REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.3; Page No.: 26

PREAMBLE: Manitoba Hydro has stated the following: "Integral to the process was public involvement. Two rounds of public engagement were conducted for the Keeyask Transmission Project to gather public comments on preliminary siting and routing choices, and Manitoba Hydro funded self-directed studies undertaken by TCN, FLCN and the Manitoba Metis Federation."

QUESTION:

Is evidence and study of the referenced public consultation included in the Keeyask EIS? If not, please provide.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.3; Page No.: 27

PREAMBLE: Manitoba Hydro has stated the following: "Bird diverters will reduce the risk of birds colliding with lines."

QUESTION:

Please provide evidence of the effectiveness of bird diverters proposed to be used by Manitoba Hydro, including any supporting assumptions made to arrive at this conclusion.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.4.1; Page No.: 32

PREAMBLE: Manitoba Hydro has stated the following: "Through their involvement in the Project, Fox Lake Cree Nation Members want to ensure a repeat of the past will never occur again and hope to be better prepared to work to mitigate the potential negative impacts of the Projects."

QUESTION:

What negative impacts are being referred to in the comments provided by the Fox Lake Cree Nation? Please provide any supporting assessments from the Fox Lake Cree Nation Members used in the NFAT response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.2; Page No.: 48

QUESTION:

Manitoba Hydro has stated the following: "The overall long-term productive capacity of fish habitat is expected to be similar to current conditions, but there may be a shift in the species composition. Lake sturgeon may experience some short-term declines, but with the implementation of a stocking program their numbers are expected to increase in the long-term." What annual percentage change can be expected in the productive capacity of the lake sturgeon habitat over the next 10 years? Please provide any supporting studies and assumptions used to arrive at your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.2; Page No.: 48

PREAMBLE: In relation to the same quoted statement as question MNP/MH I-004

QUESTION:

Can you provide more details regarding the shift in species composition? Please provide any supporting studies and assumptions used to arrive at your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.2; Page No.: 23

PREAMBLE: Manitoba Hydro has stated the following: "Northern pike (jackfish) may decline in the short-term in the reservoir, but are expected to remain stable over the long-term in the reservoir and Stephens Lake."

QUESTION:

What percentage decline in the jackfish population is Manitoba Hydro estimating in the short term? Please provide any supporting studies and assumptions used to arrive at your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.1; Page No.: 46

QUESTION:

There is no specific mention of the mitigation measures being taken for the brook trout population other than the consideration of a stocking program. Please provide Manitoba Hydro's full plan to mitigate adverse effects on the brook trout population in the project area and any supporting studies/assumptions used in the plan.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.1; Page No.: 45

QUESTION:

When will the measures to reduce or avoid environmental impact be finalized for the Conawapa Project? Please provide the related reports, if available.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.1; Page No.: 45

QUESTION:

Manitoba Hydro has stated the following: "The turbines will enable 90% of the fish up to 500mm in length passing downstream through the powerhouse to survive." What species and percentage of fish are larger than 500mm and may not survive passing downstream through the powerhouse? Please provide any supporting studies and assumptions used to arrive at your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.2; Page No.: 23

QUESTION:

Manitoba Hydro has stated the following: "Adverse effects on walleye (pickerel) and lake whitefish will be limited during the construction phase; in the operations phase their populations are expected to increase in the reservoir and remain stable in Stephens Lake." What percentage increase in the pickerel and lake whitefish population is Manitoba Hydro estimating in the short term? Please provide any supporting studies and assumptions used to arrive at your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.2; Page No.: 23-24

QUESTION:

Manitoba Hydro has stated the following: "A small amount of breeding habitat will be lost to the three Species at Risk Act (SARA) listed species - the olive-sided flycatcher, rusty blackbird and common nighthawk - but habitat of these species is widespread in the area, and new open- and edge-habitat preferred by the flycatcher and nighthawk will be created." What will be the location for the new open and edge-habitat for flycatcher and nighthawk and how has Manitoba Hydro designed these new habitats? Please provide any supporting studies and assessments/plans used in your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Volume: Chapter 3: Trends and Factors Influencing North American Electricity Supply; Section: Chapter 3; Page No.: 1-41

QUESTION:

It would seem that the MISO price forecasts, contributed by several external consultants form the basis for export price expectations in modeling, while EIA forecasts of capacity mix and dispatch drive environmental performance assumptions in MISO as described in Chapter 3. Why is there this inconsistency/divergence?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.1.1.1; Page No.: 6

PREAMBLE: Manitoba Hydro has stated the following: "A number of contracts for construction work, services, labour and materials will first be offered to the KCNs or businesses controlled by them."

QUESTION:

Can you please specify and/or provide the contracts first offered to the KCNs?

RESPONSE:

Schedule 13.1 of the Joint Keeyask Development Agreement (JKDA), available on Manitoba Hydro's website, outlines the Directly Negotiated Contracts (DNC) that will be made available to the Keeyask Cree Nations (KCNs). To date, the following contracts have been awarded or are in the process of being awarded to the KCNs:

DNC	KCN Allocation
Catering	Fox Lake Cree Nation (FLCN) and York Factory First Nation (YFFN)
Camp Maintenance Services	Cree Nation Partners (CNP)
Security Services	FLCN and YFFN
Employee Retention and Support Services	FLCN and YFFN
First Aid Services	CNP
Start-Up Camp Site Development and Install	CNP
Work Areas Site Development	CNP
North Access Road Construction	CNP
Installation of Bridge Over Looking Back Creek	CNP
PR 280 Upgrades	CNP

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.2.1; Page No.: 8

QUESTION:

How has the shoreline erosion and peatland disintegration been estimated? Please provide these cost estimates and any supporting studies used to develop these estimates.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.2.2; Page No.: 12

QUESTION:

In the event that the project does not proceed, have the decommissioning and disturbed site remediation costs been estimated? If so, please provide these cost estimates and any supporting studies used to develop these estimates.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 16

QUESTION:

What was the role of local Cree nations in planning the Keeyask Generation Project, including their assessment of potential effects and development of mitigation measures?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 16

QUESTION:

Please provide the local Cree nations' assessments of the potential effects and development of mitigation measures.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 17

QUESTION:

How does Manitoba Hydro ensure all sensitive sites have been identified?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 17

QUESTION:

Manitoba Hydro stated the following: "Turbines that minimize fish mortality were selected for the project; over 90% of the fish up to 500 mm in length passing downstream through the generating station are expected to survive." What studies support that the turbines selected minimize fish mortality? Please provide studies and testing results.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 17

QUESTION:

What percentage of fish over 500mm in length passing downstream through the generating station are expected to survive?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 20

QUESTION:

Will the Fish and Moose Harvest Sustainability Plans be adopted by Manitoba Hydro as identified in Chapter 2?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 21

QUESTION:

How will information about the dangers of eating fish with increased mercury levels from Gull and Stephens lakes be disseminated to the local communities?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.2; Page No.: 23

QUESTION:

Manitoba Hydro has stated the following: "Water quality will be suitable for aquatic life in the main stem of the reservoir, and in most locations and at most times in the flooded area." How often and for what duration will water quality not be suitable for aquatic life and what will the effects be?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.2; Page No.: 23

PREAMBLE: Manitoba Hydro has stated the following: "Overall effects to the terrestrial ecosystem diversity are expected to be regionally acceptable because no ecosystem types are lost, the proportion of habitat types is not expected to change substantially, and the cumulative changes for all priority habitat types will remain below 10% of the historical area."

QUESTION:

As related to overall effects to the terrestrial ecosystem, how have “regionally acceptable” and "substantially" been defined in this context?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.2; Page No.: 24

PREAMBLE: In footnote 7, Manitoba Hydro stated the following: "These estimates have been updates since the environmental impact statement was completed."

QUESTION:

What is the revised estimate of person-years of direct construction employment?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.3; Page No.: 26

PREAMBLE: Manitoba Hydro has stated the following: "Within a given corridor or region, more than one route is usually available by which two points can be joined. Four such routes were considered for the Keeyask Transmission Project with the selected route representing the greatest balance of economic, environmental and social considerations as determined by the engineers and environmental specialists on the planning team."

QUESTION:

What specific items were included in the economic, environmental and social considerations?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.3; Page No.: 26

PREAMBLE: Manitoba Hydro has stated the following: "Within a given corridor or region, more than one route is usually available by which two points can be joined. Four such routes were considered for the Keeyask Transmission Project with the selected route representing the greatest balance of economic, environmental and social considerations as determined by the engineers and environmental specialists on the planning team."

QUESTION:

How was the relative importance of each consideration determined and factored into the selected route?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.3; Page No.: 27

QUESTION:

Manitoba Hydro stated the relative advantages of the final route against the alternatives; however, no specific information was given on the disadvantages. What are disadvantages of the final route and how did these compare to disadvantages of the alternatives?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 17

QUESTION:

What measures are expected to be in place to limit the increase in mercury levels in fish living in the Keeyask and Conawapa reservoirs?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.3; Page No.: 28

PREAMBLE: Manitoba Hydro has stated the following: "A small amount of breeding habitat will be lost to three SARA-listed species – the olive-sided flycatcher, rusty blackbird and common nighthawk – but habitat for these species is widespread in the area, and the effects will be somewhat offset by new open- and edge-habitat preferred by the flycatcher and nighthawk that will be created. "

QUESTION:

Has Manitoba Hydro quantified the potential lost SARA species due to small amount of lost breeding habitat? If so, please provide your calculation and all supporting assumptions.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.3; Page No.: 28

QUESTION:

Has Manitoba Hydro reviewed and incorporated any historical studies to show impacts of lost breeding habitat?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.5; Page No.: 30

QUESTION:

Manitoba Hydro has stated the following: "Cumulative effects assessments were undertaken for the generation and transmission projects. In addition to the effects of the generation and transmission projects, the cumulative effects assessments considered the adverse effects of past, present and future projects on Valued Environmental Components (VECs)." Please provide the cumulative effects assessments undertaken for the generation and transmission projects, including all supporting appendices, definitions and assumptions.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.6; Page No.: 30

QUESTION:

Manitoba Hydro has stated the following: "If unexpected effects are detected through monitoring, adaptive management measures will be applied." Please describe the plan already in place, if unexpected effects are detected through monitoring, including timelines for action and results?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.4; Page No.: 31

QUESTION:

Manitoba Hydro has stated the following: "The generation project, in effect, has been subject to two environmental evaluations." Please provide the two environmental evaluations, including any appendices, assumptions applied and set of references used.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.4.1; Page No.: 32

QUESTION:

Manitoba Hydro has stated the following: "The project was evaluated by each of the KCNs in terms of their own worldview, values and experience with past hydro-electric development, as well as their relationships with Askiy." Were there any major environmental concerns raised by the majority of the KCN evaluations? Please provide summaries.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2; Page No.: 38

QUESTION:

In regards to Table 2.3, have the design parameters been validated through feasibility studies? If so, please provide.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.2; Page No.: 48

QUESTION:

On what basis has it been determined that Caribou are expected to continue to use the area during the operation phase? Please provide any supporting studies reviewed to create this expectation.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 3: Trends and Factors Influencing North American Electricity Supply; Section: 3.4.1; Page No.: 23

QUESTION:

How were generator-type, dispatch levels forecast in MISO for the future and was consideration of all currently understood environmental policy options given in the analysis, beyond climate change regulation? Please provide any supporting studies or assessments undertaken by Manitoba Hydro to arrive at their conclusions in the forecast.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.2; Page No.: 48

QUESTION:

If the Caribou do not use the area during the construction phase, could this have an impact on their use of the area in the long-term (i.e. during operation and decommissioning phases)?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.3; Page No.: 49

QUESTION:

Manitoba Hydro has stated the following: "Winter construction may reduce effects on the terrestrial landscape." How would winter construction impact the proposed timelines of the project and if construction exceeds 3 years, how will the habitat be impacted?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.3; Page No.: 49

QUESTION:

Manitoba Hydro has stated the following: "Construction may also be timed to avoid animal breeding seasons." Can all animal breeding seasons be avoided during construction and what animal breeding seasons have been identified for the Conawapa project?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.4; Page No.: 50

QUESTION:

Manitoba Hydro sited changes in biophysical habitat as a residual effect to the transmission projects. Have the changes in biophysical habitat been defined? If so, please provide supporting studies and assumptions.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.3.3; Page No.: 55

PREAMBLE: Manitoba Hydro has stated the following: "Three of the four lines may be routed adjacent to existing lines (subject to the results of further study). If this can be accomplished, some potential effects could be avoided or reduced."

QUESTION:

What are the potential effects if three of the four lines cannot be constructed adjacent to existing lines? If there are any supporting studies, please provide.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Page No.: 4

QUESTION:

Have any studies from the Nelson River Sturgeon and the Saskatchewan River Sturgeon Management Board been used by Manitoba Hydro in creating mitigation and enhancement strategies? If so, please provide a copy of all reports utilized in this process.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Page No.: 5

QUESTION:

Manitoba Hydro has stated the following: "Manitoba Hydro is expanding its long-term commitment to the recovery of the species through the development of a legally binding Lake Sturgeon Stewardship Agreement for the lower Nelson River with the First Nations in-the-vicinity, along with the Fisheries Branch of Manitoba Conservation and Water Stewardship." Please provide a copy of the Lake Sturgeon Stewardship Agreement.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Page No.: 5

QUESTION:

Please identify the number of Manitoba Hydro members on the Lower Nelson River Sturgeon Stewardship Committee and their specific roles. If Manitoba Hydro does not have any members on the Committee, please provide the rationale as to why.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Page No.: 6

QUESTION:

Manitoba Hydro has stated the following: "Measures include turbines that have high survival rates for any fish that swim downstream through the powerhouse, barriers that prevent larger fish from passing through the powerhouse, and selective transportation of fish upstream past the powerhouse, as required." Has an assessment been made regarding the impact of barriers that prevent larger fish from passing through the powerhouse on their accessibility to breeding habitats? If so, please provide Manitoba Hydro's impact assessment.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Section: Appendix 2.1; Page No.: 6

PREAMBLE: "Measures include turbines that have high survival rates for any fish that swim downstream through the powerhouse, barriers that prevent larger fish from passing through the powerhouse, and selective transportation of fish upstream past the powerhouse, as required."

QUESTION:

Have the risks of selective transportation of fish upstream past the powerhouse been defined and assessed for their impact on the Sturgeon population? If so, please provide Manitoba Hydro's risk assessment.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Page No.: 6

QUESTION:

Has the new stocking program defined the number of fingerlings and yearlings to be added to the population to mitigate the effects of lost population due to the Keeyask Project? Please provide any supporting reports and/or assessments, including quantification and assumptions, if available.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Page No.: 6

QUESTION:

Manitoba Hydro has stated that the stocking program will continue until populations are sustainable. What are the defined objectives of the new stocking program and how is "sustainable" defined in this context?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Page No.: 6

QUESTION:

Manitoba Hydro has stated that recovery actions take a long time to show results. Given this consideration, how will this time lag impact Manitoba Hydro's ability to utilize timely and comprehensive monitoring to adjust and add mitigation measures as required throughout the duration of the projects?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 2.1 Lake Sturgeon - Mitigation and Enhancement; Page No.: 7

PREAMBLE: Manitoba Hydro has stated the following: "Manitoba Hydro is applying the principles of adaptive management to ensure that recovery actions are effective, take the results of monitoring studies into account and are relevant to the conditions of local sturgeon populations and their habitats."

QUESTION:

How will Manitoba Hydro ensure timely communications with stakeholders to adapt the management strategy to mitigate and enhance the Lake Sturgeon population?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.1.1.3; Page No.: 9

QUESTION:

Manitoba Hydro stated the following: "Two public opinion polls conducted by Ipsos and the Innovative Research Group in April 2011 were used to gauge Canadian public opinion regarding six methods of producing electricity (solar, wind, hydro-electric, natural gas, nuclear and coal)." Can you please provide the two public opinion polls and their respective methodologies?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Life Cycle Greenhouse Gas Assessment Overview; Section: Appendix 7.3; Page No.: 3

QUESTION:

Manitoba Hydro has stated the following: "the LCA analysis assumes that the Keeyask and Conawapa Generation Projects will deliver annual energies of 4,000 GWh and 6,300 GWh respectively for use at major load centers." Can you please add context to the GWh delivered at major load centers - i.e. where are these major load centers located and what weightings were used?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.1.2.1; Page No.: 12-20

QUESTION:

Manitoba Hydro has stated the following: "According to Canadian public opinion, hydro-electric generation is generally viewed favourably." What background information was provided to public opinion survey respondents with respect to each the different resource alternatives (i.e. hydro-electric, wind on shore, natural gas fired, etc.)?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.1.2.1; Page No.: 12-20

QUESTION:

How did Manitoba Hydro rank and prioritize the impacts on various species against the various resource considerations (i.e. impact to birds of wind turbines vs. impact to sturgeon of hydro)?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.1.2.1; Page No.: 16

QUESTION:

Manitoba Hydro has stated the following: "For planning purposes, under low flow or dependable flow conditions, imports in the 2020 timeframe represent in the order of 10% of Manitoba Hydro's total supply." Do these 10% imports assume no new generation is developed in Manitoba, or under new resource scenarios?

RESPONSE:

Imports represent in the order of 10% of Manitoba Hydro's total dependable energy supply in the 2020 timeframe when assuming no new generation, and when assuming Keeyask is built in 2019 with a 250 MW US interconnection. In development plans where Keeyask is constructed for 2019 and a new 750 US interconnection is assumed, imports increase to approximately 13% of total supply in the 2020 timeframe.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.1.2.1; Page No.: 17

QUESTION:

Manitoba Hydro has stated that imports are dependent on transmission interconnections. How will the expected percentage of imports relative to Manitoba Hydro's total supply be impacted by a lack of new interconnections, in the event that regulatory bodies do not approve these new interconnections? Please provide any supporting assessments and assumptions used to quantify the change in percentage of imports.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.2.2; Page No.: 26

QUESTION:

Were the costs of mitigating the adverse environmental effects of Keeyask and Conawapa incorporated into levelized costs or included as a separate component of the screening process? Please provide a summary breakdown of the specific costs of mitigating adverse environmental effects that were reviewed as part of the screening process.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.2.4; Page No.: 33

QUESTION:

Manitoba Hydro has stated the following: "An average annual capacity factor of 40% is assumed for all future wind farm developments in southern Manitoba and 85% of the 40% is assumed to be dependable wind energy." Please provide the studies/assessments used to arrive at these assumptions, including the key inputs to the analysis.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.2.4; Page No.: 33

QUESTION:

Please define "dependable" to Manitoba Hydro in this context.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.2.4; Page No.: 33

QUESTION:

Is the 85% predictable generation, is this dispatchable and does it contribute to planning reserve margin?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.2.5; Page No.: 34

PREAMBLE: Manitoba Hydro has stated the following: "When considering imports for capacity purposes, a critical consideration is that Manitoba experiences a winter peak demand while most U.S. utilities have their peak demand during the summer season. This means that there is likely to be a large pool of surplus U.S. capacity available to Manitoba Hydro in the winter season if suitable transmission arrangements can be made on a firm basis for the delivery of energy associated with the capacity."

QUESTION:

Has the impact of climate change been considered in peak demand seasonality in Manitoba and the U.S.? Please provide any supporting assessments and assumptions used in the analysis.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 7.3 Life Cycle Greenhouse Gas Assessment Overview; Section: Appendix 7.3; Page No.: 1

QUESTION:

Please provide the full Life Cycle Assessment (LCA) report prepared by the Pembina Institute, including all appendices and assumptions used to quantify the greenhouse gas (GHG) emissions for both the Keeyask and Conawapa Generation Projects (including the associated principal and supporting structures and infrastructure).

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 7.3 Life Cycle Greenhouse Gas Assessment Overview; Section: Appendix 7.3; Page No.: 1

QUESTION:

Manitoba Hydro has stated the following: "Both the Keeyask and Conawapa LCAs were based on a project life of 100 years." What is the basis for the project life of 100 years?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE:: Appendix 7.3 Life Cycle Greenhouse Gas Assessment Overview; Section: Appendix 7.3; Page No.: 1

QUESTION:

Manitoba Hydro has stated the following: "By using one GWh of electricity delivered as opposed to one GWh of electricity produced, these assessments took into consideration any losses associated with the transfer of electricity." Please provide all assumptions that were used in the LCA assessment for losses associated with transfer of electricity.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 7.3 Life Cycle Greenhouse Gas Assessment Overview; Section: Appendix 7.3; Page No.: 3

QUESTION:

In the discussion of significant assumptions, specifically relating to delivered electricity, please provide the transmission loss factors used in the model and all assumptions/calculations used to arrive at these loss factors.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 7.3 Life Cycle Greenhouse Gas Assessment Overview; Section: Appendix 7.3; Page No.: 3

QUESTION:

In the section regarding Material Sourcing, Manitoba Hydro has stated the following: "Assumptions were made based on past Manitoba Hydro experience and to ensure the analyses were conservative." Please define "conservative" in the context of material sourcing assumptions and best estimates.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 7.3 Life Cycle Greenhouse Gas Assessment Overview; Section: Appendix 7.3; Page No.: 4

QUESTION:

In the context of both temporary and permanent disturbances, please provide Manitoba Hydro's assumptions and key inputs to re-growth as estimated in the LCA model.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 7.3 Life Cycle Greenhouse Gas Assessment Overview; Section: Appendix 7.3; Page No.: 4

QUESTION:

Manitoba Hydro has stated the following: "The comparison technology intensities were based on the results of a literature survey of published life cycle values." Please provide the literature surveys of published life cycle values used for comparison technology intensities in the LCA model.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Appendix 7.3 Life Cycle Greenhouse Gas Assessment Overview;; Page No.: 11

QUESTION:

In Figure 2, Manitoba Hydro has identified the breakdown of GHG emissions per primary activity. The Construction Phase is responsible for the majority of GHG emissions at 86% of total project GHG emissions according to the Pembina Institute LCA. Please outline any efforts being made on the part of Manitoba Hydro to reduce the estimated LCA of the Construction Phase for both projects (i.e. efforts to source materials with lower transportation distances).

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Life Cycle Greenhouse Gas Assessment Overview; Appendix 7.3; Page No.: 12

QUESTION:

Manitoba Hydro has stated the following: "Analysis of the electricity market allows an estimate of avoided GHG emissions due to energy being injected into the regional energy markets from Manitoba." Please provide the following support for the estimate of avoided GHG emissions due to energy being injected into the regional energy markets from Manitoba developed: All assumptions used, the basis for assumptions used and the supporting calculation/quantification.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.1.2; Page No.: 5

QUESTION:

Manitoba Hydro has stated the following: "A real rate of 6% is used, based on recent research on a discounting in cost-benefit analysis." Please provide the weighted inputs and supporting calculation to arrive at the real rate of 6% used in the MA-BCA.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.2; Page No.: 16

QUESTION:

The MA-BCA assesses the preferred and three alternative resource development plans. Please provide Manitoba Hydro's rationale for not including all alternative development plans and why the three alternative resource development plans were selected to be assessed in the MA-BCA.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.2; Page No.: 27

PREAMBLE: Industry standard loss of load expectations are 0.1 days per year.

QUESTION:

If new interconnection is required to achieve industry standard of 0.1 days per year loss of load expectation or could this be achieved using a combination of alternatives excluding the new interconnection? Please provide any supporting assessments/reports and assumptions to arrive at your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.2; Page No.: 28

QUESTION:

The Preferred Development Plan offers customers more security against the risks of extreme drought. What is the expected probability of extreme drought included in the MA-BCA and to what extent have climate change impacts been considered in the future probability?

RESPONSE:

As stated on page 28 of ***Chapter 13 – Integrated Comparisons of Development Plans – Multiple Account Analysis***:

> "In addition to this reliability benefit, the Preferred Development Plan offers customers more security against the risk of extreme drought. The import capability with the large new interconnection plus the advancement of hydro generating capacity for export would provide Manitoba Hydro greater access to back-up supply and flexibility to manage extreme droughts than with other alternatives, particularly those without any new interconnection."

This is a general statement about the availability of additional firm energy to meet customer's energy needs during the occurrence of an extreme drought. In this instance the use of extreme drought is defined to mean a drought worse than the drought of record. Manitoba Hydro did not perform analysis of the exceedance probability of a drought worse than the drought of record for the Multiple Account Analysis.

As a further example on pages 52 & 53 of ***Chapter 14 – Conclusions*** it is stated that:

> "should Manitoba experience a drought significantly more severe than experienced to date and/or planned for, Pathways 4 and 5 provide significant additional emergency energy imports to meet Manitoba domestic load compared to the All Gas Plan and compared to the Keeyask 2022 Gas Plan."

The attached document provides further detailed quantification and comparison of the emergency energy additional to dependable energy that is associated with certain key development plans.

Attachment: Drought Worse than Drought of Record (availability of Emergency Energy)

Manitoba Hydro's Generation Planning Criteria require the system be planned to have adequate energy resources to supply the firm energy demand, including firm exports, in the event that the lowest recorded coincident water supply conditions are repeated. It is recognized that there is a possibility of coincident water conditions worse than the drought of record, which could negatively impact Manitoba Hydro's ability to supply the firm energy demand in Manitoba and firm export commitments. It is also possible in a situation with a repeat of the drought of record, or other situation, that other factors may also simultaneously reduce the electrical energy supply (e.g. major outage of generation) and/or that the load may be higher than forecast (e.g. due to an exceptionally cold winter.)This type of event is classified as having a high impact with a low probability of occurrence.

When deciding on an energy (or capacity) criterion level, one hundred percent security or reliability is not practically feasible; there will always be some residual risk. The risk reduction must be balanced with the associated costs.

During the occurrence of such low probability events, Manitoba Hydro's different development plan options have differing levels of potential emergency energy available above the dependable energy rating. This emergency energy provides a benefit by reducing the risk to Manitobans of having energy shortages. This attachment presents the amount of emergency energy available for five of the development plans to assist in the comparison of these plans.

For Manitoba Hydro's system the following sources of emergency energy have been identified to be available during the occurrence of a high impact event:

- Additional energy available from thermal units specifically built for capacity requirements

  The driver for resource development in plans which have continuous additions of new thermal generation is often a requirement for winter peak capacity. This leads to additional firm energy availability from thermal units that are otherwise not required for dependable energy. In the plans with large additions of new thermal generation, this emergency energy accumulates to a significant amount within the detailed planning horizon.

- Additional off-peak imports beyond the limits set within Manitoba Hydro's Generation Planning Criteria

  The Generation Planning Criteria limits the total quantity of energy supply from imports to the lesser of the energy available over firm transmission service during off-peak periods or the combination of firm export commitments plus 10% of annual energy demand from Manitoba load. This leaves an amount of additional off-peak import energy available, over non-firm transmission or above the 10% criteria, during the occurrence of a high impact event. This emergency energy is likely to be available but would be limited to the physical limits of Manitoba Hydro's transmission interconnections.

- Reduction in delivery of physical energy export commitments

Energy for firm export commitments are held on an equal priority level as Manitoba load for planning purposes. However, contract provisions in the sales agreements allow for a reduction in the physical energy commitments during events when Manitoba load is at imminent risk of being curtailed as a result of force majeure events. Therefore plans in which hydro generation is advanced from the domestic need date, for the sake of export sales, have incrementally larger amounts of emergency energy available for the duration of the export contracts.

- Additional non-firm on-peak imports

  There is potential that, given the occurrence of a high impact event, an amount of on-peak energy may be available to import. The quantity of energy will be limited by the physical limits of Manitoba Hydro's transmission interconnections and the non-firm nature of the energy supply.

These sources of energy can be combined to calculate an annual amount of emergency energy available above the dependable energy amounts for each development plan. For the sake of this analysis the amount of emergency energy available has been separated into two categories: 1) excluding non-firm on-peak imports and 2) including non-firm on-peak imports. The emergency energy for the following five plans has been calculated and summarized in Figure 1 and Figure 2 for the two categories of emergency energy available respectively:

- All Gas
- K22/Gas
- K19/Gas24/250MW
- K19/C31/750MW
- K19/C25/750MW (WPS Sale & Inv)

Figure 1 shows that, when the non-firm on-peak imports are excluded, the plan with Conawapa G.S. in 2031/32 provides, over the 20 year period starting with the 2019/20 Keeyask G.S. in-service date, an average of between approximately 1,000 GWh/year and 2,500 GWh/year more emergency energy compared to the All Gas, K22/Gas and K19/Gas24/250MW Plans. Alternatively when Conawapa is advanced in the Preferred Plan this range grows to average between approximately 2,500 GWh/year and 4,000 GWh/year.

Figure 2 shows that, when the non-firm on-peak imports are included, the plan with Conawapa G.S. in 2031/32 provides, over the 20 year period starting with the 2019/20 Keeyask G.S. in-service date, an average of between approximately 3,000 GWh/year and 5,000 GWh/year more emergency energy compared to the All Gas, K22/Gas and K19/Gas24/250MW Plans. Alternatively when Conawapa is advanced in the Preferred Plan this range grows to average between approximately 4,500 GWh/year and 6,500 GWh/year.

In general, the two development plans that include the new 750MW interconnection and construction of Conawapa G.S. have more emergency energy available in the medium-term than the other plans, which generally include large quantities of new thermal generation. This difference narrows and, when

including non-firm on-peak imports, all plans have similar emergency energy profiles beyond fiscal year 2039/40.

Figure 1. **EMERGENCY ENERGY AVAILABLE EXCLUDING NON-FIRM ON-PEAK IMPORTS**

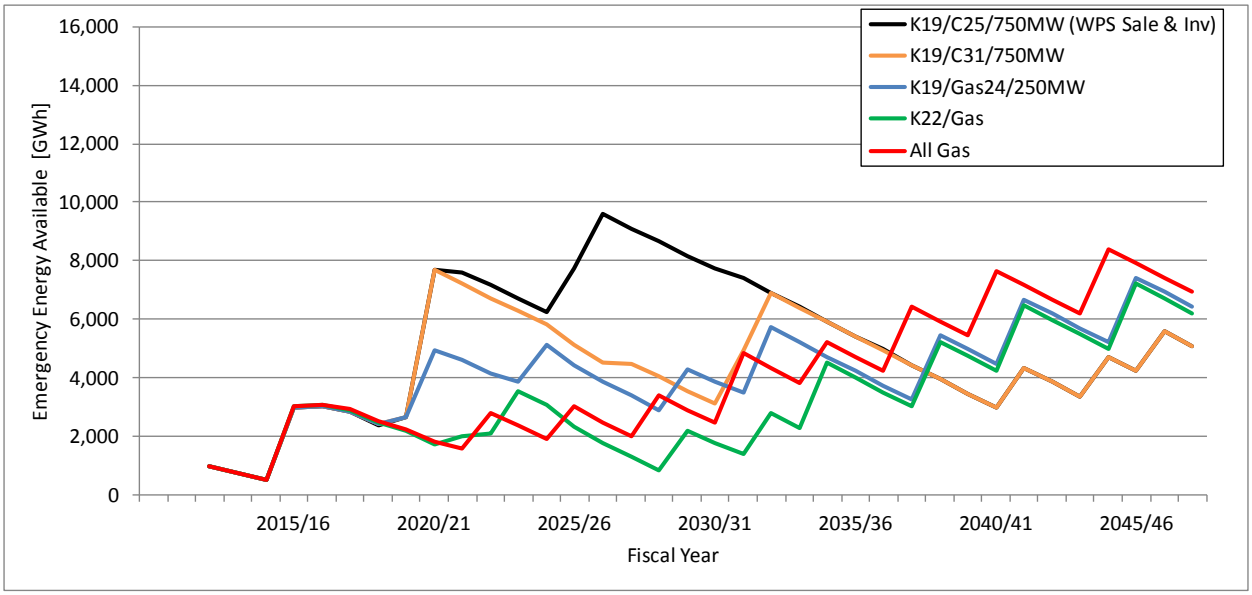
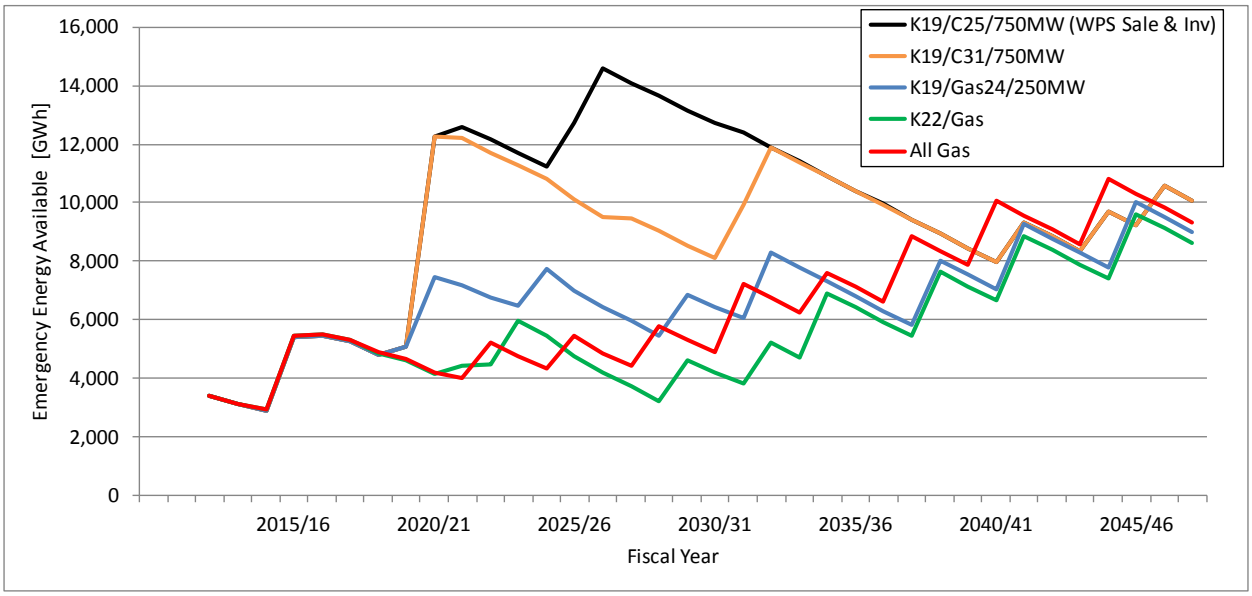


Figure 2. **EMERGENCY ENERGY AVAILABLE INCLUDING NON-FIRM ON-PEAK IMPORTS**



REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 42

QUESTION:

Manitoba Hydro has stated the following: "With respect to GHG impacts outside Manitoba, the plan will determine Manitoba Hydro's exports and imports of power, and consequently affect the amount of thermal power generation and related GHG emissions in the interconnected jurisdictions." How would a shift in the projected MISO energy mix change the assumptions used for GHG emissions outside of Manitoba? Please provide any supporting assessments/reports and all assumptions used in the quantification of GHG emissions outside of Manitoba.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 44

QUESTION:

Manitoba Hydro has stated the following: "In the absence of defined policies at this time, the carbon pricing from other regions was considered and judgment applied to create a plausible change of future GHG-emissions charges." Please provide all of the carbon pricing studies reviewed from other jurisdictions and describe how these studies were applied to assumptions used in the MA-BCA.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.3; Page No.: 49

QUESTION:

Manitoba Hydro has stated the following: "Construction may also be timed to avoid animal breeding seasons." Please provide the considerations that will impact the decision on timing of construction (i.e. what is this dependent upon?).

RESPONSE:

This question relates specifically to the Conawapa Transmission Outlet Project. As stated in Section 2.2.3.3, construction may be timed to avoid animal breeding seasons. Manitoba Hydro Transmission Environmental Protection Plans use the following wildlife reduced risk timing windows in planning and timing of construction activities. The attached Table 1 – Wildlife Reduced Timing Windows, indicates the sensitive timing windows for various species which will be considered in the development of the schedule. If construction activities occur during this period, mitigations measures will be prescribed on a site by site basis as required.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 46

QUESTION:

In Table 13.7, the estimated social cost of GHG emissions and the estimated coal tax and carbon charge payments were summarized. Manitoba Hydro has recognized the uncertainty in the quantification of these two items. Please provide Manitoba Hydro's sensitivity analysis to reflect the uncertainty of social cost of GHG emissions including all relevant assumptions/inputs in the sensitivity analysis.

RESPONSE:

No sensitivity analysis has been undertaken for higher or lower estimates of the social cost of GHG emissions. The assumed social costs of GHG emissions are broadly consistent with U.S. Government estimates. Estimates of the social cost of GHG emissions are uncertain but are much higher than the carbon charges that are assumed to be paid for fossil fueled generation in Manitoba.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 51

QUESTION:

Manitoba Hydro has stated the following: "For the purposes of illustrating the potential damage costs of the CAC emissions in the preferred and alternative plans, damage cost values of $3,000/tonne for NOx and $20,000/tonne for PM10 are assumed (2012$ Cdn)." Please provide the full calculation of potential damage costs of CAC emissions as noted in the above, along with all supporting assumptions used and studies referenced to arrive at these assumptions.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 51

QUESTION:

Manitoba Hydro has stated the following: "While arguably the costs estimates are conservative, the fact remains the with appropriate siting and modern pollution control technology, the pollution-related external costs of thermal generation can be minimized." Have scenarios included mitigation measures as baseline and have the costs of siting and pollution control been integrated into the analysis/assumptions of CAC emissions damage? If so, please provide a breakdown of the calculations.

RESPONSE:

The pollution control and siting factors were included as part of the baseline cost estimates. More detailed information is available in Appendix 7.2.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 53

QUESTION:

Manitoba Hydro has stated the following: "These include plans in construction and for turbine design to minimize impacts, development of new habitat and fish in passage; and implementation of a fish stocking program." Are the costs associated with mitigating and minimizing bio-physical effects included in the model? If so, please provide a breakdown of these costs and all assumptions used.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 54

PREAMBLE: Manitoba Hydro has stated the following: "The federal government is considering whether to list lake sturgeon in the Nelson River as endangered under the Species at Risk Act (SARA). Manitoba Hydro's planning is based on the assumption that this will not occur, particularly given the stocking and stewardship programs that are being developed and implemented. Were listing under SARA to occur, the Keeyask and Conawapa projects could be delayed or cancelled."

QUESTION:

What is Manitoba Hydro's view of the probability of the sturgeon being endangered under SARA and what is Manitoba Hydro's view of the likelihood of the projects being cancelled if the sturgeon is classified as endangered under SARA?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 44

QUESTION:

What methodology was used to determine and forecast carbon prices assumed to be charged for the emissions from natural gas facilities in the province of Manitoba? Please provide any supporting analysis or evidence used for these assumptions.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 48

QUESTION:

In Figure 13.8, how was the GHG displacement analysis conducted and what emissions intensities were applied to regions outside of Manitoba to determine the level of emissions offset? Please provide any supporting analysis or evidence used for assumptions.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 7: Screening of Manitoba Resource Options; Section: 7.1.1.2; Page No.: 7

QUESTION:

In determining the GHG emissions expected from planned-build combined-cycle facilities in resource plans with gas generation, what capacity factors, efficiencies and operating characteristics were assumed? Please provide either the manufacturer's specification assumed or operating assumptions that were determined through study of historic performance and trends.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 3: Trends and Factors Influencing North American Electricity Supply; Section: 3.3; Page No.: 11

QUESTION:

Were the global, US and Canadian environmental policies discussed applied in the evaluation and analysis of scenarios? Which specific policies were used and how were they applied (i.e. (US) the Mercury Air Toxics Rule, CASPR or the Clean Water Act Section 316b)?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.2.1; Page No.: 39

QUESTION:

Is there a mapping of the fragmentation of eco-districts due to expected flooding for each hydro project? If so, please provide such mapping used by Manitoba Hydro.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.2.2; Page No.: 43

QUESTION:

Is there a detailed description and/or expectation of the likely impacts of the transmission development as it proceeds through eco-districts and will wildlife be prevented from moving across and/or from one eco-district to another? Please provide any supporting studies or assessments used in your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.2.2; Page No.: 43

QUESTION:

In relation to the transmission project, are the edge effects significant and how has this been evaluated by Manitoba Hydro? Please provide any supporting studies or assessments used in your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple Account Analysis; Section: 13.3.5; Page No.: 54

QUESTION:

In regards to habitat changes, does Manitoba Hydro have the appropriate planning in place to ensure temporary changes to lake/reservoir levels and river flow rates do not adversely affect Caribou migrations and lead to greater than usual drowning? Please provide any supporting mitigation plans or studies to support your response.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 17

PREAMBLE: Manitoba Hydro states "new caribou calving habitat on islands in the reservoir will offset most losses caused by the project".

QUESTION:

Please provide more context on “new caribou calving habitat on islands in the reservoir will offset most losses caused by the project”. Breeding Biology: Caribou mate around mid-October. After a gestation period of about 230 days the calf is born in May/June. The calf is weaned after about two months and joins the herd typically during the fall migration. How will caribou calve on islands and join the fall migration if they are isolated to islands in the reservoir? Are they likely to attempt to swim to mainland in the fall to join herd movements? If so, what study has been completed to assess drowning risks?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.2.1; Page No.: 39

QUESTION:

Is there a detailed study of the impacts of the flooding of both the Keeyask and Conawapa projects on activities of human and wildlife populations?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.1; Page No.: 20

QUESTION:

Manitoba Hydro has stated the following: "Members of each community are able to fly to areas unaffected by the project to hunt, fish and gather their traditional foods." Does this have other impacts that have been considered (i.e. loss of traditional culture and identity due to the displacement of location)?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.4; Page No.: 28

QUESTION:

Manitoba Hydro has plans to mitigate flooding and other habitat disruption from generation and transmission projects. Does the mitigation include the concept of corridors? Please provide studies supporting corridor development and management.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.3; Page No.: 27

QUESTION:

Manitoba Hydro has outlined a variety of measures to address potential environmental effects and sites a few examples. What other measures have been identified to address environmental effects?

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.1.3.2; Page No.: 23

QUESTION:

Manitoba Hydro has stated the following: "Cumulative changes for all priority habitats well remain below 10% of the historical area." Please specify below 10% of what (i.e. total loss of habitat) and any supporting studies used in this assumption.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.

REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section: 2.2.3.1; Page No.: 45

QUESTION:

Manitoba Hydro has stated the following: "The turbines will enable 90% of the fish up to 500mm in length passing downstream through the powerhouse to survive." Please provide studies demonstrating the testing and/or other results providing confidence in the minimized fish casualties expected through project design.

RESPONSE:

This Information Request has been withdrawn by the IEC as no longer required, having been satisfied through discussion with Manitoba Hydro.