Manitoba Hydro

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July 31st, 2012

Mr. Terry Sargeant
Clean Environment Commission
305-155 Carlton St.
Winnipeg, MB R3C 3H8

Dear Mr. Sargeant:

RE: Bipole III Transmission Project – Response Package #4

Please find enclosed responses to various Information Requests, which were submitted to Manitoba Hydro on May 29th, June 7th, June 15th and June 22nd, June 29th, and July 3rd respectively.

Please see the attached table for a complete listing of the responses enclosed.

We trust the enclosed responds appropriately to all requests sent to Manitoba Hydro prior to the aforementioned dates. 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.

Regards,

Original Signed by Shannon Johnson

Shannon Johnson
Manager Licensing and Environmental Assessment Department
820 Taylor Ave (3)
Winnipeg, Manitoba
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sj/tk

Enclosed:

CEC Information Request #	**Information Request #2**	**Information Request #3**	**Information Request #4**	**Information Request #5**
Date Received	**May 29th**	**June 7th**	**June 15th**	**June 22nd, June 29th & July 3rd**
MH Response Label	**CEC/MH-II-**	**CEC/MH-III-**	**CEC/MH-IV-**	**CEC/MH-V-**
	CEC/MH-II-001f	CEC/MH-III-026	CEC/MH-IV-126	CEC/MH-V-149
	CEC/MH-II-001g	CEC/MH-III-033	CEC/MH-IV-127	CEC/MH-V-150
	CEC/MH-II-001hi	CEC/MH-III-036	CEC/MH-IV-129	CEC/MH-V-153
	CEC/MH-II-001hii	CEC/MH-III-037a	CEC/MH-IV-130	CEC/MH-V-154
	CEC/MH-II-002l	CEC/MH-III-037b	CEC/MH-IV-135	CEC/MH-V-156
	CEC/MH-II-002m	CEC/MH-III-037d	CEC/MH-IV-136	CEC/MH-V-158
	CEC/MH-II-003c	CEC/MH-III-037f	CEC/MH-IV-137	CEC/MH-V-165
	CEC/MH-II-004ab	CEC/MH-III-040	CEC/MH-IV-139	CEC/MH-V-167
	CEC/MH-II-005b	CEC/MH-III-042	CEC/MH-IV-140	CEC/MH-V-169
	CEC/MH-II-005f	CEC/MH-III-043c	CEC/MH-IV-141	CEC/MH-V-170
	CEC/MH-II-005g	CEC/MH-III-045	CEC/MH-IV-142	CEC/MH-V-171
	CEC/MH-II-005h	CEC/MH-III-048	CEC/MH-IV-148	CEC/MH-V-172
	CEC/MH-II-005i	CEC/MH-III-055		CEC/MH-V-174b
	CEC/MH-II-006b	CEC/MH-III-056		CEC/MH-V-174c
	CEC/MH-II-006d	CEC/MH-III-062		CEC/MH-V-175b
	CEC/MH-II-006e	CEC/MH-III-063		CEC/MH-V-176
	CEC/MH-II-007a	CEC/MH-III-065		CEC/MH-V-178
	CEC/MH-II-007b	CEC/MH-III-066		CEC/MH-V-180
	CEC/MH-II-007c	CEC/MH-III-070		CEC/MH-V-181

CEC Information Request #	Information Request #2	Information Request #3	Information Request #4	Information Request #5
Date Received	**May 29th**	**June 7th**	**June 15th**	**June 22nd, June 29th & July 3rd**
MH Response Label	**CEC/MH-II-**	**CEC/MH-III-**	**CEC/MH-IV-**	**CEC/MH-V-**
	CEC/MH-II-007e	CEC/MH-III-074		CEC/MH-V-186
	CEC/MH-II-007f	CEC/MH-III-075		CEC/MH-V-187
	CEC/MH-II-007g	CEC/MH-III-076		CEC/MH-V-188
	CEC/MH-II-007h	CEC/MH-III-077		CEC/MH-V-189
	CEC/MH-II-007i	CEC/MH-III-078		CEC/MH-V-190
	CEC/MH-II-007l	CEC/MH-III-079		CEC/MH-V-191
	CEC/MH-II-007o	CEC/MH-III-080		CEC/MH-V-192
	CEC/MH-II-007p	CEC/MH-III-081		CEC/MH-V-193
	CEC/MH-II-007q	CEC/MH-III-083		CEC/MH-V-194
	CEC/MH-II-008b	CEC/MH-III-090		CEC/MH-V-195
	CEC/MH-II-010b	CEC/MH-III-091		CEC/MH-V-196
	CEC/MH-II-010c	CEC/MH-III-097		CEC/MH-V-197
	CEC/MH-II-010e	CEC/MH-III-104		CEC/MH-V-198
	CEC/MH-II-011	CEC/MH-III-120		CEC/MH-V-199
	CEC/MH-II-013			
	CEC/MH-II-015a			
	CEC/MH-II-015b			
	CEC/MH-II-017			
	CEC/MH-II-019a			
	CEC/MH-II-020a			

Clean Environment Commission

Bipole III Transmission Project

Package #4

July 31 2012

Manitoba Hydro

Date	May 29 2012
Reference	Chapter 8 – Table 8.2, 3- Reference 11
Source	CEC Information Request # 2
Question	CEC/MH-II-001f

Question:

Reference: Executive Summary and Introduction – Volume 1

Please itemize – the criteria used to determine the selection of specific VEC's by subject area. How does the VEC and its properties apply to each ecozone and for the biophysical VECs what are they chosen to represent/measure in the biophysical environment?

Response:

The selection of valued environmental components (VECs) involved the scoping of potential issues pertinent to the Project. The rationale for the selection of VECs was based on the following: regulatory importance, the Environmental Assessment Consultation Program (EACP) [including Key Person Interviews]; ATK, expert judgement and other similar projects.

Response – Socio-Economic

The criteria used to identify each socio-economic VEC for the Project are provided in the table below. Effects assessment on socio-economic VECs was not conducted at the ecozone level as activities of people are not determined by ecozones.

16 **Selection Criteria for Socio-Economic VECs**

Subject Area	VEC	Selection Criteria
Land Use	• Land Use & Residential Development	• EACP • Expert judgement • Other similar projects
	• Private Forestlands	• Regulatory • EACP • Expert judgement • Other similar projects
	• Aboriginal Lands (meaning Reserve Lands, TLEs)	• ATK • EACP • Regulatory • Expert judgement • Other similar projects
	• Designated Protected Areas and Protected Areas Initiative	• Regulatory • Expert judgement • Other similar projects
	• Infrastructure	• Expert judgement • Other similar projects
	• Agricultural Land Use/Productivity	• EACP • Expert judgement • Other similar projects
Resource Use	• Commercial Forestry	• EACP • Expert judgement • Other similar projects
	• Commercial Fishing	• EACP • Expert judgement • Other similar projects
	• Mining/Aggregates	• EACP • Expert judgement • Other similar projects
	• Trapping	• EACP • ATK • Expert judgement • Other similar projects
	• Recreation & Tourism	• EACP • Expert judgement • Other similar projects
	• Wildrice Harvesting	• EACP • Expert judgement • Other similar projects
	• Domestic Resource Use	• ATK • EACP • Expert judgement • Other similar projects

Economy	• Economic Opportunities	• EACP • Expert judgement • Other similar projects
Services	• Community Services	• EACP • Expert judgement • Other similar projects
	• Travel & Transportation	• EACP • Expert judgement • Other similar projects
Personal, Family & Community Life	• Public Safety	• EACP • Regulatory • Expert judgement • Other similar projects
	• Human Health	• EACP • Regulatory • Expert judgement • Other similar projects
	• Aesthetics	• EACP • Expert judgement • Other similar projects
Culture & Heritage Resources	• Culture & Heritage Resources	• ATK • EACP • Regulatory • Expert judgement • Other similar projects

Response - Biophysical

The criteria used to identify each biophysical VEC for the Project are provided in the table below along with what each VEC was chosen to represent and their measureable parameters.

21 **Biophysical VECs, Selection Criteria, Representation and Measureable Parameters**

Subject Area	VEC	Selection Criteria
Terrestrial Ecosystems and Vegetation	• Plant species & communities of conservation concern	• Regulatory (Conservation status); • Regulatory (Protected under federal or provincial legislation); • Expert judgement; • Other similar projects; • Linkages to potential Project effects.
	• Native grassland/prairie areas	• Protection/conservation of remnant ecotype; • Regulatory (Plants/species of conservation concern); • Expert judgement; • Other similar projects; • Linkages to potential Project effects.
	• Plant species/communities important to Aboriginal people	• Socio-economic value; • Cultural value; • ATK • Other similar projects
Birds	Mallard	• Regulatory [Protected species (Migratory Birds Convention Act)]; • Important to people (domestic and licensed hunting); • Scientific importance; • Connection to areas of notable biological diversity (IBAs); • Linkages to potential Project effects
	Sandhill crane	• Regulatory [Protected species (Migratory Birds Convention Act)]; • Important to people (domestic and licensed hunting); • Scientific importance; • Linkages to potential Project

		effects
	Great blue heron	• Regulatory [Protected species (Migratory Birds Convention Act)]; • Provincial regulatory requirements for nests; • Important to people (cultural); • Linkages to potential Project effects
	Bald eagle	• Regulatory [Protected species (Wildlife Act)]; • Other regulatory requirements for nests; • Important to people (cultural); • Indicator of important corridor or linkage for bird movement; • Scientific importance; • Linkages to potential Project effects
	Sharp-tailed grouse	• Regulatory [Protected species (The Wildlife Act)]; • Important to people (domestic and licensed hunting); • Scientific importance; • Linkages to potential Project effects
	Ruffed grouse	• Regulatory [Protected species (The Wildlife Act)]; • Important to people (domestic and licensed hunting); • Scientific importance; • Linkages to potential Project effects
	Pileated woodpecker	• Regulatory [Protected species

		(Migratory Birds Convention Act)]; • Scientific importance; • Linkages to potential Project effects
	Least bittern	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
	Yellow rail	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
	Ferruginous hawk	• Regulatory [Protected species (Wildlife Act, MESA, SARA)]; • Linkages to potential Project effects
	Burrowing owl	• Regulatory [Protected species (Wildlife Act, MESA, SARA)]; • Linkages to potential Project effects
	Short-eared owl	• Regulatory [Protected species (Wildlife Act, SARA)]; • Linkages to potential Project effects
	Common nighthawk	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
	Whip-poor-will	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
	Red-headed woodpecker	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
	Olive-sided flycatcher	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects

	Loggerhead shrike	• Regulatory [Protected species (Migratory Birds Convention Act, MESA, SARA)]; • Linkages to potential Project effects
	Sprague's pipit	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
	Golden-winged warbler	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
	Canada warbler	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
	Rusty blackbird	• Regulatory [Protected species (Migratory Birds Convention Act, SARA)]; • Linkages to potential Project effects
		•
Mammals	Beaver	• Importance to people; • Keystone species; • Umbrella species; • Indicator species (riparian habitat)
	American Marten	• Importance to people; • Indicator species
	Wolverine	• Importance to people; • Conservation listing
	Elk	• Important to people; • Keystone Species; • Umbrella species
	Moose	• Keystone Species; • Umbrella species; • Importance to people
Caribou	Barren-ground caribou and woodland caribou	• Regulatory [Conservation Status (boreal woodland caribou)]; • Importance to people; • Keystone Species; • Indicator species

Soils – Terrain	• Soil Productivity	• Socio-economic value
	• Unique Terrain/Soil Features o Protected Areas Initiative (PAI) Enduring Features o Other Unique Terrain/Soil Features	• PAI Single-occurrence features; • PAI Rare-occurrence features; • Expert judgment; • (ATK)
	• Stable Terrain	• Expert judgment; • Sensitive terrain
Groundwater	• Aquifer Quality	• Socio-economic value
	• Aquifer Productivity	• Socio-economic value
Aquatics	• Fish Habitat	• Regulatory [Protected under federal legislation]; • Socio-economic value
	• Surface Water Quality	• Component of fish habitat; • Socio-economic value
Amphibians, Reptiles and Invertebrates	• Northern Prairie Skink	• Regulatory [Protected under federal and provincial legislation]; • Rare habitat
	• Red-sided Garter Snake	• Uncommon habitat (denning); • Sensitivity to disturbance
	• Northern Leopard Frog	• Regulatory [Protected under federal legislation]
	• Plains Spadefoot	• Regulatory [Protected under provincial legislation]; • Isolated population
	• Wood Frog	• Only herptile found throughout entire Study Area • Good representation of forest-dwelling herptile
	• Dakota Skipper	• Regulatory [Protected under federal and provincial legislation]; • Rare habitat
	• Ottoe Skipper	• Regulatory [Protected under federal and provincial legislation]; • Rare habitat
	• Uncas Skipper	• Regulatory [Protected under provincial legislation]; • Rare habitat

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The Bipole III Transmission Project footprint traverses five (5) ecozones and seven (7) ecoregions. For an explanation of the Project effects assessment on VECs at the ecoregion level versus VEC specific study areas, see *CEC/MH-II-001g*.

Terrestrial Ecosystems and Vegetation

The terrestrial ecosystems and vegetation VECs were characterized and assessed at the ecoregion level at the alternative route identification and evaluation process. Project effects, measured by individual plants or small plant communities (area), are minimalized when assessed against relatively large ecological units such as ecozones.

Birds and Mammals

One factor used in the selection of bird and mammal VEC was the association of each species with broad habitats. Although a variety of broad habitat types may be found throughout the study area, the proportions in which they occur are representative of one or more ecozones. Bird and mammal occurrences and range limitations are often associated with broad habitats, and not necessarily to the Ecozone. Although VEC selections were based on factors other than selecting by ecozones, all ecozones along the Bipole III FPR are represented. The smaller ecological units of Ecodistricts and Ecoregions were used in the alternative routing process, in the existing environment description where ecological linkages and context were needed for discussion purposes.

Soils and Terrain

Soil and terrain VECs were evaluated against Ecoregions (sub-unit of ecozone) for the purposes of describing and characterizing the existing environment. However, due to the broad scale of ecoregions their use was generally limited to providing qualitative locational information for the purposes of evaluating potential environmental effects. Specifically for the soil and terrain VEC of Unique Terrain/Soil Features, potential effects to the Protected Areas Initiative (PAI)-identified Enduring Features were evaluated against representation within PAI-defined Natural Regions, which generally correspond to Ecoregions. The VEC of Stable Terrain is azonal in nature and is independent of an ecoregion concept.

Groundwater

Groundwater VECs were not evaluated against ecological units, as these are independent of one another (i.e., the location and extent of groundwater features do not relate to the Canadian Ecological Framework ecological units that are defined based on consideration of surficial features). Rather, groundwater VECs of Aquifer Quality and Aquifer Productivity were evaluated using a risk-based approach focused on local environmental and socio-economic considerations (e.g., aquifer usage and characteristics where known aquifers were identified under project footprints).

Aquatics

Because streams and watersheds often cross terrestrial ecological units (e.g., ecozones or ecoregions), watershed units (major basin and sub-basin) were used to describe the aquatic environment for the Project. The Project is highly site specific and therefore the effects assessment focussed on the specific site on a water course.

Terrestrial Invertebrates, Amphibians and Reptiles

The effects assessment for terrestrial invertebrates, amphibian and reptiles included a comparison of suitable habitat for VEC species within the right-of-way (ROW) and that within the local study area stratified by terrestrial ecozone, ecoregion and ecodistrict. In addition, mitigation for a specific VEC was adjusted based on the ecozone. For example, mitigation for northern leopard frog breeding habitat was more restrictive in the prairie and boreal plain ecozones due to the higher prevalence of this species and distribution of breeding habitat in these ecozones.

For details on the application of the VECs specific to the effects assessment of the Project and VEC specific study areas (ecological units or other), please see response to *CEC/MH-II-001g*.

Date	May 29 2012
Reference	Executive Summary and Introduction
Source	CEC Information Request # 2
Question	CEC/MH-II-001g

Question:

Reference: Executive Summary and Introduction – Volume 1

Please indicate why the project application did not separate and evaluate VEC's for the five ecoregions along the ROW.

Response:

Response – Socio-economic

See response to *CEC/MH-II-001f*

Response - Biophysical

The Bipole III Transmission Project footprint traverses five (5) ecozones and seven (7) ecoregions. CEC/MH-II-001f describes how biophysical VECs were selected for the Project. Biophysical VECs are often not specific to ecoregions. For example, most wildlife species select habitat at multiple spatial scales ranging from the site level up to the landscape level. At the ecoregion level, project application can be problematic as many VEC species range over multiple ecoregions. The ecological classification system of ecozones and ecoregions is based on large-scale and coarse groupings of similar soil types, climate, etc. that enable only very broad wildlife associations. At this scale, species associations tend to lose their relevance as compared to, or associated with, the smaller and more appropriate scales selected for effects assessment purposes. In addition, conducting the effects assessment at the ecoregion level would have led to redundancies in describing effects where species range across several ecoregions.

Project effects are typically assessed on specific study areas, for each VEC species, that are large enough to support the population being assessed and are directly affected by the project

(resulting in different study area sizes for different species/VECs). Project effects assessment study areas are generally relatively small for species/VECs with small home ranges (e.g. northern prairie skink) and large for wide-ranging species/VECs (e.g. woodland caribou). As a result this approach relates the effects of the Bipole III Transmission Project more clearly and in a more meaningful way to the identified species/VEC.

Date	May 29 2012
Reference	Executive Summary and Introduction
Source	CEC Information Request # 2
Question	CEC/MH-II-001hi

Question:

Reference: Executive Summary and Introduction – Volume 1

For the four VEC's identified as a particular concern,

- namely one biophysical VEC (boreal woodland caribou) affected by construction specific to the Gillam area, please provide the specific "extensive" mitigation measures that will be undertaken.

Response:

The four VECs identified in the Executive Summary and Introduction relate to only those VECs where potential adverse effects could not be avoided or mitigated. They include one biophysical VEC (boreal woodland caribou – three specific ranges that are not present in the Gillam area), and three socio-economic VECs in the Gillam area. The discussion of mitigation measures applies to these three boreal woodland caribou evaluation ranges (Wabowden, Reed Lake and The Bog evaluation ranges).

Mitigation measures for boreal woodland caribou are being refined by Manitoba Hydro and will be included in the EnvPP and will include enhanced vegetation management, maintenance of wildlife corridors and access management in core winter range and calving habitat intersected by the Final Preferred Route. Monitoring and mitigation plans are currently being reviewed by Manitoba Hydro in consultation with Manitoba Conservation and Water Stewardship (MCWS). Manitoba Hydro will have continuing discussions with MCWS regarding caribou mitigation and monitoring time.

Date	May 29 2012
Reference	Executive Summary and Introduction
Source	CEC Information Request # 2
Question	CEC/MH-II-001hii

Question:

Reference: Executive Summary and Introduction – Volume 1

For the four VEC's identified as a particular concern,

ii. and three socio-economic VEC's

Affected by construction specific to the Gillam area, please provide the specific "extensive" mitigation measures that will be undertaken.

Response:

The four VECs identified in the Executive Summary and Introduction relate to only those VECs where potential adverse effects could not be avoided and where there were residual effects after mitigation. They include one biophysical VEC (boreal woodland caribou – three specific ranges), and three socio-economic VECs in the Gillam area. Page (v) of the Executive Summary notes the following three socio-economic VEC's affected by construction of the Project in the Gillam regional area that are of particular concern:

- Public safety – Flowing from potential worker interactions with members of the local community in the Gillam area;
- Transportation – Air travel to Gillam; and
- Community Services.

The proposed mitigation measures are as outlined in the effects assessment in Chapter 8 of the EIS (sections 8.3.4 and 8.3.5):

- Public Safety – mitigation measures related to potential worker interactions with members of the local community in the Gillam area are outlined on pages 8-328 to 8-331 of the EIS document. Subsequent to the November 2011 filing of the Bipole III EIS, a socio-economic supplemental filing was provided on July 31, 2012. The socio-economic supplemental filing included a revised effects assessment on the personal, family and community life VEC of public safety (see Tab 4.5) that replaces the text on pages 8-235 to 8-330. The mitigation measures contained in the supplemental filing include the following:

  <u>Measures focused on construction workers at the Project site:</u>

  - Cross-cultural training for all construction workers including expectations for appropriate behaviour when visiting communities;
  - A lounge and recreational facilities at the main camp to encourage workers to stay on site during their leisure hours;
  - Restriction of unauthorized public visits to the construction camp and associated facilities;
  - Discouraging non-northern workers from bringing their personal vehicles to site;
  - Restriction of the use of company vehicles for personal use;
  - A staffed security gate to monitor access to the site and prevent unauthorized access;
  - Operation of a shuttle to transfer incoming and outgoing workers between Gillam airport and the site; and
  - Establishment of a camp committee to oversee the implementation of consequences of inappropriate behaviour by workers in camp (part of Camp Rules).

  <u>Measures addressing prevention and coping for Gillam and FLCN residents:</u>

  - Ongoing dialogue between Manitoba Hydro and the Gillam RCMP to assist in identifying whether worker interaction is an issue; and

- Discussions between Manitoba Hydro, the Town of Gillam and FLCN to determine the best mechanism for tracking and addressing worker interaction issues and concerns across all of Manitoba Hydro's proposed projects in the vicinity of Gillam. It is anticipated that local justice and social agencies will be involved in these discussions, where appropriate, to gather data and to participate in the development of suitable mitigation measures.

- Transportation – mitigation measures related to air travel to Gillam are provided at page 8-308 of the EIS document. As was done for the Wuskwatim Generation Project, Manitoba Hydro will use a charter service to reduce the occurrence of a shortage of seats and delays to passengers on scheduled flights. The mitigation measure identified to minimize the effects on air travel is:

  - A regular air charter service (weekly, bi-weekly or other regular time) will be implemented to accommodate the workforce especially during peak construction periods to ensure that scheduled flights are still available for local residents.

- Community Services - mitigation measures related to community services are provided at pages 8-299 to 8-308 of the EIS document. Mitigation measures related to emergency medical services and police services include the following:

  <u>Emergency medical services</u>

  - During main camp construction, when workers are housed at the 'start-up' camp, there will be an ambulance and a fire truck at the camp;
  - Once constructed, the main construction camp will have a first-aid building and its own ambulance, thus limiting the need to use Gillam Hospital emergency services to severe cases; and
  - A coordination system will be established between the camp, Gillam, and other emergency services in the area (e.g., Henday Converter Station).

Policing Services

The following mitigation measures will reduce or address additional demands on Gillam policing services:

- Visits to Gillam by workers during their leisure time will be reduced during both the 'start up' and main camp stages;
- Workers will be provided transportation to and from the construction site to avoid the use personal vehicles;
- Training camp security personnel will deal with issues of impaired driving and intoxication;
- Camp behaviour and disciplinary policy will be established to discourage workers from engaging in inappropriate behaviours; and
- Rigorous enforcement for impaired driving will be implemented between the construction camp and Gillam, carried out in coordination with security personnel at the camp access gate.

Date	May 29 2012
Reference	Draft EPP
Source	CEC Information Request # 2
Question	CEC/MH-II-002l

Question:

Reference: Draft Environmental Protection Plan

Please provide results of environmental audits conducted for the construction and maintenance of Bipole I and II, and Wuskwatim.

Response:

There have not been any formal environmental audits conducted for the construction and maintenance of Bipoles I and II.

Bipoles I and II were built prior to the establishment of environmental regulations and the line maintenance follows Manitoba Hydro's Generic Environmental Protection Plan. Prior to the start of any maintenance operations, a pre-start meeting process is undertaken to review the environmental concerns and controls required for that particular project.

For the Wuskwatim Transmission Project, no formal environmental audits have taken place to date. The Environmental Protection Plan and associated work permits were followed by all contractors and Manitoba Hydro personnel who worked on the project. The work permits were issued by Manitoba Conservation and inspections were undertaken by the local NRO (Natural Resource Officer) to ensure compliance with the terms and conditions. Any deficiencies noted by the NRO were dealt with immediately by Manitoba Hydro. As the Wuskwatim transmission line just recently went into service, there have been no requirements for maintenance of the line and any maintenance activities will follow the Generic Environmental Protection Plan until the Operational Environmental Protection Plan is reviewed and implemented.

Date	May 29 2012
Reference	Draft EPP
Source	CEC Information Request # 2
Question	CEC/MH-II-002m

Question:

Reference: Draft Environmental Protection Plan

Please provide a clearer delineation of the criteria used to determine if something is reasonable, feasible or practical, and a "working" definition of "to the extent possible".

All these terms are subjective and are left to personal judgement. Are there some criteria that are used to determine what is considered reasonable, feasible or practical? Who makes the call?

Response:

When determining what is reasonable, feasible or practical in each circumstance, Manitoba Hydro will consider best practices and overall environmental protection, and will utilize professional judgment. While no specific criteria for each of those terms has been established, the ultimate decision will be made by Manitoba Hydro in keeping with its Environmental Management Policy and conditions of the environmental regulatory licence.

Date	May 29 2012
Reference	Chapter 7
Source	CEC Information Request # 2
Question	CEC/MH-II-003c

Question:

Reference: Preliminary Preferred Route/Final Preferred Route – Chapter 7

Please provide supporting documentation pursuant to Table 7A-1 on the selection process for segments in the last two iterations (e.g. P1 and P2).

Response:

As part of the alternative route selection process for Bipole III, alternative route segments were initially identified that routed over portions of the Thompson Nickel Belt (TNB). The selection of the initial preferred route (Outcome 1) included segments B9 and BB2 between Thompson and Hargrave Lake (EIS Chapter 7, Appendix 7A, Table 7A-1 [4 of 14]). Although it was a good fit relative to caribou ranges, other anthropogenic development and separation from Bipoles I & II, the mining sector was extremely concerned over potential shadow effects the HVdc transmission line would have on geophysical exploration in the TNB and existing mining claims and leases (See response *CEC/MH-II-015a*). The TNB, described as a very high mineral potential geological formation, is oriented northeast-southwest and located between north of Thompson and northeast of The Pas.

A number of alternative routes were examined to resolve the issue including routing north of Thompson (B9-1, B9-2) and paralleling the TNB on the west side (B10-1) to minimize the length of line located directly on the TNB (EIS Chapter 7 Maps, Map 7-1000-02). The primary ecological considerations in this area included woodland caribou populations, their core habitat areas and habitat fragmentation. Routing options north of Thompson (B9-1, B9-2) placed the line west of the TNB (B10-1) into relatively undisturbed habitat. The community of Wabowden was also strongly opposed to routing west of the town along PTH 6, close to the Setting Lake

campground. These concerns focused the study team on routing the line in areas previously disturbed by human development east of Paint Lake Provincial Park and Wabowden (P1 & P2). This area has seen extensive forestry development, some mineral exploration, contains the winter road to the communities of Thicket Portage and Pikwitonei, existing transmission lines, as well as the Hudson Bay Railway Company rail line connecting The Pas, Thompson, Gillam and Churchill.

Subsequent to the identification of segments P1 & P2, and additional input from the mining sector on other alternative routing options to address the "shadow effect" issue, four new options for alternative line routing were identified and investigated by Manitoba Hydro (Map 7-13). The mining constraints were one of 8 principal factors/issues considered in the selection of a preferred route alternative in the TNB area, including: boreal caribou, land use, recreation, community, technical, resource management and fragmentation. The four basic options utilized the preliminary preferred route that ran southwest east of Paint Lake Provincial Park as the lead-in to the new routing alternatives between Paint Lake and Hargrave Lake. Option 2 (which utilized a portion of segment P1) and Option 3 were eventually selected as the final preferred route based on the fact that they largely avoided crossing through the mining claims and lease areas within the TNB and routed through existing forest development areas. The final preferred route selected in this area along with the four alternative route options considered are shown on EIS Chapter 7 Maps, Map 7-13.

Date	May 29 2012
Reference	Chapter 8 – Table 8.2, 3- Reference 11
Source	CEC Information Request # 2
Question	CEC/MH-II-004ab

Question:

Chapter 8 – Table 8.2, 3- Reference 11

a) Please provide the types of impacts that ultimately conclude that issues are "Overall – Not Significant".

b) Please confirm how data were collected and evaluated to determine the resultant rankings.

Specifically what are the criteria, data and methods used to determine the resultant rankings?

Response:

Determinations of "Overall Not Significant" are based on the methodology as set out in Chapter 4 (Assessment Approach) of the EIS. Chapter 4 of the EIS reviews the process for selection of VECs (section 4.2.6), data gathering (section 4.2.7), identification and assessment (section 4.2.8), identification of mitigation measures (section 4.2.9) and residual effects significance evaluation (section 4.2.10).

Specific analysis for each VEC listed in Chapter 4 by project component is set out Chapter 8 (Environmental Effects Assessment) as follows:

- Terrain and Soils (section 8.2.1)
- Air Quality and Climate (section 8.2.2)
- Groundwater (section 8.2.3)
- Aquatic Environment (section 8.2.4)

- Terrestrial Ecosystem and Vegetation (section 8.2.5)
- Mammals and Habitat (section 8.2.6)
- Birds and habitat (section 8.2.7)
- Amphibians and reptiles (section 8.2.8)
- Terrestrial invertebrates (section 8.2.9)
- Land use (section 8.3.1)
- Resource use (section 8.3.2)
- Economy (section 8.3.3)
- Services (section 8.3.4)
- Personal, family and community life (section 8.3.5)
- Culture and heritage (section 8.3.6)

The criteria used to evaluate the significance of residual effects were as provided in the Manitoba Hydro July 2010 Scoping Document, which set out that the significance of the residual environmental effects will be evaluated based on best and current practices, and will use a pre-determined significance evaluation framework that will include the following factors:

- Ecological value;
- Societal value;
- Nature of the effect;
- Magnitude of the effect;
- Geographic extent of the effect;
- Frequency of the effect;
- Duration of the effect; and
- Reversibility of the effect.

As provided in the Scoping Document the assessment framework considered the applicable legislation, guidelines, standards and codes, risks to the environment and human health, results

of scientific study and analysis, Aboriginal Traditional Knowledge and local knowledge, for all phases of the proposed Project from site preparation, construction, and operation and maintenance to decommissioning. Criteria, data and methods were developed for this approach and the assessment was conducted by a number of specialists, please refer to individual technical reports.

Date	May 29 2012
Reference	Right of Way
Source	CEC Information Request # 2
Question	CEC/MH-II-005b

Question:

Reference: Right of Way

Please file any studies carried out by other utilities respecting ROW management practices and alternatives to complete clearing in an absolute linear fashion. Please provide comments on MH consideration of alternative methodologies to the proposed practice of linear corridor development.

Response:

Manitoba Hydro will not be filing studies from other utilities on ROW management. Manitoba Hydro is investigating alternative methodologies to complete ROW clearing of all vegetation, such as the retention of low growth vegetation such as grasses, forbs and shrubs, which will limit clearing effects and maintain some wildlife value. This has been stated as an environmental protection measure in the draft Environmental Protection Plan (EIS Chapter 11, Attachment 11-1). For caribou and moose, Manitoba Hydro is considering establishing wildlife corridors to reduce line of sight and provide natural movement across the transmission line ROW in certain areas. This alternative methodology is being evaluated for: safety during construction and operations, regulatory vegetation clearance requirements, and suitability for caribou and moose use as travel corridors.

Date	May 29 2012
Reference	Right of Way
Source	CEC Information Request # 2
Question	CEC/MH-II-005f

Question:

Reference: Right of Way

It is stated in many areas that there will be an effort to use existing access routes to construct and maintain the line, please provide the location of known access routes, outline what their current use is, how utilizing them for line construction and maintenance may change their size and structure and what effect will that have on current users and the surrounding environment? What will be the fate of these roads once construction is completed?

Response:

Manitoba Hydro is currently developing an Access Management Plan that will show the locations and current uses of existing known roads, trails and cut lines that could potentially be used for access to the right-of-way (ROW) for the transmission component of the project. Contractors will be restricted to use these routes only, unless they are not suitable e.g. impassable trails due to highly wetted areas in which case the contractor may need to construct others, but they will need prior approval from Manitoba Hydro, Manitoba Conservation and Water Stewardship before doing so. Very little, if any new access road construction is anticipated to be required due to Manitoba Hydro undertaking a preliminary construction access review.

The existing access routes that intersect the proposed Bipole III Transmission line ROW include provincial highways, municipal roads and road allowances, forestry and mining roads, winter roads and existing transmission line ROWs. In the north, many of these are seasonal roads that are limited strictly to winter use.

Changes to the size and structure of existing trails may include re-clearing the previously existing ROW and possible widening, where required. No permanent improvements are anticipated for any access roads except at the northern infrastructure site (i.e. Keewatinoow).

Aside from an increased level of traffic during the construction period, there should be very limited effects to current users of access routes. Care will be taken to avoid damage to highways, municipal, forestry and mining roads. Manitoba Hydro will repair all damages to road infrastructure caused as a result of its activities. Similarly, damages to roads/trails on private lands will be also repaired or compensated by Manitoba Hydro. Resource and traditional users of access roads/trails will continue to have access during the construction period as outlined in the access management plan. An environmental effect of access is increased traffic levels and associated sensory disturbance to wildlife, which may result in wildlife avoiding the area during construction.

Generally, once construction is complete, any new trails/roads that have been constructed by Manitoba Hydro will be decommissioned unless they are required for access by Manitoba Hydro Line Maintenance crews. All roads/trails currently existing will be left in the condition found and will be available to traditional users, unless specified otherwise by Manitoba Conservation and Water Stewardship.

Date	May 19th 2012
Reference	Right of Way
Source	CEC Information Request # 2
Question	CEC/MH-II-005g

Question:

Reference: Right of Way

Access will be a serious issue. Communities will want it for economic reasons but impacts on the ecosystem must also be taken into consideration. How will the competing priorities be reconciled? What methods will be used in the determination? What role does the Manitoba Government have in this determination? Please comment.

Response:

Access is a serious issue and has been considered in the environmental assessment of the Bipole III project. Manitoba Hydro does not see competing priorities on this issue as the increased access for resource users and harvesters (community interests) is a by-product of the transmission line clearing and not considered a project benefit or opportunity. As such MH does not have interest in preserving access along the ROW for other uses or users, other than for periodic ground inspection and maintenance. However, as part of access management MH will decommission or restrict access in accordance with MCWS resource manager requirements. The Manitoba government role on the access issue will be through the review and approval of the environmental impact assessment and in working with Manitoba Hydro on access mitigation and any required monitoring.

Background:

The main aim of the environmental assessment is to reduce or avoid potential environmental effects such as those related to increased access. The construction of the Bipole III transmission line requires the clearing of a 66 m right-of-way which could potentially create a travel corridor for humans and predators into new non-agricultural and forested areas. The

issue of new access has been considered in the EIS as an issue in particular for large ungulates (moose, caribou) and fur-bearers. Potential effects have been described in the EIS that include habitat fragmentation, disturbance, predator use, and overharvesting (hunting, trapping, poaching) (p.8-82 Chapter 8 EIS). The EIS has assessed the issue of access for many biophysical components and mitigation measures have been stated to reduce the potential effects of increased access.

Manitoba Hydro is currently developing an Access management plan that will prescribe mitigation measures to reduce and prevent access onto the transmission line ROW. Specific access management measures and locations will be developed in consultation with MCWS. For further discussion of access management please see *CEC/MH-III-121***.**

Date	May 29 2012
Reference	Right of Way
Source	CEC Information Request # 2
Question	CEC/MH-II-005h

Question:

Reference: Right of Way

Presumably, there will be several contractors involved in the marshalling, construction of access roads and clearing of the right-of-way. Please provide the procedures that will be in place to oversee the above activities to ensure that approved clearing and disposal of trees are carried out consistently and within the minimum standards allowed. What group will be responsible for the oversight?

Response:

To ensure consistency and adherence to the minimum standards with respect to marshalling, construction of access roads, and clearing of the right-of-way, overall oversight will be done by Manitoba Hydro's Transmission Line staff. This group is responsible for all construction activities related to transmission line clearing.

All clearing activities must be done in accordance with the Environmental Protection Plan and the terms of *The Environmental Act* license issued. Manitoba Hydro construction supervisors and environmental inspectors will work with the contractors to ensure they are aware of and adhere to the requirements of both documents as they pertain to clearing, as well as any conditions in the license related to timber salvage. The draft Environmental Protection Plan (EIS Chapter 11, Attachment 11-1) outlines the process for environmental management and inspection under the Environmental Protection Program for the project.

Date	May 29 2012
Reference	Right of Way
Source	CEC Information Request # 2
Question	CEC/MH-II-005i

Question:

Reference: Right of Way

Please provide details on how MH will manage fragmentation beyond the planning stage, particularly with respect to maintenance of travel corridors and intensive management of remaining habitat at the landscape scale and management for edge effects. Particularly in line sections approximating from Mafeking to Langruth.

Page 8-65 Fragmentation Mitigation measures are not identified, as fragmentation effects are non mitigable for the transmission lines, Keewatinoow converter station, construction camps, borrow sites and access roads/trails as a result of vegetation clearing.

Avoidance is a mitigation method! In the Agriculture section it was stated that fragmentation of the agricultural fields would be avoided by using existing linear features to the extent possible. This approach does not seem to have been applied to other sections of the line. Alternate methods of vegetation management should be explored as described above.

Response:

Much of the routing from east of Pine River to PTH 16 utilizes pasture and forage crop lands that are considered compatible land uses with a transmission line development. In the northern forested zone the preferred route traverses some bogs and fens where clearing requirements are minimal due to limited and stunted tree growth (i.e., Keewatinoow to Little Limestone Lake, between Muningwari and Dyce lakes, Frog Creek to Cormorant Lake, from east of PR 384 to the Saskatchewan River, from Montreal Lake to the Red Deer River, from the Steeprock River to northeast of Bellsite, portions of the area between the Lenswood Community Pasture and PTH 20), thus significantly minimizing the effects of fragmentation.

The route selection process for the Bipole III Transmission Project minimized fragmentation effects where practicable on native species by avoiding ecologically important areas, including forests, wetlands, wildlife management areas, protected areas, important bird areas, etc. These are areas where potential project effects, including fragmentation, could have a greater risk of population and habitat effects, and consequently, avoidance was the primary means of mitigation. Avoidance of contiguous forested habitat was given further consideration as edge effects in these habitat types are usually higher than in shrubland and grassland-dominated habitat types.

Careful routing has also minimized the need for the development of new access. Manitoba Hydro anticipates that very little new access development will be required (limited primarily to the northern infrastructure components. Routing across more than 300 streams, numerous fens, bogs, marshes, etc. further significantly limits access and associated disturbance related effects. In addition to the above, a number of mitigation measures (that will in turn minimize the effects of fragmentation) have been identified by Manitoba Hydro specific to the construction, maintenance and decommissioning phases of the project, including:

- Maintaining low growth natural vegetation in critical areas to act as wildlife corridors (E.g., Wabowden and The Bog woodland caribou ranges);
- Buffers and setback distances from riparian areas that will also function as wildlife corridors;
- Decommissioning of access in key areas when construction is complete;
- Adherence to timing windows for clearing, construction, maintenance and decommissioning activities;
- Limiting clearing activities along most of the ROWs to winter construction;
- Limited grubbing during clearing ensures a rapid re-growth of native vegetation on the ROW;
- The development of a vegetation management plan that promotes re-vegetation of cleared areas and focuses on developing a stable, diverse, native species vegetation community (i.e., minimize edge effects on the ROW by allowing taller shrub growth where practicable to provide escape cover, line-of-sight reductions and reduce recreational access);

- Collaboration between Manitoba Hydro and Manitoba Conservation and Water Stewardship when responding to requests for ROW use for recreational trails; and
- Use of aerial line inspection methods to limit on-the-ground access.

Date	May 29 2012
Reference	Re-vegetation
Source	CEC Information Request # 2
Question	CEC/MH-II-006b

Question:

Reference: Re-vegetation

How will the re-vegetation plan be implemented and managed?

Response:

During the construction phase and until the line is energized, any re-vegetation that is required as a result of the Project will be implemented and managed in accordance with the Construction Phase Environmental Protection Plan.

Once the line has been energized, these areas would be identified to Manitoba Hydro line maintenance for any additional monitoring that may be required in accordance with the Operation Phase Environmental Protection Plan.

Date	May 29 2012
Reference	Re-vegetation
Source	CEC Information Request # 2
Question	CEC/MH-II-006d

Question:

Reference: Re-vegetation

It is not clear, when different things were stated in different parts of the report. What the plan is for vegetation management in the ROW. Some places it states that vegetation will be cleared, other places only the trees, other places wildlife corridors will be left and some places herbicides will be used and it is not clear where or to what extent natural regeneration will be allowed. Please provide a summary regarding the issues discussed above. See comment on ROW above.

Response:

Manitoba Hydro's vegetation management plan associated with the Project is being developed and implemented as part of construction and operation phase environmental protection plans (see Draft Environmental Protection Plan EIS Chapter 11, Attachment 11-1). Differing areas may require different techniques or clearing methods to mitigate for impacts of the construction activities. For example riparian areas, will require more selective clearing to ensure buffer zones are maintained as compared to a fen where there is usually little to no substantial tree growth. The establishment of wildlife corridors will require coordination and collaboration with Manitoba Conservation and Water Stewardship to determine where these corridors could be located and if feasible to do so. Natural regeneration will occur wherever there is not an alternative use. Where feasible, vegetation management is designed to encourage low growth natural communities that are compatible with line operation.

Please see responses provided for *CEC/MH-II-006a, CEC/MH-II-006b, CEC/MH-II-006c, CEC/MH-II-006e, and CEC/MH-III-108*

Date	May 29 2012
Reference	Re-vegetation
Source	CEC Information Request # 2
Question	CEC/MH-II-006e

Question:

Reference: Re-vegetation

Could natural re-vegetation be allowed and selective tree harvesting be undertaken when they get too tall? Is this the same method that will be used to clear the line in the private woodlots and in riparian areas? See above.

Response:

Following right-of-way (ROW) clearing, Manitoba Hydro's preference is that the areas will naturally re-vegetate, allowing for a predominance of low growth plant and tree communities. A low growth plant/tree community allows for less intensive maintenance on the ROW and will out compete tree species that have the ability to grow to heights that could become an issue for the safe operation of the transmission line. Selective tree harvesting as trees get too tall significantly increases construction and operational costs, as well as contact risks if a tree grows faster than anticipated.

During the construction of the transmission line, selective clearing is employed in some areas of stagnant/stunted tree growth where appropriate, and on identified environmentally sensitive sites, such as riparian areas. Environmentally sensitive sites will either be hand cut or selectively cleared through utilization of a feller buncher, and where appropriate will follow the Fisheries and Oceans Canada's Operation Statements (i.e. riparian areas). Construction activities, such as tower assembly and erection will require all trees to be removed as they will pose a significant safety hazard for the construction crews and can potentially damage the towers if they come into contact with trees.

Woodlots will be cleared and the trees left to the owner with compensation.

Date	May 29 2012
Reference	Agriculture Technical Report (P.110 Bullet 3)
Source	CEC Information Request # 2
Question	CEC/MH-II-007a

Question:

Reference: Agriculture – Volume 10.0

With respect to the conclusions on p.110, bullet #3, please indicate if a study has been or will be conducted related to movements and access sites.

Response:

This study was not carried out as part of the Agriculture Technical report.

Date	May 29 2012
Reference	Agriculture Technical Report
Source	CEC Information Request # 2
Question	CEC/MH-II-007b

Question:

Reference: Agriculture – Volume 10.0

Please provide comments on the potential loss of shelterbelts and their effects. Will they be replaced?

Response:

Losses of shelterbelts, due to the Bipole III Transmission Project, in the agricultural zone are quantified in the Forestry Technical Report, Section 5.2.3.5 as totaling approximately 19 ha. The aerial measurement is a reflection of tree crown size as seen from aerial photography versus ground level area. It is all-inclusive of natural and planted shelterbelts.

The benefits of shelterbelts generally relate to wildlife habitat, moisture retention and soil protection from wind erosion. Shelterbelt loss or damage as a result of construction will be eligible for compensation or replacement under Manitoba Hydro's comprehensive landowner compensation policy for the Project. As such individual landowners make the decision on whether to replace damaged or lost shelterbelts and regain the potential benefits provided by their presence.

Date	May 29 2012
Reference	Agriculture Technical Report
Source	CEC Information Request # 2
Question	CEC/MH-II-007c

Question:

Reference: Agriculture – Volume 10.0

Please provide some possible recommendations including shorter lengths and erosion related issues.

This comment was in regard to shelter belts. Can shorter lengths of shelter belts be used, are there other species that could be used that would not interfere with the line? How will removal affect erosion control?

Response:

Manitoba Hydro needs to work with the landowner to find a solution to shelterbelt removal by replacing the shelterbelt off the right-of-way or planting low height vegetation if perpendicular to the right-of-way. The landowner also may not wish to replace the wind erosion protection benefits from shelterbelts due to current cropping practice or crop management. In some areas shelterbelts are being taken out so field size can increase and to facilitate spraying of crops as spray drift from farm sprayers can have a detrimental effect on the trees in the shelterbelt..For row crops such as potatoes or soybeans, where there is little residue left on the field, wind can cause erosion, even on the heavy clay soils in the Red River Valley. Potatoes are mostly grown on sandy soils where wind erosion is a greater problem. For these crops it is worthwhile to have any shelterbelt including shorter rows of trees. Under the line, especially if the tree row is perpendicular to the line, planting shorter trees or perennial grasses or shrubs could be an option.

Compensation is provided for the loss of a shelterbelt related to the transmission line right-of-way under the Landowner Compensation Policy for Bipole III.

Date	May 29 2012
Reference	Agriculture Technical Report (Section 2.3)
Source	CEC Information Request # 2
Question	CEC/MH-II-007e

Question:

Reference: Agriculture – Volume 10.0

Despite qualifying statements in Vol. 10, Section 2.3, there is continual reference throughout Volume 10 to the need to accommodate 1/4 section centre irrigation pivots. Can towers be placed in one of the 4 corners of a quarter-section not irrigable by a centre-pivot system? What would the impact be of a slightly smaller pivot system?

Response:

Tower placements for the Bipole III Project will have spans of 480 to 500 m. A quarter section is 800 m, therefore the towers will need to be placed inside of the quarter section. Manitoba Hydro would have to discuss the potential to have smaller pivot irrigation systems with the landowner. Smaller systems would mean fewer acres could be irrigated.

The soils with the potential to accommodate pivot irrigation begin south of Elm Creek and continue to north of #1 Highway to where the railway track crosses the ROW. This is about 90 km in length. The fact the line does not pass close to any irrigation pivot is a product of the routing process. However, a new pivot irrigation system could be established next or over the ROW at any time throughout the area. Tower placement, in this circumstance, should to be determined by Hydro Engineers. We do know that it is possible to irrigate under a large scale power line as this is demonstrated in the literature provided the water stream does not contact the line. The towers cannot be placed at the outer extremity of the pivot circle on a quarter section.

Date	May 29 2012
Reference	Agriculture Technical Report (S. 13, P. 14)
Source	CEC Information Request # 2
Question	CEC/MH-II-007f

Question:

Reference: Agriculture – Volume 10.0

In Volume 10, Section 3.0 Methods and Procedures page 14. there is a listing of information sources for identifying agricultural use. Why is there no reference to or use of the Manitoba Agricultural Services Corporation (MASC) Soil Capability Ratings? The rating maps for each rural municipality in agri –Manitoba are useful indicators of land productivity under modern agricultural cropping technology and form the basis for crop insurance coverage for the various crops insured by MASC.

Response:

The MASC maps were developed from Canada-Manitoba Soil Survey, Reconnaissance Soil Survey Maps.

Canada Land Inventory Soil Capability Maps and Canada-Manitoba Soil Survey, Reconnaissance Soil Survey Maps the Manitoba Soil Survey Maps for the Study Area and aerial photography were used develop the Soil Capability maps for the Bipole III study.

Date	May 29 2012
Reference	Agriculture Technical Report (P. 15)
Source	CEC Information Request # 2
Question	CEC/MH-II-007g

Question:

Reference: Agriculture – Volume 10.0

How did Manitoba Hydro arrive at the relatively high priority shown to avoid irrigation systems and irrigable lands (Vol. 10, p.15). What percentage of crops along the proposed routing of Bipole III are irrigated?

Response:

Agriculture was one of 28 criteria used in review of alternative routes and selection of a preferred route (Appendix 7A EIS Chapter 7). The agriculture criteria used a ranking system of low to high for level of constraint for a particular route segment based on the following priority list: dwellings and farm yards, intensive livestock operations, lands under irrigation and with irrigation potential, row crop areas, intensive annually cropped areas, tame forage areas, mixed farming areas with some cultivated land, native pasture and hay lands, and land with limited or no agricultural use. The objective of the evaluation was to select route segments with the least impact on agriculture. Irrigated land was seen as a higher priority on the list due to the value of the land and the limitations on irrigation adjacent to a transmission line right-of-way.

The percentage of irrigated crops along the preferred right-of-way is not known due to annual crop rotations and any new irrigation development. As indicated in response *CEC/MH-II-007e* the Final Preferred Route only passes 90 km of soils with the potential to accommodate pivot irrigation out of a total route length of 1384 km.

Date	May 29 2012
Reference	Agriculture Technical Report (p.50 & 51)
Source	CEC Information Request # 2
Question	CEC/MH-II-007h

Question:

Reference: Agriculture – Volume 10.0

Please define field severance (Volume 10, p.50) and management severance (p. 51). Assuming that these have the same meaning, why is severance a significant impediment to efficient cropping operations? The photos of existing transmission lines in Section 9.8.9 do not show severance.

Response:

The installation of a large scale power line like Bipole III within an annually cropped field will create what is defined as a field or management severance, and the terms are used synonymously in the technical report. If a transmission line is on the half mile line and both sides are owned by the same landowner, he may choose to split (severance) the field based on the ability to seed and spray crops in a normal fashion. Field or management severance is not necessarily a significant impediment to cropping operation. It depends on the location of the line on the land and the crop and crop management practices of the landowner. Where the transmission line route is adjacent to road allowance or property boundary the impediment to operations would be less than an infield placement of towers.

The photos in the report were not intended to show field severance.

Date	May 29 2012
Reference	Agriculture Technical Report
Source	CEC Information Request # 2
Question	CEC/MH-II-007i

Question:

Reference: Agriculture – Volume 10.0

Why does exotic animal production deserve attention as a negative effect and worthy of special compensation? Is buffalo (bison) production still considered "exotic"?

Response:

Few exotic animal production locations were identified along the transmission line route. For some animal production operations such as buffalo the investment in enclosures and animal handling facilities may be higher than for conventional systems. Since the final preferred route does not cross intensive livestock operations such as feedlots or hog barns, exotic animal production was singled out as a separate category in the assessment of potential adverse effects to agriculture.

Buffalo was considered exotic for the purposes of the Agriculture Technical Report.

Date	May 29 2012
Reference	Agriculture Technical Report
Source	CEC Information Request # 2
Question	CEC/MH-II-007l

Question:

Reference: Agriculture – Volume 10.0

The last sentence in Section 9.8.1 Vol. 10 refers to the reverting of vegetation under towers over time to grass therefore aiding in the control of weeds in the adjacent field. Why is an appropriate type of grass not seeded under towers by Manitoba Hydro as a standard practice after construction is completed?

Response:

Manitoba Hydro will consider this suggestion for towers located on agricultural lands.

Date	May 29 2012
Reference	Agriculture Technical Report
Source	CEC Information Request # 2
Question	CEC/MH-II-007o

Question:

Reference: Agriculture – Volume 10.0

Re Section 9.8.8 Table 28, Residual Agricultural Effects suggests in Row 2 that soil damage will reduce yields for 1 to 3 years. What is the basis for this estimate?

Response:

The basis for this estimate was Manitoba Hydro's experience with construction of transmission lines and professional experience and judgment.

Date	May 29 2012
Reference	Agriculture Technical Report
Source	CEC Information Request # 2
Question	CEC/MH-II-007p

Question:

Reference: Agriculture – Volume 10.0

The sentence in the middle of page 102, Section 12.0, Residual Effects states that "Construction activities and damages should be back to normal in one to three years depending on the severity of the soil damage." Is this not inconsistent with the values provided in Table 29?

Response:

Table 29 should have stated 1 to 3 years under "Reversibility" in relation to "Soil Damage during construction admixing and compaction".

Date	May 29 2012
Reference	Agriculture Technical Report
Source	CEC Information Request # 2
Question	CEC/MH-II-007q

Question:

Reference: Agriculture – Volume 10.0

Please indicate how financial compensation to individual land owners and tenant operators compares to similar situations elsewhere such as the oil extraction industry and wind farms

Response:

Manitoba Hydro's compensation policy for major transmission projects such as BiPole 3 was designed to compensate on the following basis:
For an easement, landowners can expect to be compensated as follows:

- Land Compensation of 150% of the market value for granting the transmission line right-of-way.
- A one-time lump sum Structure Impact Payment, for each tower located on land classed as agricultural.
- Ancillary Damage Compensation where disturbance or injurious infection damages are justified.

Construction Damage Compensation for damages caused by construction activities.
There are other compensation models (such as those used for wind farms, oil extraction industry, other private sector energy companies) which are usually for-profit investor owned entities and their compensation policies are influenced accordingly. These models were not used as reference for the Bipole III model for these reasons.
Financial compensation to tenant operators is generally restricted to actual construction damages related to the construction, operation and maintenance activities only.

Date	May 29 2012
Reference	Converter Stations
Source	CEC Information Request # 2
Question	CEC/MH-II-008b

Question:

Reference: Converter Stations

Please indicate if there have been any environmental issues associated with the existing Bipole I and Bipole II converter stations with respect to transformer oils spills and containment design, insulating mineral oil spills and containment design

Response:

To comply with current corporate standards, Bipole I and Bipole II converter stations spill containment systems underwent a major upgrade project completed in 2004 at Dorsey and 2009 at Radisson and Henday. To date all facilities have continued to operate as designed.

Date	May 29 2012
Reference	Reference: Mammals Volume 3
Source	CEC Information Request # 2
Question	CEC/MH-II-010b

Question:

Reference: Mammals Volume 3

Marten are a species of a closed forest, mostly boreal, but will use openings where small mammals occur to hunt. The assumption is made that marten will move out with the initial clearing and move back in over time. It is not clear on how the ROW will be managed to determine if that is highly likely. Please comment.

Response:

Manitoba Hydro recognizes that marten are a valued furbearing species, and as such Manitoba Hydro will work with trappers during construction and operation. Manitoba Hydro initiated a pilot project to assess the effects of furbearer trapping success near and away from the Wuskwatim transmission line, and will continue with similar trapper participation to continue to verify these assumptions. Please see response provided for *CEC/MH-II-019a*.

Studies monitoring marten movement during the clearing of forested areas have found that mean home range sizes or overall population density did not significantly decline due to clearing (Poole et al., 2004). While it has been demonstrated that marten avoid large forestry clearcuts (Poole et al., 2004), it has been suggested that marten will use cleared areas as travel corridors (Heinemeyer 2002). Additionally, marten have been suggested to seek out clearcuts in summer months when berries are present (Steventon and Major, 1982). Although not a preferred habitat, marten have been documented to use and not avoid early seral vegetation communities consisting of shrub and saplings as well as recently disturbed areas (Poole et al, 2004).

Compared to potential landscape disturbances, including forest fires and forestry activities, the Bipole III transmission line ROW clearing is relatively narrow at 66 meters wide. The ROW will not result in any long term negative effect on marten populations. As described in the EIS (Section 8.2.6.4), there will be some expected disturbance and temporary displacement of marten during construction, but they are expected to move back into previously occupied habitats once construction is complete.

References:

Heinemeyer, Kimberly S. (2002). Translating individual movements into population patterns: American marten in fragmented forested landscapes.Thesis (Ph. D.)--University of California, Santa Cruz, 2002.

Steventon, J. D., & Major, J. T. (1982).Marten use of habitat in a commercially clear-cut forest. Journal of Wildlife Management, 46(1), 175-182.

Poole, K. G., Porter, A. D., Vries, A. D., Maundrell, C., Grindal, S. D., Cassady, C., & Clair, S. (2004). Suitability of a young deciduous-dominated forest for American marten and the effects of forest removal. Canadian Journal of Zoology, 435, 423-435.

Date	May 29 2012
Reference	Reference: Mammals Volume 3
Source	CEC Information Request # 2
Question	CEC/MH-II-010c

Question:

Reference: Mammals Volume 3

It is stated in the report that marten have a fairly large home range relative to their body size, but the size of the range was not provided. How does their home range size compare to the width and area of the ROW? Within marten range does the ROW have the potential to remove a significant number of home ranges? It is also mentioned that increased access to marten habitat will likely increase trapping success and that overharvesting is possible, how is this going to be monitored and if there is overharvesting how will this be addressed?

Response:

Male marten home ranges, according to Banfield (1984), occupy 2.38 km^2, while female marten occupy home ranges of 0.7 km^2. Buskirk and McDonald (1989) indicated that American marten of varying ages, sexes and location in North America have home range sizes ranging from 0.59 km^2 to 20.56 km^2. Within Manitoba, American marten have been recorded to have home ranges varying in size of 9.6 km^2 to 12.5 km^2 (Raine, 1981). Based on modeling of high quality habitat, there is an estimated 436.7 km^2 of high quality marten habitat within the overall Bipole III Project Area. The ROW will intersect 93km of high quality marten habitat (converted to area) and will impact less than 7 km^2, or less than 0.02%, of high quality habitat as predicted by the marten model used in the EIS (See Chapter 6-89). This affected marten habitat is spread out over long distances due to the linear configuration of the 66 meter width ROW.

The area occupied by the ROW would only overlap a small portion of a marten's home range therefore it is unlikely that entire home ranges would be disturbed.

Manitoba Hydro will conduct monitoring of marten activity along the ROW, with trappers by assessing the effects of ROW construction and operation on marten abundance and trapping success as described in *CEC/MH-II-010a* and *CEC/MH-II-019a* for more detail.

The draft Manitoba Conservation Furbearer Policy and Procedure (Manitoba Conservation, 2009) states that Manitoba Conservation is responsible for "maintaining sustainable harvest levels by regulating harvests by species; establishing quotas where and when necessary; developing regulations (Schedule IX)".

References:

Banfield, A.W.F., 1984. The Mammals of Canada. University of Toronto Press, Toronto, Ontario, 438 pp.

Buskirk, S. W. and S. O. McDonald. 1989. Analysis of variability in home-range size of the American marten. *Journal of Wildlife Management*. 53: 997-1004.

Raine, R.M. 1981. Winter food habits, responses to snow cover and movements of fisher (*Martes pennant*) and marten (*Marten Americana*) in south-eastern Manitoba. Manitoba, Winnipeg; University of Manitoba. M.S. theses. 144p.

Date	May 29 2012
Reference	Reference: Mammals Volume 3
Source	CEC Information Request # 2
Question	CEC/MH-II-010e

Question:

Reference: Mammals Volume 3

Lynx are mentioned only in passing in some of the text. Improved trapping access could have negative repercussions for this species, especially at the lower points of its cycle. Lynx are cyclic with the snowshoe populations, how will the effects of the transmission line impact both the prey and predator populations? Please comment.

Response:

The Bipole III project is not expected to impact snowshoe hare or lynx populations. Lynx and snowshoe hare are known to follow a cyclical population pattern, with hare going through a full cycle approximately every 10 years and lynx following the same pattern with a lag time of 1 to 2 years (Breitenmoser et al. 1993). Krebs et al. (2001) suggests that this cyclic pattern is produced by interactions of predator-prey, food supplies and biological interactions. Due to hares' widespread abundance and small home-range requirements, it is not likely that man-made developments such as the Bipole III right-of-way (ROW) will have any significant effect on hare. In turn, as hare makes up the majority of a lynx diet (Koehler and Aubry, 1994), it is unlikely that the Bipole III ROW will significantly affect lynx abundance or distribution.

Species such as lynx, were only given cursory treatment in Chapter 6 because they were not selected as a VEC. Species selected as VECs were used in the alternative route evaluation process and for the effects assessment of Bipole III development and were selected based on a number of criteria, including:

- importance to people – species important for hunting and trapping activities, as well as culturally significant species;

- regulatory requirements – federal and provincial legislation regulate both hunting activities and protect critical habitats for rare and endangered species;
- keystone species – a species that is critical in maintaining the structure of an ecological community and whose impact on a community is larger than would be expected based on its relative abundance;
- umbrella species – a species selected for making conservation-related decisions that indirectly protects many other species within the ecological community;
- indicator species – a species that defines a trait or characteristic of the environment
- model applications – data for a given species is present and available to construct and validate (if required) simple models;
- habitat requirements – the various habitats required by each species for critical life stages such as food, cover, migration, overwintering, calving etc.

It is expected that, based on the VEC species selected, important ecological attributes, such as habitat availability, can be monitored and then selectively applied to mammal species not selected as VECs to detail potential demographic changes for species such as lynx .

For further information, VEC processes are described in the Chapter 1 Section 1.5 and the approach adopted for this project in Chapters 4 (Effects Assessment Approach) and Chapter 7 (Evaluation of Route Alternatives).

Overharvesting is not expected as Manitoba Conservation is the responsible authority for the management of furbearer harvest. Lynx are a valued furbearing species, and Manitoba Hydro will work with affected trappers on assessing the effects of ROW construction and operation on furbearer abundance and trapping success. Also Manitoba Hydro conducted a pilot project that involved active trapper participation in assessing the effects of the Wuskwatim transmission line on furbear use and trapper success. The preliminary results indicate short displacement of furbearers during construction only. Trappers caught more fur near the transmission line than away following construction. The Transmission Lines and Traplines: The Pilot Project report provides a full description and results of this pilot project (Manitoba Hydro 2012). Manitoba Hydro plans on expanding this type of monitoring and study as part of the Bipole III monitoring plan.

References:

Breitenmoser, U., B.G. Slough, C. Breitenmoser-Wursten. 1993. Predator of cyclic prey: is the Canada lynx victim or profiteer of the snowshoe hare cycle? *Oikos*. 66: 551-554.

Koehler G.M. and K.B. Aubry. 1994. ***Lynx.*** p 74-98. (*In:* Ruggiero LF, K.B. Aubry, S.W. Buskirk, L.J. Lyon and W.J. Zielinski (editors). The Scientific Basis for Conserving United States. Volume USDA Forest Service: General Technical Report RM-254. USDA Forest Service.)

Krebs, C. J., R. Boonstra, and S. Boutin (2001). What Drives the 10-year Cycle of Snowshoe Hares? *BioScience*. 51(1): 25-35.

Manitoba Hydro. 2012. Transmission Lines and Traplines:A Pilot Project. Prepared for Manitoba Hydro by Eaglevision Resources and Joro Consultants Inc. A pilot project assessing furbearer affects and trapper success involving active trapper participation.

Date	May 29 2012
Reference	CEC Information Request #2
Source	CEC Information Request # 2
Question	CEC/MH-II-011

Question:

Climate Change

The only discussions about climate change are regarding severe weather and effects on the physical structure and reliability of the project. There was no mention of how climate change may affect the "natural" environment that the line will impact and whether vegetation management etc. will have to change with possible changes in species distributions and abundance etc. Please provide additional information related to climate change effects on the natural environment and how it may affect management of biological factors along the line.

Response:

The following passage is from Chapter Section 8.2.2.4, p.8-26 of the EIS:

"Climate change will occur to the existing environment without the Project. Some of the potential effects might include shifts in species distributions due to habitat changes, increased incidence and extent of forest fires, change in predator-prey relationships, increase in the spread of wildlife diseases and parasites, and spread of invasive and non-native species.

Climate change impacts on habitat and species disruption and other components of the existing environment are likely to occur in a medium to longer term period well beyond when the Project has its largest impacts on the environment, i.e., well beyond the Project's construction phase and initial years of operation. Accordingly, climate change was generally concluded not to affect the assessment of the Project's effects on the biophysical or socio-economic environment."

Management of most biological factors in response to climate change will be the responsibility of government resource managers. Manitoba Hydro's response will be one of adaptive management to changes to species occurrence and interaction with the transmission line or right-of-way. For example if expansion of range or location of nesting bird colonies occurs in proximity to the transmission line due to climate change, additional bird diverters may be required.

Date	May 29 2012
Reference	Pg. 8-141, 8-19, 8-197 and 4-12
Source	CEC Information Request # 2
Question	CEC/MH-II-013

Question:

Throughout the document there are many places where it is stated that there are possibilities of species/feature X may occur or that the assessment was based on existing/desktop information and extrapolated to the location but it has not been verified yet. Is there any field work on-going to verify these occurrences and if required the preparation of a plan to avoid their impact? Are there plans to do so? When?

Specific examples of this include Great Blue Heron colonies –colony locations appear on the preliminary route, study area maps, but it is not clear if the preferred route will impact any colonies. Yellow rail pg. 8-141, Spadefoot toad Page 8-19, Garter snakes pg. 8-197.

Page 4-12 It is stated that these issues will be dealt with after the license is issued. How can mitigation be done once the line construction is in progress? In the case of the garter snake hibernaculum, it may require a slight re-routing of the line or alternate placement of the tower foundation, how can this been done at the last minute? More information on the possibilities, probabilities of an encounter and current level of species information along the preferred route is required.

Response:

In considering locations along the proposed Bipole III route that have shown multi-year use, such as by the great blue heron, these nest sites have been verified with fieldwork, identified as environmentally sensitive sites, and all potential overlaps with the FPR were delineated and reported in the EIS. Recommended Mitigation measures for these multi-year sites included buffers to avoid the site, avoiding sensitive time periods, and the installation of bird diverters.

While yellow rail are not colonial in the strictest sense, r they can be found in loose groups during the breeding season, where they build multiple nests for brooding. Surveys will be conducted along the FPR prior to clearing if construction occurs in the spring. Mitigation measures for identified yellow rail nesting areas included buffers to avoid the site, avoiding sensitive time periods, and the installation of bird diverters.

Currently, there is no on-going field work to verify the occurrences of sensitive sites. Nests for example, are subject to natural disturbances and may collapse over time. New colonies are established occasionally, and with some bird species, new nests are established yearly. Because new and old nest sites are subject to some change, additional searches for birds of prey nests, rookeries and colonies will be conducted along the FPR prior to clearing and construction. If a previously unknown nest colony is identified, adjustment to tower siting may be considered to avoid impact.

Terrestrial invertebrate and amphibian and reptile breeding and wintering sites were identified along the proposed Bipole III route using both field studies and habitat modeling. All sites identified were included in the Draft Environmental Protection Plan as environmentally sensitive sites with specific mitigation applied (see EIS Chapter 11 Attachment 11-1 Draft Environmental Protection Plan).

Currently, there are no on-going field studies to verify species presence or habitat confirmation. However, in some cases, specifically plains spadefoot, garter snake hibernacula and prairie skink, pre-construction field studies will be conducted where tower siting may infringe upon habitat features and associated buffers. Such surveys will be undertaken once preliminary construction design is complete (i.e., tower location) and will provide further information on species presence as well as detailed delineation of specific habitat features that will facilitate final tower siting in accordance with the Draft Environmental Protection Plan.

For detailed mitigation measures also refer to *CEC/MH-II-001c* and EIS Chapter 11, Attachment 11-1, Draft Environmental Protection Plan, including Appendices F and G.

Date	May 29 2012
Reference	Mining and Aggregates/Mitigation
Source	CEC Information Request # 2
Question	CEC/MH-II-015a

Question:

Mining

a) Please provide a full explanation as to what the nature of the conflict between the transmission line and the mining interests in the Wabowden area are. Are there any mitigation measures that could be applied? If the mining restrictions in the Wabowden area are not mitigable, what are the alternative routings for the line in this area? Please provide the alternatives considered and the specific reasons they were rejected or accepted.

Response:

The nature of the conflict between the mining interests and Bipole III routing is centered in the Wabowden area where the FPR traverses a portion of the Thompson Nickel Belt (TNB), a highly valued mining and exploration area. A direct current (dc) transmission line emits alternating electric and magnetic fields (EMF) that may interfere with aerial electromagnetic (EM) surveys used by the mining exploration industry to source new potential mineral deposits. However, they are significantly mitigated by harmonic filters installed at the ends of the dc lines. The mining exploration industry also uses geophysical exploration instruments that can be sensitive to dc magnetic fileds of a dc line out to a distance of about 8 to 10 km from the line. These instrunments are also sensitive to other sources of EMF such as geomagnetically induced currents during data recording. The mining industry claims that an operating dc line can eliminate and/or interfere with airborne geophysical exploration for a distance of 3-6 km from the line. Manitoba Hydro referred the issue to its own expert to review the claim of the mining industry. The potential for effects on EM and other surveys was confirmed but the level of the

effect is dependent on the instrumentation, the method of data collection and post processing analysis of the data.

To mitigate the above issue Manitoba Hydro identified several options to deal with the mining industry concerns. The mitigation measures were applicable for any optional route in the TNB area. The proposed mitigation included:

- Pre-construction geophysical surveys
- Schedule surveys during short, planned maintenance of Bipole III (only possible if load can be shifted to Bipoles I & II)
- Post survey processing of data to filter out the transmission line interference, and
- Assist with research initiatives to improve instrumentation and/or data filtering processes to counter the effects of the dc line.

The mining industry brought the issue to Manitoba Hydro's attention in early 2010. As a result new alternative routes were identified that considered suggestions from the mining sector and the provision of specific mineral interest locations. The new segments were labeled B9-1, B9-2, and B10-1 west of the original PPR along the western edge of the TNB (Map 7-1000-02). The alternatives were evaluated using 23 factors from the routes selection matrix. The results are shown in Table 7A-2 in Appendix 7A of the EIS Chapter 7. New segment B9-2 rated somewhat favorably for route consideration. However, Segment B10-1 had high ratings for six criteria and was not considered further. Without this segment the upstream Segments B9-1, and B9-2, were no longer viable.

Late in the selection process in March 2010, the Mining Association of Manitoba Inc. (MAMI) provided a map of alternative routings which led the study team to consider several more segments in the area that would reduce potential effects on mining and exploration in the Thompson Nickel Belt. These segments were identified as P1, and P2 which modified Segments B9 and BB2. P1 had the advantage, aside from addressing the mining industry concerns, of avoiding some recreation areas by going east of Paint Lake Provincial Park. P2 was considered because it was further east and south from the community of Wabowden and avoided the active Bucko Lake area. The P1 and P2 segments were accepted and became part of the Bipole III preliminary preferred route in section 4 (p-7-46 EIS).

After the PPR was released to the public in July 2010 further meetings were held with MAMI and additional alternatives identified and reviewed as several mining companies still had concerns with the PPR (Map 7-13). The alternative route options in the Wabowden area were simply labeled 1 - 4 for discussion and review purposes. The options were reviewed for several primary criteria including: caribou, recreation, mineral interests, community concerns, technical, resource management, and habitat fragmentation. The results of that review came to the conclusion that selecting an alternative outside of the TNB to the south and east of the PPR (Option 3), as was desired by the industry, was not the preferred location due to encroachment on woodland caribou habitat and bringing the Bipole III line into closer proximity to the existing Bipoles I & II (less than 25 km). The remaining options (1, 2 and 4), aside from the PPR, did not sufficiently improve the routing when all criteria were considered to move the original PPR selection (Option 2). The results were presented to the Mining industry in January 2011 with the initial decision to not alter the PPR because of other constraints and concerns.

Manitoba Hydro believed that the potential effects of the Bipole III Project on mining exploration were mitigable with the proposed measures described above. Subsequent meetings between the industry association and Manitoba HydroH led to an agreement to select option 3 of the four reviewed, based on its location outside of the TNB.

Date	May 29 2012
Reference	CEC Information Request #2
Source	CEC Information Request # 2
Question	CEC/MH-II-015b

Question:

Mining

b) The effects on mining claims and leases along the project area are provided in a rather cursory way. Provide a more detailed explanation of the potential effects on mining operations and more specifically how they will be mitigated, will aggregate extraction be feasible under or near the transmission line? What is the nature of the compensation plan?

Response:

The potential effects on mining claims and leases from the Bipole III transmission line are related to the period of clearing and construction phases as well as to the operations and maintenance phases of project development. Any potential for adverse effects relates to one of the following: disruption and disturbance associated with the crossing of existing access roads to a mineral/property site; potential conflict with existing mine site/property infrastructure; disruption and disturbance of mineral claim or lease exploration activity; and potential interference with current or future planned development of aggregate deposits or quarry leases for commercial extraction. Operational limitations could potentially occur related to one of the following: effects on future exploration activities through the disruption or interference with geo-magnetic (EM) surveys used to search for mineral anomalies; and limitations on an aggregate (i.e., borrow pit) or quarry operation with respect to excavation and/or blasting activity in the vicinity of a transmission line once the line is constructed.

The Final Preferred Route for the Bipole III HVdc transmission line only requires a 66 m wide right-of-way. The routing of the other 230 kV ac transmission lines and the northern ground electrode line will also be limited to required rights-of-way only. Any effect would depend on the

location of the Bipole III line, the easement associated with the right-of-way and the status of the mineral interest (i.e., whether there were any active mining activities occurring on a particular claim or lease area). A mineral claim, mineral lease or quarry lease holder can still hold a mineral interest even if there is no current activity taking place on an interest area. With a final route determined, the Crown Lands Operating Agency would deal with surface rights issues through application of an easement. Once a right-of-way for a transmission line is approved, the Mineral Resources Branch would remove the surface rights from the lands where the right-of-way is located, essentially leaving existing mining claims or leases unaffected except for the narrow band of land where surface rights have been removed.

Route selection for the Final Preferred Route for Bipole III has minimized the potential effects on mineral interests to the practical extent possible. Mining concerns were expressed with the potential operation of an HVdc transmission line having an adverse effect on future exploration activities. The concern related to a shadow or blackout effect that could potentially extend to the footprint of a transmission line right-of-way and beyond – reported by the mining industry to be anywhere from 3 to 6 km depending on the type of EM survey used. In terms of the Bipole III HVdc transmission line, additional liaison and consultation occurred with the Mining Association of Manitoba Inc., principally-effected companies and the Mineral Resources Branch during the route selection process. This resulted in the final proposed route being adjusted to avoid crossing numerous mining claim and mineral lease areas affecting three principal claim or lease areas in the Thompson Nickel Belt between the Thompson-Wabowden area and lessening the potential impact to crossing only five mining claims (involving two mining companies) and nine mineral leases (involving five mining companies). No known operating mine sites and other properties are crossed by the final preferred route.

Additional potential mitigation measures proposed to address any adverse effects on mining interests from project development include the following: Mineral claim and licence holders crossed by the preferred route will be notified of clearing and construction activities and will be provided with information on clearing and construction schedules, including temporary access requirements, to minimize potential interference, disruption or disturbance with exploration activities. Existing access roads and trails will be utilized to the extent possible. Manitoba Hydro is committed to working with individual mining interests and holders to address any outstanding issues related to the routing of Bipole III.

Route selection has sought to minimize operational limitations to aggregate and quarry deposits or operations to the extent possible. The proposed HVdc transmission line crosses nine commercial quarry lease areas involving five different companies, as well as aggregate deposits of varying economic quality. Where potential conflicts with an aggregate deposit or quarry area are identified, Manitoba Hydro can consider slight modifications to routing and positioning of towers to minimize or avoid interference in accessing the resource. In instances where a potential adverse effect exists with active aggregate or quarry operations, additional possible mitigation measures include: slight modifications to routing; and strategic placement of structures to lessen/avoid interference with pit or quarry operations at those locations. Manitoba Hydro is committed to discussing with affected mineral stakeholders/operators as part of the easement negotiation phase of the project to minimize effects that the proposed transmission lines or temporary access requirements may have on present operations or any future plans.

In addition to any operational concerns, Manitoba Hydro is primarily concerned with protecting its infrastructure once built. In general, this does not preclude all quarry blasting activities or aggregate extraction on or near a transmission line right-of-way, including Bipole III. Quarry development plans that afford complete protection of the transmission line may be considered with certain restrictions. Manitoba Hydro follows established guidelines with respect to blasting and would work with any operator to determine if line outages/blocking or physical protection on the line would be required to ensure that no damage occurs to the Bipole III line from any site operations. Applicable general guidelines for blasting are as follows: within the transmission line right-of-way, no blasting is allowed; outside a 100 metre buffer parallel to the right-of-way, there are no restrictions to blasting; and within a 100 metre buffer parallel to the right-of-way, blasting would be allowed but use of blasting mats would be required to control debris. Each individual case is likely to be different and would be reviewed and dealt with specifically at the time of any proposed work to determine further mitigative requirements.

In terms of the nature of any compensation plans, compensation for limitation on extraction would be determined on the basis of quality, quantity, demand and marketability at the site.

Date	May 29 2012
Reference	CEC Information Request #2
Source	CEC Information Request # 2
Question	CEC/MH-II-017

Question:

Reference – ROW Access

Has a plan been developed to determine the locations of access roads to the ROW, the # of access roads anticipated and control of access after commissioning of the transmission line. If so, please file the plan.

Response:

Access management plans are currently being developed by Manitoba Hydro for the construction and maintenance phases of the project. These plans will be reviewed with Manitoba Conservation and Water Stewardship.

It is anticipated that the plans will include the use of existing trails, old logging roads or other pre-disturbed paths. By utilizing already disturbed areas as much as possible, the need to cut and clear new access points will be minimized. Please see response *CEC/MH-II-005f* for additional information.

Date	May 29 2012
Reference	Resource Use Technical Report
Source	CEC Information Request # 2
Question	CEC/MH-II-019a

Question:

Reference: Resource Use Technical Report

a) The Resource Use Technical report contains many statistics and much qualitative information. There is no specific analysis of the information, just qualitative opinions as to the effects. There is a rich data base on the traplines involved and some empirical analysis should be done on this and other elements presented. Can some of these impacts be lessened if alternative ROW management is instituted (see above).

Response:

The Resource Use Technical report provides a blended assessment of the effects of the Bipole III transmission line and associated right-of-way (ROW) on trappers involving a review of fur harvest records and information gathered from ATK interviews. ATK knowledge indicated that predicted effects of the transmission line and associated right-of-way (ROW) include: temporary disturbance of trapped species (e.g. American Marten), increased trapper access to areas where the ROW is located (positive effect), and potential for increased vandalism and theft in areas along the ROW. Overall the ROW is anticipated to result in a net benefit for trappers due to increased access and new trapping opportunities in remote areas.

In regards to analysis of fur harvest data, a number of factors influence trapper success (production), both directly (animal abundance, location and number of traps set, time of freeze up) and indirectly (fur pricing during trapping season, which subsequently affects trapper effort). The data set provided by Manitoba Conservation and presented in the Resource Use Technical report is a report of the fur production for 1996 to 2008 in a number of Registered Trap Lines (RTLs) contained in the Bipole III Project Study area. In order to assess the effects

of linear disturbance or other anthropogenic disturbance further data would be required (i.e. specific information on trapper effort ,number and location of trap sets relative to linear corridors or other anthropogenic disturbance). Comparisons of average fur prices to production could be assessed independently; however, this analysis would have little relevance in the context of assessing effects of the Bipole III ROW on trappers and furbearers.

Given the lack of quantitative data that could be used in assessing the effects of transmission line construction and operation, Manitoba Hydro conducted a pilot project under the Wuskwatim transmission project monitoring program to evaluate trapper success both in areas in close proximity to and away from transmission line construction (Manitoba Hydro 2012). The pilot project involved structured trials with comparable trapping effort in close proximity to and away from the transmission line. Trapper participation was a major component of the pilot project. Based on the results of this pilot project, we have found that trapping success was not affected by the Wuskwatim transmission line and that new right-of-ways may provide additional trapping opportunities for trappers (based on their views and observations from the pilot project).

Based on the results assessment described in the Resource Use Technical Report (including results of ATK interviews) and the preliminary results of the pilot project (which does provide some empirical evidence) current indications are that ROW construction and management do not appreciably impact trapper production.

References:

Manitoba Hydro. 2012. Transmission Lines and Traplines: A Pilot Project. Winnipeg, MB. A technical report prepared by Eaglevision Resources and Joro Consultants Inc.

Date	May 29 2012
Reference	Personal, family and Community Life
Source	CEC Information Request # 2
Question	CEC/MH-II-020a

Question:

Reference: Personal, family and Community Life

a) Personal family and community life is qualitative and not complete. Please provide a specific analysis.

Response:

Please refer to the supplemental socio-economic filing.

Date	June 7th 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-026

Question:

Please develop and file the FLCN heritage policy protocol.

Response:

It is Manitoba Hydro's intention to develop a Bipole III heritage policy protocol. Manitoba Hydro will seek input and review from FLCN in the development of this protocol.

Date	June 7th 2012
Reference	P.18 ATK Technical Report #2
Source	CEC Information Request #3
Question	CEC/MH-III-033

Question:

Please provide an update on the status of the conditions and issues raised by TCN. Have negotiations commenced and have their concerns been adequately addressed?

Response:

Negotiations have commenced and continue to include discussions regarding the issues raised by TCN.

Date	June 7 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-036

Question:

The project, study, local and corridor areas should be explicitly provided in maps, and explained, with full explanation as to variances, etc. It is especially important to note the frequency with which the project study area used borders on water. Please explain the assumptions and reasoning for the areas used, and provide clarity as to which 'results' from self-assessment apply to which scope of area.

Response:

EIS Chapter 4, describes the development of the Project Study Area (Section 4.2.3.1) for purposes of identifying transmission line routing and Project component siting options. The Project Study Area is shown in EIS Chapter 1, Map 1-1. Given that the line was not to be routed through/under water and existing fisheries sensitivities, it follows that major lakes would form the general boundary for the Project Study Area. Existing fisheries and forestry guidelines preclude routing immediately adjacent to shorelines.

EIS Chapter 4, Section 4.2.3.2 describes the extent of the Local Study Area as being a 4.8 km wide corridor centered on the transmission line rights-of-way and extending as a 2.4 km buffer from all site components. The Project Footprint includes the actual physical space the transmission rights-of-way and Project components encompass. Mapping of the Local Study Area and Project Footprint is done to scale for various purposes in a number of supporting technical reports (e.g., Bipole III Transmission Project, Birds Technical Report, Map Series 1000).

Potential Project effects were assessed against varying study areas that are most applicable to the VEC/species being assessed (see *CEC/MH-II-001g*). Some potential Project effects are footprint specific (e.g., vegetation, forestry) whereas others may extend beyond the footprint itself (e.g., aquatics, sensory disturbance, etc.). For purposes of measuring potential Project effects study areas are typically kept relatively small where the VEC/species of concern are not mobile (e.g., listed plant species) or have very limited mobility (e.g., prairie skink). For wide ranging species (e.g., woodland caribou) the effects assessment area is also large.

Date	June 7 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-037a

Question:

Please comment on the impact of the following analyses as a result of lack of field studies:

a. Very little Traditional Knowledge included/ taken into account.

Response:

For the assessment of heritage resources and environmentally sensitive site (ESS) development, Traditional Knowledge (TK) was only provided by communities willing to participate. Letters were sent to 49 communities identified within the study area, inviting them to participate in the Aboriginal Traditional Knowledge (ATK) process for the Project. Nineteen communities participated in the Bipole III Project ATK Study. Seven self directed TK studies were carried out independently. Traditional knowledge collected from community workshops concerning the category of heritage resources assisted in identifying areas of heritage interest; traditional knowledge of heritage resources was entered into the Heritage Environmental Sensitive Site (ESS) table. Community group discussions and Key Person interviews not only provided a narrative record of knowledge of traditionally and currently used cultural landscapes, but also illuminated with accuracy the geographical placement of these environmentally sensitive regions.

Traditional knowledge which was noted within the 3 mile corridor of the final preferred route was incorporated in the ESS assessment in the EIS. All other information was compiled and provided to the communities for internal use.

Once the FPR was selected geographical information system (GIS) formats of information were used. Through community workshops, a total of thirty (30) locations identified as heritage resources were noted within the FPR corridor. This information was expressed and subcategorized through GIS as eight (8) points that fall within the 66 m ROW. The data represented information on locations of historic trails, locations of historic campsites, burials, archaeological sites, and historically-used cultural activity areas.

Five main areas of concern were identified based on existing archaeological data and ATK information gathered during workshops. Three areas of concern noted above were not investigated as they were situated within privately held lands. These areas remain in the ESS table and will be part of the effects and mitigation components for the project.

Please refer to section 3.0 Methodology and Methods of the Bipole III Heritage Technical Report and section 3.4 Methods for Gathering and Understanding ATK in the Bipole III ATK Technical Report #1 for detailed descriptions of the methodology used when digital data are mapped. Also refer to Section 9.7 Appendix 6 Bipole III Environmentally Sensitive Sites in the Bipole III Heritage Technical Report for a spreadsheet of this set of data.

Date	June 7 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-037b

Question:

Please comment on the impact of the following analyses as a result of lack of field studies:

b) Few archaeology studies/ sites – and next to no work to identify cultural, sacred sites to protect

Response:

Field work was completed to identify Environmentally Sensitive Sites (ESS). This work is documented in the Heritage Resources Technical Report, specifically Section 5.1.2 and a full list of sensitive sites for culture and heritage can be found in Appendix 6.

In addition to the field work described above, site data which was found within a three mile corridor of the final preferred route (FPR) was incorporated in the ESS assessment in the EIS. All other information was compiled and provided to the communities for internal use.

Through community workshops, a total of 30 locations identified as heritage resources category were located within the FPR corridor. This information was expressed and subcategorized through GIS as eight points that fall within the 66 m right-of-way. The data represented information on locations of historic trails, locations of historic campsites, burials, archaeological sites, and historically-used cultural activity areas.

Archaeological investigations were limited by access to privately owned lands. This inhibited the ability to assess provincially registered sites, sites identified by ATK and potential site locations determined by predictive modeling.

Date	June 7 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-037d

Question:

Please comment on the impact of the following analyses as a result of lack of field studies:

d) Both cumulative effects assessment and sustainability contents in the EIS may be weaker as a result

Response:

Field studies are only one element of what contributes to a good effects assessment, including cumulative effects assessment and sustainability analysis, for a transmission project EIS.

The use of available information and desktop analysis is very much appropriate, and constitutes best practice, for initial study area delineation and characterization for a transmission project Site Selection and Environmental Assessment process (SSEA) with potential route options over a wide study area as discussed in Chapter 4, Section 4.2.3.1. The assessment and regulatory review processes recognize and address information limitations inherent in a transmission Project SSEA, and environmental management practices during final construction are also designed to help reduce related risks.

In general, the identification and gathering of available information (as described in Section 4.2.7) is the appropriate and responsible starting point for all environmental assessments. In the current case, available information was identified and evaluated for applicability to the Project. Further data needs were then identified and pursued where

appropriate, including field studies. Field data was then again applied to habitat models for environmental assessment purposes and the identification of ESSs.

Where specific field studies did not cover a particular area or VEC, habitat and heritage resource models were used to determine the potential for occurrence of VECs and species of concern. This was also supplemented with local knowledge, where available, from ATK studies or consultation input.

Additional field work will be undertaken in advance of project construction to locate and protect sensitive sites (e.g. nests, dens, mineral licks, listed species, heritage resources, etc.). Such sensitive sites are mostly point based (or small polygons) with provisions in the EnvPP during construction to protect them when they are encountered.

In summary, the approach by Manitoba Hydro is not to assume that species of concern or other VECs are not present simply because these have not yet been identified by field studies. While the focus remains on species of concern and VECs that are known in the area, a "next level up approach" is taken to protect sites identified as potential habitats for such species as loss of habitat remains the primary threat to species and sites of heritage resources. This approach has also enabled Manitoba Hydro to avoid sensitive habitat sites and heritage resources during the routing process. And, as noted, the EnvPP during construction further works to address specific local conditions as these are encountered.

Please also see response to *CEC/MH-III-038* for explanation on the role of and process for data collection in the Bipole III Transmission Project.

Date	June 7 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-037f

Question:

Please comment on the impact of the following analyses as a result of lack of field studies:

f) Please provide the methodology used when several sets of digital data are mapped, provide the spreadsheets for these sets of data, and explain what variances are likely, what they took into account in their methodology when combining sets of data.

Response:

Manitoba Hydro used many datasets from provincial, federal and other sources in the site selection and environmental assessment process. Datasets, when combined, were done so using ESRI GIS software by trained GIS technicians, and error checking and validation was conducted to ensure data was not lost or invalid data was created. Datasets from dissimilar sources, collection methods and levels of spatial accuracy were assessed prior to any combining of data or analysis conducted on the resulting data. All field data went through a strict data management protocol which ensured quality control and assurance prior to mapping or analysis.

Date	June 7th 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-040

Question:

Manitoba Hydro holds considerable data regarding species and archeological data collected during the Wuskwatim project and proposed Conawapa Project and environmental assessment. Data/information used in the Bipole III EIS is privately held and cannot be checked and verified. Will these data be available?

Response:

Archeology data is submitted to the Department of Culture, Heritage, Tourism - Historic Resources Branch in accordance with permits obtained to conduct investigations. For additional data not found in the Bipole III EIS or supporting Technical Reports, requests can be submitted to the above Department. Species at Risk data collected as part of the BPIII EIS is submitted to Manitoba Conservation and Water Stewardship - Conservation Data Centre, and requests for data not contained in the Bipole III EIS materials should go through that Department.

Date	June 7th 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-042

Question:

One assumption in the EIS is that not a single wetland, peat, bog, fen, or muskeg area is disturbed by building or operation over the entire length of 1,384km corridor assumes there, yet ~40% of Manitoba land mass is wetlands. Given that the exact siting locations of the towers have not been determined, please explain how MH arrives at this conclusion? An explanation, mapping of wetlands, and methods are required.

Response:

The final preferred route crosses many wetland types and Manitoba Hydro has considered the potential effects on wetlands. To minimize its project effects on the environment, including wetlands, Manitoba Hydro adheres to all federal and provincial regulations and guidelines respecting streams, wetlands, water quality and fish habitat. In addition, Manitoba Hydro has developed a comprehensive suite of environmental protection measures and Project-specific mitigation measures that, when applied, limit effects to above surface vegetation structure primarily and with little effect on the functionality of wetlands and streams. The single most important mitigation measure regarding wetlands and streams is to clear and construct on frozen ground conditions. The Project will therefore not cause any draining, damming or obstructing of water flow and hence, no losses of wetlands.

Manitoba Hydro's approach to maintaining wetlands is to identify potential negative effects that could occur as a result of the Project and then design and apply corresponding protection and mitigation measures. Included are measures to address mishaps that may occur during the course of the work (e.g. erosion control, spill

response, etc.). Critical to the process are Manitoba Hydro's implementation procedures, complete with environmental inspectors and monitors, to ensure the Project-specific mitigation measures are implemented and adhered to.

For a review of the Project-specific mitigation measures see EIS Chapter 11, Attachment 11-1 (Draft Environmental Protection Plan). Detailed Construction Phase Environmental Protection Plans (CPEnvPP) will be developed and provided to contractors and staff before the start of clearing and construction activities.

For a display showing the locations of wetlands relative to the Bipole III Transmission Project, see the Terrestrial Ecosystems and Vegetation Technical Report, Map Series 100.

Date	June 7th 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-043c

Question:

Resource Use - Hunting is dealt with generally. It is not clear if conclusions are generalized so that trapping and hunting impacts and risks to species are combined. Information for any species needs to be explicit. Hunting and trapping need to be separate in analysis and conclusions, and also specific to the species. For moose the EIS should include the current bans on hunting moose in two larger regions of the province, and the basis for these governmental decisions. Please explain how Bi Pole III will not affect moose, and other specific species.

Response:

The Resource Use section of the EIS is not intended to deal with species specific effects, rather the effects on resource users themselves (i.e. trappers and hunters). Species specific effects of the project (increased access for hunting and trapping) are dealt with in Sections 8.2.7 (birds) and 8.2.6 (mammals) of the EIS. Further detail on these effects are contained in the Bipole III Mammals Technical Report in Sections 5.1 (VEC species) and 5.2 (grey wolf). Please see similar questions and responses regarding moose hunting closures in *MCWS/MH-TAC-011a* and *CEC/MH-III-093*.

Questions relating to moose and the current bans on hunting and further detail on how the Bipole III Transmission Project will not affect moose and other species have been addressed in the following responses.

CEC/MH-II-001a addresses a comment concerning critical moose habitat.

CEC/MH-II-002i outlines how high-quality habitat for moose, marten, beaver and caribou were determined.

CEC/MH-II-011a examines the effects to moose populations, regarding the closures of specific GHAs in the Project Area

CEC/MH-II-010c examines home range size and harvesting of marten. It was determined that overharvesting is unlikely and only a small percentage of high-quality marten habitat will be removed by the ROW.

CEC/MH-010e addresses the concern that Bipole III will affect lynx and hare populations. More trapping of lynx may occur, however, as a whole, lynx and hare populations are not expected to be negatively impacted.

CEC/MH-II-019a addresses a comment on the Resource Use Technical Report regarding trapping. Based on findings from a pilot project on the Wuskwatim Transmission Project, the effects of Bipole III will be minimal to trappers.

CEC/MH-III-044 outlines the proposed mitigation measures for the effects on moose and their habitat. Mitigation includes timing of construction, routing of the ROW, assignment of buffers, access management and firearm restrictions.

CEC/MH-III-048 responds to more up-to-date information that was requested to provided support on descriptions of high-quality moose habitat. Generalized recent literature is described; however, recent literature within the Study Area is not readily available and most recent papers cite core reliable literature. The model used to assign moose habitat does in fact cover all important vegetation species.

CEC/MH-III-049 explains why thermal cover was not specifically considered in cumulative effects. Very little high-quality habitat will be remove for any one moose range and with the ROW only being 66m wide, thermal cover is not limiting in the project area.

CEC/MH-III-050 asks to reconsider that the moose population in certain areas is "in peril" rather than "in decline". The final description remains that the population is in

decline, as Manitoba Conservation and Water Stewardship has not provide evidence of the moose's near extirpation in GHA 14 and 14A or 18 and 18C.

CEC/MH-III-051 asks for clarification on the potential benefits of the clear-cut ROW to moose. Sections of Chapter 8 of the EIS as well as the Mammals Technical Report provide that information.

CEC/MH-III-052 asks for greater detail on the effects to the moose population regarding GHA 14/14A. Manitoba Conservation and Water Stewardship and Manitoba Hydro will be meeting to discuss potential mitigation to the further decline of the moose population.

CEC/MH-III-093 pertains to the closure of GHAs and Bipole III's impacts on moose.

The conclusions reached in the EIS respecting residual effects and cumulative effects on moose would not change as a result of these closures. The management of these areas is under the authority of Manitoba Conservation and Water Stewardship.

Date	June 7th 2012
Reference	Moose
Source	CEC Information Request #3
Question	CEC/MH-III-045

Question:

Given the many residual effects listed, it is questionable that it is "not significant" as indicated in EIS. Also a pre-construction survey should be carried out pre-license issuance. SCN members probably have information on where these sites are. Please explain why incorporating SCN concerns may have improved the EIS

Response:

Manitoba Hydro met with SCN representatives throughout the four rounds of the Environmental Assessment Consultation Program (EACP) for the Bipole III Transmission Project. Through those meetings SCN representatives indicated an interest in conducting a self-directed Traditional Knowledge study but were unable to provide Manitoba Hydro with a proposal within the timeframes required to have it included in the EIS. In recognition of the previous interest expressed by SCN, Manitoba Hydro has provided funding for SCN to undertake a TK Study related to the Bipole III Transmission Project. Manitoba Hydro intends to use the information to confirm and if required, update the draft Environmental Protection Plan. Manitoba Hydro hopes that through this TK report, SCN will share their knowledge about moose.

Manitoba Hydro is planning to meet with SCN to discuss the results of their final report as well as any relevant mitigation measures.

Date	June 7th 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-048

Question:

Although noting that "Moose are commonly found in forest, shrub and wetland habitats from Red Deer Lake, north of the Porcupine Mountain area, south to areas adjacent to the Duck Mountains and Riding Mountain (Pattie and Hoffmann 1990)," the EIS also indicates that "Moose are associated with riparian habitat, especially areas featuring willow, a key forage species. In the absence of such habitat, moose select stands that originated after fire or logging, which feature early successional vegetation (Doerr 1983)." Please provide more current literature than a paper from 30 years ago. Citing studies from Ecoregions that differ substantively from those in the Study Area may not be appropriate. The Doerr study is cited as "Doerr, J.G. 1983. Home range size, movements and habitat use in two moose (Alces alces) populations in southeastern Alaska. Canadian Field-Naturalist 97:79–88", and the ecosystems found there are likely to differ substantively from those of the Study Area or the majority of the Study Area. For example, while riparian habitat certainly can be of high importance to moose within the Study Area, depending on the specifics of the riparian area, other habitats within the Study Area are of very significant value and often of far greater value. For example, some of the extensive 'shrub lands' found in proximity to Red Deer Lake and also near Novra are of extremely high value as winter foraging habitat for moose, and location of the transmission line in proximity to these shrub lands would be of far more concern than location of the line within a riparian area. Similarly, some riparian areas within the Study Area would be of little value to moose. Further to this, within the western portion of the Study Area, important winter foraging habitat includes thick hazel beneath mature to old aspen in many locations, and this may also be true also for some of the habitat

within the aspen parkland of Manitoba (e.g., per the attached picture for aspen parkland in Elk Island National Park, for an enclosed area that includes deer, elk, wood bison, and a moose density of greater than 10 per square mile). Again, this hazel habitat could be considered to be of equal or greater value than many riparian habitats and perhaps generally of greater value than willow-dominated riparian areas for this part of the Study Area. The importance of the previous discussion is that the text suggests that the authors of the EIS do not well understand moose habitat at the Project Study Area scale. Please provide up-to-date technical information as the basis for its EIS contents

Response:

A literature search for studies on habitat use by moose within the study area or for Manitoba yielded no results. However, comparable research on habitat use by moose has been undertaken in other jurisdictions in Canada (i.e., Alberta, Ontario, Quebec). It is typically acceptable to apply literature on moose biology and ecology from other geographical regions due to the generic nature of moose behaviour and habitat needs. Many recent publications on moose which describe elements of moose ecology, including foraging behaviour, still rely on older publications.

Beaked hazel (*Corylus cornuta*) habitat was considered equally with riparian habitat. A predictive habitat model was developed for the extent of the Project Study Area to identify high-quality habitat for evaluating alternative routes and assessing the Final Preferred Route (See Section 3.4.1 Bipole III Mammals Technical Report). The variables used to predict high quality habitat were based on literature, results of field study observations and data and professional judgment. The model identifies all shrublands, which would include beaked hazel occurring throughout each ecodistrict, and included all tall shrubs in the Mid-boreal Upland and Aspen Parkland Ecoregions as well as all forest stands and tall shrubs between 10 and 60 years of age. It does not focus on willow or riparian habitat. Please see Appendix B of Mammals Technical Report for detailed description of the moose habitat model developed for the Bipole III project study area.

Please refer to response *CEC/MH-III-047* for additional information on moose habitat selection.

Date	June 7th 2012
Reference	Agriculture Technical Report
Source	CEC Information Request #3
Question	CEC/MH-III-055

Question:

The Agriculture Technical Report failed to adequately take into account impacts of the Bipole III transmission line on the injection of liquid manure from confined hog and dairy cattle operations in the areas of intensive livestock production in the province.

Given the acknowledged importance of agriculture to the province's economy, the high percentage of the province's farms that have livestock and the concentration of intensive livestock agriculture in certain areas in the south of the province, please explain why the Agriculture Technical Report and the EIS itself both fail to consider the impact of in-field towers on the performance of injection systems for liquid manure produced by hog and dairy operations. Please provide an assessment of the impact on this activity.

Response:

This topic was not considered in the Agriculture report as indicated above.

The placement of liquid manure occurs mainly in southeast Manitoba. The towers will create some deterrent to efficient field operations as the liquid hose follows the applicator. The towers will create some inconvenience and doubling of manure application, however, it will not make liquid manure application impossible. It may limit application in proximity to a tower. At most there will be 2 towers on a quarter section and on many only one tower. The limitation placed on liquid manure injection would be eligible for compensation under Manitoba Hydro's Landowner Compensation policy for the Project.

Date	June 7th 2012
Reference	Agriculture Technical Report
Source	CEC Information Request #3
Question	CEC/MH-III-056

Question:

The EIS has failed to consider the impact of the Bipole III transmission line on land prices in the intensive agricultural regions through which the line will pass. Please provide an explanation as to why the EIS has not considered the depressing effect on land prices of cropped lands through which the Bipole III transmission line will pass and of lands for several kilometres on each side of the lands directly impacted. The added cost of mitigating against that impact has not been taken into account in the EIS.

The depressing effect of the Bipole III transmission line on the price of farmland directly and directly impacted has not been considered either in the EIS or in the Agriculture Technical Report referenced in Section 1.5 of Chapter 1 and listed in Appendix 1C which is posted under Related Info on Manitoba Hydro's website for the Bipole III Project. This effect will be greatest in the intensively cropped areas but can be expected to occur in all cropped areas. Please provide an update that addresses the above mentioned concerns.

Response:

Manitoba Hydro does not believe there is a depressing effect on agricultural land values.

Manitoba Hydro has and continues to conduct studies on the effect of transmission lines on property value. Market information, studies and peer literature support Manitoba Hydro's position that land values are not devalued due to the presence of transmission lines either on or near them. In addition to paying for the easement, Manitoba Hydro's Crop Damage and Impact Payment schedule was developed to appropriately

compensate for the actual land that will be taken out of production and the increased costs associated with working around towers. When selling agricultural property where transmission lines occur, land sales data does not show a downward trend in land prices.

Date	June 7th 2012
Reference	CEC Information Request #3
Source	CEC Information Request #3
Question	CEC/MH-III-062

Question:

Manitoba Hydro has failed to consider, in filing the EIS for Bipole III, the impact on confined animal production systems of stray voltages that will be induced by current flowing in the Bipole III transmission line. Its consideration of the impact on production animals in pasture situations is minimal. Please provide a comprehensive response addressing the issue of stray voltages in relation to animal production systems

Response:

Stray voltage generally refers to alternating current (AC) electrical potentials encountered by farm animals (mostly dairy cattle) that contact poorly grounded equipment and facilities. The cause of stray voltage can be faulty device wiring and building wiring or grounding problems of the distribution circuit serving the farm. Stray voltage is not caused by direct current (DC) transmission lines. Voltages induced on electric fences by AC transmission lines that parallel fences for long distances can be a source of minor shocks. As a DC transmission system, the Bipole III transmission line will be neither a source of stray voltage nor will it induce significant voltages on electric fences.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request #3
Question	CEC/MH-III-063

Question:

It is noted that possible EMF interference with GPS in the important and exceptionally valuable agricultural industry and it receives about one page of attention in the Report (pages 40 and 41), while six pages are given to the individually important but economically less important question of interference with cochlear ear implants (pages 42 – 47). The GPS issue is dealt with only briefly in the EIS itself and should file a new EIS which adequately takes into account the impact of stray voltages on domesticated animals in both confined and free-range production systems. Please provide a comprehensive response on GPS and movement of ground-based and aerial machines through EMFs generated by transmission lines will have no deleterious effects on efficiency of the operation, health of the operator, or safety of the machine, the tower, or the electrical conductor.

Response:

Please refer to the responses provided in *CEC/MH-III-058, CEC/MH-III-061* and *CEC/MH-III-062*.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request #3
Question	CEC/MH-III-065

Question:

Please explain why the Manitoba Metis population in the Project Study Area was not described? Please provide a description of the Manitoba Metis population in the Project Study Area based upon the sources identified in the review.

Response:

The Manitoba Metis population was described in the report of the Manitoba Metis Federation ("MMF') entitled "Manitoba Metis Traditional Use, Values and Knowledge of the Bipole III Project Study Area" (August 2011). This report is included in Appendix E of the Aboriginal Traditional Knowledge Technical Report #2: A summary of Self Directed Studies" (November 2011) as part of the Bipole III Transmission Project EIS.

Manitoba Hydro assumes, with respect to the second part of this question, that the words "the sources identified in the review" are, in fact, drawn from an identical, earlier request for a description of the Manitoba Metis population which reads "the sources identified in the review **comments above**." The sources, two, identified in the "review comments above" in that earlier request are the Statistics Canada 2006 Census, particularly that portion of the Census entitled "Aboriginal Peoples of Canada 2006 Census" (hereinafter referred to as "2006 Census") and a 2010 study conducted by the Manitoba Centre for Health Policy in conjunction with the MMF which is entitled "Profile of Metis Health Status and Health Care Utilization in Manitoba: A Population-Based Study" (hereinafter referred to as "Profile of Metis Health").

Using the foregoing two sources, as requested, Manitoba Hydro observes that in Chapter 2 of the "Profile of Metis Health", which chapter was written by the MMF, the Metis are described as descendants of 17th Century relationships between North American Indians and Europeans which were formed for economic, social and political strategic purposes. Further, in the same chapter, drawing on the Metis National Accord, a Metis person is described as an aboriginal person who self-identifies as Metis and, in addition, is a descendant of Metis who were entitled to land grants or scrip under provisions of the *Manitoba Act* of 1870 or the *Dominion Lands Act*. And, further, in the same chapter, it is noted that the Metis National Council, in an effort to describe who is Metis, has added, in addition to the foregoing factors of self-identification and ancestry, the concepts of persons who are "distinct from other Aboriginal Peoples" and who are "accepted by the Metis Nation."

The "Profile of Metis Health" provides estimates of the number of Metis citizens of Manitoba living in each of the Province's 'regional health authorities", as they existed in 2006 and, also, living in each of the MMF's "regions". The regional health authorities do not match the project study area of Bipole III. Similarly, the MMF "regions" do not match the project study area of Bipole III. The project study area is subsumed within a number of the regional health authorities and a number of the MMF regions and, accordingly, the number of Metis persons living within the project study area will necessarily be less than the totals given below from the "Profile of Metis Health". However, the totals provide a rough guide to the relevant population numbers. The total population in the regional health authorities that overlap one or other portion of the project study area is 289,091 and the number of Metis in that total is shown to be 27,869, or 10%. This percentage is modestly higher that the "2006 Census" which found that 6.3% of the population of Manitoba was Metis. The difference may be attributable to the fact that the "Profile of Metis Health" drew not only upon the "2006 Census" but also the membership records of the MMF, Manitoba Health records, the Canadian Community Health Survey and the National Population Health Survey. Thus, while the "2006 Census" found that there were 71,805 Metis persons in Manitoba, the "Profiles of Metis Health" used for its purposes a total of 90,915.The difficulty of reconciling with precision population counts of Metis persons is illustrated by the fact that in the same

"Profiles of Metis Health", the MMF population numbers in the MMF "regions" which overlap portions of the project study area are 33,218. The difference between the regional health authority total of 27,869 and the MMF "regional" total of 33,218 will in significant part be accounted for by the fact that the MMF has one large "region" for southwest Manitoba in contrast to three regional health authorities in the same geographic area in 2006.

A review of the "2006 Census" provides population totals for 50 rural municipalities, cities, towns, villages, northern affairs communities and First Nations lying in the project study area. Arguably, these numbers are more precise for the population of Manitoba that lies in the project study area than the more rough and ready population numbers of the regional health authorities and the MMF regions. Of a total population in the foregoing 50 communities of 148,643, 15,080 were Metis, again 10% which is modestly higher that the 6.3% of the Manitoba population that is Metis according to the "2006 Census".

Just over half of the Metis living in Manitoba in 2006, 37,385, according to the "2006 Census" lived in Winnipeg, up modestly from the Census conducted in 2001, based on comments in the "Profiles of Metis Health". The preceding summary excluded the population of the City of Winnipeg. In accordance with the approach taken in the "Profiles of Metis Health", the foregoing description summarizes where the Metis live, as distinct from where they may travel in Manitoba and what use they may make of resources outside the city, town, village or community where they may live.

The "Profile of Metis Health" provides some additional information that supplements the description of the Metis population in Manitoba in 2006. A larger percentage, 33.9%, of Metis were 19 years of age or younger than "all other Manitobans", 26.4%. A smaller percentage, 9.1%, of Metis persons, were over the age of 65 than was found for "all other Manitobans", 13.9%. Metis persons in Manitoba have a higher mortality rate, that is, more die before the age of 75 than all other Manitobans. The Metis in Manitoba have higher rates of chronic disease but similar rates for many forms of mental illness. Child health indicators are similar for the Metis and "all other Manitobans". The Metis visit doctors and hospitals in Manitoba more frequently than "all other Manitobans" and have

a higher rate of prescription drug use. The Metis in Manitoba in 2006 showed significantly higher rates for smoking, particularly teen-aged persons, and obesity rates relative to "all other Manitobans." Readers of the "Profile of Metis Health" were alerted to the fact that while "all other Manitobans" included all other Aboriginal persons, aside from Metis persons, the study would not be an indicator that the health of Metis persons in Manitoba compares unfavourably with that of other Aboriginal citizens.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-066

Question:

Please explain why all Aboriginal groups were lumped together in the aforementioned baseline and effects assessment chapters of the EIS, as well as technical reports.

Response:

While community-specific knowledge and perspectives were shared with Manitoba Hydro throughout the planning for the Bipole III Transmission Project, there were instances where issues or concerns identified were common to several Aboriginal communities across the study area. In these cases, general summaries were developed to reflect the main themes heard by Manitoba Hydro. Manitoba Hydro attempted to identify community specific perspectives and concerns where possible.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-070

Question:

Please provide a map showing the proposed locations of the two repeater stations.

Response:

Please see attached map *CEC/MH-III-070(2)*

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-074

Question:

Please provide a map showing the proposed or likely locations of marshalling yards. If this information is not available, please explain how MH will work with MMF to ensure that marshalling yards are situated in locations which minimize or eliminate the potential for adverse effects on Manitoba Metis traditional use.

Response:

A map showing proposed marshalling yards is not yet available. Manitoba Hydro has offered to meet with the MMF to review the Draft Bipole III Environmental Protection Plan, which could include discussions about marshalling yards.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-075

Question:

Please provide information on any MH and/or Manitoba restrictions, if any, concerning hunting that were implemented in the vicinity of other marshalling yards associated with other projects. If there were restrictions, please provide details concerning the geographic extent and nature of the restrictions.

Response:

See response provided for *CEC/MH-II-003d*

For the Wuskwatim Transmission Project, Manitoba Hydro (MH) restricted firearms in project locations in order to ensure project personnel safety. MH's Safe Work Procedures applied to the Wuskwatim Transmission Project. Given the safety concerns with firearms in camps or on active construction sites, firearms and the ability to engage in hunting activities while on site was restricted. Any hunting that project personnel wished to engage in was not allowed within the vicinity of those construction camps or sites and a buffer around those locations was implemented.

Hunting and fishing are regulated by Manitoba Conservation and Water Stewardship and as such the monitoring of the impacts from those activities fall under their jurisdiction.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-076

Question:

Please explain if MH and/or Manitoba anticipate employing similar management measures for the BP III marshalling yards.

Response:

Yes. Manitoba Hydro will be employing similar management measures used for the Wuskwatim Transmission Project for the marshalling yards associated with the Bipole III Transmission Project.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-077

Question:

Please explain if MH intends to consult with Manitoba Metis and the MMF regarding access management plans during the construction phase.

Response:

Please see response provided for *CEC/MH-III-073*

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-078

Question:

Please provide a map showing the proposed or likely locations of new borrow areas. If this information is not available, please explain how MH will work with MMF to ensure that borrow areas are situated in locations which minimize or eliminate the potential for adverse effects on MMF Citizen traditional use.

Response:

A map showing proposed borrow areas is not yet available. Manitoba Hydro has offered to meet with the MMF to review the Draft Bipole III Environmental Protection Plan, which could include discussions about borrow areas.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-079

Question: Please provide information on any MH and/or Manitoba restrictions, if any, concerning hunting that were implemented in the vicinity of other project borrow areas. If there were restrictions, please provide details concerning the geographic extent and nature of the restrictions.

Response:

Please see response provided for *CEC/MH-III-075*

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-080

Question:

Please explain if MH and/or Manitoba anticipates employing similar management measures for the borrow pits associated with the BP III project.

Response:

Yes. Manitoba Hydro anticipates employing similar management measures used for the Wuskwatim Transmission Project for borrow pits associated with the Bipole III Transmission Project.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-081

Question:

Please provide a map showing the proposed or likely locations of non-commercial accommodations and construction camps. If this information is not available, please explain how MH will work with MMF to ensure that accommodation camps are situated in locations which minimize or eliminate the potential for adverse effects on MMF Citizen traditional use.

Response:

A map showing non-commercial accommodations and construction camp locations is not yet available. Manitoba Hydro has offered to meet with the MMF to review the Draft Bipole III Environmental Protection Plan, which could include discussions regarding the process for determining construction camp locations.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-083

Question:

Please explain if MH and/or Manitoba anticipate employing similar management measures for the temporary worker accommodation camps associated with the BP III project.

Response:

Yes. Manitoba Hydro will be employing similar management measures used for the Wuskwatim Transmission Project for the temporary worker accommodation camps associated with the Bipole III Transmission Project.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-090

Question:

Please provide an explanation as to why only the socio-economic aspect of the Keeyask project was considered in the cumulative effects assessment;

Response:

Please see response to *MCWS/MH-TAC-011b*.

The Bipole III EIS cumulative effects assessment considered biophysical as well as socio-economic aspects of the proposed Keeyask project.

Please see Table 9.3-1 and Table 9.3-2 of Chapter 9 of the Bipole III EIS. These tables indicate that the cumulative effects assessment in Chapter 9 considered both the biophysical and the socio-economic effects of Keeyask Generation and Keeyask Transmission. Section 9.3.2 describes and considers site-specific residual effects for biophysical VECs that overlap with other projects and activities in the Project Study Area. Overlaps of residual adverse socio-economic effects for the Project with the Keeyask project are described and assessed in section 9.3.3.1 of Chapter 9.

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-091

Question:

Please provide an explanation as to why the cumulative effects assessment only considered the Conawapa project to a limited extent;

Response:

Please see response to *MCWS/MH-TAC-011b*.

The Bipole III EIS cumulative effects assessment considered the proposed Conawapa project to the extent that was feasible and relevant.

Compared with many other projects considered in this cumulative effects assessment, information on the Conawapa project was somewhat more limited. As noted on page 9-10 of Chapter 9 of the Bipole III EIS, prospective future projects and activities such as the Conawapa project are defined as those projects or activities that were not yet approved or in the planning/approvals process preparatory to being constructed or carried out and that were initially considered in the assessment as potentially having effects that overlap with the effects of the Project. Conawapa is considered a prospective future project as it has not been approved at this time for regulatory filings and is not yet today in the regulatory approval stages – this development will occur only after comprehensive environmental impact assessment, extensive public consultation and approval and licensing by the relevant regulatory authorities. Any future Conawapa EIS will set out a full description of the proposed project and the assessment of all expected environmental effects of this project, including (if Bipole III is approved) the

cumulative effects of the Conawapa project in combination with the Bipole III Transmission Project as approved.

As noted in Tables 9.3-1 and 9.3-2 in Chapter 9, potential coincidence of effects of Conawapa and Bipole III on the biophysical and socio-economic environment were considered as part of the biophysical and socio-economic cumulative effects assessments. Based on the information available at this time regarding potential overlap of effects from these projects, the Project's cumulative effects assessment focused on the potential effects of Bipole III that may overlap with Conawapa construction activities (and all of the related northern workforce and infrastructure implications).

Date	June 7th 2012
Reference	CEC Information Request # 3
Source	CEC Information Request # 3
Question	CEC/MH-III-097

Question:

Please explain the rationale for lumping Metis archaeological resources under the broader category of Aboriginal heritage resources.

Response:

Metis archeological resources were included under the broader category of Aboriginal heritage resources because in Manitoba, all heritage resources regardless of cultural affiliation are protected by *The Heritage Resources Act* (1986) (Please refer to the list of definitions on page 1 of The Act, Part II Section 12(1) and Part IV Section 43 (1) for further detail). In the Manitoba Guide to Completing the Archaeological Site Inventory Form (Badertscher 1989) heritage resources sites are identified by site type based on physical site features (camp, work station, burial, etc.) and cultural affiliation when possible. Because all heritage resources are protected by *The Act* all heritage resources are considered to be Valued Environmental Components (VEC). All sites are treated equally and are subject to the same reporting. Found human remains are additionally protected by Manitoba's Policy Concerning the Reporting, Exhumation and Reburial of Found Human Remains (1987).

The main purpose of a Heritage Resources Impact Assessment (HRIA) is to identify the presence of heritage resources, determine the effects of impact that a project may have on identified heritage resources sites and provide practical mitigative measures. Additionally, the Heritage Resources Protection Plan (HRPP) provides a proactive process for the protection of undiscovered sites that may be unearthed during the construction and operation phases.

The scope of the Heritage Resources Impact Assessment (HRIA) followed the requirements of both *The Act* and the *Canadian Environmental Assessment Act* (CEAA) and included the "the current use of lands and resources for traditional purposes by aboriginal persons".

The term "Aboriginal" as defined under Section 35 (2) of the *Constitution Act* (1982) is understood to include "…Indian, Inuit and Métis peoples of Canada."

Date	June 7th 2012
Reference	Chapter 9
Source	CEC Information Request #3
Question	CEC/MH-III-104

Question: The Cumulative Effects assessment appears to be deficient. The methodology may be flawed, e.g. Section 4.3, pg. 4-38. VECs with no residual effects or a positive residual effect from the Project, as identified in Chapter 8, are not included in the cumulative effects assessment. Further, the cumulative effect assessment only includes VECs with an adverse effect of the Project that overlaps both temporally and spatially with the effects of other identified projects and human activities.

The narrow definition, the limited spatial application and focus of the CE leaves significant influences in and around the project footprint ignored. The past hydro projects that may not spatially or temporally impact on the current project have provided significant effects, especially social, that will be exacerbated and remain with the current project. Positive effects should be included in the Cumulative Effects assessment. **See above 90-92.**

It appears that The Cumulative effects assessment requires reassessing using more comprehensive and rigorous methods, and wider spatial and temporal boundaries. Please provide an update.

Response:

The Cumulative Effects Assessment (CEA) in the EIS is based on standard practices, approaches and methodologies. The CEA is integral to the Project assessment approach and in this regard, Manitoba Hydro does not consider the CEA to be deficient or flawed or to have taken a narrow approach.

As documented in Chapter 9, the CEA is based on the Scoping Document, Canadian Environmental Assessment Agency (CEAA) guidance (Cumulative Effects Assessment Practitioner's Guide 1999) and current best practices. The Scoping Document directed that the framework for this cumulative effects assessment be based on the work of the Canadian Environmental Assessment Agency.

With regard to specific comments provided above on the methodology the following points are noted:

- Following guidance provided by CEAA, significance is understood to be a determination or conclusion about whether adverse environmental effects are likely to be significant taking into account the implementation of appropriate mitigation measures. In this regard:
    - It would not make sense from a methodological perspective to assess cumulative effects for VECs where there are no residual adverse effects.
    - Similarly, given the determination of significance is focused on whether there will be adverse effects from the Project – examining positive residual effects will not aid in assessing whether there will be a residual adverse effect due to accumulation of residual adverse effects of the Project with effects of other projects.
    - For there to be a cumulative effect on a VEC– there must be a temporal and spatial overlap of the residual adverse effect of the project on that VEC with effects of other projects on that VEC. If there is no overlap – there can be no accumulation of effects.

The above comments also indicate concern that "limited spatial application and focus of the CE leaves significant influences in and around the project footprint ignored" and indicates that "past hydro projects that may not spatially or temporally impact on the current project have provided significant effects" that "will be exacerbated and remain with the current project." These comments do not appear to consider the following:

1. The effects of past and current projects and activities form an integral part of, and are incorporated into, the description of existing environment (Chapter 6). Accordingly, cumulative effects that are likely to result from the Project in combination with other past and current projects or activities have generally been assessed as part of the effects assessment in Chapter 8.

2. Past projects are further addressed in the cumulative effects assessment in Chapter 9 only if ongoing effects from such other projects have not been adequately addressed in Chapter 8.

3. The spatial boundary of the CEA is the broad, regional Bipole III Project Study Area (see Map 1-1 of the EIS) and cumulative effects are considered for the construction and operation phase of the Project – which is extensive and not "a limited spatial application". The CEA does not consider the interaction of the Project with other projects (which may not have footprints that overlap spatially), but considers the residual adverse effects a project has on a VEC and considers the effects other projects may have on that same VEC.

Date	June 7th 2012
Reference	p.8-225
Source	CEC Information Request #3
Question	CEC/MH-III-120

Question:

Municipal and local protocols and by-laws will generally be respected and appropriate methods applied to comply with regulatory standards during construction of the line;

a) Please clarify if there are/will be situations that don't comply with local regulations. If so how will these situations be handled? What type of procedures are available to deal with the municipality?

b) Further to the conclusion provided, please file the results or a link to the report/study undertaken.

Response:

a) As a Crown Agency, applicable Provincial and Federal regulatory requirements or Acts of the Legislature are strictly adhered to, unless otherwise provided for by certification or statute, notwithstanding any by-laws, rights, or powers given to or conferred upon any municipality or other Act. Though no situations are expected, any issues which surface outside the scope of the aforementioned statutes etc., would normally be handled through negotiation, arbitration or mediation.

b) No study was undertaken in regards to the passage mentioned from the EIS at the beginning of the question.

Date	June 15th 2012
Reference	Reference: "Bird deflectors" (referenced as "bird diverters" in the EIS)
Source	CEC Information Request # 4
Question	CEC/MH-IV-126

Question:

Bird Deflectors are identified frequently in the Technical Report on Birds as a favored mitigation measure. They may be useful during daylight hours in good weather. But would Manitoba Hydro please explain the effectiveness of these devices in fog, dusk and the dark?

Response:

Through the alternate routing process, potentially substantial bird-wire strikes were avoided by bypassing areas attractive as staging areas and having high waterfowl concentrations (e.g., Minnedosa pothole country). Potential areas attractive to birds but not avoided through the alternate routing process were identified as environmentally sensitive sites where bird-diverters should be present.

Although bird-diverters cannot prevent all bird-wire collisions (Jenkins *et al*. 2010, Barrientos *et al*. 2011) and there is reduced effectiveness of these devices in fog, dusk and the dark, bird-wire collisions are expected to be reduced through the placement of bird diverters and the overall impact of Bipole III development on bird species and their populations in Manitoba is expected to be negligible.

Based on species specific flight behaviours and morphology, bird-diverters have varying levels of success in preventing bird-wire collisions with transmission lines (Jenkins *et al*. 2010, Barrientos *et al*. 2011). Marked lines are more effective at decreasing bird wire collisions than unmarked ones, with a typical decrease in collisions ranging between 50-80% (Jenkins *et al*. 2010). Barrientos *et al.* 2011 found that the mortality rate was 78% lower on marked lines compared to unmarked lines.

References:

Barrientos, R., Alonso, J.C., Ponce, C. and Palacin, C. 2011. Meta-analysis of the effectiveness of marked wire in reducing avian collisions with power lines. Conservation Biology 24(5): 893-903.

Jenkins, A.R., Smallie, J.J. and Diamond, M. 2010. Avian collision with power lines: a global review of causes and mitigation with a South African perspective. Bird Conservation International 20: 263-278.w

Krijgsvel, K.L., Akershoek, K., Schenk, F., Kijk, F., and Dirksen, S. 2009. Collision risk of birds with modern large wind turbines. Ardea 97(3)

Date	June 15th 2012
Reference	CEC Information Requests # 4
Source	CEC Information Requests # 4
Question	CEC/MH-IV-127

Question:

Reference is made in the Technical Report on Birds to the potential impacts of global climate change. But the possibility that staging times might shift and become longer is not mentioned. Would Manitoba Hydro please clarify what studies it has done on the impact of climate change on staging times and the relevance of this to the impact of the Bipole III line on migratory birds?

Response:

Manitoba Hydro has not studied the impacts of climate change specifically on the staging times for migratory bird species; however, earlier arrival and nesting dates, and later departure dates of migratory VECSs were noted (Birds Technical Report; Executive Summary Page V).

A literature review of potential climate change effects is discussed below concerning potentially longer bird staging times in Manitoba, and the relevance of this to the Bipole III Transmission Line Project.

Timing of migration by some bird species is altered by seasonally warmer temperatures (Murphy-Klassen *et al.* 2005; Both *et al.* 2006). Stopover ecology however is complex, involving individual fitness affecting the duration of the staging event, weather, food availability, and to proximity to shelter (e.g., wetland cover). Any change to one or more of this factors could result in a longer or shorter staging periods. The impacts of these changes on bird population levels are highly uncertain due to uncertainty in geographical variation of climate change models, and the regional and species-specific responses to these changes (Robinson *et al.* 2005).

If climate change results in a longer staging period, the length of time an individual bird, flock or sub-population is exposed to bird-wire collision risks would likely increase for those species staging in proximity to the Bipole III Transmission Line Project. With future climate change, the incrementally increased risk of prolonged exposure to bird-wire collisions from the Bipole III transmission line is expected to be negligible, but it is possible that a small increase in total bird mortality could result from colliding with transmission lines over a longer period of time if a prolonged staging event occurs. Conversely, exposure to a greater collision risk of staging birds could also be reduced in part because less time is spent in wintering areas. A reduction of the collision risk in wintering habitat would likely offset the increased risk of collisions and total bird mortality resulting from prolonged staging events in Manitoba.

There is high level of uncertainty regarding what effects may result from climate change concerning prolonged staging periods. A potential response to situations including increased frequency of bird-wire collisions or distributional changes as a result to climate change is to implement more stringent application of the Environmental Protection Plan measures already in place to minimize the risk of Project-related effects. Please refer to *CEC/MH-IV-135* for a description of the comprehensive strategy for minimizing the effects on birds and their habitat.

References:

Both, C., Bouwhuis, S., Lessels, C.M. and Visser, M.E. 2006. Climate change and population declines in a long-distance migratory bird. Nature 441(4): 81-83.

Murphy-Klassen, H.M., Underwood, T.J., Sealy, S.G. and Czyrnyj, A.A. 2005. Long-term trends in spring arrival dates of migrant birds at Delta Marsh, Manitoba in relation to climate change. The Auk 122 (4): 1130-1148.

Robert A. Robinson, Jennifer A. Learmonth, Anthony M. Hutson, Colin D. Macleod, Tim H. Sparks, David I. Leech, Graham J. Pierce, Mark M. Rehfisch & Humphrey Q.P. Crick. 2005. Climate Change and Migratory Species. BTO Research Report 414. A Report for Defra Research Contract CR0302, British Trust for Ornithology, The Nunnery, Thetford, Norfolk. 304pp.

Date	June 15th 2012
Reference	CEC Information Requests # 4
Source	CEC Information Requests # 4
Question	CEC/MH-IV-129

Question:

If Manitoba Hydro has studied the impact of Bipoles I and II on bird strikes in the Interlake region, would it please describe what the results of these studies have been, particularly in situations where these lines cross agricultural lands, for example, in the R.M. of Rosser? If it hasn't studied this phenomenon, would it please explain why?

Response:

Manitoba Hydro has not studied the impact of Bipoles I and II on bird strikes in the Interlake region.

Manitoba Hydro has conducted bird-wire collision monitoring studies for the Rosser-Silver 230 kV Transmission Line (Manitoba Hydro 1997, Ambrose and Berger 2008). These studies were conducted along the Rosser-Silver 230 kV transmission line, and among four distribution (12 kV), sub-transmission (66 kV), and transmission lines (115 kV, 230 kV) in the Oak Hammock Marsh area. Although 24 mortalities were reported in the latter investigation, only two of the mortalities were attributed to collisions with distribution or transmission lines. Waterfowl were the most frequently reported species group found in the study.

Monitoring of bird-wire collisions is continuing on the Wuskwatim Transmission Line between The Pas and Thompson, MB (Manitoba Hydro 2012), few mortalities have been reported to date.

References:

Ambrose, A. and Berger, R. 2008. Monitoring Bird-Wire Collisions, Loggerhead Shrikes, and Artificial Raptor Nests Along the Rosser-Silver 230 kV Transmission Line, 2006 and 2007. Report prepared for Elisabeth Hicks and Associates, MMM Group and Manitoba Hydro. 22 pp.

Manitoba Hydro. 1997. Rosser to Silver 230kV Transmission Line Project. Environmental Impact Study. Manitoba Hydro.

Manitoba Hydro. 2012. Wuskwatim Transmission Project Environmental Monitoring Program 2012 - Annual Report. Prepared for Manitoba Conservation and Water Stewardship. Submitted by Manitoba Hydro. June 2012. 70pp + Appendices.

Date	June 15th 2012
Reference	CEC Information Requests #4
Source	CEC Information Requests # 4
Question	CEC/MH-IV-130

Question:

Would Manitoba Hydro please explain what specific actions, if any, are proposed to protect the Great Blue Heron and the Sandhill Crane?

Response:

Great blue heron and sandhill crane are VECs that were given specific consideration in the Bipole III EIS and in the alternative route selection process. Known great blue heron rookery locations in proximity to the FPR were identified as environmentally sensitive sites. Following the protocols for the Wuskwatim Transmission Project, where a rookery was located within 300 m of the proposed transmission line, bird diverters will be placed along skywires (e.g., optic ground wire) to mitigate potential bird-wire collisions.

Pre-construction surveys for great blue heron rookeries will occur in advance of clearing activities along the proposed Bipole III transmission line. New rookeries found will be avoided and/or buffered as described in the EnvPP. Mitigation measures for great blue heron and sandhill crane that are documented in the Bipole III EIS and Birds Technical Report include the following:

Great Blue Heron

- Project activities will be restricted during bird breeding and brood rearing months from April 1 to July 31, to reduce the risk of nest destruction and sensory disturbance;
- Vegetated buffers will be maintained in riparian areas to minimize the effect of habitat alteration on colonial waterbirds;

- Buffers within a 200 m radius of heron colonies will be maintained from April 1 to July 31 to protect from sensory disturbance during the breeding season; and
- Buffers within a 100 m radius of heron colonies will be maintained from August 1 to March 31 to protect nest trees and maintain the integrity of nesting sites.

Sandhill Crane

- Hunting and harvesting of wildlife by Project staff will be limited while working on Project sites and restrict firearms at construction sites, minimizing the potential effect of harvesting on mortality;
- Project activities during bird breeding and brood rearing months will be restricted from April 1 to July 31, to reduce the risk of nest destruction and sensory disturbance; and;
- Vegetated buffers will be maintained in riparian areas to minimize the effects of habitat alteration.

Construction and operation monitoring of identified great-blue heron rookeries is also planned.

Please refer to *CEC/MH-IV-135* for a description of the comprehensive strategy for minimizing the effects on birds and their habitat. The Bipole III EIS, Bird Technical Report and EnvPP followed Manitoba Conservation and Water Stewardship's (2010) forest harvesting guidelines for the protection of great blue heron rookeries.

References:

Manitoba Conservation and Water Stewardship. 2010. Manitoba Conservation Forest Practices Guidebook – Forest management guidelines for terrestrial buffers. Developed by Manitoba Conservation and Manitoba Water Stewardship. 14 pp.

Date	June 15th 2012
Reference	CEC Information Requests # 4
Source	CEC Information Requests # 4
Question	CEC/MH-IV-135

Question:

The EIS fails to present a coherent and comprehensive strategy for minimizing the impact of the Bipole III line on birds and their habitat. Manitoba Hydro has received a Technical Report on Birds and it has indicated what it intends to do in general terms. But specific strategies that have been shown to be successful in similar settings are lacking. It also suggests some mitigation options. But the magnitude of any specific particular concern is generally not stated and information is vague in terms of the geographic location of the unsatisfied impacts. Mitigation strategies are poorly defined and evidence of demonstrated success with proposed measures is lacking. Please provide comprehensive mitigation strategies.

Response:

Route selection was the primary mitigation measure used in reducing the potential impacts of Bipole III on bird species. The route selection process characterized the environment at various spatial scales, and considered all constraints and opportunities for routing a transmission line that avoided potential effects on birds and their habitats. Once a preliminary preferred route was selected, further studies were conducted to identify environmental effects that could not be avoided through the route selection process, including more specific environmentally sensitive sites for birds. Mitigation and follow-up actions were recommended which were technically, economically, and environmentally sound, and considered recommendations from a number of sources. The mitigation strategy used for birds is based on scientific publications (references noted below), government guidelines and professional judgment detailing the potential impacts of transmission line development on bird species. As there was uncertainty

surrounding the timing of construction along the southern portion of the route, various mitigation options were recommended. Species specific mitigation options can be found in Section 5.2 of the Bipole III Birds Technical Report where section 5.2.3 outlines mitigation measures recommend for sensitive sites.

Date	June 15th 2012
Reference	Birds Technical Report
Source	CEC Information Requests # 4
Question	CEC/MH-IV-136

Question:

The map in the Technical Report on Birds illustrating migration routes appears to give equal rating to all routes (the east side Lake Winnipeg, the west side of Lake Winnipeg, the east side of Lake Manitoba and the west side of Lake Manitoba). Information as to the magnitude of bird migration in each route is needed to illustrate more appropriately the relative significance of each of the four migration routes. Clearly, those routes closest to agricultural areas have greater attraction to migrating birds due to food availability. Please provide greater detail on this factor to give appropriate consideration to the issue. The map in the Report also makes no distinction that the grouping of interest is largely representative of the Mississippi Flyway, whereas migration through the far southwestern part of the province is part of the Central Flyway.

Response:

The intent of the map provided in the technical report is to "depict major migratory corridors through Manitoba." Other than Bellrose (1980), for waterfowl, describing the magnitude of bird migration in each route cannot be achieved without more regionally focused data. Further, most waterfowl migratory corridors are described in the literature at scales exceeding a size that might be useful for spatial effects predictions or mitigation purposes (e.g., Canada Goose migration corridor is mapped at a width extending over two-thirds of Manitoba). Based on a number of factors including the broad extent of the hundreds of bird species that migrate through Manitoba, temporal and spatial variations in their use of migratory corridors, and the lack of count passage data in the Province, it was not possible to map the magnitude of migration routes. A limited amount of count passage data does exist at fixed stations including Delta Marsh

Bird Observatory, Oak Hammock Marsh, Windy Gates, Whytewold, and St. Adolphe, all but one of which are at the fringe or outside of the Bipole III Study Area.

The Bipole III EIS considered the general principles of bird migration routes and did report important locations of bird passage in southern Manitoba where encountered along the Final Preferred Route. Bird VEC habitat was mapped using the LCCEB. In mitigating for the potential impact of Bipole III on migratory bird species, effort was made to recommend preferred alternatives from habitats where migrating birds are expected to stage (refer to Bipole III EIS Chapter 7, Appendix 7A).Where these areas could not be avoided, the use of bird diverters along those segments of the line will be utilized.

References:

Bellrose, F.C. 1980. Ducks, geese & swans of North America. Third Edition. Published by Stackpole Books, Harrisburg, Pa. 540pp.

Date	June 15th 2012
Reference	CEC Information Requests # 4
Source	CEC Information Requests # 4
Question	CEC/MH-IV-137

Question:

A map of areas that are environmentally sensitive for birds is needed in the Technical Report on Birds, as only a few are intrinsically identifiable due to creek or river crossing names. Others may be much larger but it is not clear from the description. For example, Big Grass Marsh is highly sensitive, as is the area surrounding it, but it is not clear in the Report whether or not it is included. Please provide.

Response:

A new map series is attached for CEC consideration as requested. The map series includes two grouping elements: 1) environmentally sensitive sites for birds that are labeled by the names provided in Table 5-3, Section 5.2.3 of the Bipole III Birds Technical Report, and 2) areas with high values for bird populations used to considered alternative routes and Project effects. Ducks Unlimited data were used as part of this assessment, but could not be displayed here as these data are protected by a data-sharing agreement.

Date	June 15th 2012
Reference	CEC Information Request #4
Source	CEC Information Request # 4
Question	CEC/MH-IV-139

Question:

No apparent consideration has been given in the Technical Report on Birds to the significance of the "optic ground wire" in terms of bird strikes, particularly raptors. Nor is there any evidence in the EIS itself that Manitoba Hydro has given consideration to the known risk to raptors posed by this wire. Please evident in this regard.

Response:

In the Bird Technical Report, optic ground wires are referred to as skywires, ground wires and overhead ground wires. Although not specified in the Bird Technical Report as the "optic ground wire", the placement of bird diverters on specified sections of the Bipole III transmission line will occur on the tallest (and typically smallest diameter) wires. Manitoba Hydro is experienced in applying this form of mitigation on past projects (e.g., Wuskwatim Transmission Project, Rosser-Silver Transmission Project). Studies such as Faanes (1987) and Savereno et al (1996) have shown that the majority of bird strikes occur on the smallest diameter wire and the tallest skywire. The placement of these diverters on these diameter wires provides an increased ability for birds, such as raptors to be able to avoid the wires while in flight.

The suggested placement of bird diverters took into account geographic areas of high use by raptors use as well as by other bird species. Please refer to Table 5-3 page 211, (column ESS Description) for rationale used in the identification of bird diverter placement. About 29 of 134 sensitive sites were identified in this table as being at higher risk for potential raptor-wire collisions, and where bird diverter use is recommended. Please refer to *CEC/MH-IV-126* for a discussion of bird diverter effectiveness.

References:

Faanes, C.A. 1987. Bird behavior and mortality in relation to power lines in prairie habitats. USDA, Fish and Wildlife Service, Tech. Rep. No 7. 24pp.

Savereno, A.J., L.A. Savereno, R. Boetcher, and S.M. Haig. 1996. Avian behavior and mortality at power lines in coastal South Carolina. Wildlife Society Bulletin 24: 636-648.

Date	June 15th 2012
Reference	CEC Information Requests # 4
Source	CEC Information Requests # 4
Question	CEC/MH-IV-140

Question:

Little attention is paid in the EIS to the staging phase of migration in which birds stop to rest and feed before continuing their journey. This applies to both fall and spring migrations. Manitoba Hydro needs to explain how it intends to avoid significant bird strikes during staging periods.

Response:

Those areas not avoided through the routing process and still determined to be areas of potential high use by migrating birds were identified as areas where bird diverters should be placed on transmission lines. Through both the routing process and the placement of bird diverters at sensitive sites, it is thought that bird-wire strikes can be minimized to the extent practicable. Monitoring during operation will be used to evaluate the effects predictions.

Date	June 15th 2012
Reference	CEC Information Requests # 4
Source	CEC Information Requests # 4
Question	CEC/MH-IV-141

Question:

Manitoba Hydro should flesh out its specific plans for avoidance and mitigation of the impacts on birds and their habitat that can be expected during the construction and operation of the Bipole III transmission line by responding to each of the deficiencies identified above.

Response:

Measures used to avoid and mitigate impacts on birds and their habitat during construction and operation are discussed in Section 8.2.7.4 (pages 8-138 to 8-177, Bipole III EIS) and Section 5.2 (pages 206 to 252, Bipole Bird Technical Report). Additional information requests and responses for plans to avoid and mitigate population effects were included in interrogatories *CEC/MH-IV-126, CEC/MH-IV-128, CEC/MH-IV-130, CEC/MH-IV-135, CEC/MH-IV-136, CEC/MH-IV-137, CEC/MH-IV-139, and CEC/MH-IV-140*.

Date	June 15th 2012
Reference	Section 8.3.1.3 In Chapter of the EIS
Source	CEC Information Requests # 4
Question	CEC/MH-IV-142

Question:

The EIS fails to propose mitigating measures to allow the Bipole III line to pass through protected areas and rare-occurrence and enduring soil features within the Tom Lamb and Summerberry Wildlife Management Areas in northern Manitoba with only minimal impact on land use. In assessing the socioeconomic effects of the Bipole III line on land use in Wildlife Management Areas in northern Manitoba, Section 8.3.1.3 In Chapter of the EIS states that 50 kilometres of the line passes through the Tom Lamb Wildlife Management Area and 46 kilometres passes through the Summerberry Wildlife Management Area. In the Summerberry Wildlife Management Area, 17 kilometres of the line passes through an area managed under the Protected Areas Initiative. Two rare-occurrence and enduring soil features designated under the Protected Areas Initiative are penetrated by the line in these two areas.

Response:

Background

Identified through Manitoba Conservation and Water Stewardship's Protected Areas Initiative (PAI), enduring features, are unique combinations of soils, geology and terrain that are considered representative of the biodiversity within Manitoba's natural regions. Identification of enduring features (i.e., enduring features analysis) by Manitoba Conservation assists in determining Areas of Special Interest (ASIs) for protection. For the Bipole III Transmission Project effects assessment, PAI enduring features that are rare or single occurrence and located within existing ASIs are considered valued and constitute sub-categories of the unique terrain/soil features VEC (Bipole III Transmission Project, Terrain and Soils Technical Report).

PAI defines single occurrence as a particular type of enduring feature occurring in only one distinct area that may be large or small, within a natural region. Rare occurrence is defined as a particular type of enduring feature occurring as two to four distinct areas concentrated in one or two localized geographic area(s) within a natural region.

The primary environmental indicators of change to PAI enduring features are landscape integrity or representation. Ecological integrity refers to the intactness of the natural state of a feature, which can be measured as total land area subject to impairment. Representation refers to the proportion of a given feature that is protected through conservation, measured as a proportion of the area of a given feature within a protected area. The size of contiguous units of enduring features is another metric of integrity, with 1,000 ha being considered the minimum area necessary for the maintenance of biodiversity within a feature (Manitoba Conservation, 2000).

The goal of conservation efforts is to capture an adequate representation of the diversity of a natural region, thereby increasing confidence that the integrity of that region will be maintained overtime (Manitoba Conservation, 2000).

Project Effect

There are one rare and one single occurrence enduring features intersected by the Bipole III Transmission Project 66 m wide ROW within the Tom Lamb WMA, Tom Lamb Addition and Summerberry Proposed WMA ASI. The following characteristics of these features have been identified (Lands of Special Interest and TLE Technical Report, pg.47).

- An Alluvial Deposit / Organic Mesisol (mesic sedge) unit was identified as a single occurrence PAI enduring feature occupying a total of 36,396 ha of land within the ASI area, of which approximately 67 ha or 0.2% are intersected by the ROW.
- An Alluvial Deposit / Organic Mesisol (mesic woody forest) unit was identified as a rare occurrence PAI enduring feature occupying a total of 2,485 ha of land within the ASI area, of which approximately 16 ha or 0.6% are intersected by the ROW.

The PAI of Manitoba Conservation is currently leading a process known as the Saskatchewan River Delta Protected Areas Planning Exercise. The PAI have established an Integrated Science Advisory Committee (ISAC) with representatives from the local Aboriginal community, Ducks Unlimited (who cooperate in managing the marshlands in the Tom Lamb WMA) and local resource managers. In September 2010, Manitoba Conservation announced plans to increase the protection in this area by a proposed addition to the Tom Lamb WMA and by creating the new Summerberry WMA, the latter having two distinct units with differing levels of protection. The final preferred route (FPR) traverses through the lands identified under this new proposed initiative paralleling an existing transmission line ROW. The route traverses approximately 50 km in the Tom Lamb WMA and approximately 17 km in the to be protected portion of the proposed Summerberry WMA and 29.3 km in the unprotected portion. The Bipole III transmission line will result in minimal loss of habitat in this identified area of expansion that consists of low, narrow forested ridges and expansive fens.

Mitigation through routing

Manitoba Hydro recognizes the importance of biodiversity and the need to protect an adequate representation of the diversity found in the proposed Tom Lamb, Tom Lamb Addition and Summerberry ASI. Throughout the routing process Manitoba Hydro has been in discussions with Manitoba Conservation and Water Stewardship, PAI and worked with them to avoid their identified areas of interest, where possible, and minimize project effects where avoidance was not possible.

In the selection of the final preferred route (FPR), Manitoba Hydro purposely selected the Right-of-Way (ROW) to minimize the interaction with enduring features, protected areas such as WMAs and proposed ASIs. Routing through The Pas area generally presented challenges with the multitude of constraints there and ultimately left no option but to route through existing and/or proposed protected areas (for routing considerations see response *CEC/MH-II-014*). Routing considerations minimize project effects on affected areas by routing along the northern boundary of the Tom Lamb WMA (paralleling existing linear features such as the transmission line H75P, the HBR rail line and PR 287). The FPR route further limits effects by minimizing line length across the

northwestern portion of the WMA and selecting surficial features (habitat) where clearing requirements are minimal. South of the Saskatchewan River the FRP avoids the proposed Summerberry ASI to the extent possible and minimizes effects by paralleling the existing transmission line F27P. The interaction of the ROW with enduring features is unavoidable but limited to one rare and one single occurrence feature (see above).

Mitigation during Project Construction, Operation and Decommissioning

Manitoba Hydro has submitted a draft Environmental Protection Plan (EnvPP) for the construction, operation and decommissioning of the Bipole III Transmission Project (EIS Chapter 11 including Attachment 11-1). The EnvPP contains general environmental protection measures under the five categories of 1) Management; 2) Project Activity; 3) Project Component; 4) Environment Component; and 5) Environmental Topic/Issue. In addition, Manitoba Hydro is preparing a detailed, map based Construction Phase Environmental Protection Plan (CPEnvPP) that will show the locations of all environmentally sensitive sites, including enduring features, and provide site specific mitigation measures for each. The most important and effective operational mitigation measures regarding the protection of enduring features that Manitoba Hydro will apply are:

- Limit clearing and construction to frozen conditions (this will minimize all sub-surface disturbance);
- Use existing access roads/trails (no new access roads will be required in the areas of the Tom Lamb, Tom Lamb Addition and Summerberry ASI);
- Use and leave roads in the condition found; i.e., no upgrades to be made to roads/trails (all access to the ROW, except from existing highways and municipal roads will be by way of winter seasonal roads);
- Use of guyed steel lattice towers (minimizes sub-surface disturbance for foundations);
- Limited clearing in specific site types (limits/minimizes disturbance);
- Proposed design and development of wildlife corridor(s) across the transmission line right-of-way in the proposed Summerberry WMA for woodland caribou;

- The management of non-project related access through the Bipole III Transmission Project Access Management Plan;
- On-going discussions with PAI representatives to identify site specific sensitivities, prescribe and apply applicable mitigation measures (e.g., tower spotting).

For a complete list of the general environmental protection measures see EIS Chapter 11, Attachment 11-1 and *CEC/MH-II-001c*.

Date	June 15th 2012
Reference	CEC Information Requests # 4
Source	CEC Information Requests # 4
Question	CEC/MH-IV-148

Question:

The EIS limits its expression of concern during construction to gang and drug issues in Gillam and pays only limited attention to the potential for other negative social impacts there. It fails to recognize the potential for negative social impacts at other communities along the Bipole III line. Although positive impacts on local communities are projected during the construction phase, negative social impacts are not mentioned, except for the possibility of gang and drug issues at Gillam. Any time there are construction crews near local communities, even small communities, there exists the potential for social impacts. It fails to recognize other social impacts at Gillam and it fails completely to recognize the potential for negative social impacts in communities like Thompson, Flin Flon, The Pas, Swan River, Dauphin, aboriginal communities and small rural communities along the Bipole III route. Please modify the EIS to identify avoidance and mitigation measures for dealing with those negative social impacts in Gillam not already considered and with negative social impacts in other communities along the Bipole III route.

Response:

Pages 8-325 to 8-332 of the Bipole III Transmission Project EIS deal extensively with worker interaction issues with Fox Lake Cree Nation and the community of Gillam. Further, cumulative effects related to worker interaction and public safety issues are also addressed in Chapter 9 (pages 9-23 to 9-28). The EIS does not limit its concern during construction to gang and drug issues in Gillam and does not pay limited attention to the potential other negative social issues in that community.

The discussion in Chapter 8 (Effects Assessment) and Chapter 9 (Cumulative Effects Assessment) includes discussion on gang and drug activities as well as the following considerations:

- Fox Lake Cree Nation members have identified the potential adverse effects of construction worker interaction with vulnerable community members, in particular women and youth, as their greatest concern associated with new major projects being built in their traditional territory.
- The community's concern is based on their knowledge and experience of what happened during construction of other major projects in the area in the past. Fox Lake Cree Nation members continue to experience pain from the consequences of past interaction incidents.
- Workers can be expected to visit Gillam during their leisure time and it would be the preferred location to visit because it is the closest community with the types of amenities that workers would be seeking — including bars, a liquor vendor, a liquor store, hotels, restaurants, and recreational facilities.

Perspectives regarding the level and timing of visits to Gillam as well as types of potential worker interaction problems are detailed on page 8-327.

The EIS also addresses potential for negative social impacts in communities other than Gillam including Fox Lake (Bird), Thompson and Split Lake (see discussion at page 8-326).

The EIS outlines mitigation and avoidance measures to address the above concerns (detailed at pages 8-328 to 8-330).

Manitoba Hydro focused much of the environmental assessment on public safety issues on Gillam and surrounding areas because of the large construction workforce and the fact that this workforce would be active over a longer duration. Public safety issues were also considered with communities along the proposed Bipole III Transmission Line, including The Pas, Flin Flon, Swan River, Dauphin, Aboriginal communities and small rural communities. The potential for public safety issues and problematic encounters is

reduced however because the comparatively smaller transmission line construction workforce, the shorter duration workers are expected to be in the region, and the fact that local community members may be involved in the construction of the transmission line.

Manitoba Hydro's experience with the transmission construction management and monitoring in the region includes the Wuskwatim Transmission Project. Construction workforce monitoring completed during Wuskwatim Transmission Project did not identify any problematic encounters between workers and local community members.

Date	June 22nd 2012
Reference	Chapter 2
Source	CEC Information Request #5
Question	CEC/MH-V-149

Question:

Please document Manitoba Hydro's current import capabilities as well as the outlook through to 2030 based on current development plans and reconcile this information to that previously provided to other Public Forums.

Response:

The import limits on Manitoba Hydro's interconnections with all transmission facilities in service are as follows:

Interconnection	Firm Transfer Capability for the Planning Horizon Import	Non-Firm Total Transfer Capability for the Operating Horizon Winter Import	Non-Firm Transfer Limit for the Operating Horizon Winter Import
US	700 MW	1050 MW	900 MW
Ontario	0 MW	300 MW	282 MW
Saskatchewan	0 MW	520 MW	400 MW

The Firm Transfer Capability is the transfer capability expected to be availability over the long term planning horizon (generally 1 to 10 years) based on the study methodology and boundary conditions used in planning studies. The firm import can be delivered throughout the year, including over the winter peak demand period.

The Total Transfer Capability is the maximum import capability in the operating horizon (near term) determined from an optimistic scenario of load and generation schedule. By definition, the Total Transfer Capability is not available under all combinations of load and generation schedules.

The Transfer Limit for the operating horizon is a non-firm maximum permissible seasonal import level below which the system can maintain safe and reliable operation, based on load and generation schedules expected to exist in the immediate operating horizon.

The above import limits may not be available simultaneously on all three interfaces.

For purposes of the calculating the supply deficits following the loss of Bipole I & II that are presented in the EIS Chapter 2, a simultaneous Transfer Capability of 900 MW import was assumed to be available over the Manitoba-United States, Manitoba - Ontario and Manitoba - Saskatchewan interfaces. The 900 MW firm level was based on a consideration of the maximum (non-firm) winter Transfer Limits calculated and experienced in the operating horizon as shown in the above table. This assumption provides a conservative estimate of the supply deficit relative to the expected long term firm import of 700 MW assuming Bipole III Reliability Project is not constructed.

Manitoba Hydro's preferred development plan includes Bipole III, new northern generation and provision for a new high voltage interconnection to the United States. If developed, the new interconnection is expected to increase the long term firm import capability by at least 750 MW after 2019/20. This would effectively increase the firm import capability to at least 1450 MW.

Various import levels have been previously provided to other Public Forums. EIS Chapter 2 indicated that operators "arranged imports of up to 985MW of power from the USA and the neighbouring provinces" following the September 1996 event resulting in the loss of Bipole I & II event. The 985 MW import level represented a non-firm seasonal transfer level available for the near term operating horizon at that time. Since the majority of the imports that could be arranged were interruptible, a contingency plan was also established should Manitoba Hydro lose a generation source or import at

any time. This contingency plan consisted of identifying four 200 MW blocks of a load that could be curtailed and operated on a rotational basis of one block "off" for ½ hour and three blocks "on" for 1 ½ hour. Should more than 200 MW have been needed, these four blocks would have been operated as two blocks "off" for ½ hour and two blocks "on" for ½ hour allowing 400 MW to be controlled."

Similarly, the import levels of over 1000 MW provided in response to information requests associated with the General Rate Application represent a portion of the Total Transfer Capability (1050 MW non-firm import from the USA) applicable to the operating horizon.

Date	June 22nd 2012
Reference	Chapter 2- Chart on Pg. 2-5 and Pg. 2-6
Source	CEC Information Request #5
Question	CEC/MH-V-150

Question:

Please provide copies of the Load Forecast and Powers Resource plan which underlies the Chart on Pg. 2-5. [Note – should be Pg. 2-6]

Explain how the supply and demand projections on Pg. 2-6 were derived from these documents.

Response:

A copy of the '2010/11 Load Forecast' and the '2010-11 Power Smart Annual Review' are provided as attachments (*CEC/MH-V-150(2) and CEC/MH-V-150(3)*).

The Power Resource Plan is not required to derive the supply and demand curve shown on Pg 2-6 of the EIS. The curve is based on the existing facilities and not on the development plan.

Supply and demand projections on Pg 2-6 were derived as follows:

Supply shortfall = Demand - Supply

Where:

Demand = Base Load Forecast including the saving from DSM; computed for each year

Supply = Cumulative Supply from ac connected Hydraulic and Thermal Generation + Import Power from the neighboring utilities

The peak loads for the future years are based on the load forecast reported in the MH Electric Load Forecast (Gross Total Peak in table 4). Demand Side Management (DSM)

programs also results in a certain amount of demand reduction. The demand to be served during an HVdc outage is derived by taking the savings of DSM into consideration. The annual DSM is derived from the Average Winter Demand Savings - Power Smart Portfolio in the 2010-11 Power Smart Annual Review.

The hydraulic generation in the Northern Collector System is disconnected from the rest of the system during the HVdc outage. Two units of Kettle generation (200 MW) are able to be connected to the northern part of the AC system to be delivered to the load. Therefore the AC connected hydraulic generation includes two units of Kettle generation, Kelsey, Grand Rapids, Jenpeg, Laurie River and the Winnipeg River units that amount to approximately 1700MW. Wuskwatum generation of 200MW is included after the year 2012, increasing hydraulic generation to 1900 MW. The thermal generation consisting of Brandon Unit 5, Brandon Gas Turbine units 5 & 6 and the Selkirk Gas boiler is about 500MW. Brandon unit 5 (105MW) is scheduled to retire in 2020.

The import capacity is assumed to be 900MW (see responses provided for *CEC/MH-V-149*). However, prior to the Riel Reliability Project (the sectionalization of the D602F 500kV line at the Riel station) only 600MW of this import power can be brought in to Manitoba (due to the loss of Dorsey assumed as the HVdc outage), and therefore the full capacity of 900MW is imported only after the Riel project is in-service (year 2014).

An example calculation of the 2017 supply deficit is included as follows:

Demand in 2017 = System peak load 2017 - DSM 2017 = 4800MW (from 2011 Load forecast)

Supply in 2017 = generation + import = 2400 + 900 = 3300

Supply Deficit in 2017 = 4800-3300 = 1500MW

Date	June 22nd 2012
Reference	Chapter 2
Source	CEC Information Request #5
Question	CEC/MH-V-153

Question:

Please provide a detailed cost estimate of the proposed Bipole III. (Alternative 3)

Please provide the basis for the cost estimate for the gas turbine and gas supply contract (Alternative 2) and the interconnection and the basis for the interconnection and firm purchase contract (Alternative 3).

Please provide the cost estimate for each of the three alternatives on the same basis so as to be comparable and indicate when each of the three estimates were prepared.

Response:

To address the HVdc system reliability issue, the EIS report compared three alternatives, Bipole III (Alternative 1), Gas Turbines in the south (Alternative 2) and importing power (Alternative 3). The costs considered in the estimates include both the capital investment and the annual expenditures.

The calculated cost in present value 2010 dollars is $1.9B for Bipole III and $2.61B for Gas Turbines over the 35 year planning horizon considered. The Bipole III alternative is $702M less than the Gas Turbine alternative. The present value of Importing Power was not included as it is significantly higher than Gas Turbines alternative due to the added cost of a new interconnection line to the United States. These present value estimates are calculated with the cash flows provided in the response to *CEC/MH-V-154*.

The capital costs (in-service dollars) for each alternative are summarized in Tables 1.1, 1.2 and 1.3 below.

Table 1.1 Capital cost estimate of the Bipole III Option (Alternative 1)

	Cost Estimate (in-service dollars, in millions)
Licensing & Environmental Assessment	113
Bipole III Western Route T/L and property	1,147
Riel Converter Station and 230kV Switchyard	889
Keewatinoow Converter Station and 230kV Switchyard	920
Property for Converter Stations	19
R49R T/L Sectionalization	2
Keewatinoow Construction Power	43
Keewatinoow 230kV Collector Lines & property	114
Riel and Keewatinoow Electrode Lines & Property	33
Total	3,280

Table 1.2 Capital cost estimate of Building Natural Gas-Fired Generation in Southern Manitoba (Alternative 2)

	In-Service Cost Estimate
1500 MW SCGT Station	1,746
Interconnection Transmission	144
Bulk Transmission Improvements	291
Gas & Oil Storage	51
Subtotal	2,233
9-53 MW SCGT	597
Interconnection Transmission	58
Bulk Transmission Improvements	100
Subtotal	755
Total	2,988

28 Table 1.3 Capital cost estimate of Importing Power (Alternative 3)

	In-Service Cost Estimate
Proxy for firm power purchase cost (same as Gas Turbine cost)	2,988
New Interconnection to US	1,500
Total	4,488

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Date	June 22nd 2012
Reference	Chapter 2 supplement to Question 153
Source	CEC Information Request #5
Question	CEC/MH-V-154

Question:

Please provide the expected annual cash flow for each of the above Alternative 1, 2, and 3 and the uncertainty associated with each cost estimate.

Response:

The following table shows the cash flows for Bipole III (Alternative 1) and the Gas Turbines in southern Manitoba (Alternative 2) based on the latest Capital Expenditure Forcast and the updated project schedules. The cash flow for the Importing Power (Alternative 3) was not calculated because the cost of this alternative is significantly higher than Gas Turbine alternative due to the added cost of the new interconnection line to United States.

For Alternative 1, the operating and maintenance cost (annual cost in column 3) is expected to average around $16M (in-service dollars) per year.

For the Alternative 2, an average annual cost (shown in column 7) of $181 million (in-service dollars) per year is required to secure a firm gas supply and consists primarily of a pipeline reservation fee with an additional cost for arrangements for the provision of fuel in the event that it is needed during a loss of HVdc event. It should be noted that the above cost of securing gas supply does not include the significant additional fuel costs that would be incurred when the gas turbines are operated during an outage. The operating and maintenance cost of Alternative 2 is not included in the annual cost.

For Alternative 3, a proxy for the cost of firm power purchases is the capital cost of adding an equivalent amount of gas-fired generation. Therefore, the total capital cost consists of the new interconnection ($1.5B in-service dollars) and the capital cost of the

Gas Turbines (Alternative 2). The annual cost for Alternative 3 is subject to contract term and is expected to be similar to Alternative 2.

The cost estimates were based on the unit costs applied to the MH projects in the past, evaluation of costs from comparable projects undertaken by other utilities, input from the DC suppliers, and considerations of market conditions. Various levels of contingencies were included to address the uncertainty.

Please also refer to the responses to the *CEC/MH-V-153*.

Annual cash flows (in millions of dollars)

Years	Alternative 1:Bipole III				Alternative 2: Gas Turbines			
	In-service dollars			Base dollars (in 2010)	In-service dollars			Base dollars (in 2010)
	Capital cost	O&M cost	Total cost	Total cost	Capital cost	Annual cost	Total cost	Total cost
Actuals (2010)	66		66	59.7	0	0	0	0
2011	36		36	26.4	0	0	0	0
2012	92		92	81.3	0	0	0	0
2013	252		252	223.3	0	0	0	0
2014	498		498	423.1	0	0	0	0
2015	684		684	549.4	174	0	174	158.2
2016	733		733	541.6	902	0	902	779.0
2017	614		614	389.8	1062	0	1062	843.8
2018	247	12	259	116.4	231	128	359	296.6
2019	59	13	72	46.8	157	131	288	236.9
2020	0	13	13	10.6	197	135	332	262.3
2021	0	13	13	10.6	133	140	273	213.0
2022	0	13	13	10.6	84	145	229	177.4
2023	0	14	14	10.6	45	149	194	147.9
2024	0	14	14	10.6	4	153	157	119.7
2025	0	14	14	10.6		157	157	117.1
2026	0	14	14	10.6		160	160	117.1
2027	0	15	15	10.6		163	163	117.1
2028	0	15	15	10.6		167	167	117.1
2029	0	16	16	10.6		170	170	117.1

2030	0	16	16	10.6		174	174	117.1
2031	0	16	16	10.6		177	177	117.1
2032	0	17	17	10.6		181	181	117.1
2033	0	17	17	10.6		185	185	117.1
2034	0	17	17	10.6		189	189	117.1
2035	0	18	18	10.6		193	193	117.1
2036	0	18	18	10.6		197	197	117.1
2037	0	18	18	10.6		201	201	117.1
2038	0	19	19	10.6		205	205	117.1
2039	0	19	19	10.6		209	209	117.1
2040	0	20	20	10.6		214	214	117.1
2041	0	20	20	10.6		218	218	117.1
2042	0	20	20	10.6		223	223	117.1
2043	0	21	21	10.6		228	228	117.1
2044	0	22	22	10.6		232	232	117.1
2045	0	22	22	10.6		237	237	117.1
Total cost	3280	466	3746		2988	5061	8049	
Present value ($2010, 6.1%)				**1903**				**2605**

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Date	June 22nd 2012
Reference	Chapter 6
Source	CEC Information Request #5
Question	CEC/MH-V-156

Question:

A large amount of very useful information has been collected and presented in various Technical Reports. The EIS document has effectively collated and summarized this large information resource base. The EIS has largely failed to comprehensively synthesize an enormous volume of information. A summative synthesis of information is required in order to develop useful and meaningful guidelines and protocols that will ensure environmental compliance, and minimize environmental impacts (in terms of habitat loss, carbon emissions, productivity losses, species population reductions, and so forth).

A reorganization of the baseline conditions is required to reflect a description of each ecozone, all the biophysical features that define each ecozone and the interaction between the features and the species that occur there. Each ecozone description should be consistent in content. From such a description the project effects can then be more effectively assessed.

Response:

The biophysical existing environment is described in EIS Chapter 6 specific to the Project assessment disciplines at the ecozone level. Each assessment discipline focuses on the particular aspect of the biophysical environment and viewed for potential effects of the Project. More detailed existing environment descriptions are provided in the respective supporting technical reports and in Terrestrial Ecozones, Ecoregions, and Ecodistricts of Manitoba, An Ecological Stratification of Manitoba's Natural Landscapes (Smith et al. 1998).

It is important to relate potential Project effects at the appropriate scale for each VEC. Using the ecozone for the basis of Project assessment was not considered the appropriate scale for many VECs. For a detailed description of the rationale in choosing VEC/species specific study areas for the effects assessment, see *CEC-MH-II-001g*.

Reference:

Smith, R.E., H. Veldhuis, G.F. Mills, R.G. Eilers, W.R. Fraser, and G.W. Lelyk. 1998. Terrestrial Ecozones, Ecoregions, and Ecodistricts, An Ecological Stratification of Manitoba's Natural Landscapes. Technical Bulletin 98-9E. Land Resource Unit, Brandon Research Centre, Research Branch, Agriculture and Agri-Food Canada, Winnipeg, Manitoba. Report and map at 1:1 500 000 scale.

Date	June 22nd 2012
Reference	Chapter 6_ Section 2.5 pages 6-55 to 6-59
Source	CEC Information Request #5
Question	CEC/MH-V-158

Question:

The section on important communities and habitats (pages 6-55 to 6-59) should be expanded. The EIS should include collated and integrated summary of all critical habitats, from all perspectives (i.e. considering all species groups (vegetation, mammals, birds, reptiles/amphibians, invertebrates, etc.), as well as considerations of land use (aboriginal and others), landforms and soil groups, and so forth). These are scattered throughout a very large document, not collated and considered together (e.g. a rare soil feature often corresponds to a unique vegetation community, and unique animal habitat). Examples include sandy soils, saline flats, patterned fens, and so forth.

Please provide a collated description indicating component interaction for important communities and habitats.

Response:

The Preliminary Preferred Route assessment considered vegetation, forestry, birds, mammals, caribou, core communities, fragmentation, soils and terrain, aquatics, amphibians and reptiles as well as social economic, land use and aboriginal criteria.

Although this information can be found in different areas of the EIS the collation and consideration of critical habitats from all perspectives will be reviewed as part of the Environmentally Sensitive Site validation process in the development of Construction Environmental Protection Plans.

Date	June 22nd 2012
Reference	Chapter 6 Section 2.7 Pages 6-91 to 6-112
Source	CEC Information Request #5
Question	CEC/MH-V-165

Question:

There is perhaps too much emphasis on species that are highly unlikely to be found (e.g. burrowing owl, loggerhead shrike), while less attention is given to uncommon northern bird species.

Species such as the spruce grouse and boreal chickadee should be included as VECs as they reflect the differing upland habitats within the boreal forest.

Response:

In addition to other scientific, cultural and economic selection criteria, bird species VECs were selected as indicators to represent a broad variety of habitat types. Based on the LCCEB habitat classification that covered the entire Bipole III Study Area, these bird habitat association indicators are cross-referenced in the Table attached (see Table 1). For further information on the VEC selection process please refer to section 3.2.4 of the Bipole III Bird Technical Report.

Northern bird communities, species and habitats included in the Bipole III assessment were described extensively by Ecozone and Ecoregion (See section 4.2.4 – 4.2.6: 4.3.2.2 – 4.3.2.4: Appendix D, E, Manitoba Hydro 2011). Besides ruffed and sharp-tailed grouse, other boreal forest bird VECs include rusty blackbird, olive-sided flycatcher, sandhill crane and common nighthawk.

While spruce grouse and boreal chickadee vary somewhat in their range distribution and habitat use compared to these bird VECs, coniferous forested habitat that these species might find suitable is similar to, and could be represented by, American marten habitat (see Mammals Technical Report).

Date	June 22nd 2012
Reference	Chapter 6 Section 2.7 Page 6-103
Source	CEC Information Request #5
Question	CEC/MH-V-167

Question:

Regarding least bitterns, an important point is made (page 6-103). This is a considerable range extension for the species, only recently discovered. Our knowledge base for plants and animals distributions in Manitoba is not particularly good. Basing decisions only on known distributions is not recommended as it is possible (and in some cases likely) that species (and habitats) will be discovered in new (isolated) locations along the proposed right-of-way. This is particularly true for much of the proposed route, which transects many areas that are poorly known floristically and faunally (and in terms of habitats). For this reason, a detailed survey (field work, complemented by satellite imagery and GIS software) should be made along the entire length of the right-of-way. Emphasis should be on habitat (plant composition and structure, substrate characteristics), since habitat to a large extent predicts the likelihood of finding species (at all spatial scales, from invertebrates to large ungulates).

Please indicate when and if such a survey will take place. And if it will take place prior to beginning construction?

Response:

A detailed habitat survey will not take place along the Final Preferred Route (FPR) beyond that which was already completed .Bird and mammal field surveys along the Preliminary Preferred Route were designed using Manitoba Conservation and Water Stewardship Conservation Data Centre data, Ducks Unlimited data, fine scale aerial photography, Forest Resource Inventory (FRI) and LCCEB habitat data in order to sample locations in a broad variety of habitat types available along the FPR. However, additional surveys for wildlife and rare plants will occur prior to construction. These

additional data will be used for supplementing site-specific Environmental Protection Plan mitigation measures.

Many of the habitat associations examined for the Bipole III study area occurred at the macro scale. Where possible, site-specific sampling was used to infer the extent and distribution of plant and animal species possibly affected by the Bipole III Transmission Project. Available landcover data used to model habitat use and quantify habitat loss was the Land Cover Classification Enhanced for Bipole (LCCEB) dataset which was the most complete land cover dataset available for use over the entire study area. Information on how this dataset was supplemented to be more useful for analysis purposes, such as the inclusion of wetland and burn geo-references, are as seen in Section 3.1 of the Bipole III Bird Technical Report and Section 3.2 of the Bipole III Mammal Technical Report.

Date	June 22nd 2012
Reference	Chapter 6 Sec 2.9 pages 6-124 to 6-131
Source	CEC Information Request #5
Question	CEC/MH-V-169

Question:

For the most part, the EIS provides an adequate general description and inventory of the major vegetation types (i.e. major habitats) but, it largely fails to consider and describe less common communities and habitats (i.e. those most in need of protection). Complete and adequately detailed descriptions (species inventory, soils, habitat etc.) of rare habitat types are required (not just for plants, but for other species as well). These areas must be carefully inventoried and accurately mapped, so that protective measures can be implemented in appropriate habitat areas during construction and operation. Habitats requiring protection or special attention include: salt flats and springs; native prairie; calcareous fens and springs; patterned string fens; northern wetlands (organic soils); riparian forest; old-growth forest stands (> 100 years old); highly productive forest and wetlands on nutrient-rich soils; limestone flats (alvars), sinkholes and cliffs; snake hibernacula; and so forth (note that this is not a complete list).

Have these areas been investigated, identified and mapped and at what level? How will the transmission line impact on these areas? Are there specific mitigation measures identified if they are encountered?

Response:

The areas identified above that are found within the Local Study Area, including others (e.g., core habitat, nests, colonies, important fish habitat, etc.) have been identified within the Local Study Area and Project Footprint. This was done through a combination of available data, local knowledge, photo interpretation, predictive modeling (*CEC/MH-III-039*) and field studies. These site types were recognized by Manitoba Hydro as being in greatest need of protection and were avoided to the extent possible during

siting/routing of the Project. Those within the Project Local Study Area were specifically targeted for field sampling for confirmation, characterization and species surveys as the study specialists are very aware of the relationship between uncommon habitat types and species of concern.

Those uncommon and sensitive site types that are intersected by the Project or in close proximity to the Project Footprint have been labeled Environmentally Sensitive Sites (ESS). More than 1200 ESS are individually mapped at 1:10,000 scale and will be shown in the Construction Phase Environmental Protection Plan (CPEnvPP) and addressed with site-specific mitigation measures (see *CEC/MH-II-001c* and *CEC/MH-V-158*). A draft EnvPP is provided in EIS Chapter 11, Attachment 11-1 with a comprehensive suite of 688 (some duplication and overlap) General Environmental Protection Measures (GEPM) governing all aspects of clearing and construction activities relating to transmission lines (for a summary of the GEPM and ESS see *CEC/MH-II-001c*). Very important inclusions of the GEPMs are timing windows that restrict project activities during critical periods of time for environmental sensitivities (e.g. fish spawning periods, bird nesting, caribou calving, etc.). These are provided in EIS Chapter 11, Attachment 11-1, Appendix F. Also important are Buffer and Setback distances with activity limitations for environmental sensitivities such as streams, bird nests, mineral licks, etc.). These are provided in EIS Chapter 11, Attachment 11-1, Appendix G.

Old-growth and highly productive forests were not specifically identified as focus remained more on indicator species (marten, pileated wood pecker) that rely on such habitats. Most of the HVdc transmission line corridor length traverses the Commercial Forest Zone in which Manitoba Conservation and Water Stewardship, Forestry Branch is responsible for sustainable wood supply analysis/annual allowable cut calculations. These predictive models enable managers to ensure a healthy distribution of forest stand age classes across each Forest Section over periods of 100 to 200 years. The effects of the Bipole III Transmission Project are very small across the entire Commercial Forest Zone and will have a minimal effect on over-mature (old-growth) or highly productive forest stands.

Date	June 22nd 2012
Reference	Chapter 6 Section 2.9 pages 6-124 to 6-131
Source	CEC Information Request #5
Question	CEC/MH-V-170

Question:

More details are required regarding the distinction between organic (peat lands) and mineral based soils. Organic soils are particularly sensitive to (and permanently damaged by) disturbances. Heavy equipment can have a hugely detrimental impact on organic substrates, particularly in the summer months. Estimated depths of the organic layer, and composition and extent of decomposition (e.g. organic "muck" versus poorly decomposed peat), should be obtained to the extent possible. Greater consideration must be given to drainage and drainage patterns over the study region. Inadvertent impedance of drainage within wetlands can result in severe habitat degradation, resulting in flooding or drainage and increasing greenhouse gas (carbon dioxide) release through decomposition.

Please comment on how and if these considerations will be incorporated into the EPPs.

Response:

The potential for environmental effects to mineral and organic soils from heavy equipment were considered as part of the environmental assessment and are discussed in Section 6.2.1 – Compaction-related Effects in the "Technical Report on Terrain and Soils – Bipole III Transmission Project. Organic soils were identified to be considered high-risk for compaction-related effects. Estimated depths of organic layers, composition and extent of decomposition through the project area will not be obtained prior to construction because the relationship between heavy equipment use and disturbance to organic soils is well understood, and environmental protection planning will be used to protect organic soils from disturbance from heavy equipment. A summary of mitigation measures that will be used to minimize the disturbance to organic soils from heavy

equipment are included in the draft Environmental Protection Plan (EIS Chapter 11, Attachment 11-1) and include the following:

General

- Project activities will avoid wetland areas to the extent possible. If avoidance is not practical, the extent of disturbance will be minimized. Disturbance of wetlands will only be carried out under frozen ground conditions.
- Environmental protection measures for working in and around wetlands will be reviewed with the Contractor and employees prior to commencement of any construction activities.
- Construction vehicles where possible will be wide-tracked or equipped with high floatation tires to minimize rutting and limit damage and compaction to surface soils.
- Geotextile fabric and aggregate material or construction mats will be utilized along portions of the right-of-way that are unable to be targeted during frozen or dry ground conditions.

Permafrost Areas

- Construction activities in northern Manitoba will normally occur under frozen ground conditions during established timing windows to minimize disturbance and rutting.
- Disturbance to ground cover vegetation and organic soils in permafrost areas will be minimized.
- The top layer of vegetation and organic materials will be retained as an insulating layer in permafrost areas.

Clearing

- Clearing of rights-of-way will occur under frozen or dry ground conditions during established timing windows to minimize compaction and rutting where applicable.
- Specified clearing methods will be carried out in a manner that minimizes disturbance to existing organic soil layer.

- Machine clearing will remove trees and brush with minimal disturbance to existing organic soil layer using only "V" or "K-G" type blades, feller-bunchers and other means approved by the Construction Supervisor/Site Manager.

Grading

- In northern Manitoba, grading of soils will not be permitted in organic areas where removal or disturbance of surface materials would damage permafrost.

Wetlands are recognized as an ecologically important ecosystem in the Vegetation and Terrestrial Ecosystems technical report (Section 3.2.2.5). The potential for effects on wetlands are discussed in Section 7.4 of the Vegetation and Terrestrial Ecosystems technical report. As part of Environmental Protection Planning, mitigation measures were developed to ensure that impacts to natural drainage are minimized, and, in turn, that effects to the physical and biological function of wetlands is minimized. Mitigation associated with wetlands and drainage in the Draft Environmental Protection Plan (EIS Chapter 11, Attachment 11-1) includes the following:

- Existing, natural drainage patterns and flows will be maintained to the extent possible.
- Disturbance of natural drainages including seepage areas, discharge and recharge areas, wetlands, and ephemeral and permanent watercourses will be avoided.
- Drainage channels and ditches will be identified and flagged prior to construction.
- Blockage of natural drainage patterns by construction activities will be avoided.

Date	June 22nd 2012
Reference	Chapter 6 Section 2.9 pages 6-124 to 6-131
Source	CEC Information Request #5
Question	CEC/MH-V-171

Question:

The ecological and environmental consequences of soil disturbances and soil mixing need to be acknowledged and better articulated. Such disturbances result in destruction of the natural soil structure (soil profile), which is extremely detrimental to ecosystem function. Soil mixing and disturbance negatively affects the soil microbial-detritivore community, with consequences on nutrient cycling and carbon accumulation or decomposition (i.e. soil productivity (disruption of nutrient cycling) and greenhouse gas emissions).

Please provide a more complete description of where this is likely to occur and what may the consequences and can they be mitigated?

Response:

Section 6.2.3 - Soil Mixing Effects in the "Technical Report on Terrain and Soils - Bipole III Transmission Project" further discusses the environmental effects of soil mixing.

Section 6.2.3, paragraph 3 indicates soil mixing is anticipated to occur at infrastructure component sites (e.g., converter stations), tower and work camp trailer foundations; and ground electrode ring sites and associated trenching areas.

Topsoil salvage is identified as the primary mitigation measure for reducing or preventing environmental effects associated with soil mixing. Additional mitigation measures identified in this Section include construction during frozen or dry conditions; stripping and stockpiling topsoil prior to site preparation or excavation activities; replacement of salvaged topsoil post-construction, where appropriate; storing saline soils on liners, where possible; stopping work where ground conditions will result in

rutting; and replacing at least 300 mm of topsoil on excavation sites. Geotextile fabric, aggregate or construction mats may also be used to limit soil mixing where frozen or dry ground conditions are not present.

Date	June 22nd 2012
Reference	Chapter 6 Section 2.9 Pages 6-124 to 6-131
Source	CEC Information Request #5
Question	CEC/MH-V-172

Question:

Habitat fragmentation and edge effects are inevitable following right-of-way construction, but the severity of fragmentation and "edginess" can be alleviated and controlled to some extent. Specifically, the "severity" of habitat fragmentation can be reduced by: (a) limiting and minimizing disturbance to the extant vegetation (both woody and herbaceous) during construction; (b) retaining (if and when possible) undisturbed forest corridors and patches (retention areas) between Hydro towers, i.e. retention of vertical height structure; (c) making rights-of-way edges less linear, by varying the width of the right-of-way corridor (e.g. peninsulas of forested vegetation extending into the 66 m right-of-way.

Further to questions regarding ROW maintenance in previous IR submissions, please indicate whether these methodologies will be incorporated into ROW management and under what circumstances.

Response:

The route selection process for the Bipole III Project minimized fragmentation effects where practicable on native species by avoiding ecologically important areas. These are areas where potential project effects, including fragmentation, could have a greater risk of population and habitat effects, and consequently, avoidance was the primary means of mitigation. Avoidance of contiguous forested habitat was given further consideration as edge effects in these habitat types are usually higher than in shrubland and grassland-dominated habitat types. Accordingly, in the northern forested zone, the Bipole III transmission line is routed across bogs and fens where clearing requirements are minimal due to limited and stunted tree growth (i.e., Keewatinoow to Little

Limestone Lake, between Muningwari and Dyce lakes, Frog Creek to Cormorant Lake, from east of PR 384 to the Saskatchewan River, from Montreal Lake to the Red Deer River, from the Steeprock River to northeast of Bellsite, portions of the area between the Lenswood Community Pasture and PTH 20), thus significantly minimizing the effects of fragmentation.

Careful routing has also minimized the need for the development of new access. Manitoba Hydro anticipates that very little new access development will be required. The transmission line ROWs will not require all-weather access. All access trails along the ROWs will remain seasonal with minimal improvements. These sinuous trails follow the lay of the land across the undulating terrain thereby limiting the line of sight. Access during the construction and maintenance phases of the project will be managed by access management plans.

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

- Maintaining natural vegetation in critical areas to act as wildlife corridors (i.e., Wabowden and The Bog woodland caribou ranges);
- Implementation of buffers and setbacks from riparian areas with limitations on clearing these will function as wildlife corridors and line of sight barriers (EIS Chapter 11, Attachment 11-1, Appendix G;
- Limited grubbing during clearing (at tower sites only) ensures maintenance of vegetative root systems and a rapid re-growth of native vegetation on the ROW which ameliorates the effects of fragmentation;
- Promoting the re-vegetation of the ROW with low growth native species;
- Limiting clearing and construction activates along most of the ROWs to winter to minimize the effects of disturbance during the sensitive nesting, calving, young rearing periods (EIS Chapter 11, Attachment 11-1, Appendix F);

- Decommissioning of access to the ROW in key areas when construction is complete;

- The development of a vegetation management plan that promotes re-vegetation of cleared areas and focuses on developing a stable, diverse, native species vegetation community (i.e., minimize edge effects on the ROW by allowing taller shrub growth where practicable to provide escape cover, line-of-sight reductions and reduce recreational access);

- Collaboration between Manitoba Hydro and Manitoba Conservation and Water Stewardship when responding to requests for ROW use for recreational trails to ensure a planned and balanced approach to access development on the landscape and the protection of sensitive areas/species; and use of aerial line inspection methods to limit on-the-ground access.

For a response regarding the design and clearing of a varying width ROW for the transmission line see *CEC/MH-II-005c*.

Date	June 22nd 2012
Reference	Socio-Economic Baseline Technical Report, Appendix B, Part 1
Source	CEC Information Request #5
Question	CEC/MH-V-174b

Question:

The methods for developing the key person interview (KPI) summaries are not described in sufficient detail to assess their quality and utility.

b) There was a tight timeline (1 month) for interviewees to review written materials mailed to them, and no in-person follow-up. Were any comments, corrections, and/or other feedback provided by interviewees?

Response:

Although there was a timeline requested for interviewees to review written materials, interviewees were informed at the beginning of the interviews of the review process and associated review timeframes. Comments were received for the summaries via telephone conversations and emails with interviewees. Of the 53 interviews completed as part of the Key Person Interview Program, four interviewees provided feedback: the RM of Ste. Anne (summary), RM of North Norfolk (summary), the RM of Macdonald (map only) and the Village of St. Claude (summary). Upon completion of the revisions, the summaries were forwarded to the corresponding participant for final review prior to incorporation in the Socio-Economic Baseline Technical Report. Final approval by interviewees was requested and received by all those where revisions were made.

The Village of St. Claude revisions were received on May 2, 2011. Revisions to the summary included a correction on the number of restaurants and gas stations that are within the Village. As well, use of Parker Lake was also changed, as the first draft of the summary indicated it was used for fishing, which it is not. The RM confirmed that the existing hospital is only used as a transitional care unit in the Village and indicated the

nearest acute care hospitals are in Treherne and Notre Dame de Lourdes. The final revision made to the summary was to note that there were three provincially controlled roads with potential weight restrictions, as it was not previously included in the summary. The revisions were made based on the correspondence and the final version was confirmed to be accurate by the RM on May 13, 2011.

The RM of Ste. Anne interview revisions were received on April 27, 2011. Comments received included revising the summary to remove information regarding resource users. The information was removed because the summary contained information not relating to an area within the Bipole III Study Area. Access concerns and emergency response information was also removed as it was not relevant to the questions provided during discussions. Additional information regarding the RM noise by-laws was added to the summary. Corrections were made to information supplied regarding the locally owned campgrounds. The final revisions made to the summary were provided back to RM representatives and were confirmed to be accurate on May 11, 2011.

The RM of Macdonald interview summary was not revised; however following the interview on February 22, 2011 revisions were made to the map used. The initial area outlined during the interview was later identified as being incorrect. A map with the revision was sent to the interviewee with their Interview Summary Sheet. No revisions were supplied back.

The RM of North Norfolk revisions were received on April 19, 2011. Comments received were regarding a spelling error, changing an anonymous person to include their name on the summary. Changes within the summary included removing incorrect information about the population in the area. Information relating to potential impacts of the proposed project on local landowners was also removed. As well, the summary was changed to identify that the opinions were that of the interviewees and not the community. An additional comment relating to the location of the line in western Manitoba was also included. The final revisions were sent back to the RM and were confirmed to be accurate on May 13, 2011.

No other revisions were requested from Key Person Interview participants.

Date	June 22nd 2012
Reference	Socio-Economic Baseline Tech Report, Appendix B, Part 1 page 99
Source	CEC Information Request #5
Question	CEC/MH-V-174c

Question:

The methods for developing the key person interview (KPI) summaries are not described in sufficient detail to assess their quality and utility.

c) On p. 99 the report states: "Due to interviewing circumstances hampered by language, interview location, culture and other circumstances the table presents responses to groupings of questions rather than in individual question for further analysis." Please explain what this means and how the grouping was done.

Response:

The note at the top of Table 20 in Appendix B-7 states that during the interviews, participants were allowed to reflect upon and speak about their trapping experiences. Some of these interviews were conducted at the homes or other convenient community locations for the trappers. These factors resulted in some interviews lacking the structure provided by the question guide as shown in Appendix B-2: Question Guidelines.

Table 20 is a summary grouping of the trapping topics and participant responses from the interview summaries. The topics in each column of the table are the same as those in the interview guide, and the corresponding responses in the table are from the written interview summaries. The table displays a structured comparison of the participant responses under each topic.

Date	June 22nd 2012
Reference	Chapter 5 and Consultation Technical Report Nov 2011
Source	CEC Information Request #5
Question	CEC/MH-V-175b

Question:

There appears to be virtually no analysis of the responses accumulated, and it is not clear that the 'consultations' were actually used or responded to in any way. While the comments and feedback were collected into a large database, this information does not appear to have been analyzed or summarized in any meaningful way.

Please summarize and analyze the feedback from the diverse consultations.

Response:

The Environmental Assessment Consultation Program (EACP) was an adaptive process which aimed to inform the public, address questions and concerns, and to elicit feedback to determine a route which would minimize impact on people and the environment.

There was analysis of the feedback received throughout the EACP and was used in further development of subsequent Rounds of the EACP and is discussed in Sections 11.1 to 11.7 of the Bipole III Environmental Assessment Public Consultation Technical Report.

The comments which were received from stakeholders, landowners, First Nations, Northern Affair communities and the MMF were all assessed throughout each Round of the EACP based on the goals which were set forth for each of the Rounds and can be found in Appendix E of the EACP Technical Report and a summary can be found in Sections 12.0 to 13.0 of Chapter 5 of the EIS.

Feedback received assisted the EACP team in adapting the process and addressing common themes and concerns such as but not limited to:

- Alternative routing considerations
    - Feedback from all stakeholders and the general public was acknowledged and assisted the EACP team to suggest acceptable routing options from the EACP perspective (Refer to Chapter 7 – Alternative Route Selection).
- Final preferred route determination
    - Feedback from landowners assisted Manitoba Hydro in adjusting the Preliminary Preferred Route to determine the Final Preferred Route. Routing on/off half mile alignments and adjustments to accommodate local landowners concerns was the predominant goal of Round 4. Figures 26.0 and 27.0 from the EACP technical report denotes 57 individual local routing suggestions provided by landowners and stakeholders which were all considered by Manitoba Hydro.
- The Tourond routing adjustment
    - From feedback received regarding routing during Round 4 of the EACP, a routing alternative was presented to landowners in the vicinity of Tourond following completion of Round 4. This alternative route is presented in the "Additional Information in Support of the Bipole III Transmission Project" which was submitted to Manitoba Conservation and Water Stewardship in February of 2012.

Manitoba Hydro undertook a thorough and adaptive consultation program which attempted to capture and address concerns raised by the public and responded accordingly throughout the process based on the goals of each individual Round of the EACP.

Date	June 22nd 2012
Reference	Lands of Special Interest and TLE Lands Tech Report
Source	CEC Information Request #5
Question	CEC/MH-V-176

Question:

Overall the explanation of the methodology is vague and lacking in critical details. How were individuals identified to interview? Who actually participated? How many? It's not clear how these interviews were actually used as part of this process at all? The personal communication list at the end only lists five people in total. Please clarify the above noted details.

Response:

Manitoba Conservation and Water Stewardship is the responsible agency for the Protected Areas program and Treaty Land Entitlement in the Province. During the early stages of the study, meetings were held with the Assistant Deputy Ministers of the Conservation Programs Division and the Regional Operations Division who identified the individuals selected for interviews and interaction throughout the study. Key individuals involved from the Protected Areas Initiative include the Manager and the Protected Areas Resource Planner. Other key individuals include the Ecological Reserves and Protected Areas Specialist for the Parks Branch, the Manager of Wildlife Management Areas for the Wildlife Branch, and the Manager of Crown Land and Treaty Land Entitlement Program.

These individuals participated in face-to-face meetings and through follow-up by telephone or e-mail. The information generated from these interactions was directly incorporated into the report.

Date	June 22nd 2012
Reference	Lands of Special Interest and TLE Lands Technical Report
Source	CEC Information Request #5
Question	CEC/MH-V-178

Question:

The process of assessing the ratings for the 27 factors is dubious and not really defensible. The report states that "Stakeholder response criteria were based on both a numeric count and a general expert assessment of the negative or positive commentary provided for certain segments."

In the previous sections on consultation, it is not clear how representative the actual consultation results are, though given the overall apparently low rates of participation, any application of the consultation data is almost certainly biased and problematic. Further, the process of how these data are simply counted then somehow coded using a "general expert assessment of the negative or positive commentary" is unclear and highly questionable. Please provide more details on how this was done and how it can be assessed for validity and what the gaps and limitations are.

Response:

The Environmental Assessment Consultation Program (EACP) team undertook extensive notification procedures through all four rounds of consultation to provide opportunities to receive feedback from stakeholders within the project study area.

The EACP team processed all feedback received through open house commentary, comment sheets, municipal council meetings, leadership meetings, regional and community open houses, and phone line and email commentary. The summary of this information was documented in the Route Selection Matrix (Chapter 7) and utilized to assist the Bipole III Project team in determining a preliminary preferred route corridor. The commentary collected by the EACP team is noted under "Segment Comments" and

"Selection Summary" for each of the Sections of the Bipole III line. All information utilized can be found in Appendices E and F1 to F4 of the EACP Technical Report (Master Feedback Log and Copies of the Meeting Minutes).

The Route Selection Matrix process was presented to the public during Round 4 of the EACP. No comments were received from the public during Round 4 on the methodology used in the RSM for selecting the Preliminary Preferred Route.

Date	June 22nd 2012
Reference	Lands of Special Interest and TLE Lands Technical Report
Source	CEC Information Request #5
Question	CEC/MH-V-180

Question:

The entire methodology of this report is based on the specific route of the transmission, but there is no recognition or analysis examining the impacts on overall landscape connectivity. Linear features like power lines clearly fragment the landscape and separate and replace patches of native vegetation. This has important implications for biological diversity (including plants and other species of traditional aboriginal value), animal movements, and how humans use the landscape. That there is no mention of or analysis of connectivity issues in the report is a fundamental failure of this document and highlights that only looking at the specific local footprint of the transmission line misses the critical big picture of the regional footprint, of which connectivity is one example. This is an essential missing piece that should be addressed. Please provide the analysis regarding connectivity mentioned above.

Response:

The analysis has been done and is presented in the Bipole III EIS and supporting Technical Reports. The Lands of Special Interest and TLE Lands Technical Report deals specifically with land use issues as they relate between the proposed Bipole III Transmission Project, protected lands and lands proposed for protection, and First Nations reserve and TLE lands (Section 1.2, Purpose and Scope). The Lands report was not intended to cover the issue indicated in the question. Aspects of connectivity, fragmentation, biological effects, traditional Aboriginal values and resource use are provided in the following Bipole III Transmission project supporting technical reports:

- Caribou Technical Report;

- Birds Technical Report;
- Mammals Technical Report;
- Habitat Fragmentation Technical Report;
- Resource Use Technical Report;
- Terrain and Soils Technical Report;
- Terrestrial Ecosystems and Vegetation Technical Report;
- Terrestrial Invertebrates, Amphibians and Reptiles Technical Report; and
- Aboriginal Traditional Knowledge Technical Reports #1 and #2.

Fragmentation and core communities, which are measures of intactness/connectivity, were also key criteria used in the route selection process for the Bipole III Transmission Project (EIS Chapter 7, Appendix 7A).

Date	June 22nd 2012
Reference	Lands of Special Interest and TLE Lands Technical Report
Source	CEC Information Request
Question	CEC/MH-V-181

Question:

There is no mention throughout this document of the role of Bipole III as a transportation route by people (eg access to hunting/trapping areas or use as a hunting area) or how that relates to existing aboriginal lands, etc. Please provide additional details about transportation related to connectivity.

Response:

The Lands of Special Interest and TLE Lands Technical Report deals specifically with land use issues as they relate between the proposed Bipole III Transmission Project, protected lands and lands proposed for protection, and First Nations reserve and TLE lands (see Section 1.2 of the technical Report). Aspects of connectivity, fragmentation, access, transportation and related potential effects are provided in the following Bipole III Transmission Project supporting Technical Reports:

- Caribou Technical Report;
- Birds Technical Report;
- Mammals Technical Report;
- Habitat Fragmentation Technical Report;
- Resource Use Technical Report;
- Terrestrial Ecosystems and Vegetation Technical Report;
- Terrestrial Invertebrates, Amphibians and Reptiles Technical Report;

- Environmental Consultation Technical Report; and
- Transportation Technical Report.

During the course of the Project related Site Selection and Environmental Assessment (SSEA) studies, ATK collection and four rounds of consultation, numerous concerns were identified relative to the Project Footprint and potential access.

Mitigation measures have been prescribed for most of the access related issues identified in the Draft Environmental Protection Plan submitted as part of the Bipole III Transmission project EIS (see Chapter 11, Attachment 11-1, General Environmental Protection Measures). To further address access and transportation related issues, Manitoba Hydro has committed to preparing access management plans for the construction and operations phases of the Project.

Date	June 22nd 2012
Reference	Lands of Special Interest and TLE Lands Technical Report pg 58-60
Source	CEC Information Request #5
Question	CEC/MH-V-186

Question:

The use of ATK as part of this report (eg.p.58-60) is vague and it is not possible to tell how the ATK information was actually incorporated into the analysis. The overlap of the proposed route and aboriginal owned lands is clear, but the interpretation of impact and meaning is not clear at all. The specific lands that make up individual reserve lands are identified as overlapping with the preferred route, but this does not account at all for hunting and other land uses by aboriginal people outside of lands they have specific 'ownership' of. That this line could and likely will be an impact is not addressed at all here. Please address these impacts.

Response:

The intent of the Lands of Special Interest and TLE Lands Technical Report was to identify overlap between the proposed Bipole III Transmission Project and specific categories of land such as protected lands, lands proposed for protection, First Nations Reserves and TLE. Where specific sites of ecological or historical significance were shared with Manitoba Hydro they were identified in this report.

Date	June 22nd 2012
Reference	Lands of Special Interest and TLE Lands Technical Report
Source	CEC Information Request #5
Question	CEC/MH-V-187

Question:

The report on the whole has virtually no references to existing literature despite there being a preponderance of peer-reviewed and grey literature covering most areas of this report. This is most noticeable in the 'from literature' section which actually contains virtually no literature. In the references stated, the majority are those written by Manitoba Hydro. And, there is not a single peer-reviewed paper cited. Please file thorough summary of use of existing literature.

Response:

References quoted in this report include agencies from British Columbia to Newfoundland and the United States. Manitoba Hydro has been actively engaged in environmental assessment work on transmission line and electrical generation projects for many decades and has developed leading scientific research in this area. This study used current environmental information from Manitoba Hydro's past studies as it was developed in and directly related to the study area.

Date	June 22nd 2012
Reference	Lands of Special Interest and TLE Lands Technical Report page 69
Source	CEC Information Request #5
Question	CEC/MH-V-188

Question:

The statement on p.69 "In general, transmission lines may be considered as very low impact developments to the environment." is without basis and is highly subjective. Please submit additional documentation specific to connection to the actual results.

Response:

The statement was meant to refer to the physical effects, in comparison to other major resource based developments. It reflects the findings of the detailed environmental analysis of each project component from the perspective of land-use and particularly protected areas and private lands.

Date	June 22nd 2012
Reference	CEC Information Request #5
Source	CEC Information Request #5
Question	CEC/MH-V-189

Question:

Worker interactions with vulnerable community members are Fox Lake First Nation's greatest concern, as identified in their self-directed studies (identified also by Tataskweyak Cree Nation). As expressed there, this concern is consistent with situations that have been thoroughly documented with projects elsewhere (e.g. Trans-Alaska pipeline). Consequently these are entirely foreseeable impacts, but they do not appear to have been addressed in-depth with as much commitment as they should be. Please provide additional detail.

Response:

Potential adverse effects of construction worker interaction with vulnerable community members is documented in Chapter 8 of the Bipole III EIS: 8.3.5. Personal, Family and Community Life, 8.3.5.3.

Manitoba Hydro intends to provide additional information on the issue of worker interaction and public safety as part of its Supplemental Filing.

Date	June 22nd 2012
Reference	Chapter 4_ Section 4.25
Source	CEC Information Request #5
Question	CEC/MH-V-190

Question:

In Chapter 4, criteria for VEC identification are not clear. Please provide more detail specific to socio-economic VECs defined in S.4.25 as "personal, family, and community life", including the significance to the proportion of FLCN members living outside the project study area is, e.g. in Churchill or elsewhere.

Response:

Please see response to *CEC/MH-II-001f* for further explanation on the selection criteria used for specific VECs by subject area.

The selection of valued environmental components (VECs) involved the scoping of potential issues pertinent to the Project. The rationale for the selection of VECs was based on the following: regulatory importance, the Environmental Assessment Consultation Program (EACP) [including Key Person Interviews]; ATK, expert judgement and other similar projects. Selection of the VECs within the personal family and community life subject area (Public Safety, Human Health, Aesthetics) were identified based on these criteria.

For FLCN members living outside the Project Study Area, travel to the First Nation, or connections to family or community members within the Project Study Area may make these VECs relevant to their interests. The effects on FLCN members living outside the Project Study Area would be similar or less than those experienced by community members within the Project Study Area.

Date	June 22nd 2012
Reference	Chapters 4 and 8
Source	CEC Information Request #5
Question	CEC/MH-V-191

Question:

Please specify criteria for the selection of VECs (this applies in general, but specifically here to the socio-economic ones) and describe the process through which those criteria were applied. Where subjective assessments were made, say so, and describe those specific decision processes in sufficient detail.

Response:

Please see response to *CEC/MH-001f* that describes the criteria used for the selection of socio-economic and biophysical VECs which inherently includes an element of subjectivity.

Date	June 22nd 2012
Reference	Chapter 4 and 8
Source	CEC Information Request #5
Question	CEC/MH-V-192

Question:

Provide an assessment of the accuracy of the community profiles

Response:

The Bipole III Transmission Project Socio-Economic Baseline Data Report provides additional information on the socio-economic features for First Nation and North Affairs communities, along with rural municipalities, cities, towns, and villages in the Project study area. The report also provides information for communities potentially affected by the final preferred route for the Bipole III line and by other Project components. Statistical data used for the community profiles was obtained from Statistics Canada. Census information from Statistics Canada is either collected from 100% of the population or on a 20% sample basis (from a random sample of one in five households) with the data weighted up to provide estimates for the entire population. Community profile data was supplemented with information obtained through the Environmental Assessment Consultation Program (EACP), and a Key Person Interview Program (KPIP) conducted for the Project.

The multiplicity of sources contributed to the meaningful characterization of communities for the purposes of undertaking the Project effects assessment.

Date	June 22nd 2012
Reference	Chapter 4 pg 4-35
Source	CEC Information Request #5
Question	CEC/MH-V-193

Question:

Assessing the significance of the project's effects on VECs, even based on the 8 categories given, is a subjective process (acknowledge partially on p. 4-35). There is no description of the actual process whereby the significance was assessed. Describe the process of applying the stated criteria to assessing the significance of effects on the VECs (this also applies in general, but specifically here to the socio-economic ones).

Response:

The process of assessing the significance of residual effects is included in Chapter 4, Section 4.2.10 as an evaluation that uses both best and current practices, and a pre-determined significance evaluation framework that includes eight specified factors (pg. 4-32). The eight criteria are then defined in detail (pgs. 4-32 to 4-34); followed by a description of the rating of potential significant adverse effects of the Project that are likely on VECs. This approach is aligned with the Canadian Environmental Assessment Agency's guidance (as noted below).

The Canadian Environmental Assessment Agency acknowledges that a quantitative assessment to determine significance may not be possible and that, in these instances, a qualitative approach based on professional judgment may be used (The Reference Guide: Determining Whether A Project is Likely to Cause Significant Adverse Environmental Effects, Canadian Environmental Assessment Agency website, www.ceaa-acee.gc.ca).

With respect to determining the significance of residual environmental effects for the Bipole III Project, the Scoping Document indicates that they will be evaluated based on

"best and current practices". The Scoping Document identified the eight criteria for determining significance as outlined in the EIS. Of the eight criteria, four are considered to be of more importance - these are the Direction or Nature of the Effect; Magnitude; Geographic Extent; and Duration. It is acknowledged that certain effects are easily predicted with a high level of certainty while others cannot. For example, the assessment of significance for environmental effects typically can determine a clear overall direction of change for a specific VEC, as well as the geographic extent and duration particularly for socio-economic VECs (by following the definitions outlined in Chapter 4) where determining magnitude can be more difficult to quantify. In some instances, as acknowledged in the EIS, professional judgment based on experience with other similar projects was used to assist in determining significance based on the criteria as a quantitative assessment is not possible.

Date	June 22nd 2012
Reference	Chapter 8 page 8-290
Source	CEC Information Request
Question	CEC/MH-V-194

Question:

Job opportunities associated with the project for northerners/ Aboriginal people appear to be low-level (p. 8-290), despite S.8.3.3 identifying economic opportunities as a VEC that is expected to be significantly and positively affected by the project. There is no mention of training opportunities to allow those people to access all but the lowest level of economic opportunities. Explain why there is no discussion about training local people to provide those services that are expected to be impacted by the project.

Response:

Pages 8-289 to 8-292 describe construction phase economic activities associated with the Keewatinoow Converter Station component of the Project. Section 8.3.3.3 identifies economic opportunities and job skills development as a positive impact of the Project, including the Keewatinoow Converter Station.

Manitoba Hydro developed an extensive pre-project training initiative for the Wuskwatim and proposed Keeyask Projects that is called the Hydro Northern Training and Employment Initiative (HNTEI). The HNTEI trained Northern Aboriginal people in jobs that are applicable to the construction of Bipole III. Section 6.3.3.4 (page 6-195 to 6-196) provides a description of the community-based HNTEI, including results.

As noted in the Bipole III EIS, work at the Keewatinoow site will be covered by a collective bargaining agreement known as the Burntwood-Nelson Agreement (BNA). This agreement includes provisions for Contractors to provide on-the-job training opportunities and a requirement for preferential hiring of northern Aboriginal people. In addition, Manitoba Hydro will be requesting contractors within their contract proposal,

when practical, to propose on-the-job training programs to execute throughout the duration of the work.

With respect to transmission line work, Manitoba Hydro will be offering pre-project heavy equipment operator training in conjunction with the International Operating Engineers Union in several locations in the Province in addition to any training that Contractors may offer.

Manitoba Hydro has established ongoing initiatives geared towards encouraging Aboriginal participation in operational employment.. Information on these programs is available at:
http://www.hydro.mb.ca/careers/training_programs/trades/aboriginal_preplacement_programs.shtml

Date	June 22nd 2012
Reference	Economic Impact Technical Report
Source	CEC Information Request
Question	CEC/MH-V-195

Question:

The Economic Impact Technical Report needs to be revised to show the regional distributional effects of economic impacts (i.e. broken down beyond just the provincial level) and show the data set used in the analysis.

Response:

The Bipole III economic impact estimates have been derived from the Manitoba Bureau of Statistics (MBS) Economic Impact Assessment Model. The MBS model is based on Statistics Canada's Input-Output Model that is designed to estimate impacts on Manitoba and the Rest of Canada (ROC). It is not designed to estimate impacts on regions, communities or cities within the province. There is no comparable model for regions within the province. Furthermore, no meaningful methodology exists for scaling the provincial results down to the regional level.

Date	June 22nd 2012
Reference	Chapter 8 Section 8.3.5
Source	CEC Information Request #5
Question	CEC/MH-V-196

Question:

As defined in S. 8.3.5 these three VECs appear to be not only low-level in terms of human values schema (e.g. those by Abraham Maslow – the "hierarchy of needs", but also Harold Lasswell, Shalom Schwartz). This suggests that they speak to the most basic human survival needs rather than peoples' legitimate emotional, spiritual, and societal needs, both at individual and community scales. It appears that the VEC "public safety" really doesn't capture the magnitude or extent of anticipated effects. It speaks to physical safety only and says nothing about mental health effects (which are inter-related, especially from an Aboriginal community perspective) or the level of mental health services now or in the future.

These concerns are closely related to the concerns about the project's likely impacts on culture that are documented in a consistent manner in the First Nation self-directed studies. Remarkably, those impacts are categorized as minor in chapter 8, which is in considerable contradiction to those self-directed studies.

Please re-file or provide an update addressing the above concerns.

Response:

Chapter 8 indicates that the residual adverse effects will not be significant, however, this is based on the level of impact anticipated after implementation of planned mitigative measures, ongoing monitoring, and adaptive management planning. Please see *CEC/MH-II-001hii* and the socio-economic supplemental filing which includes a revised effects assessment on the personal, family and community VEC of public safety.

Date	June 22nd 2012
Reference	Chapters 4 and 8
Source	CEC Information Request #5
Question	CEC/MH-V-197

Question:

The entire impact assessment approach taken with this project appears to be inadequate to address the scope, magnitude, nuance, and meaning of the socio-economic and cultural concerns raised by Aboriginal people; especially in the northern part of the project area. "Best practices" in a situation like this demands a participatory socio-economic impact assessment. Please file any further information and anticipated approach.

Response:

The Manitoba Hydro approach to Aboriginal engagement, traditional knowledge, and socio-economic assessment are addressed in Chapters 4, 5 and 8. Additional information will be included in a supplementary filing.

As well, discussions have been, and continue to be, held with communities and organizations with an interest in the Project, including communities in the northern part of the project area.

Date	June 22nd 2012
Reference	Economic Analysis
Source	CEC Information Request #5
Question	CEC/MH-V-198

Question:

The model – I/O model for Manitoba.

While the output of the input-output model may be valid, more detailed information is necessary to determine the economic effects to regions within Manitoba and the rest of Canada. There are also details lacking that would help to clarify methods.

The model is based on "statistical information about the flow of goods and services among various sectors of Manitoba's economy."

Was the same model used for the rest of Canada?

Was the same model used for all of Canada?

More detail could be provided for each of the models (multipliers, sectors, etc.)

Does the national model account for substitution effects within Canada? Are the effects gross or net?

What are the economic impacts of capital expenditures by region?

Include output for all of direct, indirect and induced by category (employment, labour income, GDP and taxes).

Response:

The MBS uses one model to estimate impacts within Manitoba and Canada. The Rest of Canada (ROC) impacts are derived from the difference between total Canada impacts and total Manitoba impacts. Economic impact multipliers for Manitoba during the

construction phase of the project are described on Page 7 of the Bipole III Economic Impact Assessment Technical Report.

As noted in the response to *CEC/MH-V-195*, the MBS model is based on Statistics Canada's Input-Output Model that is designed to estimate impacts on Manitoba and Canada, and is not designed to estimate impacts on smaller regions, communities or cities within the province.

Economic impact analysis provides a gross measure of the benefits and does not account for substitution effects. In other words, it does not take into consideration the alternative opportunities available to those employed or the income they might otherwise have earned. It also does not consider the foregone return or benefits that could have been realized from alternative investments.

Date	June 22nd 2012
Reference	CEC Information Request #5
Source	CEC Information Request #5
Question	CEC/MH-V-199

Question:

Scope of analysis – both temporal and geographic.

The construction phase will last more than one year and effects occur in different regions of Manitoba.

Were the values for income and other financial outcomes discounted?

What was the discount rate?

Are all figures in 2010 dollars?

What are the regional impacts? If existing models are not available for Northern Manitoba, then please explain why was a model not built with appropriate multipliers to estimate effects?

The study should report direct, indirect and induced effects by region and by spending category (capital expenditures, wages and salaries, etc.) in addition to construction and operations.

Aboriginal participation rates were derived from experience and professional judgment – please include more details that explain how these values were calculated.

Can employment be displayed by job and sector?

Response:

The estimated economic impacts derived from the MBS input-output model are shown in 2010 constant dollars (exclusive of inflation) but are not discounted to present value

terms. As noted in the response to *CEC/MH-V-195*, the Statistics Canada's Input-Output Model is not designed to estimate impacts on smaller regions, communities or cities within the province.

Given the provincial scope of the Project, it is entirely appropriate to consider provincial wide application of the input-output model.

The Aboriginal participation rates were based upon actual aboriginal employment rates up to January 2011 experienced by Manitoba Hydro during the construction of the Wuskwatim project as well as the knowledge and experience of Manitoba Hydro staff and an external consultant. This experience was then adjusted to account for differences between Wuskwatim and Bipole III, including the absence of a partnership agreement and the different skill-sets needed. From this, a range of estimated employment and labour impacts were developed for the project, as noted on page 21 of the Bipole III Economic Impact Assessment Technical Report. These results are considered to be general estimates; no further breakdown of employment is available.