Birtle Transmission Project
Environmental Assessment Report
Prepared by Manitoba Hydro

Transmission Planning & Design Division
Licensing & Environmental Assessment
January 2018

Prepared for:
Environmental Approvals Branch
Manitoba Sustainable Development

Manitoba Hydro

P.O. Box 7950 Stn Main • Winnipeg Manitoba Canada • R3C 0J1
Telephone/ N◦ de téléphone: (204) 360-4394 • Fax/ N◦ de télécopieur: (204) 360-6176
SJohnson@hydro.mb.ca

January 30, 2018

Director
Environmental Assessment and Licensing Branch
Sustainable Development
Suite 160, 123 Main Street
Winnipeg, MB R3C 1A5

Dear Ms. Braun:

Re: Birtle Transmission Project Environmental Assessment Report

Enclosed is Manitoba Hydro's application (two paper copies and one electronic copy) to Manitoba Sustainable Development for approval to construct and operate the Birtle Transmission Project, a 46.2 km 230 kV transmission line from Birtle Station to the Saskatchewan border.

The enclosed Environmental Assessment Report provides the information requested in the Environment Act Proposal Form and documents the environmental assessment activities, including engagement, leading up to this application.

In closing, should you require more information or have any questions, please contact me at 360-4394.

Yours truly,

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

Environment Act Proposal Form

Manitoba
Sustainable Development

Name of the development: Birtle Transmission Project	
Type of development per Classes of Development Regulation (Manitoba Regulation 164/88): Class 2 - 230 kV Transmission Line	
Legal name of the applicant: Manitoba Hydro	
Mailing address of the applicant: 820 Taylor Avenue Contact Person: Shannon Johnson City: Winnipeg Province: Manitoba Postal Code: R3M 3T1 Phone Number: (204) 360-4394 Fax: (204) 360-3734 email: sjohnson@hydro.mb.ca	
Location of the development: RMs of Prairie View and Ellice-Archie Contact Person: Shannon Johnson Street Address: Legal Description: City/Town: Province: Manitoba Postal Code: R3M 3T1 Phone Number: Fax: email:	
Name of proponent contact person for purposes of the environmental assessment: Shannon Johnson	
Phone: (204) 360-4394 Fax:	Mailing address: As above
Email address:	
Webpage address:	
Date:	Signature of proponent, or corporate principal of corporate proponent: Printed name:

PRINT RESET

Executive summary

This Environmental Assessment Report for the proposed Birtle Transmission Project (the “Project”) is in support of an application to obtain a license for a Class 2 development under *The Environment Act* (Manitoba). The Project involves construction, operation and maintenance of a new 46.2 km 230 kV AC transmission line located between Birtle South Station and the Manitoba border and modifications to the Birtle South Station. The Project in-service date is anticipated to be in March of 2021. The purpose of the Project is to facilitate the sale of 100 MW of electricity from Manitoba to Saskatchewan, based on a 20-year power purchase agreement signed in January 2016 between Manitoba Hydro and the Saskatchewan Power Corporation (SaskPower).

The routing methods used for this Project are based on those developed by the Electric Power Research Institute (EPRI) and Georgia Transmission Corporation (GTC) for overhead electric transmission line siting (EPRI-GTC 2006). Manitoba Hydro selected the EPRI-GTC methodology for the St. Vital to Letellier and Manitoba-Minnesota Transmission Projects because it has been successfully applied to more than 200 linear projects across North America, and because the tools used in the methodology provide a structured and transparent way to represent the trade-offs between competing stakeholder interests and land uses, along with the decisions made in a transmission line routing process.

The routing process included field studies and several rounds of engagement with Indigenous communities and organizations. This engagement process allowed for feedback on the Project and included local municipal councils, conservation districts, non-government organizations, affected landowners and several provincial departments. It also involved coordination with SaskPower to determine a border crossing location for the transmission line.

The final preferred route was determined with the help of input from the engagement processes and environmental studies. A combination of structure types was chosen to address local environmental conditions. The determination of the final preferred route involved the consideration of numerous land uses and interests; while not all effects can be avoided, the objective of the routing process was to limit the overall effect of the Project by considering all of these interests and potential effects in a balanced framework. The final preferred route is located primarily on or adjacent to agricultural lands which dominate the southwest Manitoba landscape, and passes through a community pasture prior to crossing the Manitoba border. Of the total 46.2 km length, 39.5 km is situated on private property while the remaining 6.5 km is located on crown land, primarily in the community pasture.

The environmental assessment is organized into biophysical and socioeconomic components. Biophysical components assessed include climate, noise and air quality, geology and hydrogeology, terrain and soils, aquatic environment, vegetation, wildlife and wildlife habitat, and species of conservation concern. Socioeconomic components assessed include infrastructure and services, employment and economy, property and residential development, agriculture and other commercial resource use, recreation and tourism, health, traditional land and resource use, and heritage resources.

As there were some particularly important aspects within the above components, the biophysical and socioeconomic environment was assessed using a Valued Component (VC) approach. This included an examination of resiliency against climate change and potential cumulative effects. In addition, the environmental assessment includes an evaluation of potential effects of the environment on the Project, as well as an analysis of potential accidents, malfunctions and unplanned events.

This Environmental Assessment Report includes a description of the environmental protection program developed for the Project, including the various roles, communication protocols, and commitments to monitor Project activities and manage potential effects. Given the presence of rare and endangered species, emphasis was placed on an adaptive management approach that proposes monitoring and triggers for implementation of additional mitigation measures, if required. Appendices provide additional details on the routing process, the biophysical studies, the public and Indigenous engagement processes, and the heritage resources studies. There are also appendices on the proposed environmental protection program, including the environmental protection plan and proposed monitoring and follow-up plans. Manitoba Hydro will also implement a Cultural and Heritage Resources Protection Plan, which outlines a clear process if an archaeological find is encountered.

Two key mechanisms to mitigate effects of the Project are the routing process and the timing and duration of the construction period. Transmission line routing is a preferred form of mitigation as many effects can be avoided with judicious placement. To limit the residual effects of the final preferred route determined through the routing process, further mitigation was developed and is discussed in each effects section and in the environmental protection plan. An example is timing construction activities to avoid areas of sensitivity for plants, wildlife and agricultural activities. The relatively short duration of construction also reduces potential effects. An example is timing construction activities to avoid areas of sensitivity for plants, wildlife and agricultural activities. The relatively short duration of construction (two periods of 3-4 months) also reduces potential effects.

In terms of physical environment effects, such as those relating to soil erosion, air quality and noise, the assessment determined that they will typically be localized and short in duration, and addressed through the environmental protection program. The ability of the transmission line to span waterways, in addition to well-established protection measures, reduced the likelihood for potential effects for the aquatic environment and no significant effects are anticipated.

Particular attention was given to the 6.4 km length of transmission line passing through the Spy Hill-Ellice Community Pasture, as it contains large intact areas of mixed grass prairie and supports several species of conservation concern, including grassland birds such as chestnut collared longspur and Sprague's pipit. The Pasture also contains sites of historic and cultural importance, such as the Ste. Madeleine area. Using input from provincial wildlife biologists the final alignment in this area was adjusted to limit crossing grassland areas in favour of forested or shrubby areas that could be converted to a modified grassland habitat over time. The Ste. Madeleine area was another important consideration in routing.

In terms of wildlife and habitat effects, with consideration of standard environmental protection measures, and Project-specific measures such as construction timing, bird diverters, perch deterrents, access management, a monitoring and follow up plan, and coordination with provincial wildlife biologists and the pasture management group, the potential residual effects were assessed as being not significant. Similarly, residual effects to forest and wetland habitat and the species they support were also assessed as being not significant. Less than 1% of forested areas in region would be removed and converted to grassland or shrubland; no loss of wetland is predicted as the transmission line is expected to span across the small area of wetland present.

In terms of socioeconomic effects, the Project is expected to result in minor positive economic benefits to the region, through the presence of the workforce, but also indirectly, through facilitating development of industry. The Project will contribute to a temporary increase in the local population due to an influx of workers during Project construction. This could change the availability of accommodations in the region for local residents on a temporary basis. The additional workers in the area will provide economic opportunities for those businesses that can provide lodging to workers during construction of the Project

In terms of infrastructure and services, given the relatively modest amount of workers required for construction during any phase and short-term duration of construction, it is anticipated that there will be limited additional demand for emergency and other municipal services during the construction phase and existing services should be able to accommodate the small and temporary day-time increase in workers in the area.

There will be a slight increase in traffic associated with the workforce, but the volume will be low and outside of traditionally heavy traffic periods. The small scale of the Project and short-term duration are not anticipated to have any measurable effects to roadways in the area. Residual effects to infrastructure and services were therefore assessed as being not significant.

In terms of property and residential development, the route selection process for the Project took into consideration proximity to homes, schools, daycares, churches and residential developments. The route selected generally avoids rural communities and areas of rural residential development, including areas designated for future urban and rural residential development. As the proposed route travels primarily on or adjacent to agricultural land there will be effects associated with the inconvenience, nuisance and increased production costs associated with operating farming equipment and crop production, as well as some loss of land from production at the tower sites. The Manitoba Hydro compensation policy includes compensation for the easement for transmission line right-of-way, tower payments that compensate for the need to work around towers and the tower footprint, and compensation for incidental and or physical damages to property during construction. Residual effects to property and residential development and agriculture were therefore assessed as being not significant.

Health effects relating to aspects such as noise and air emissions were assessed as being not significant due to the relatively short duration of activities. While Manitoba Hydro is sensitive to public concerns regarding potential health effects from electric and magnetic fields, there is at present no scientific evidence to justify modification of existing practices respecting facilities for the generation, transmission and distribution of electricity. Manitoba Hydro is committed to tracking ongoing research on this issue.

During transmission line routing, protected areas were avoided and consideration was also given to proximity to recreation and tourism sites. Known heritage sites were also considered during the routing process, with measures developed to manage previously un-discovered cultural or heritage resources. Residual effects to recreation and tourism and heritage sites were therefore assessed as being not significant.

During the Indigenous engagement process harvesting activities and culturally important places were identified, including the importance of maintaining plants and wildlife in the region. Through discussions and input, important places were considered during the process to select the final preferred route, with mitigation for plants and wildlife addressing many concerns. However, there were broader concerns regarding harvesting experience and a loss of connectivity with the environment, and Manitoba Hydro is committed to continue the engagement process to improve understandings and support the development of the environmental protection plan.

Through routing and mitigation measures to manage any potential effects, including an adaptive management approach involving coordination with Manitoba Sustainable Development, the conclusion of the environmental assessment was that the residual effects were predicted to be not significant. Manitoba Hydro will implement an environmental effects monitoring plan to confirm the nature and magnitude of predicted environmental effects, assess the effectiveness of mitigation measures implemented, and identify unexpected environmental effects of the Project. Manitoba Hydro will also maintain an open engagement process where concerns and questions will continue to be heard and addressed.

Glossary

Term	Definition
Adaptive management	The process of updating management practices in response to ongoing observations
Adverse effects	Negative effects on the environment and people that may result from a proposed project.
Agricultural biosecurity	The protection of crops and livestock systems against the threats to production from disease, pests and invasive species.
Allochthonous	Material imported into an ecosystem from outside of it, including leaves that fall or are washed into the water, and branches and trees that topple into the stream
Annual average daily traffic (AADT)	Is defined by Manitoba Infrastructure and Transportation (MIT) as the number of vehicles passing a count station on an average day of the year.
Aquifer	A body of rock or sediment that is sufficiently porous and permeable to store, transmit, and yield significant or economic quantities of groundwater to wells and springs.
Areas of Least Preference	Features to avoid when siting a transmission line due to physical constraints (extreme slopes, long water crossings), regulations limiting development (protected areas), or areas that would require extensive mitigation or compensation to minimize impacts
Area of special interest	Large areas of land proposed for protected area status under Manitoba's Protected Areas Initiative
Built Environment	An area of existing or proposed development found within the landscape, typically dominated by commercial, industrial, residential, and cultural structures.
Constraint	Constraints (*i.e.*, protected areas or areas with non-compatible land use) are criteria that are either suitable (outside a protected area or non-compatible land use) or unsuitable (within a protected area).

Term	Definition
Cumulative effect	The effect on the environment, which results when the effects of a project combine with those of the past, existing, and future projects and activities (CEAA, 2012). OR the incremental effects of an action on the environment when the effects are combined with those from other past, existing and future actions (Cumulative Effects Assessment)
Danger trees	Any tree with potential to “fall in” to the conductor from outside the ROW, exceeding acceptable canopy height
Decommissioning	Planned shut-down, dismantling and removal of a building, equipment, plant and/or other facilities from operation or usage and may include site clean-up and restoration.
Developed	Land that has been altered for residential, commercial or industrial use. Includes buildings, regularly managed green space and associated roads, parking lots, and trails.
Direct Effect	An environmental effect that is: - A change that a project may cause in the environment; or - Change that the environment may cause to a project. It is a consequence of a cause-effect relationship between a project and a specific environmental component (Canadian Environmental Assessment Agency 2014).
Ecological reserve	Lands established to preserve unique or rare natural (biological and geological) features of the province.
Ecoregion	Characterized by distinctive regional ecological factors, including climate, physiography, vegetation, soil, water, and fauna
Ecozone	An area of the earth's surface representative of large and very generalized ecological units characterized by interactive and adjusting abiotic and biotic factors

Term	Definition
Environmental Management System	Part of an organization‘s overall management practices related to environmental affairs. It includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining an environmental policy. This approach is often formally carried out to meet the requirements of the International Organization for Standardization (ISO) 14000 series.
Environmental Protection Plan	Within the framework of an Environmental Protection Program, an Environmental Protection Plan prescribes measures and practices to avoid and minimize potential environmental effects of a proposed project.
Factor	Factors (*e.g.*, building density) represent categories of areas on the landscape (or geospatial features) that have varying degrees of suitability for routing a transmission line.
Feature	Feature in the EPRI-GTC siting methodology refers to individual components of a category of landscape or geospatial considerations that have differing levels of suitability for routing a transmission line. Features are the subcomponents that make up a “Factor” in the methodology.
Geographic information systems	An organized collection of computer hardware, software, geographic data and personnel designed to efficiently capture, store, update, manipulate, analyze and display all forms of geographically referenced information.
Geospatial	Referring to location relative to the Earth's surface.
Heritage resource	Any site, object, work, or assembly of works of nature or human endeavor that is of value for its archaeological, paleontological, pre-historic, historic, cultural, natural, scientific, or aesthetic features.
Hydrology	The science dealing with the properties, distribution and

Term	Definition
	circulation of water.
Indicator Species/Topic	A subcomponent of a VC used to measure and report on the condition, trend and predicted changes for a VC (e.g., a bird species that uses the Grassland Habitat VC or crop production in the Agriculture VC).
Indigenous Engagement Process (IEP)	The Process that informs First Nations, the MMF, and Indigenous organizations of the Project and provides them opportunities to share input into environmental assessment work being undertaken including the routing process.
Intactness	A non-fragmented area of a particular land cover class
Linear Infrastructure	An existing network or system in a given area composed of transportation or utility based facilities (i.e. roads, highways, railways, pipelines, and transmission lines).
Marshalling yard	An open area used to stock-pile, store and assemble construction materials.
Mitigation	Measures for the elimination, reduction or control of the adverse environmental effects of a project.
Natural Environment	Naturally-occurring physical features of the landscape. These features are represented by the hydrography, flora, fauna, and topography of a given area.
Overburden	The soil (including organic material) or loose material that overlies bedrock
Priority Species	Those species identified through discussions with Indigenous communities, regulators, and the public, including species of conservation concern, species

Term	Definition
	important for Indigenous peoples, and invasive species.
Protected area	Areas that contain rare or sensitive habitat that have been set aside with restrictions on uses and activities so that the natural region features for which they are set aside endure for future generations.
Public Engagement Process	The Process that informs individuals, including landowners, stakeholder groups and the public, of the Project and allows them opportunities to provide input into environmental assessment work being undertaken including the routing process.
Recovery Cycle	The length of time that a predicted residual effect is expected to last - until the VC returns to its existing condition or the environmental effect can no longer be measured or otherwise perceived.
Riparian	Refers to terrain, vegetation or simply a position adjacent to or associated with a watercourse, waterbody or flood plain
Serious harm	The death of fish or any permanent alteration to, or destruction of, fish habitat as defined in the *Fisheries Act* (R.S.C. 1985, c. F-14)
Species of Conservation Concern (SOCC)	Species that are rare, disjunct, or at risk throughout their range or in Manitoba and in need of further research. The term also encompasses species that are listed under (Manitoba) *The Endangered Species and Ecosystems Act of Manitoba*, or that have a special designation by the Committee on the Status of Endangered Wildlife In Canada.
Species at Risk (SAR)	Is an extirpated, endangered or threatened species or a species of special concern, as defined by the *Species at Risk Act*.
Stakeholder Group	An interested party identified through the public

Term	Definition
	engagement process that would potentially have feedback to provide, may be affected by the decisions made regarding route selection, have a specific interest or mandate in the area, data to share, able to disseminate information to membership or a general interest in the Project's route selection area.
Wildlife Management Area	Areas of crown land designated under The Manitoba Wildlife Act as "*Lands that exist for the benefit of wildlife and for the enjoyment of people including biodiversity conservation, wildlife-related forms of recreation, hunting and trapping*".

Table of contents

APPENDICES

List of tables

Page

List of figures

Page

List of maps

Page

Available in accessible formats upon request