	3,465

19

Table 2: Linear Feature Density (km/km²) by Feature Type in the Regional Study Area and the Thompson portion of the Regional Study Area in 2010

Linear Feature Type	Overall	Thompson Area	Rest of the Regional Study Area
Highway	0.03	0.05	0.02
Road	0.02	0.07	0.01
Winter road	0.01	0.00	0.01
Railway	0.01	0.00	0.01
Sub-total for transportation density	0.07	0.12	0.06
Transmission line	0.06	0.05	0.06
Dyke	0.00	0.00	0.00
Path	0.02	0.01	0.02
Cutline	0.30	1.09	0.18
Sub-total for other linear features	0.38	1.15	0.26
All linear features	0.45	1.27	0.32
Study area land area (km ²)	12,385	1,708	10,677