

# MANITOBA-MINNESOTA TRANSMISSION PROJECT

## Summary of the Environmental Impact Statement



JANUARY 2016

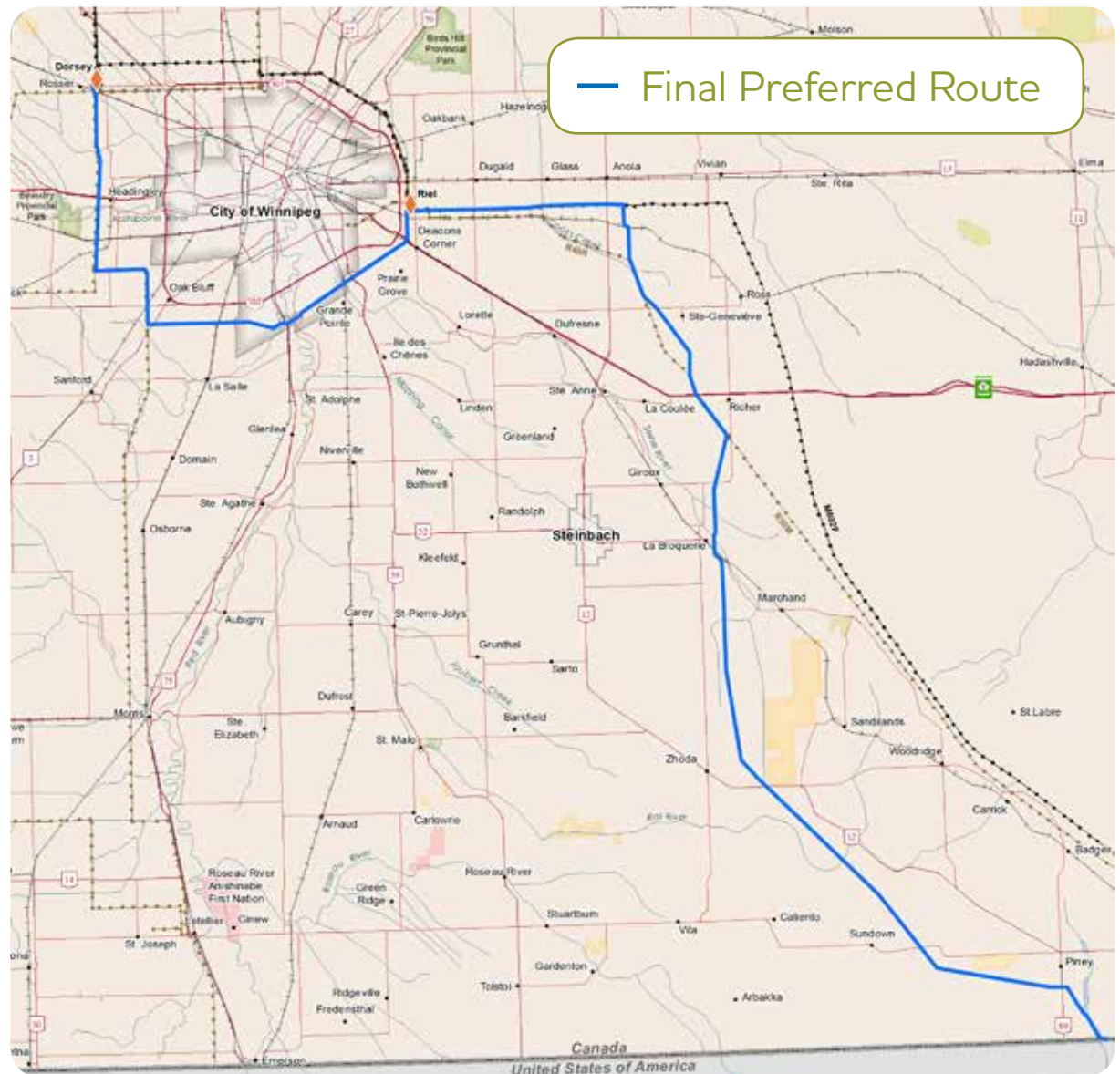
# Preface

Manitoba Hydro has developed this document to explain, in plain language, the environmental assessment carried out for the Manitoba-Minnesota Transmission Project (the Project). This document outlines:

- how and what we studied,
- the findings of our studies, and
- methods we will use to lessen any potential effects the Project may have on the environment.

This document also provides information on how the transmission line route was determined and outlines concerns heard from people over the past two years, including key concerns such as herbicide use and electric and magnetic fields.

Our goals are to promote understanding of Project components and the findings of the environmental assessment, to address commonly heard concerns, and to share where further information on different topics in the Environmental Impact Statement (EIS) can be found. This plain language summary complements the EIS prepared for the Project.



*Length of transmission line: 213 km*

*Amount of transmission line within Manitoba Hydro's existing transmission corridor: 92 km*

*Amount of new right-of-way required: 121 km*

*- Crown Lands 36 km*

*- Private Lands 85 km*



## Introduction

The Manitoba-Minnesota Transmission Project consists of a 500 kV transmission line from the Winnipeg area to the U.S. border in southeastern Manitoba as well as upgrades to three existing electrical stations in southern Manitoba. The Project will transport power to the United States to meet sales contracts, improve reliability of the transmission system, and bring electricity to Canada from the United States in emergency situations.

For more than 50 years Manitoba Hydro has been responsible for providing the province with a clean, renewable and reliable supply of energy. Manitoba Hydro currently provides more than a half-million customers with electricity across Manitoba. Most of that electricity is generated at hydroelectric generating stations in northern Manitoba, and is distributed around the province through transmission lines.

This Project is based on an agreement between Manitoba Hydro and Minnesota Power in the U.S. Both utilities are building 500 kV transmission lines that will meet at the Canada-U.S. border in southeast Manitoba.

The Project will originate at the Dorsey Converter Station located near Rosser, northwest of Winnipeg and extend 213 km (132 miles) south around Winnipeg to the Manitoba-Minnesota border, near Piney. This Project will travel along existing transmission corridors for 92 km (57 miles), or 40% of its length, minimizing the amount of new land needed for the Project.

For the transmission line to be compatible with the existing system, Manitoba Hydro will need to modify both Riel and Dorsey converter stations, and a station in Glenboro, Manitoba.

The Final Preferred Route is the route that has been submitted to regulators for approval.

Additional information can be found on the Project website: [www.hydro.mb.ca/mmtp](http://www.hydro.mb.ca/mmtp)

# Who is Manitoba Hydro?

Manitoba Hydro is a provincial Crown Corporation and one of the largest integrated electricity and natural gas distribution utilities in Canada. We are a leader in providing renewable electricity and clean-burning natural gas. Our Power Smart\* programs help Manitoba residents and businesses conserve energy and lower their energy costs.



\*Manitoba Hydro is a licensee of the Trademark and Official Mark.

We also buy and sell electricity within three wholesale markets in the Mid-western United States and Canada. Nearly all of the electricity Manitoba Hydro produces each year is renewable hydropower generated using the province's abundant water resources. Our export of electricity helps keep our domestic rates low and displaces greenhouse gas emissions in markets where fossil fuels are used for electricity production.

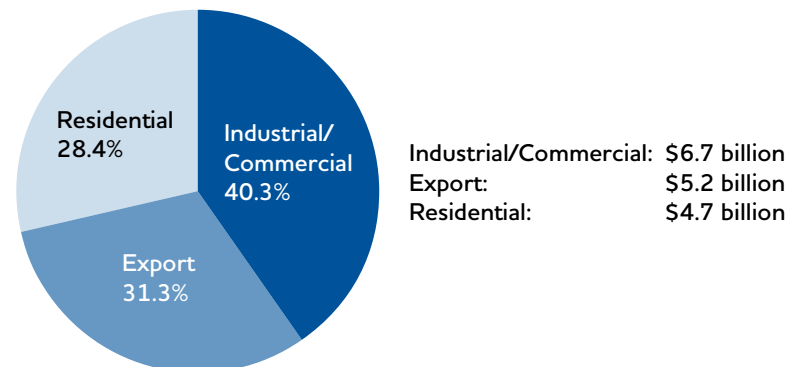
## What is our vision?

To be recognized as a leading utility in North America with respect to safety, reliability, rates, customer satisfaction and environmental leadership.

## What is our mission?

To provide for the continuance of a supply of energy to meet the needs of the province and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of energy.

## Revenue Sources - Electricity 2004/05 - 2013/14





## What is a “transmission corridor”?

*Transmission corridors are areas where Manitoba Hydro has ownership or easements on the land to house one or more transmission lines. These corridors place transmission lines together, resulting in a fewer number of new rights-of-way built on the landscape.*

# Why we need it and what we want to build?

Manitoba Hydro is proposing to build this project to:

- export power to the United States, earning revenues that help offset costs and keep rates lower for Manitobans;
- improve reliability of power supply to Manitobans by creating additional capacity to import electricity in emergency or drought situations; and,
- increase opportunity for new power sales to the U.S.

Transmission lines come in many shapes and sizes. The Manitoba-Minnesota Transmission Project will be capable of transmitting 500,000 volts (500 kilovolts (kV)) of alternating current electricity to and from the United States, allowing Manitoba to connect to growing networks beyond that point. The line is designed to transmit this high voltage of power to support an existing power sale to Minnesota Power. The 500-kV capacity provides room on the line to accommodate future power sales.

The proposed 213 km transmission line originates at the Dorsey Converter Station northwest of Winnipeg, then travels south around Winnipeg within two existing transmission line corridors: the Southern Loop Transmission Corridor and the Riel to Vivian Transmission Corridor extending to east of

provincial trunk highway 12. The line then continues south passing through the rural municipalities of Springfield, Tache, Ste. Anne, La Broquerie, Stuartburn and Piney to the Manitoba-Minnesota border. At the border south of Piney, the line will connect to the Great Northern Transmission Line currently being planned by Minnesota Power.

The Project also includes electrical upgrades within the Dorsey and Riel Converter Stations, modifications to an existing 500-kV transmission line and to the Glenboro South Station. Although far from the proposed transmission line, modifications to Glenboro South Station, near Glenboro, Manitoba are required to ensure additional power destined for the U.S. does not flow back into the Manitoba Hydro electrical system. At Glenboro Station, some towers on existing transmission lines will be moved to make room for expanding the station.

Pending regulatory approval, construction is projected to begin in 2017 with completion in 2020, in time to meet existing power sale contracts to the U.S. The estimated cost for the project is \$350 million dollars.

*The project description can be found in Chapter 2 of the EIS.*

*The PUB's report recommended moving forward with the Project and was accepted by the Province in June 2014*

## Who approves the Project?

The Public Utilities Board (PUB) conducted a 'Need For and Alternatives To' review of the Preferred Development Plan proposed by Manitoba Hydro. The plan included the construction of a 500-kV international power line now known as Manitoba-Minnesota Transmission Project. During the review, the need for the Project was evaluated and compared to alternative plans. The PUB's report recommended moving forward with the Project and this plan was accepted by the Province in June 2014.

Once the need for the Project was approved, the work on where to locate the transmission line began through the development of an EIS. An EIS aims to understand the potential effects a project may have on people and the environment. The EIS has been developed based on guidelines from both provincial and federal review agencies. The EIS is subject to the following review processes.



### Manitoba Conservation and Water Stewardship (Provincial)

The Project requires a licence under *The Environment Act* (Manitoba). Manitoba Hydro has submitted the Project EIS to Manitoba Conservation and Water Stewardship for their review and approval. As part of this review, the Province of Manitoba includes a public review period for any individual to submit comments for their consideration. To proceed with the Project Manitoba Hydro will require approval and a Licence to be issued by the Minister of Conservation and Water Stewardship.

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**123 Main Street**  
**Winnipeg, Manitoba**  
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**Phone: (204) 945-8321**  
**Fax: (204) 945-5229**

The Minister of Conservation and Water Stewardship may refer the Project to the Clean Environment Commission for further review.



## Clean Environment Commission (Provincial)

The Clean Environment Commission (CEC) was established under *The Environment Act* (1988) to provide an avenue through which the public can participate in the decision making process regarding the environment in Manitoba.

The CEC will become involved if the Minister of Conservation and Water Stewardship calls a public hearing.

## National Energy Board (Federal)

In addition to provincial approvals, the Project must receive approval from the federal government before it can proceed. Since the transmission line will be connecting to a similar line in the U.S., the Project will undergo review through Canada's National Energy Board (NEB), under the *National Energy Board Act*, and the *Canadian Environmental Assessment Act*.

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Manitoba Hydro will not begin construction of the Project until necessary approvals have been secured from provincial and federal agencies.



# What is an environmental assessment?

An environmental assessment is a process to predict environmental effects of a planned project before it is carried out. An environmental assessment is a planning and decision making tool which is used to minimize or avoid negative environmental effects before they occur and to incorporate environmental factors into decision making about a project before it is built. This process includes protection of the environment during construction and monitoring. Environmental regulators require the results of an environmental assessment to be reported in an EIS. As part of the environmental assessment, Valued Components (VCs) are identified to focus the assessment on issues of importance. VCs are parts of the natural and human environment chosen to represent important aspects of the broader environment. Manitoba Hydro, members of the public, First Nations, Metis, scientists, technical specialists, and/or government agencies consider VCs to have scientific, ecological, economic, social, cultural, archaeological, historical or other importance.

Understanding how each VC will be affected by the Project requires the comparison of the state of the VC today (baseline information) to its expected state once the project is built and in operation. Specialist input, government agency information, and Aboriginal Traditional Knowledge (see page 9) were collected to better understand the present condition of each VC.

The environmental assessment process usually begins with engineers developing designs and cost estimates in an initial project description of what would be built, where it could be located and why it is needed. This information helps to focus the study area (the spatial boundaries) to gather existing information on people, communities, natural resources, and land and resource use that can then be used to compare conditions today with conditions in the future. Predictions on how things will change in the future also require information when VCs will be affected by the Project (the temporal boundaries).



*The assessment focuses on Fish and Fish Habitat, Vegetation and Wetlands, Wildlife and Wildlife Habitat, Traditional Land and Resource Use, Heritage Resources, Infrastructure and Services, Employment and Economy, Agriculture, Land and Resource Use, Visual Quality, Community Health and Well-being, and Human Health Risk*

Once potential effects of the Project are understood, mitigation measures are developed. These mitigation measures are intended to lessen the anticipated Project effects. The potential effects, suggested mitigation and ongoing protection and monitoring measures are discussed for each VC throughout the EIS.

Information is gathered from existing sources, interviews with knowledge holders, input from the public, the First Nation and Metis engagement process, Aboriginal Traditional Knowledge studies, and field studies which are conducted to identify what is on the landscape. As information is gathered, potential issues, concerns, effects, project design, routing and mitigation are continually discussed. This includes going back out to speak with people at various stages of the assessment to share new information and get further feedback.



The ability to measure the status of a VC helps to predict how it might change once the Project is in place, and helps to try to determine when changes may become a concern even after mitigation. Monitoring plans for the construction and operation phases of the Project are developed to deal with unexpected events and to monitor success of mitigation measures.

## What Aboriginal Traditional Knowledge studies are being undertaken?

Aboriginal Traditional Knowledge studies completed or under development for the Project include studies from eight First Nations. Manitoba Hydro and the Manitoba Metis Federation are working toward an agreement that involves confirming Metis interests in the area, developing a land use study and holding discussions about mitigation.



Aboriginal Traditional Knowledge (ATK) is knowledge that is held by and unique to Aboriginal people (CEAA 2015). It is a living body of knowledge that is cumulative and dynamic and adapted over time to reflect changes in the social, economic, environmental, spiritual and political spheres of the Aboriginal knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, language, mythology, culture, laws, customs, and medicines. The purpose of ATK studies is to gather and summarize community knowledge about the environment, use and management of the environment, and values about the environment from community members who use the land and resources for traditional and/or cultural purposes. ATK is generally collected through map biographies, one-on-one interviews and historical or other types of research. The information shared is then used to inform the route selection and environmental assessment processes.

## What is engagement?

Manitoba Hydro shares information about the Project, listens to people's comments and concerns, and considers their feedback in the transmission line routing and environmental assessment processes. The engagement processes provide opportunities to learn about the Project, understand what the effects may be and how Manitoba Hydro plans to deal with potential effects. Conversations about the project began in 2013 and, if the Project is approved by regulators, will continue through construction and operation.



*Over 20,000 letters sent throughout the engagement process*

*Advertisements in 9 local and regional newspapers*

*850 phone calls and emails received*

## How was the public involved?

Understanding local knowledge and the public's concerns are important aspects of Manitoba Hydro's planning and decision making processes. The public engagement process (PEP) informs individuals about the Project and provides opportunities for them to become involved in the transmission line routing and environmental assessment processes. Throughout the Project, Manitoba Hydro sought feedback from local municipalities, stakeholder groups, government departments and members of the general public.

Manitoba Hydro used many notification methods (posters, postcards, newspapers, email campaigns, website, radio) and offered many ways for the public to learn about the Project and share information in person, by phone or online. With over 1,500 people participating in the PEP, a large volume of information was recorded. This input was documented and characterized by topic, ranging from health, to vegetation, to wildlife concerns, and was considered in the route selection and environmental assessment processes.

Open Houses, Landowner Information Centres, and the Project telephone line and email address were important parts of the PEP. These avenues allowed members of the public to interact directly with Manitoba Hydro representatives and:

- Collect information regarding the Project;
- Ask questions about the Project and processes being undertaken;
- Have their feedback collected for consideration in the route selection and environmental assessment processes; and
- Provide local knowledge and personal concerns and preferences.

Although various concerns were raised by individual participants, the most frequent topics raised were electric and magnetic fields (EMF) and property values. These and other topics are discussed further in this document and the EIS.

The PEP events helped develop relationships between Manitoba Hydro and individuals who may be affected by the Project. These relationships and information sharing will continue throughout the regulatory, construction and operational phases of the Project.

*More information regarding the Public Engagement Process can be found in Chapter 3 of the EIS.*

# What was the First Nations and Metis engagement process?

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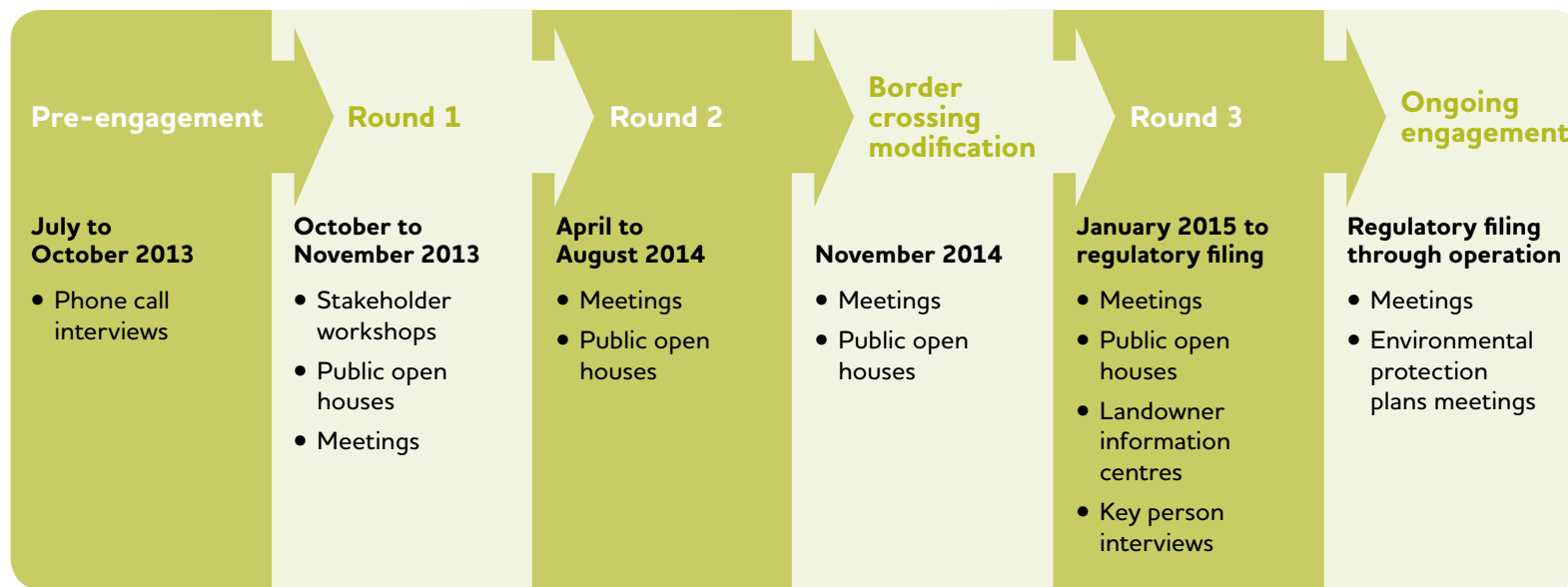


The First Nation and Metis engagement process includes communication between Manitoba Hydro and First Nations, Metis and Aboriginal organizations from August 2013 through to construction and operation of the Project. This includes meetings with leadership, open houses, field visits, letters, phone calls and self-directed studies. Information shared through the First Nations and Metis engagement process is important for Manitoba Hydro to better understand traditional and local knowledge. This process helps identify concerns and sensitive sites so they can be considered during the environmental assessment and routing processes.

Manitoba Hydro sent an initial letter of invitation to First Nations, the Manitoba Metis Federation (MMF) and Aboriginal Organizations in August 2013.

Through multiple rounds of engagement, Manitoba Hydro presented the Project, created opportunities to collect and listen to feedback, share understandings, and tour key Project areas. Manitoba Hydro shared information with 11 First Nations, the MMF and four Aboriginal organizations. Manitoba Hydro representatives participated in more than 90 leadership meetings, community open houses/information sessions, workshops, and field visits with First Nation and Metis over the past two years.

In addition to engagement through meetings and workshops, Manitoba Hydro funded eight ATK studies. ATK is knowledge that is held by, and unique to Aboriginal peoples.



The engagement process and the ATK studies helped Manitoba Hydro better understand the needs, concerns and priorities of the communities to be considered in the transmission line routing and assessment process. This was important in shaping a project that minimizes potential effects on people and the environment.

Common concerns and perspectives that were shared included:

- concern about protection of wildlife and intact natural areas;
- concern about practices if construction crews encounter an unidentified cultural, heritage or burial site;
- concern about vegetation management practices during right-of-way maintenance, particularly with the use of herbicides in areas considered sensitive; and,
- concern about protecting Crown lands for future Treaty Land Entitlement selections.

These topics and others are discussed further in this document and the EIS.

Relationships developed through the process will be maintained through ongoing communication and follow up with First Nations, the MMF and Aboriginal organizations during the regulatory, construction and operation phases of the Project.

*More information on the First Nations and Metis Engagement Process can be found in Chapter 4 of the EIS.*

# How did we select a transmission line route?

A transmission line routing process that includes understanding the landscape, information provided through the engagement processes, and consideration of potential effects in the area, was used to lessen or avoid potential effects of the Project. This process, which resulted in a Final Preferred Route for the transmission line, was facilitated by a computer-based geographic information system that was able to consider large amounts of information to help compare many options.



The transmission line routing process began with a large area and ties closely to the engagement processes so feedback received could be considered in decision making. Within this large area, more than 700,000 alternative routes were initially considered. Through multiple rounds of engagement and the understandings achieved in the environmental assessment, this was reduced through comparative evaluation to arrive at a Final Preferred Route.

Information about each route was organized into the following groups: the Natural Environment (e.g. forests, wetlands, stream crossings), the Built Environment (e.g. residences, agricultural land use, historic resources), and the Engineering Environment (e.g. cost, accessibility). The types of information included distance to residential areas, major developments, conservation lands, types of land cover, soil classification, Crown lands, resource uses, ecologically sensitive sites, areas near streams, and existing rights-of-way. Although many people shared a wide variety of viewpoints, key competing messages heard during engagement were those who preferred routing the transmission line

on previously developed lands instead of undeveloped Crown lands to minimize effects to natural areas, and those who preferred routing the line in undeveloped area to protect farmland and rural residential properties.

Routing concerns and preferences were gathered throughout the public and First Nations and Metis engagement processes. Many public participants felt unoccupied Crown lands should be used to avoid agricultural or residential areas and privately-owned lands. Public participants noted that effects to agricultural areas included the economic value of these areas and challenges in working around transmission line tower structures (e.g., aerial spraying). Participants in rural residential areas expressed concerns regarding potential increases in the number of hunters and off road vehicles that could access the right-of-way and trespass onto private property.



Through the environmental assessment, a decision was made to use self-supporting towers in agricultural areas wherever possible to lessen the footprint in agricultural fields. Existing trails, roads and cut lines will be used as access routes whenever possible. Manitoba Hydro will work with local authorities, landowners, First Nation and Metis to manage access issues where feasible.

The concerns expressed during the First Nation and Metis Engagement Process focused mainly on the potential effects to natural areas and reduced opportunities for hunting, trapping and gathering of plants. First Nation and Metis Engagement Process participants indicated a preference to route the line on developed lands to prevent further effects to large tracts of intact natural forested areas.

The resulting 213 km Final Preferred Route aims to balance different perspectives and values on the landscape and has been submitted for regulatory approval.



## How did the engagement processes influence the Final Preferred Route?

The engagement processes collected feedback since July of 2013. One-on-one discussions between Manitoba Hydro and landowners helped build a better understanding of the landscape and local concerns. Perspectives shared through the First Nations and Metis Engagement Process and feedback from the public led to more than ten route modifications to avoid future residential development, accommodate agricultural preferences, leave intact areas where possible, minimize impact on a municipal quarry, and avoid recreational areas and protect areas where traditional plant gathering occurs.

*Further information on the changes made to the final preferred route based on feedback can be found in Chapters 3 & 4 of the EIS.*

*Further details regarding each stage of route determination is outlined in Chapter 5 of the EIS.*

The following pages present the valued components with a summary of key outcomes from the assessment.

*Number of Stream Crossings – 75*

*Number of potentially fish-bearing streams – 31*

*Number of fish species known or expected in the area – 75*



## Fish and fish habitat

Fish and fish habitat was studied because of its economic, recreational and spiritual importance to Canadians, and the important role fish play in demonstrating the health of rivers and streams.

To understand fish and fish habitat, field studies and interviews were conducted. ATK studies helped the environmental assessment team to identify important fishing areas. Field studies considered 75 streams, from large rivers such as the Red and Assiniboine, to small, unnamed creeks that would be crossed by the Project. The results of the field studies and discussions with people having local knowledge indicated that of the 75 waterways crossed by the Project, 31 may have fish present. Understanding which waterways contain fish habitat or support a fishery helped to focus studies and provide relevant information that helped to mitigate potential effects of the Project in sensitive areas.

When transmission lines cross waterways they are able to span them without having to place towers in the water, and in most cases, the important

habitat alongside waterways. When constructing the transmission line, the conductors (wires) are boated across waterways during the open water months. When streams are crossed in winter, the ground and water are frozen, which helps to reduce rutting and prevents soils from entering waterways. Construction work is also planned to avoid work near waterways during times when there are risks of harming fish and fish habitat, such as sensitive spawning periods.

To help protect the vegetation alongside streams, Manitoba Hydro establishes a 30-meter buffer where limited clearing will occur. By timing work to occur outside of sensitive periods, leaving a protective buffer and including additional protective measures to prevent erosion, minimal effects to fish and fish habitat are expected.

*More information on fish and fish habitat can be found in Chapter 8 of the EIS.*



## Wildlife and wildlife habitat

Wildlife and wildlife habitat are an important part of the natural environment. Healthy wildlife populations and large areas of wildlife habitat are signs of a healthy environment. First Nations and Metis value wildlife as a key part of cultural identity and traditional resource use. The opportunity to experience wildlife in nature also enriches the lives of Manitobans.

Transmission lines travel across many landscapes where wildlife make their homes (habitat). A newly cleared right-of-way changes the condition of the land and the plant communities that grow there. Wildlife can be affected in different ways, with some being disturbed, some adapting well to the changed surroundings, and some benefiting from the change.

Through the engagement processes, participants identified a number of highly valued species and important wildlife habitat in the area. These included black bear, white-tailed deer, moose, elk, and other furbearers. Areas with higher concentrations of wildlife species including forests, wetlands, and protected areas were considered when examining different routes for the

transmission line. Some areas, such as Ecological Reserves and Wildlife Management Areas, were avoided during route selection.

Clearing of forested areas could affect a number of wildlife species. The construction of the right-of-way opens up the forest and allows more light, and the growth of different types of vegetation that is favored by species such as deer and bats. Fragmenting (dividing up) intact parcels of habitat and creating new access on the right-of-way were common issues brought forward through the engagement processes. A new right-of-way could lead to an increase in ATV traffic and new opportunities for hunters and predators to harvest deer and black bear. Efforts were made to route the transmission line around the edges of most large areas of habitat so that it did not divide it into smaller areas that could have greater effects on wildlife species.



*Out of 213 km of final preferred route only 36 km requires forest clearing*

*More than 50 trail cameras were deployed to detect wildlife*

Field investigations used trail cameras to identify wildlife as they foraged and moved through their habitat in the Project area. Trail cameras were also placed on an existing right-of-way near the Project to see how wildlife were using a right-of-way of similar size, in a very similar area. Photographs revealed that there were many deer, wolves, and black bear using the existing right-of-way. Although elk movements were one of the main reasons for the trail camera study, no elk were recorded. This suggests that movements of the local elk herd are generally outside of the area being considered for the Final Preferred Route. Winter aerial surveys to look for wildlife tracks suggest that the local elk prefer the habitat near Vita, Manitoba, southeast of the Final Preferred Route. The surveys also showed that wolf, coyote, and red fox often moved along a nearby existing transmission line right-of-way, probably taking advantage of easier travel on the snow-packed trails.

Field studies confirmed that there are very few waterbird staging areas, such as lakes and open water wetlands where birds congregate, along the Final Preferred Route. Where concentrations of migratory birds were observed, mitigation measures such as bird diverters on the transmission wires will be installed to help birds to see the line, reducing the potential for bird-wire collisions.

Project activities will be scheduled to be considerate of times of the year when wildlife species are within a sensitive lifecycle activity such as calving, nesting, and hibernation. Pre-construction surveys will be carried out to identify important sites, such as stick nests and mineral licks, so that these important areas can be protected, relocated and monitored, where possible.

Most of the potential negative effects on wildlife and wildlife habitat were mitigated by avoiding sensitive wildlife habitat and movement areas, including protected areas and large intact areas of forests and wetlands. Overall, the Project effect on wildlife and wildlife habitat is anticipated to be low with the limited habitat clearing and the use of effective protection measures such as installing bird diverters, which have been shown to reduce bird mortality rates by 50-80% in high bird traffic areas.

## What is access management?

An Access Management Plan will be developed to maximize construction vehicle use of existing roads and trails, rather than disturbing new areas. By using existing access roads, hunting accessibility will be minimized and decrease the risk of wildlife mortality. Once construction is finished, vegetation in the right-of-way will be managed using an integrated vegetation management approach (see Vegetation and wetlands for more information). This involves selecting and combining several different methods to target specific tall-growing plant species that pose a risk to safety or transmission line reliability.

*More information regarding wildlife and wildlife habitat can be found in Chapter 9 of the EIS.*

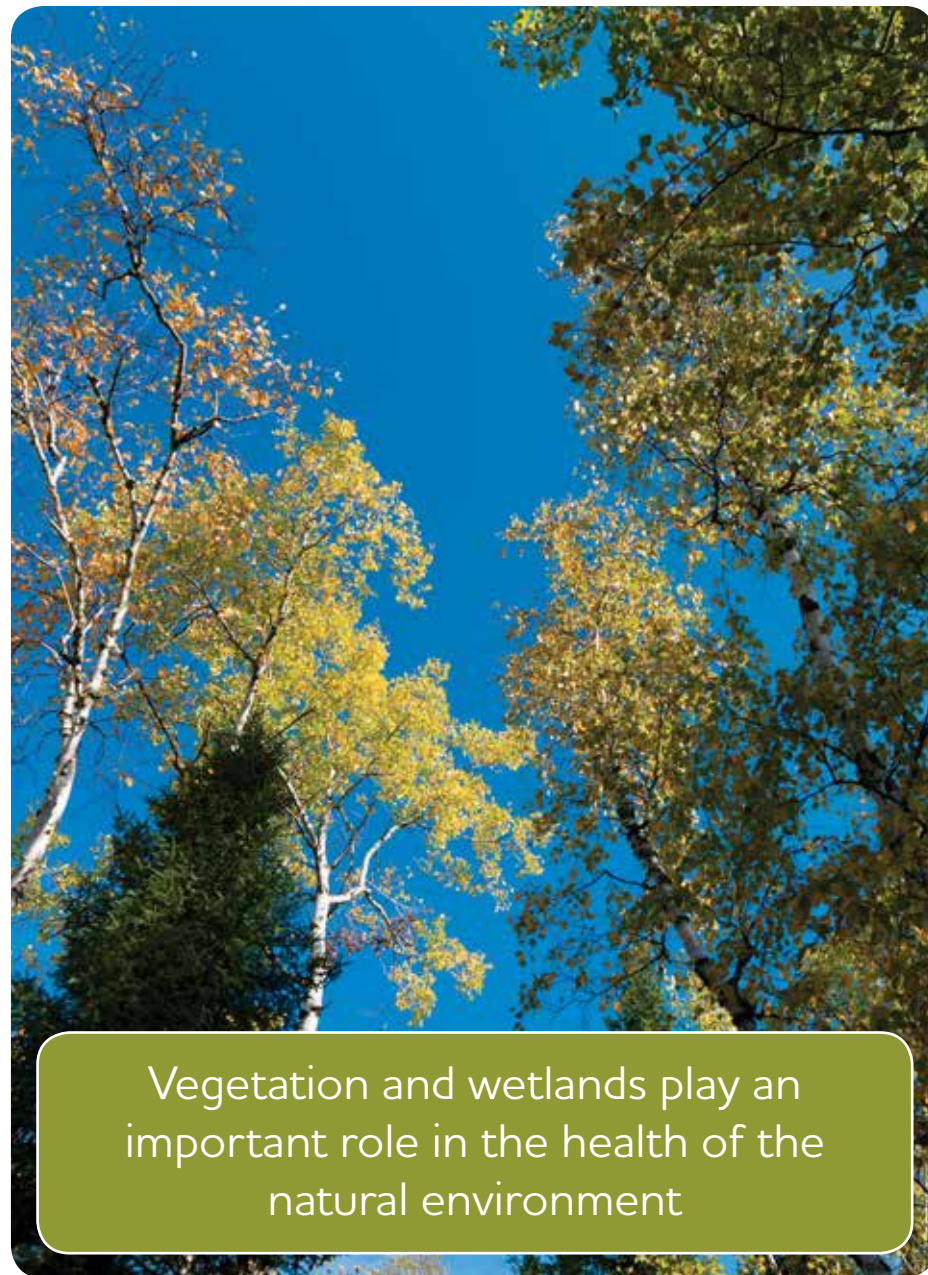
## Vegetation and wetlands

Vegetation and wetlands play an important role in the health of the natural environment. Maintaining native vegetation and healthy wetlands is important to support biodiversity, to protect species of conservation concern, to provide food and habitat for wildlife, and to support valued human activities such as hunting, hiking, and the collection of traditional use plants.

Through the engagement processes, concerns were expressed over the potential loss of plants and sites used for traditional reasons, the use of herbicides, and the impacts to rare plant species. During meetings with First Nations many people spoke of the value and importance of maintaining areas for berry picking and protecting plants used for medicinal purposes. Biologists who identified key wildlife species in the area that prefer large blocks of intact vegetation were concerned about the possibility of splitting up large natural areas into smaller, more fragmented pieces. Biologists identified large wetlands that were important to keep intact, including the Caliento, Sundown and Piney bogs.

One of the most effective measures taken to protect native vegetation and wetlands was through routing. The transmission line routing process considered the use of existing transmission corridors for much of its length (over 40% of the Final Preferred Route). In the new right-of-way, consideration was given to routing around large intact wetlands and forested areas.

To minimize potential effects to areas with rare plants and wetlands, construction in key areas will be scheduled during frozen or dry periods. This will lessen rutting or damages potentially caused during clearing activities, thereby reducing damage to plants along the right-of-way because the ground is frozen and plants are covered. Manitoba Hydro will establish buffer zones where limited clearing activities are to occur to protect rare species and vegetation near rivers and creeks.



Vegetation and wetlands play an important role in the health of the natural environment

While this will result in changes to the plants present within the right-of-way, they will regenerate over time. Manitoba Hydro has identified the location of rare plants; however, pre-construction surveys will also be carried out to find locations of rare plants that have not been identified. These locations will be outlined in the Construction Environmental Protection Plan to lessen any potential effects from construction activities.

By locating the transmission line in existing transmission corridors for a substantial portion of its length, minimizing the fragmentation of native vegetation patches, and avoiding protected areas and major wetlands, potential effects of the Project on vegetation and wetlands are reduced. After

## Will Manitoba Hydro use herbicides?

Because Manitoba Hydro understands the concerns regarding the use of herbicides, an integrated vegetation management approach on rights-of-way is utilized to lessen any potential impacts to the environment and the public. This involves selecting and combining different techniques to target specific plants and vegetation that pose risks to safety or reliability. Techniques may include mowing, livestock grazing and selective herbicide application. Integrated vegetation management allows a stable, low growing, and diverse plant community on the right-of-way. Manitoba Hydro uses criteria such as safety, environmental considerations, and location to determine the appropriate treatment method. Where appropriate, and following all safe handling and use practices under provincial and federal regulation, herbicides may be applied once every five to seven years. Typically it takes only three application cycles, each with decreasing amounts of herbicide, to establish a stable low growing plant community. Licensed herbicide applicators selectively apply herbicides to control small young fast-growing tree species like aspen and poplar, while maintaining low growing shrub and grass communities on the right-of-way.



construction is completed and natural re-vegetation occurs, the right-of-way will return to a diverse plant community supporting a variety of species.

*More information regarding vegetation and wetlands can be found in Chapter 10 of the EIS.*

# Heritage resources

Heritage resources are protected under *The Heritage Resources Act* and are valued by First Nations, Metis, historians, professionals, and the public. Important features have been identified through routing, engagement and assessment processes and include previously recorded archaeological sites, cemeteries, burial sites, plaques, centennial farms and provincially and municipally designated sites.

Through the First Nation and Metis Engagement process as well as through ATK self-directed studies, areas with heritage resources were identified. Through the PEP several sites with potential heritage value were recorded, including an abandoned cart trail and an old farmstead near the Assiniboine River, and the Bedford Ridge and the Ridgeland Cemetery near Sundown, Manitoba. Heritage sites were considered throughout the transmission line



routing process and avoidance of known archaeological sites was the primary means to avoid or lessen potential effects.

Proximity of the Project to the Ridgeland Cemetery north of Sundown was a concern noted during the PEP. Manitoba Hydro undertook additional surveys of the cemetery to understand whether there are burial sites outside of its current boundaries. No additional sites were found. To reduce potential effects on cultural practices occurring at the cemetery, Manitoba Hydro will consider the timing of these practices when scheduling construction activities.

A professional archaeologist will visit previously identified sites prior to construction to determine whether the sites could be affected during clearing or construction. This will be done in areas close to known heritage resource sites or sites identified as being culturally sensitive by First Nations or Metis. A Cultural and Heritage Resource Protection Plan (CHRPP) will be developed and will include a protocol to stop all activity in an area if new heritage resources are discovered. Upon discovery and before resuming construction, regulators will be informed, a qualified archaeologist will examine the site, and clearance from the regulator must be granted. The CHRPP will describe how protection of cultural and heritage resources will be handled if found during construction. Protective barriers will be placed around heritage resource sites that are found during construction so that the area can be protected while work proceeds. Where avoidance of identified sites is not possible the archaeologist will carefully remove and protect the materials found.

The Project will not change the number or integrity of known heritage sites or cemeteries. Careful routing, field studies, and input from the public and First Nations and Metis engagement processes assisted in understanding and lessening potential effects of the Project on heritage resources.

*More information regarding heritage resources can be found in Chapter 12 of the EIS.*

# Traditional land and resource use

Traditional land and resource use (TLRU) was studied to understand potential effects on traditional activities, practices, sites, areas and resources of cultural importance to First Nations and Metis. Through the First Nations and Metis Engagement Process, potential traditional land and resource use effects were identified, including changes to plant harvesting, hunting and trapping, as well as travel routes and cultural sites.

The following concerns related to TLRU were identified during the First Nations and Metis engagement process:

- protection of wildlife and intact natural areas;
- process if construction crews encounter an unidentified cultural, heritage or burial site;
- vegetation management practices during right-of-way maintenance, particularly use of herbicides in sensitive areas; and
- protection of Crown lands for future Treaty Land Entitlement selections.

Self-directed ATK studies undertaken by First Nations listed species of traditional plants, fish, and mammals hunted or areas of gathering in the area. This information and the concerns identified above were considered in the transmission line routing process, and in many cases, resulted in the avoidance of sensitive areas, reducing the effects on land and resource use.

First Nations and Metis continue to use long-established trails that connect communities, harvesting areas and gathering places throughout the Project area. To limit potential effects, Manitoba Hydro intends to use existing access to the new right-of-way where possible.

During right-of-way clearing, Manitoba Hydro may change and remove vegetation communities. This may include plant species that support traditional



use activities such as berry picking and plant gathering. Many of these areas were avoided through the route selection process and can resume along the right-of-way once construction is complete.

To protect culture and heritage resources, sites will be flagged or fenced. There will also be specific protocols in the Environmental Protection Program to protect discoveries made during construction. To protect unidentified cultural, heritage or burial sites, a Cultural and Heritage Resources Protection Plan (see Heritage resources for more information) will be developed that describes the process to follow when cultural and heritage resources are discovered or disturbed during the construction of the Project.

*More information on traditional land and resource use can be found in Chapter 11 of the EIS.*



## Infrastructure and services

Infrastructure and Services refers to things like roads and buildings, and activities such as police and ambulance services in communities. This was studied because the construction of transmission lines can increase the demand for, or interfere with, local and regional infrastructure and services such as accommodations, emergency services, road traffic, transportation and utility infrastructure, and interference with communication and radio signals.

Due to the size of the Project, a relatively small workforce is anticipated. Since the Project will be located near large service centers such as Winnipeg and Steinbach, the need for accommodations and community infrastructure and services will be small, and will occur during the construction phase of the Project. Existing fire and police services, as well as water, wastewater, and solid waste facilities will be able to meet the needs of Project workers. Roads should also have available capacity to meet the increase in traffic volume and there should be minimal disruptions to road use.

*At its peak, additional traffic represents less than 6% of the existing road traffic for most roads that would be used*

The location of storage yards and camps will be communicated to local municipalities to advise them of increased truck movements in the vicinity of the yards, the timing of activity, and the additional noise or light levels that could be expected from the site. The amount of radio noise with the Project should not be more than the levels set by Industry Canada and so interference with communications and radio signals should not be an issue. Car AM radios may have some radio interference while driving under the transmission lines at road crossings, but the level of radio interference will drop off rapidly with distance.

Manitoba Hydro will continue to discuss the Project and share information with local governments, service providers, and businesses. Manitoba Hydro will work with local authorities to address any damages to roads that occur as a result of the Project.

An Emergency Response Plan will be developed and Manitoba Hydro will work with local emergency responders to maintain appropriate emergency response times. Project workers will be made aware of the plan and designated staff will receive emergency response training.

Because of the small workforce and existence of ample services in the area, the Project effect will be small.

*More information regarding infrastructure and services can be found in Chapter 13 of the EIS.*

*\$101 million in direct construction spending*

*Project creates 504 person years of employment, including 245 person years direct employment in Manitoba*

*Project contributes about \$50 million to GDP*



## Employment and the economy

Project effects to Employment and the economy are generally considered positive as the Project will contribute benefits to the community and the province in the form of employment, income, and business opportunities.

Project construction will generate employment and business opportunities. Direct employment opportunities could include management and supervisory roles, inspection services, and equipment operators.

Project clearing and construction activities will generate positive economic effects through increased local and regional employment, procurement, contribution to the Gross Domestic Product (GDP), and government revenue. Local, regional and Aboriginal employment measures will be implemented and business opportunities made available during construction. Positive

effects will be limited during operation and maintenance due to fewer Project-related expenditures and limited Project-specific employment.

No shortages or increased costs to local businesses are expected from the use of locally produced goods and materials. Project spending will also generate economic benefits through the purchase of materials, and increased household spending from wages earned. Project spending and employment will contribute to the regional, provincial, and national economies, including adding value to GDP. This Project will also contribute to federal, provincial, and local government revenue through taxes on income and on goods and services procured for the Project.

*More information regarding employment and the economy can be found in Chapter 14 of the EIS.*



## Agriculture

Agriculture was studied because it plays an important role in the productivity of and prosperity in Manitoba. Agriculture is very important to economic strength and stability due to many linkages with other industries.

Transmission lines can have several effects on agricultural operations. The consequences to farm operations and management and potential changes to the land itself can result in increased costs, inconvenience, nuisance and increased effort for operators.

Agricultural operators have expressed concerns regarding aerial spraying, the nuisance of having to work around transmission towers, and the potential for increased costs and effort to manage their fields. Operators were concerned with the protection of livestock and crops from diseases and unwanted plants that could be carried onto their farms by development and operation of the

transmission line. Complete avoidance of high valued croplands was a preference of many operators due to the potential disturbance to their activities.

Throughout the transmission line routing process, Manitoba Hydro considered soil classification and proximity to livestock operations and farm buildings when determining the Final Preferred Route. In addition, where possible, the Final Preferred Route follows existing rights-of-way to reduce the need to introduce new structures on previously non-impacted lands.

Tower placement preferences were discussed with landowners and operators and documented. Participants indicated that in places where the Project will be adjacent to another transmission line, towers should align and not be staggered on the landscape.



Rutting, compaction, loss of crops and inconvenience of working around transmission towers were considered in planning and assessing the Project. Manitoba Hydro is proposing the following measures to lessen potential impacts to agriculture:

- Using existing Manitoba Hydro controlled corridors to limit new transmission line rights-of-way on the landscape;
- Using self supporting towers to lessen tower footprints, crop loss and inconvenience;
- Compensation to be provided to agricultural operators (see inset); and
- Adhering to Manitoba Hydro's agricultural biosecurity policy.

The Project is not expected to result in degradation of soil quality with the implementation of mitigation measures to lessen potential effects. There will be a loss of agricultural land with the Project, however, with the use of self-supporting structures and a relatively short construction period, that loss is anticipated to be small.

*Manitoba Hydro's biosecurity policy has been in place since 2013*

## How will Manitoba Hydro compensate Landowners?

Manitoba Hydro offers a comprehensive compensation package to landowners.

- Land Compensation: to landowners granting an easement for the right-of-way;
- Construction Damage Compensation: to landowners for damages caused by construction activities;
- Structure Impact Compensation: to landowners for each tower located on agricultural lands; and,
- Ancillary Damage Compensation: to landowners where Manitoba Hydro's use of the right-of-way directly or indirectly impacts the use of the property.

## What is Biosecurity?

Movement of equipment and personnel between fields can transfer soil and plant material containing disease organisms or seeds. To minimize the risk of the transfer of disease, pests and unwanted plants, Manitoba Hydro has adopted an agricultural biosecurity policy. This policy outlines standard operating procedures to which staff and contractors must adhere. An example of a measure to be taken is washing vehicles and equipment before entering an agricultural field.

*More information regarding agriculture can be found in Chapter 15 of the EIS.*

# Land and resource use

Land and resource use is important to communities, property owners, and resource users (e.g., hunters and trappers, commercial operators and the general public). This VC considers how resources or access to resources may be affected if the Project is developed, such as the removal of commercial forestland, or how the construction of the Project may temporarily disrupt hunting and trapping activities. This VC also considers how construction and the physical presence of the transmission line may affect landowners due to nuisance-based effects and land development in the future. The effects evaluated include the change in property, in forested areas, in mining/aggregate extraction, in groundwater use, in hunting and trapping, in designated lands, protected areas and recreation.

Project effects on property value (see page 27), disturbance from construction, operating noise, and limitations to subdivision potential were concerns raised by the public. One of the issues voiced during engagement included a concern about ATV use of a new right-of-way resulting in an increase in noise, fire risk and vandalism. Feedback from the First Nations and Metis engagement process indicated concerns about impacts on traditional pursuits of hunting, trapping, fishing, gathering, and protection of heritage and historic sites on Crown lands.

Routing was the main way to lessen many of the potential effects of the Project. The use of existing transmission corridors for routing of a large portion of the line avoided many of the potential effects to Land and resource use. To avoid affecting certain land types, legally protected Wildlife Management Areas, provincial parks, First Nation Reserves, Treaty Land Entitlement selections and existing and proposed ecological reserves were avoided through the determination of a final preferred route.

Construction is temporary and it is anticipated that disturbance or disruption to land use will be limited. This could include disturbance or disruption to recreational areas and activities such as hunting and trapping.





## Will the transmission line affect property values or development?

One of the common concerns raised was the potential for the presence of the transmission line to effect property values. Project effects on property values should be small or non-existent depending on proximity to the transmission line. If property values are affected, these effects should decrease with distance from the transmission line and decrease or disappear over time. This will vary depending on the location and visibility of transmission towers to properties.

Manitoba Hydro anticipates that the Project will not substantially alter overall land development patterns in the area. Manitoba Hydro is continuing to monitor and study property values where other transmission projects have been undertaken and will continue research into potential changes in property value based on the construction and presence of the Project.

Feedback received during the engagement processes and through the environmental assessment influenced design and route adjustments. An example of this includes avoidance of multi-lot subdivision developments; taking advantage of existing transmission rights-of-way; and adjustments to reduce potential effects on individual landowners. Another measure to lessen effect includes using existing access routes as opposed to developing new routes to get on to the new right-of-way.

*More information regarding land and resource use can be found in Chapter 16 of the EIS.*



*14 viewpoints were evaluated along the Final Preferred Route*

## Visual quality

Visual quality is the way people see their surroundings. The reason for evaluating visual quality is transmission lines can change how local residents, First Nations, Metis, recreationalists, tourists and other stakeholders see the landscape from different viewpoints. A change in visual quality may be related to a number of factors, including community identity, property values, quality of life, and recreation and tourism.

The distance from the Project to viewpoints such as residences, communities, parks, cultural sites, and other such locations was considered during transmission line routing. In some instances, it may be possible to reduce effects on visual quality for individual landowners by accommodating their preferences for tower placement. Tower placement preferences were

documented through the public engagement process and will be considered, where feasible. Discussions with landowners will be ongoing as Project details are finalized.

Residents expressed concern about what they would see from their homes and were concerned this could potentially affect property value. Feedback received from the First Nation and Metis engagement process indicated sensitivity to the visual change the transmission line would make on the natural environment.

Viewpoints representing a cross-section of interests were selected for assessment. These interests included residences, rural roadways, lodges, outfitters, resorts, campgrounds, golf courses, parks, trails, and hunting areas.

The goal of the visual effects assessment was to understand the current view of the landscape and how the Project may change these views. Tower and wire drawings were placed on photographs to help determine how the view of various points along the Final Preferred Route will change.

To lessen potential effects, Manitoba Hydro located the transmission line towers away from residences where possible, paralleled existing lines, and will use non-reflective materials to help the towers better blend into the landscape.

*More information regarding visual quality can be found in Chapter 17 of the EIS.*

## BEFORE THE TRANSMISSION LINE TOWER IS INSTALLED



## AFTER THE TRANSMISSION LINE TOWER IS INSTALLED



*Visual quality was assessed at various locations along the preferred route. The photographs above depict the landscape before and after the installation of a transmission line, north of Sundown, Manitoba at the Ridgeland Cemetery.*

# What about human health risks?

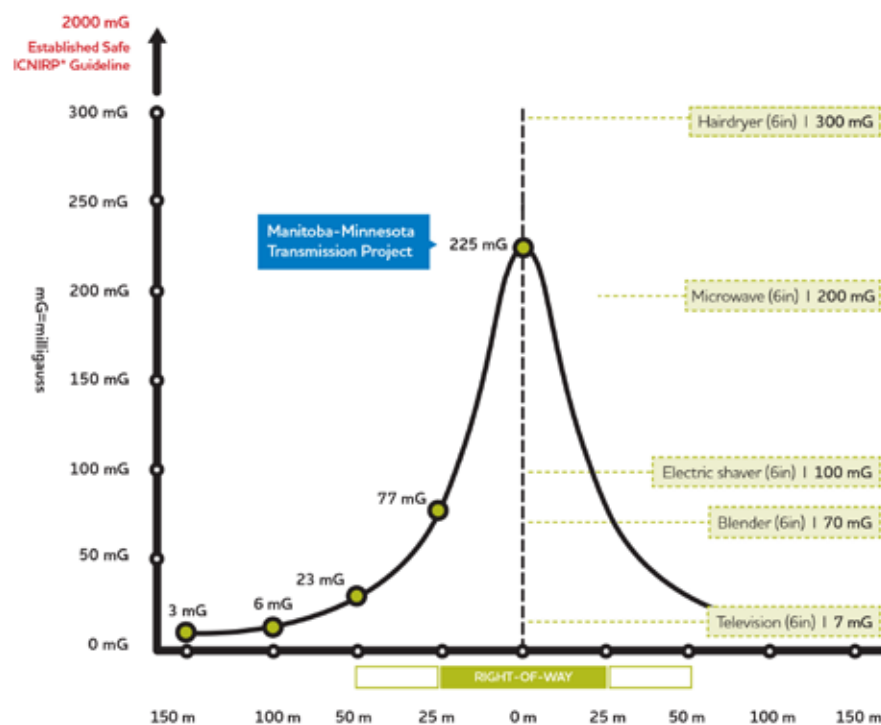
There is a potential for the Project to change environmental conditions that can then change the health risk to people. This includes potential changes to air quality, traditional food, noise levels, and to electric and magnetic fields (EMF).

Concerns regarding electric and magnetic fields (EMF) were common across the engagement processes and included concerns that exposure to EMF would lead to health effects such as cancer (see page 32). First Nations participants and others also expressed concern about herbicides use on the right-of-way for vegetation management. Traditional harvesters were concerned that any use of herbicide will contaminate plants they harvest as well as potentially affect water quality in nearby lakes and streams.

The transmission line routing process considered the distance of the Project to places where people gather and could become exposed to human health concerns. These locations included houses, schools, daycares, recreational centers, churches, campgrounds, and picnic areas.

To address the concern over use of herbicides, Manitoba Hydro considered the potential effects that herbicide use for right-of-way maintenance could have on traditional foods. The use and application of herbicides is regulated under provincial and federal law. This provides reasonable certainty that, when used as directed, these chemicals pose no harm to human health, future generations, or the environment. In addition, Manitoba Hydro will not use herbicides in clearly identified sensitive sites that contain plants of importance to traditional food harvesters. Herbicide use will also be restricted within 30m of waterways.

## Magnetic field



This figure represents magnetic fields 1.0 m above ground for a preliminary 500 kV line design.

\*International Commission on Non-Ionizing Radiation Protection (ICNIRP) [www.icnirp.org](http://www.icnirp.org)

ICNIRP Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz – 100 kHz).  
Published in: Health Physics 99(6): 818-836; 2010



During the construction of the transmission line it is anticipated that the noise generated by equipment will be approximately 89 decibels, with the exception of the brief use of implosives used to splice the conductors together. As one of the last steps in the construction process, these short bursts of noise will likely occur approximately 2–3 kilometers apart as the conductor is spliced together. Notifications will be provided in areas where people may be affected. Construction noise will be short term and will follow applicable noise by-laws. Once in the operational phase, the transmission line will produce noise expected to be on average 23 decibels at the edge of the right-of-way under fair weather conditions. This is well within the provincial guideline of 55 decibels, and comparable to the volume of a conversation in a living room.

*The maximum field anticipated for this transmission line is directly under the wires and measures 225 milliGauss, a tenth of the safe public exposure guideline*

Based on evaluations undertaken, there are no effects on human health anticipated from the Project that cannot be mitigated. Manitoba Hydro will continue to undertake research, information sharing, and will adhere to construction and maintenance protocols.

## Electric and Magnetic Fields

Exposure to electric and magnetic fields (EMF) and the perceived human health risks associated with exposure was the most common concern heard from individuals regarding the Project.

EMF modeling was undertaken specifically for this Project and results are provided in the EIS. Modeling demonstrated that levels anticipated with this line will be a tenth of safety guidelines set forth by international agencies. In addition, modeling suggests that field strength of this line at the edge of the right-of-way would be lower than being 15 cm away from an operating house hold blender.

*More information regarding human health can be found in Chapter 18 of the EIS.*

## What are electric and magnetic fields?

One of the most frequent concerns raised through the public engagement process was the exposure to electric and magnetic fields (EMF) and the perceived human health risks associated with exposure. The production of EMF is associated with the generation, transmission and use of electricity. People are exposed to these fields not only when they are near high voltage lines, but also at their places of work and in their homes. Such fields are produced by distribution lines, transformers, building and house wiring and by all devices that use electric power.

Numerous reviews of research on health and EMF exposure have been conducted by the international scientific community and governmental agencies including Health Canada and the World Health Organization. These independent agencies have concluded that exposure to extremely low frequency EMF has not shown any long-term adverse health effects.

EMF modeling was undertaken specifically for this Project and results are provided in the EIS. Safe public exposure guidelines regarding magnetic fields have been set by international organizations at 2,000 milliGauss. The maximum field anticipated for this transmission line is directly under the wires and measures 225 milliGauss, a tenth of the safe public exposure guideline and decreases rapidly as you move away from the transmission line. In comparison, a hairdryer held from 6 inches away can emit a magnetic field of 300 milliGauss.

More information on Electric and Magnetic Fields can be found in the “EMF and radio noise calculations” report found in the socio-economic technical data report section of the EIS.

*More information regarding human health risk can be found in Chapter 18 of the EIS.*

## Community health and well being

Community health and well-being can be affected if changes in the local social and economic structure occur as a result of a large project. These changes can cause stress and affect the health of some local area residents.

The potential effects to community health and well-being were recognized in the transmission line routing process and consideration was given to the distance of the Project from residences, communities, parks, and cultural sites.

People can become annoyed and stressed by construction related to noise, dust, and workforce presence. Construction effects will be short term, and generally confined to the sites where construction occurs. Stress and annoyance can also be caused by the presence of the Project; however, these effects are expected to be localized, and some concerns could lessen with





time. Manitoba Hydro will promote the use of local business, implement a code of conduct for workers, and provide an accessible complaint system for local people to voice their concerns.

Pressure on medical services from workers will be reduced by having safety training and first aid on the Project site. Tower placement, use of existing vegetation buffers and ongoing communication will also be implemented to help reduce noise and dust, which should reduce stress and annoyance among local residents.

Manitoba Hydro will share Project information, including workforce information and accommodation requirements, with local governments, service providers, and businesses, as appropriate, so they are aware of anticipated Project-related demands. This will allow them to identify and address potential service gaps, opportunities and issues. Through ongoing engagement and implementation of planned measures presented above, minimal effects are anticipated to community health and well-being.

*More information regarding community health and well being can be found in Chapter 19 of the EIS.*

## Cumulative effects

Cumulative effects are changes to the environment caused by a Project in combination with other past, present or future projects.

There have been many changes to the landscape of southern Manitoba over the last 120 years. In many places the land has changed from native prairie and forests, to farm lands and homes, cities and towns, roads, pipelines, and transmission lines. These activities and projects affect the natural environment in one way or another. Some activities and projects have more of an impact than others, and when considered collectively, even small effects add up.

In addition to past effects, the effects of future projects and activities were considered in combination with the effects of the Project. Some future projects that may overlap with the Project include highway development,



*In addition to past effects, the effects of future projects and activities were considered in combination with the effects of the Project*

pipeline development, recreational activities like hunting and snowmobiling, and even other transmission line developments.

In planning the route and listening to people in the engagement processes, Manitoba Hydro decided to route the transmission line through an existing transmission corridor for over 40% of its length. This transmission corridor was set aside several years ago for this purpose, to concentrate lines within a corridor and lessen the area of new lands required for transmission line development.

Determining the location of the new right-of-way included an understanding of the need to balance socio-economic concerns of private landowners, concerns heard through the First Nation and Metis engagement process, concerns heard from growing municipalities, while being sensitive to

important ecological areas and habitats. The route selection process considered the human and natural environment and aimed to find a balance between these different values. Routing also considered important key features on the landscape, such as tall-grass prairie, federal lands, Protected Areas, such as ecological reserves and Wildlife Management Areas, three major bog complexes, the core range of the Vita elk herd, and known heritage and culturally important sites.

After considering the effects of the Project on the environment, and the overlap of the Project with past, present and future projects, Manitoba Hydro concluded that the Project will not result in significant effects to the human and natural environment.

# What if there are accidents or malfunctions?

Although highly unlikely, a variety of accidents, malfunctions and unplanned events may be associated with the Project. These could include:

- power outages;
- tower collapse;
- electrocution;
- failure of erosion protection and sediment control measures;
- spill of hazardous materials;
- release of insulating gas;
- fire; and,
- vehicle collisions.

These rare, unplanned events were considered in the environmental assessment and reported in the EIS along with potential resulting effects on people and the environment.

Manitoba Hydro's commitment to public and worker safety requires protective measures to be in place to address unplanned events. The likelihood and effects of these unplanned events are greatly reduced through protective measure such as:

- annual patrols of the transmission infrastructure to detect problems before they happen;
- understanding weather patterns and how they can effect transmission lines; and;
- designing and testing of the strength of the towers.

Manitoba Hydro has been successfully constructing and operating transmission lines for more than 50 years, and has developed an environmental protection program that includes specific environmental protection, management and monitoring plans for each project. These plans reduce the likelihood of negative environmental effects of the project and include measures to prevent accidents and malfunctions. In the event of an accident, malfunction or unplanned event, Manitoba Hydro's Corporate Emergency Management Program provides protocols for addressing such events.

*More information regarding accidents and malfunctions can be found in Chapter 21 of the EIS.*



# What is an environmental protection program?

An Environmental Protection Program (EPP) is one mechanism by which Manitoba Hydro implements its environmental policy to protect and preserve the natural environment and social, economic and heritage resources affected by the Project. The EPP includes the “what, where and how” aspects of protecting the environment (also known as mitigation measures) during the design, construction, operation and decommissioning of the Project. An EPP is composed of many components. The following provides a description of some of these components:



## Environmental Protection Plans

Environmental protection plans document mitigation measures that provide for compliance with regulatory requirements, reduce or eliminate project effects, and achieve environmental protection goals consistent with corporate environmental policies. Manitoba Hydro’s environmental protection plans are designed as “user-friendly” reference documents that provide project managers, construction supervisors and contractors with detailed lists and maps of environmental protection measures to be implemented in the design, construction and operation phases of the Project. A draft Construction Environmental Protection Plan has been included with the EIS submission.

## Access Management Plans

These plans describe how Manitoba Hydro will access the Project area for construction and maintenance purposes, and the mitigation measures related to access. These mitigation measures include: timing windows, vehicle cleaning, gate protocols, warning signage, and communication with landowners.

## Environmental Management Plans

These plans are prepared to address important environmental management issues associated with the construction of the Project such as:

- Erosion Protection and Sediment Control Plans, which describe the measures to manage the prevention of soil erosion and the potential sedimentation of waterways;
- Emergency Preparedness and Response Plans, which describe the measures to manage spills or releases of hazardous materials, accidents, fire, and medical emergencies; and
- Waste and Recycling Plans, which describe the measures to reduce and manage worksite and camp waste while utilizing reduction, recycling and reusing initiatives.



## Culture and Heritage Resource Protection Plan

Manitoba Hydro understands and appreciates the value that Manitobans place on cultural and heritage resources. This plan outlines protection measures to be undertaken in the event of the discovery of previously unrecorded cultural and heritage resources during construction. This plan also describes the ongoing monitoring of mitigation effectiveness for known cultural and heritage resources during the construction of the Project.

## Environmental Monitoring Plans

While Manitoba Hydro has studied and assessed the potential effects of the Project, it is committed to ongoing follow-up and monitoring of both environmental and socio-economic project effects to determine if they occur as predicted, residual effects remain within acceptable limits, regulatory limits or objectives are not exceeded, and mitigation measures are as effective as predicted. Monitoring also allows for adaptive management when results show there is a need for additional environmental protection or alternate mitigation measures.

A key component of the Environmental Protection Programs is its resources. This includes environmental inspectors and specialists who implement the above plans and monitor mitigation measure effectiveness in reducing Project effects on the environment. The EPP also includes adaptive management processes to respond to unanticipated effects and mechanisms to communicate with the public, First Nations and Metis to share knowledge and results of environmental effects monitoring activities.

*More information regarding the Environmental Protection Plan can be found in Chapter 21 of the EIS.*

*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Bruntland Report, 1975)*

## How does the Project address sustainability?

The three pillars of sustainable development include the environment, the economy and social well-being. The Project considers sustainability and its three pillars throughout all its phases from planning, to construction to operation.

Collecting input during the public and First Nations and Metis engagement processes was a part of ensuring sustainability as the input received assisted in developing a project that was influenced by what people felt was important.

Manitoba Hydro's commitment to environmental sustainability in the Project is demonstrated through consideration of aspects of the environment in route selection and through the detailed consideration given to the human and natural environment. Avoidance or other protection measures have been developed through the routing and environmental assessment processes to lessen potential effects.

Although construction of this Project will contribute to Green House Gas (GHG) emissions, the Project will ultimately result in a substantial decrease of GHG with hydropower exports displacing fossil fuel generation in U.S. markets.



Another important aspect of the Project is the increased electrical reliability for Manitobans. The ability to import power on this line in times of emergency, such as drought, reduces the chances of interruptions in power supply for Manitobans. Secure electrical power is an essential service that can have major consequences when not available.

The Project will serve current and future generations with clean reliable energy developed with community input, environmental protection, and economic benefits.

*More information regarding sustainability can be found in Chapter 23 of the EIS.*



# How would we build the transmission line?

Manitoba Hydro will construct the transmission line in a manner that aims to limit potential effects. Activities to construct a transmission line are outlined below.

## Surveying

Manitoba Hydro surveyors will determine property boundary accuracy and terrain conditions to assist in the determination of tower placement. Geo-technical exploration may also take place to inform tower foundation design.

## Mobilization

Existing access routes will be improved, marshalling yards will be set up and, if required, a temporary construction camp will be built to accommodate crews. A range of trades and skilled workers will be required during the three years

of Project construction, with up to 150 people employed during peak construction periods.

## Right-of-way clearing

Where necessary, Manitoba Hydro will clear the right-of-way of any trees to ensure safety now and in the future.

## Tower foundation/anchor installation

Construction crews will place tower footings and anchors into the ground to accommodate the tower. The footing or anchor used is determined based on the design and geotechnical results.



## Tower assembly

Tower assembly will be undertaken on the active construction site or offsite, and transported by truck or helicopter to the tower location.

## Tower erection

At the active construction site, cranes and/or helicopters will be used to erect the towers.

## Stringing of the conductor

After the towers have been erected, construction crews will string the conductor between structures.

As outlined in the Environmental Protection and Monitoring section of the document, Manitoba Hydro has submitted a Construction Environmental Protection Plan (CEnvPP) that outlines sensitive areas, access routes, and mitigation measures to lessen potential environmental impacts.

During construction, Manitoba Hydro construction supervisors, inspectors, and safety officers will be present on site to construct in accordance with technical requirements, the CEnvPP, and applicable safety and environmental regulations. For example, measures will be taken to make sure heritage sites are flagged and protected from construction equipment.

Access will be restricted to Project personnel in the area where construction is actively occurring. There will be ongoing communication with the public to address safety concerns. Manitoba Hydro will work to minimize potential inconvenience to private landowners during construction and will repair or compensate for damages caused through the construction process.



# What are the next steps?

The Environmental Impact Statement was submitted to Manitoba Conservation and Water Stewardship (MCWS) in September 2015. This submission officially begins the regulatory review process. The following outlines the anticipated timelines for the next steps in the process.

## Regulatory Review: 2015 to 2017

The regulatory review process is extensive. Both provincial and federal levels of government are involved in the approval of this Project.

### PROVINCIAL

#### Manitoba Conservation and Water Stewardship:

A review by government departments and the general public will take place. Comments will be collected by MCWS and will be considered in their licensing decision making.

#### Clean Environment Commission:

The Minister of Conservation and Water Stewardship may call a public hearing managed through the Clean Environment Commission. At this time no formal decision has been made in this regard.

### FEDERAL

#### National Energy Board:

The National Energy Board (NEB) is an independent federal regulator that promotes safety and security, environmental protection and economic efficiency specific to energy projects. A review and approvals process will be undertaken by the NEB for the Project under the *National Energy Board Act* and the *Canadian Environmental Assessment Act, 2012*.

## Regulatory approvals decision

If approved by both federal and provincial authorities, Manitoba Hydro could begin construction of the Project. This approval will likely come with specific conditions that Manitoba Hydro would be required to follow.

## Construction: 2017 to 2020

Subject to regulatory approvals, Manitoba Hydro anticipates construction to begin in 2017 and be completed in 2020.

## In-Service: 2020

Based on the anticipated schedule above, power would begin flowing across the Canada-United States Border in 2020.





## Conclusions

After assessing Project effects and considering measures taken to avoid or lessen potential negative effects, Manitoba Hydro concludes that the Project will not result in significant effects to the biophysical or socioeconomic environment. Manitoba Hydro remains committed to continue sharing information with the public and working with interested parties through ongoing monitoring and the Environmental Protection Program. The Project will transmit clean, renewable energy to southern export markets, build reliability within the Manitoba transmission system and contribute to Manitoba's economic future.

*More information on the conclusions can be found in Chapter 24 of the EIS.*

## How can you contact Manitoba Hydro?

Manitoba Hydro is available to answer questions.

**Email:** [mmtp@hydro.mb.ca](mailto:mmtp@hydro.mb.ca)

**Toll Free Telephone:** 1-877-343-1631

**By Mail:**

**Manitoba Hydro Manitoba-Minnesota Transmission Project  
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