MANITOBA – MINNESOTA TRANSMISSION PROJECT
Environmental Impact Statement

SUSTAINABLE DEVELOPMENT

CHAPTER 23
SEPTEMBER 2015

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APPENDICES

ABBREVIATIONS AND ACRONYMS

AC	Alternating Current
ATK	Aboriginal Traditional Knowledge
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
EIS	Environmental Impact Assessment
EPRI-GTC	Electric Power Research Institute (EPRI) and Georgia Transmission Corporation (GTC)
FSDA	Federal Sustainable Development Act
FSDS	Federal Sustainable Development Strategy
GHG	Greenhouse Gas or Greenhouse Gases
IAIA	International Association for Impact Assessment
IAP2	International Association of Public Participation
MMTP	Manitoba Minnesota Transmission Project
MW	Megawatt
NEB	National Energy Board
NFAT	Need For and Alternatives To
PEP	Public Engagement Process

23 Sustainable Development

23.1 Introduction and Purpose

The Purpose of this Chapter is to provide information respecting the Manitoba-Minnesota Transmission Project (MMTP) and its consistency with sustainable development. This requirement was described in the Scoping Document for the Project, which indicated that the "EIS will describe how the principles of sustainable development have been incorporated into Project planning, design, construction and operation, with reference to the Principles and Guidelines of Sustainable Development (Schedules A and B) of Manitoba's *The Sustainable Development Act*, C.C.S.M. c. S270; Manitoba Hydro's Sustainable Development Policy and Principles, the *Federal Sustainable Development Act*, (FSDA) (Government of Canada 2008) and CEAA, 2012. A similar analysis has been undertaken for the Federal Sustainable Development Themes set out in the 2013 Federal Sustainable Development Strategy (FSDS) (Environment Canada 2013).

In responding to this requirement, this chapter provides an explanation and background on sustainable development, the role of governments in defining and encouraging its pursuit, and an analysis of the consistency of the Project with the provincial and federal governments' and Manitoba Hydro's stated tenets of sustainable development. Finally, the chapter draws a conclusion about the Project and sustainable development.

23.2 Sustainable Development Concept and Definition

"Our Common Future," the 1987 report of the World Commission on Environment and Development (Brundtland 1987), more commonly known as the Bruntland Commission, popularized "sustainable development" as both a phrase and a concept. The definition coined by that commission has remained as the most common definition: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

As a concept, sustainable development has relevance to most major developmental and planning decisions in that it integrates social, environmental and economic considerations into decision making. Since 1987, much thought and debate has been focused on how to implement this concept in diverse circumstances and geographic regions. As indicated previously, this chapter focuses on describing how principles of sustainable development have been incorporated into Project planning, design, construction and operation, from federal, provincial and Manitoba Hydro perspectives.

23.3 A Broader Assessment Process

In order to meet its mandate of providing affordable and reliable electricity to meet Manitoba's future energy demands, Manitoba Hydro submitted a Preferred Development Plan to the Province to request approval to proceed. The Development Plan included the Keeyask and Conawapa Generating Stations, their associated domestic AC transmission facilities and a new Canada-USA transmission interconnection (Manitoba Hydro 2013).

The new Canada-USA transmission interconnection, or MMTP, is an integral component of Manitoba Hydro's Development Plan. The new line will increase export capability by 50%, and double import capability. The additional export capability is needed to be able to market surplus power generated from existing and new (under construction) generating stations being built in Manitoba. The new import capability will increase grid reliability in Manitoba, and will enable additional energy imports during system emergencies or drought conditions.

In January 2011, the Province of Manitoba notified Manitoba Hydro of its intention to conduct a "Need For and Alternatives To" (NFAT) review to assess the advisability of Manitoba Hydro's proposed Preferred Development Plan to provide for Manitoba's future energy needs. In November 2012, the government issued Terms of Reference (Government of Manitoba 2015) to the Public Utilities Board (PUB) to undertake the NFAT review to include Keeyask and Conawapa generating stations and the Manitoba /US interconnection, including:

"The alignment of the Plan to Manitoba's Clean Energy Strategy and the Principles of Sustainable Development as outlined in *The Sustainable Development Act*…" and

"The extent to which the Plan is needed to address reliability and security requirements of Manitoba's electricity supply."

Following a detailed review by independent consultants and an extensive PUB hearing process, the conclusions and recommendations from the PUB respecting the MMTP component of the Preferred Hydro Development Plan included the following:

"Keeyask and the 750 MW transmission line [*i.e.*, MMTP] represent a tangible commercial opportunity. Therefore, it would be prudent to proceed with the development of Keeyask and the 750 MW transmission line" (Manitoba Public Utilities Board 2014). "Manitoba Hydro has demonstrated the value of constructing the proposed 750 MW Transmission Interconnection to the United States. Financial and economic analysis indicates that this Transmission Interconnection adds value to Manitoba Hydro's future plans. The Transmission Interconnection is equally justified in terms of its contribution to system reliability, and to address export and import needs during periods of drought or system emergencies" (Manitoba Public Utilities Board 2014).

"The Panel recommends that the Government of Manitoba authorize Manitoba Hydro to proceed with the 750 MW U.S. Transmission Interconnection Project for a 2020 in-service date" (Manitoba Public Utilities Board 2014).

After extensive public review, and having considered the economic and financial aspects of the Project and the environmental, and social conclusions drawn by the Clean Environment Commission regarding the Keeyask Project (a component of the Preferred Development Plan) to generate hydro power, the Manitoba Public Utilities Board considered the MMTP to be important to the people of Manitoba, and recommended to Government that it proceed.

Having addressed the financial and economic aspects of the Project, the PUB recommended it proceed, subject to the environmental assessment process that would address the specifics of the environmental and social effects. From Manitoba's perspective, the issue of "purpose" and "need for" have been decided in favour of the Project.

23.4 Sustainable Development Analysis

Both the Federal and Manitoba governments have instituted sustainable development as policy goals for future development in Canada and Manitoba, respectively. To this end, each government has embedded the goal of pursuing sustainable development in legislation. As described below, the legislation sets out principles and guidelines or goals to guide the implementation of sustainable development. Manitoba Hydro also adopted a corporate sustainable development policy and a set of principles that guides its activities. This section describes the various principles of sustainable development and demonstrates how they have been incorporated into Project planning, design, construction and operation, from federal, provincial and Manitoba Hydro perspectives.

23.4.1 Provincial

The Province of Manitoba enacted *The Sustainable Development Act* (Government of Manitoba 1998) in 1997 to "create a framework through which sustainable development will be implemented in the provincial public sector and promoted in private industry and in society generally" (Sec. 2). Principles and guidelines of sustainable development were attached as schedules to the Act to guide the behaviour and decision making of all government departments, agencies and Crown corporations. The Manitoba Principles and Guidelines of Sustainable Development are presented in Appendix A, Table 23A-1. A description of how the Project addresses each principle and guideline follows in Appendix B, Table 23B-1.

More recently, under Manitoba's "Tomorrow Now" initiative, the Province has developed a revised Green Plan that includes an "eight-year strategic action plan for mobilizing Manitobans to work together to protect the environment while ensuring a prosperous and environmentally-conscious economy. Manitoba's goal is to be one of the most sustainable places to live on earth" (Manitoba Conservation and Water Stewardship 2014).

Included in the Green Plan are the following:

"The province already benefits from green businesses and jobs, and shifting to a low-carbon economy will enhance our global competitiveness, respect ecological balance and create genuine well-being for all Manitobans. All sectors of the local and global economies will need to transition towards the goals of sustainable development to achieve long-term prosperity. Key sectors in Manitoba's green economy include clean energy, energy efficiency, waste management, as well as bio-product development and production."

"In the coming 15 years, new generation and transmission projects are expected to add more than 2,300 megawatts (MW) of renewable hydroelectricity to the grid, further increasing Manitoba's role as a regional clean energy provider. Manitoba's new-generation hydro projects will provide a 43 per cent increase in hydro electricity generation from 2012 levels" (Manitoba Conservation and Water Stewardship 2014).

MMTP is a key part of this plan.

Linked to this initiative is ongoing work on the development of a *Green Prosperity Act*, ultimately to replace the *Sustainable Development Act*. In the meantime, however, the *Sustainable Development Act* remains the current legislative driver of implementing sustainable development in Manitoba, including the MMTP.

23.4.2 Federal

The Federal Sustainable Development Strategy (FSDS) is mandated by the *Federal Sustainable Development Act*, (FSDA) (Government of Canada 2008) which received Royal Assent on June 26, 2008. The purpose of the FSDA is "to provide the legal framework for developing and implementing a Federal Sustainable Development Strategy that will make environmental decision-making more transparent and accountable to Parliament" (Sec.3). In October 2010, the report titled "Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada" (Environment Canada 2010) was published. Updated in 2013, it contains the Federal Sustainable Development Themes which are set out in Appendix A, Table 23A-2. A description of how the Project addressed each relevant theme is provided in Appendix B, Table 23B-2.

23.4.3 Manitoba Hydro

The Corporation adopted a Sustainable Development Policy and 13 Sustainable Development Principles (Appendix 23A). These principles were based on the Principles and Guidelines of Sustainable Development adopted by the Manitoba Round Table on Environment and Economy and subsequently adopted pursuant to *The Sustainable Development Act*.

The policy and the 13 principles represent a guiding influence for Manitoba Hydro's decisions, actions and day-to-day operations. In all aspects of this Project, Manitoba Hydro will operate within its Policy and Principles and Guidelines of Sustainable Development.

Manitoba Hydro's Sustainable Development Policy is:

"Manitoba Hydro will apply the principles of sustainable development in all aspects of its operations to achieve environmentally sound and sustainable economic development. Through its decisions and actions to provide electrical services, the Corporation will endeavour to meet the needs of the present without compromising the ability of future generations to meet their needs." (Manitoba Hydro Sustainable Development Policy 1993).

A discussion of the application of the Manitoba Hydro Principles of Sustainable Development in the planning and development of the Project is provided in Appendix B, Table 23B-1.

23.4.4 Summary of Consistency

Tables 23B-1 and 23B-2 provide comments respecting the consistency of the Project with each of the specific principles, guidelines and themes of sustainable development adopted by the federal and provincial governments and Manitoba Hydro. As shown in these tables, construction and operation of the MMTP is consistent with these principles, guidelines and themes, thus meeting the federal and provincial sustainable development criteria.

In addition to demonstrating consistency with the specific principles, guidelines and themes of the Project as indicators of sustainable development in Manitoba, the following summary organizes information according to the traditional pillars of sustainable development: environment, economy and social considerations.

23.4.4.1 Environment

Manitoba Hydro's transmission line routing process and the environmental protection measures developed for this Project are consistent with sustainable development. The transmission line routing process accommodated environmental, social and economic considerations in decision-making and resulted in the identification of a preferred route from among hundreds of thousands of route segment options. The routing process represents a balanced approach using quantitative, objective analysis and extensive engagement with interested and potentially affected people and communities. In addition, the routing process for the Project (based on EPRI-GTC methodology discussed in Chapter 5) used geospatial information and associated criteria to evaluate alternative routes that was able to incorporate multiple complex considerations from technical, built (socioeconomic) and natural (environmental) perspectives. Prior to developing routes, Areas of Least Preference were defined. For this Project, these included legally protected Wildlife Management Areas, ecological reserves, proposed ecological reserves and First Nation reserve lands. Criteria were used to represent environmental features that are important to consider (such as wildlife habitat or stream crossings), and route alternatives are compared using these criteria to highlight the relative strengths and weaknesses of each route.

As indicated previously, the Manitoba Government recently adopted a Green Plan that sets out the Government's current intentions for achieving a sustainable future. "Tomorrow Now: Manitoba's Green Plan", integral to Manitoba's sustainable development strategy, commits the

province to the generation of hydroelectric energy development as its preferred energy source. The Plan explicitly includes the use of clean energy from hydropower, including the export of surplus as a strategy for low domestic rates for all Manitoba users. The MMTP is integral to implementation of that explicit government plan. According to the International Institute of Sustainable Development website: “In recent years, climate change has come to be viewed as a core development challenge that carries potentially serious implications for international peace and security” (International Institute of Sustainable Development 2015). Climate change is the topic of international and national forums seeking to coordinate efforts to mitigate its progress and adapt to its effects. To this end, a vital component of all climate change strategies is the discussion of the release of GHGs into the environment. Exporting hydroelectricity from Manitoba to U.S. markets will displace energy from gas and coal generated electricity, primarily in the U.S. Midwest, thus contributing to substantial GHG reduction. For example, the energy produced from a hydro generation station the size of the Keeyask station alone could displace 30 million tons of carbon dioxide equivalent during the first 10 years of operation (Pembina Institute 2012). MMTP will enable transmission of power from hydroelectric sources in Manitoba to more carbon intense markets in the U.S. Over a wide range of potential future scenarios LCA indicates that the MMTP is expected to produce an overall net reduction in global GHG emissions (Pembina Institute 2015). The MMTP provides an alternative source of energy than MB fossil generation in low flow conditions. The corresponding displacement of GHG emissions provides benefits to both corporate and provincial GHG emission profiles. Additionally, the MMTP will likely influence higher levels of global GHG emission reductions if further hydropower is developed in MB.

23.4.4.2 Economy

One of the key drivers of this Project is to assist in maintaining low Manitoba electricity rates. A long-time and successful strategy of Manitoba Hydro to provide hydroelectricity in an affordable manner has been to build generating capacity in advance of domestic need and to export the surplus power to fund a significant portion of the infrastructure costs. This strategy has allowed Manitoba Hydro to offer among the lowest rates in North America on a consistent basis, providing the province with a major incentive for industrial development, thus encouraging economic development with minimal environmental footprint. The MMTP is integral to the continuation of that successful developmental strategy.

An important component of sustainability for Manitoba is the assurance of consistent supply of affordable electricity to power economic and residential needs. A key Project purpose is to enable both the export of power and its import during times of drought. The ability to import energy in times of domestic power deficit from unusually high demand or due to extreme weather requirements (including drought conditions) mitigates the risk of brownouts/blackouts in Manitoba. The MMTP provides capability to import energy from the US in such times of need.

23.4.4.3 Social

The balancing of socioeconomic and environmental issues is a key component of sustainable development. This is accomplished using sound scientific practices with well-planned and inclusive stakeholder engagement processes, ideally providing net benefits for several generations. This Project meets these socioeconomic requirements.

A recognized standard for sustainable development and one of the Manitoba Guidelines for Sustainable Development is effective Public Participation. The Manitoba Guideline emphasizes equal and timely access to information, forums for meaningful participation in decision making, due process with prior notification and appropriate and timely redress for those adversely affected by developments. These actions strive to achieve consensus amongst citizens on decisions affecting them. Manitoba Hydro's comprehensive, multi-year engagement process is informed by regulatory requirements as well as related guidance from the International Association of Public Participation (IAP2), and the International Association of Impact Assessment (IAIA) (see Appendices 23C and 23D for further information related to this guidance). The process used is consistent with the National Energy Board (NEB) Consultation guidance contained in Sections 5.1 and 5.2 of the Electricity Filing Manual (National Energy Board 2015) (Appendix 23E). Engagement was tailored to the needs of the diverse characteristics and interests of potentially affected and interested people in the area. Generally, the intensity of the public engagement increased with the level of interest and potential effect of the Project.

According to the World Commission on Environment and Development, one of the touchstones of sustainable development policy is the empowerment of vulnerable indigenous peoples who have often been left out of processes of economic development into remote regions (Brundtland 1987). Manitoba Hydro has undertaken a First Nations and Metis Engagement Process Program (see Chapter 4) throughout the MMTP planning/EA process. Eleven First Nations, the MMF and four Aboriginal Organizations were invited to participate in the Project. There has been various degrees of participation in the process based on their stated desired level of engagement, ranging from introductory leadership meetings to extensive ongoing discussions, open houses and leadership meetings. In addition to engagement activities, Manitoba Hydro offered First Nations and the MMF the opportunity to conduct self-directed Aboriginal Traditional Knowledge (ATK) studies or land use and occupancy studies by providing funding for these studies. Four such studies were received before EIS submission:

- Black River First Nation, Long Plain First Nation, Swan Lake First Nation Aboriginal Traditional Knowledge Study Community Report (2015).
- Draft Report to Peguis First Nation and Manitoba Hydro – Peguis First Nation Land Use and Occupancy Interview Project for the Manitoba-Minnesota Transmission Project (2015).
- Roseau River Anishinabe First Nation Aboriginal Traditional Knowledge Report (2015).

During the finalization of the EIS, Sagkeeng First Nation submitted their final report, which will help inform the EPP:

- SAGKEENG O-PIMATIZIIWIN 2 Traditional Knowledge Study - Manitoba-Minnesota Transmission Line Project.

The anticipated studies to be conducted by Dakota Plains First Nation, Dakota Tipi First Nation, and the MMF will help inform the EPP for the Project.

The routing process for the Project was developed specifically for siting overhead electricity transmission lines and allows for the incorporation of feedback from the Public and First Nation and Metis Engagement Processes, and stakeholders at multiple stages. The Public and First Nations and Metis Engagement Processes (see EIS Chapters 3 and 4) were designed to feed information into the various stages of the routing process. Information gained through these processes has been incorporated in informing route selection as well as informing the environmental assessment.

Intergenerational equity is a fundamental tenet of sustainable development – the ability of current and future generations to meet their own needs. Today's planning should include consideration to benefit and provide opportunities for future, as well as the current generation. The 100 year plus lifespan of hydro generating stations provides multiple generations with stable electricity production as compared with shorter life spans associated with wind and gas powered generation. With appropriate maintenance, the MMTP, and its associated export/import potential, will facilitate planning and provide long term power security that benefits Manitobans for many generations.

23.5 Conclusion

The Manitoba Minnesota Transmission Project is a sustainable development. It is consistent with federal, provincial, and Manitoba Hydro approaches to sustainable development, and, it:

- contributes to Manitoba's sustainability;
- effectively engaged Manitobans in the planning and EA processes consistent with best practice and the NEB Electricity Filing Manual guidelines for public participation;
- is consistent with recognized principles and guidelines of sustainable development; and
- is integral to the implementation of the Manitoba Government's Tomorrow Now policy and plan to achieve sustainability in Manitoba.

23.6 References

Brundtland, G.H., and World Commission on Environment and Development. 1987. Our Common Future: Report of the World Commission On Environment and Development. Oxford University.

Environment Canada. 2010. Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada.

Environment Canada. 2013. Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada. Sustainable Development Office Available at: https://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1.

Government of Manitoba. 2014. Terms of Reference Needs For and Alternatives To (NFAT) Review for Manitoba Hydro's proposed preferred development plan for the Keeyask and Conawapa Generating Stations, their associated domestic AC transmission facilities and a new Canada-USA transmission interconnection.

Government of Canada. 2008. Federal Sustainable Development Act. Available at: http://laws-lois.justice.gc.ca/PDF/F-8.6.pdf. Accessed February 2015.

Government of Manitoba. 1998. *The Sustainable Development Act.* Available at: https://web2.gov.mb.ca/laws/statutes/ccsm/s270e.php. Accessed April 2015.

International Institute of Sustainable Development. 2015. Website under "Climate Change and Security", Accessed June 19, 2015 at: https://www.iisd.org/ecp/es/climate/.

Manitoba Conservation and Water Stewardship. 2014. Tomorrow Now: Manitoba's Green Plan, 2nd Edition, Page 6. Accessed at: http://www.gov.mb.ca/conservation/tomorrownowgreenplan/pdf/tomorrownow_v2.pdf.

Manitoba Hydro. 2013. Preferred Development Plan Needs For and Alternatives To (NFAT) submission to the Manitoba Public Utilities Board (PUB), August 2013.

Manitoba Hydro Sustainable Development Policy, 1993. Available at: https://www.hydro.mb.ca/environment/env_management/sdp.shtml.

Manitoba Public Utilities Board. 2014. Needs For And Alternatives To (NFAT) Review of Manitoba Hydro's Preferred Development Plan – Final Report June 20, 2014, page 248.

National Energy Board. 2015. Electricity Filing Manual.

The Pembina Institute. 2012. A Life Cycle Assessment of Greenhouse Gases and Select Criteria Air Contaminants. Accessed June 19, 2015 at http://www.hydro.mb.ca/projects/development_plan/bc_documents/documents/appendix_7.4_keeyask_life_cycle_report.pdf.

Constitution Act. 1982, Sec 35.

Appendix 23A
Sustainable Development Guidelines, Principles and Goals – Manitoba, Manitoba Hydro and Canada

23A Sustainable Development Guidelines, Principles and Goals

In 1998, the Province of Manitoba established *The Sustainable Development Act* in order to create a framework through which sustainable development is implemented in the provincial public sector and promoted in private industry and society generally. Schedule A and B of the Act outline the Principles and Guidelines, and are as follows:

Table 23A-1 Principles of Sustainable Development – from Schedule A of the *Sustainable Development Act* (Manitoba)

Number	Manitoba Principles of Sustainable Development
1	**Integration of Environmental and Economic Decisions** (1) Economic decisions should adequately reflect environmental, human health and social effects. (2) Environmental and health initiatives should adequately take into account economic, human health and social consequences.
2	**Stewardship** (1) The economy, the environment, human health and social well-being should be managed for the equal benefit of present and future generations. (2) Manitobans are caretakers of the economy, the environment, human health and social well-being for the benefit of present and future generations. (3) Today's decisions are to be balanced with tomorrow's effects.
3	**Shared Responsibility and Understanding** (1) Manitobans should acknowledge responsibility for sustaining the economy, the environment, human health and social well-being, with each being accountable for decisions and actions in a spirit of partnership and open cooperation. (2) Manitobans share a common economic, physical and social environment. (3) Manitobans should understand and respect differing economic and social views, values, traditions and aspirations. (4) Manitobans should consider the aspirations, needs and views of the people of the various geographical regions and ethnic groups in Manitoba, including aboriginal peoples, to facilitate equitable management of Manitoba's common resources.

Number	Manitoba Principles of Sustainable Development
4	**Prevention** Manitobans should anticipate, and prevent or mitigate, significant adverse economic, environmental, human health and social effects of decisions and actions, having particular careful regard to decisions whose impacts are not entirely certain but which, on reasonable and well-informed grounds, appear to pose serious threats to the economy, the environment, human health and social well-being.
5	**Conservation and Enhancement** Manitobans should (a) maintain the ecological processes, biological diversity and life-support systems of the environment; (b) harvest renewable resources on a sustainable yield basis; (c) make wise and efficient use of renewable and non-renewable resources; and (d) enhance the long-term productive capability, quality and capacity of natural ecosystems.
6	**Rehabilitation and Reclamation** Manitobans should (a) endeavour to repair damage to or degradation of the environment; and (b) consider the need for rehabilitation and reclamation in future decisions and actions.
7	**Global Responsibility** Manitobans should think globally when acting locally, recognizing that there is economic, ecological and social interdependence among provinces and nations, and working cooperatively, within Canada and internationally, to integrate economic, environmental, human health and social factors in decision-making while developing comprehensive and equitable solutions to problems.

Table 23A-2 Guidelines for Sustainable Development – from Schedule B of the *Sustainable Development Act* (Manitoba)

Number	Manitoba Guidelines for Sustainable Development
1	**Efficient Use of Resources** - which means (a) encouraging and facilitating development and application of systems for proper resource pricing, demand management and resource allocation together with incentives to encourage efficient use of resources; and (b) employing full-cost accounting to provide better information for decision makers.
2	**Public Participation** - which means (a) establishing forums which encourage and provide opportunity for consultation and meaningful participation in decision making processes by Manitobans; (b) endeavouring to provide due process, prior notification and appropriate and timely redress for those adversely affected by decisions and actions; and (c) striving to achieve consensus amongst citizens with regard to decisions affecting them.
3	**Access to Information** - which means (a) encouraging and facilitating the improvement and refinement of economic, environmental, human health and social information; and (b) promoting the opportunity for equal and timely access to information by all Manitobans.
4	**Integrated Decision Making and Planning** - which means encouraging and facilitating decision making and planning processes that are efficient, timely, accountable and cross-sectoral and which incorporate an inter-generational perspective of future needs and consequences.
5	**Waste Minimization and Substitution** - which means (a) encouraging and promoting the development and use of substitutes for scarce resources where such substitutes are both environmentally sound and economically viable; and (b) reducing, reusing, recycling and recovering the products of society.
6	**Research and Innovation** - which means encouraging and assisting the researching, development, application and sharing of knowledge and technologies which further our economic, environmental, human health and social well-being.

In 1993, Manitoba Hydro adopted a sustainable development policy and 13 complementary guiding principles based on the principles and guidelines of sustainable development adopted by the Manitoba Round Table on Environment and Economy. The policy and 13 principles represent a guiding influence for decisions, actions, and day-to-day operations, and are provided below:

"We will apply the principles of sustainable development in all aspects of our operations to achieve environmentally sound and sustainable economic development. Through our decisions and actions to provide electrical services, we will endeavour to meet the needs of the present without compromising the ability of future generations to meet their needs."

Table 23A-3 Manitoba Hydro Sustainable Development Guiding Principles

Number	Manitoba Hydro Guiding Principles
1	**Stewardship of the economy and the environment** Recognize its responsibility as a caretaker of the economy and the environment for the benefit of present and future generations of Manitobans. Meet the electricity needs of present and future Manitobans in a manner that ensures the long-term integrity and productivity of our economy, our environment, our natural resources and safeguards our human health.
2	**Shared responsibility** Ensure that Manitoba Hydro's employees, contractors, and agents are aware of our sustainable development policies and guiding principles and encourage them to act accordingly. Encourage the Corporation's employees to share their knowledge of the concepts and practical application of sustainable development.
3	**Integration of environmental and economic decisions** Treat technical, economic and environmental factors on the same basis in all corporate decisions, from initial planning to construction to operations to decommissioning and disposal. To the extent practical, include environmental costs in economic and financial analysis.
4	**Economic enhancement** Enhance the productive capability and quality of Manitoba's economy and the well-being of Manitobans by providing reliable electrical services at competitive rates.
5	**Efficient use of resources** Encourage the development and application of programs and pricing mechanisms for efficient and economic use of electricity by our customers. As well, efficient and economic use of energy and materials will be encouraged throughout all our operations.

Number	Manitoba Hydro Guiding Principles
6	**Prevention and remedy** To the extent practical, anticipate and prevent adverse environmental and economic effects that may be caused by Corporate policies, programs, projects and decisions rather than reacting to and remedying such effects after they have occurred. Purchase, where practical, environmentally sound products taking into account the life cycle of the products. Address adverse environmental effects of Corporate activities that cannot be prevented by: • endeavouring, wherever feasible, to restore the environment to pre-development conditions or developing other beneficial uses through rehabilitation and reclamation; • striving to replace the loss with substitutes that would enhance the environment and/or associated resource uses while offsetting the type of damage experienced; • making monetary payments for compensable damages on a fair, equitable and timely basis. • Give preference, where practical, to projects and operating decisions that use renewable resources or that extend the life of supplies of non-renewable resources.
7	**Conservation** To the extent practical, plan, design, build, operate, maintain and decommission Corporate facilities in a manner that protects essential ecological processes and biological diversity.
8	**Waste minimization** Manage all wastes arising from Corporate activities by: • endeavouring to eliminate or reduce the amount generated; • striving to fully utilise reuse and recycling opportunities; • disposing of remaining waste in an environmentally sound manner.
9	**Access to adequate information** Share relevant information on a timely basis with employees, interested people and governments to promote a greater understanding of Manitoba Hydro's current and planned business activities and to identify impacts associated with the Corporation's plans and operations.
10	**Public participation** Provide opportunities for input by potentially affected and interested parties when evaluating development and program alternatives and before deciding on a final course of action.

Number	Manitoba Hydro Guiding Principles
11	**Understanding and respect** Strive to understand and respect differing social and economic views, values, traditions and aspirations when deciding upon or taking action.
12	**Scientific and technological innovation** Research, develop, test and implement technologies, practices and institutions that will make electrical supply and services more efficient, economic and environmentally sound.
13	**Global responsibility** Recognize there are no political and jurisdictional boundaries to our environment, and that there is ecological interdependence among provinces and nations. Consider environmental effects that occur outside of Manitoba when planning and deciding on new developments and major modifications to facilities and to methods of operation.

Canada

In 2008, the Government of Canada passed the Federal Sustainable Development Act. The Act's purpose is "to provide the legal framework for developing and implementing a Federal Sustainable Development Strategy (FSDS) that will make environmental decision-making more transparent and accountable to Parliament". The Act requires one comprehensive Federal Sustainable Development Strategy representing all of government, with Departmental Sustainable Development Strategies contributing to its objectives. The 2013-16 Federal Sustainable Development Strategy (2013-16 Strategy) includes four priority themes:

- Theme I. Addressing Climate Change and Air Quality;
- Theme II. Maintaining Water Quality and Availability;
- Theme III. Protecting Nature and Canadians; and
- Theme IV. Shrinking the Environmental Footprint – Beginning with Government.

The 2013-16 Strategy sets out one or more goals within each of its four themes.

Table 23A-4 Canada Sustainable Development Themes and Goals

Theme	Goals
1	**Goal 1**: Climate Change – In order to mitigate the effects of climate change, reduce greenhouse gas emission levels and adapt to unavoidable impacts. **Goal 2**: Air Pollution – Minimize the threats to air quality so that the air Canadians breathe is clean and supports healthy ecosystems.
2	**Goal 3**: Water Quality and Water Quantity – Protect and enhance water so that it is clean, safe and secure for all Canadians and supports healthy ecosystems.
3	**Goal 4**: Conserving and Restoring Ecosystems, Wildlife and Habitat, and Protecting Canadians – Resilient ecosystems with healthy wildlife populations so Canadians can enjoy benefits from natural spaces, resources and ecological services for generations to come. **Goal 5**: Biological Resources – Efficient economic and ecological use of resources – Production and consumption of biological resources are sustainable.
4	**Goal 6:** GHG Emissions and Energy – Reduce the carbon footprint and energy consumption of federal operations. **Goal 7**: Waste and Asset Management – Reduce waste generated and minimize the environmental impacts of assets throughout their life-cycle. **Goal 8**: Water Management – Improve water management in federal operations.

Appendix 23B
Sustainable Development Principles, Guidelines and Themes
Project Analysis – Manitoba, Manitoba Hydro and Canada

Table 23B-1 Sustainable Development Analysis

Manitoba Hydro Sustainable Development Principles	Manitoba Principles and Guidelines	Means of Achieving Guideline or Principle (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
Stewardship of the Economy and the Environment: *Recognize its responsibility as a caretaker of the economy and the environment for the benefit of present and future generations of Manitobans. Meet the electricity needs of present and future Manitobans in a manner that ensures the long-term integrity and productivity of our economy, our environment and our natural resources, and safeguards our human health.*	**Stewardship Principle:** *The economy, environment, human health and social well-being should be managed for the equal benefit of present and future generations. Manitobans are caretakers of the economy, the environment, human health and social well-being for the benefit of present and future generations. Today's decisions are to be balanced with tomorrow's effects.*	MMTP-specific means of achieving Principle: • Manitoba Hydro has employed a robust routing process that seeks to balance considerations from environmental, social and technical perspectives. The route selection process narrowed down route possibilities from approximately 700,000 options to the final preferred route by comprehensive analyses of dozens of environmental and social variables pertaining to the economic, social and environmental future of Manitobans, with emphasis on the area affected by the proposed line. • The MMTP enables economic and energy-supply security by accessing nearby energy markets in times of excess power, and by facilitating the import of power in times of shortage, such as during drought conditions. This flexibility builds system resilience and assurances to future generations. • Benefits from the Project are long-term, secure, affordable electricity with minimal adverse effects. Manitoba Hydro-specific means of achieving Principle • With a mandate to meet the electricity needs of present and future generations, Manitoba Hydro has committed to generating hydroelectric power as a clean energy source and uses a developmental timeline that provides for export opportunities to sell the surplus power prior to domestic need in order to generate revenue that will offset construction costs. Manitoba Hydro recognizes the possibility of potential drought years with consequent low water levels and decreased power production and the resulting periodic need to import power. • Affordable and reliable electricity is fundamental to all sectors of modern society. Manitoba Hydro's current weighted-average retail electricity price for all customer classes (as compared to other low-cost jurisdictions and neighbouring utilities), demonstrates that Manitoba Hydro has among the lowest average retail electricity rates in North America. While Manitoba Hydro plans to gradually increase rates to pay for its increased investment in generation, transmission and distribution infrastructure, the electrical rate advantage enjoyed by energy consumers in Manitoba over those in most other jurisdictions is expected to continue into the future

Manitoba Hydro Sustainable Development Principles	Manitoba Principles and Guidelines	Means of Achieving Guideline or Principle (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
Shared Responsibility: *Ensure that Manitoba Hydro's employees, contractors, and agents are aware of our sustainable development policies and guiding principles and encourage them to act accordingly. Encourage the Corporation's employees to share their knowledge of the concepts and practical application of sustainable development.* **Understanding and Respect:** *Strive to understand and respect differing social and economic views, values, traditions and aspirations when deciding upon or taking action. Give preference to those alternatives which best fulfill Corporate objectives while minimizing infringement on the ability, rights, and interests of others to pursue their aspirations.*	**Shared Responsibility and Understanding Principle:** *Manitobans should acknowledge responsibility for sustaining the economy, the environment, human health and social wellbeing, with each being accountable for decisions and actions in a spirit of partnership and open cooperation. Manitobans share a common economic, physical and social environment. Manitobans should understand and respect differing economic and social views, values, traditions and aspirations. Manitobans should consider the aspirations, needs and views of the people of the various geographical regions and ethnic groups in Manitoba, including Aboriginal peoples, to facilitate equitable management of Manitoba's common resources.*	MMTP-specific means of achieving Principle • All contractors for the Project will be provided with Project-relevant information that incorporates the application of the principles and guidelines in this document. Manitoba Hydro oversight of the Project will include compliance measures associated with regulatory and policy standards for Project construction and operation as well as in the associated monitoring and follow-up programs. • The Public and First Nations and Metis Engagement Processes sought to hear and understand the diverse views within the project area and to respond to those views with respect, and where feasible, mitigate concerns. As an example, the process was begun with a broad notification introducing the process and asking how interested parties would like to be involved. Efforts were made to tailor the engagement process to meet their needs. Use of multiple rounds of engagement with multiple venues and opportunities to provide input allowed a wide audience to participate. In this way, interested and affected Manitobans were involved in the process of routing the line. Economic, environmental, human health and social wellbeing considerations were integral to the decision process. • The criteria used to evaluate and ultimately select routes included criteria informed by stakeholders as well as corporate informed values, representing a harmonizing of objectives. • Manitoba Hydro supported the development of Aboriginal Traditional Knowledge studies with communities interested in sharing knowledge of the historical and contemporary use and value of the project area. Manitoba Hydro-specific means of achieving Principle • Major Manitoba Hydro projects are subject to an inclusive government decision-making process that includes environmental assessment for environmental and social considerations and the Public Utilities Board process for economic and financial considerations. Both the environmental assessment and the Public Utilities Board processes provide participant funding. • The benefits of electricity generation are distributed across the province with all Manitobans having access to electricity, with over 97 percent coming from hydropower. In the course of producing and distributing hydroelectricity, Manitoba Hydro invites interested Manitobans to participate in engagement programs that provide an opportunity to understand and influence the projects,
	Integration of Environmental and Economic Decisions Principle: *Economic decisions should adequately reflect environmental, human health and social effects. Environmental and health initiatives should adequately take into account economic, human health and social consequences*.	MMTP-specific means of achieving Principle • The MMTP is integral to The Manitoba Hydro Development Plan designed to provide long-term electricity benefits to Manitoba and export customers and to enhance quality of life through provision of clean, affordable energy. MMTP has been the subject of public debate as part of the Public Utilities Board review of Manitoba Hydro's Preferred Development Plan. The PUB has recommended that it proceed. • The MMTP is also the subject of comprehensive environmental and social scrutiny pursuant to legislative requirements of provincial and federal governments. Approvals are required from both the provincial and federal government. • The route selection process was designed to balance social, environmental and technical considerations. Manitoba Hydro-specific means of achieving Principle • Hydroelectric energy is a less polluting, healthier option than coal and gas,and the main alternatives for generating electricity in the mid-continent market area.

Manitoba Hydro Sustainable Development Principles	Manitoba Principles and Guidelines	Means of Achieving Guideline or Principle (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
	Provincial Guideline on Integrated Decision-Making and Planning: *Encouraging and facilitating decision making and planning processes that are efficient, timely, accountable and cross-sectoral and which incorporate an inter-generational perspective of future needs and consequences*	MMTP-specific means of achieving Guideline • The MMTP is a component of the Development Plan that is designed to anticipate and respond to future needs for electricity in Manitoba. By its nature, the planning is intergenerational and timely. It has been subjected to extensive public review by the PUB and is subject to environmental assessment pursuant to both provincial and federal legislation. These public reviews assure the planning process is accountable and cross sectorial. • MMTP is expected to operate indefinitely through ongoing maintenance and refurbishment, providing continuing transmission of power to export markets. Manitoba Hydro-specific means of achieving Guideline • As a Crown Corporation, Manitoba Hydro is committed to being an outstanding corporate citizen by aspiring to create positive relationships with customers, employees and all stakeholders. The Corporation works closely with economic development agencies to attract new business, encourage expansion of existing businesses and to retain existing customers. Through purchasing, investments and job creation, Manitoba Hydro is a significant contributor to economic development in communities province-wide. Manitoba Hydro invests in a powerful future for Manitoba by ensuring the next generation will continue to enjoy the benefits of affordable, reliable and sustainable electricity when they need it. Manitoba Hydro has the following operating principles: o Work together for the success of the organization as a whole, recognizing that all our activities are interrelated. o Establish long-term cooperative relationships with all employees, customers, suppliers and other stakeholders, aimed at achieving our shared Vision. o Create a working environment that removes barriers to effective performance and which fosters mutual respect, trust and open communication. o Promote a safety-focused culture in which all employees support and demonstrate safe work behaviors. o Provide opportunities for all employees to develop their full potential, recognizing people's inherent desire to do their best. o Measure outcomes, develop an understanding of the causes of variation from planned performance and take appropriate action. o Drive continuous improvement by identifying opportunities to streamline processes and improving efficiencies across the organization as a whole.

Manitoba Hydro Sustainable Development Principles	Manitoba Principles and Guidelines	Means of Achieving Guideline or Principle (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
Conservation: *To the extent practical, plan, design, build, operate, maintain and decommission Corporate facilities in a manner that protects essential ecological processes and biological diversity. Give preference, where practical, to projects and operating decisions that use renewable resources or that extend the life of supplies of non-renewable resources*	**Conservation and Enhancement Principle:** *Manitobans should: (a) maintain the ecological processes, biological diversity and life-support systems of the environment; (b) harvest renewable resources on a sustainable yield basis; (c) make wise and efficient use of renewable and non-renewable resources; and d) enhance the long-term productive capability, quality and capacity of natural ecosystems.*	MMTP-specific means of achieving Principle • The hydropower being transmitted utilizes a renewable resource, thus assisting in the conservation of non-renewable resources such as gas or coal that otherwise would be used to generate the electricity being replaced by the power being exported from Manitoba. • The transmission line routing and environmental assessment processes were designed specifically to consider the ecological processes, biological diversity and life support systems of the environment. Information from both western technical science and traditional knowledge aided in these decisions. • Key person interviews were conducted with regulators, and knowledge holders in the field of Conservation. Interview feedback helped shape field programs, assessment focus and project design. • On a more site-specific level, tower placement (tower spotting) takes into consideration things like span length, sensitive sites, landowner feedback, road and driveway crossings, and terrain to improve aesthetics and minimize ecological effect when possible. The route selection process was designed to balance socioeconomic, natural and technical considerations and minimize overall effects. Manitoba Hydro-specific means of achieving Principle • The Manitoba Hydro planning process, in conjunction with the Public Utilities Board and the legislated environmental assessment processes, anticipates, prevents and mitigates adverse environmental effects, including to essential ecological processes and biological diversity, of developments, including the MMTP. • Over 97% of electricity generated in Manitoba utilizes flowing water (a renewable resource) without affecting the supply of water. It does not consume non-renewable resources. • The transmission line routing process is specifically designed to consider wildlife habitat, wetlands, sensitive riparian areas, and other environmentally sensitive areas. Through the route selection process, alternative routes that would have traversed large tracts of relatively intact, undisturbed crown lands with high levels of biodiversity and environmental value were eliminated from further consideration.

Manitoba Hydro Sustainable Development Principles	Manitoba Principles and Guidelines	Means of Achieving Guideline or Principle (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
Prevention and Remedy: *To the extent practical, anticipate and prevent adverse environmental and economic effects that may be caused by Corporate policies, programs, projects and decisions rather than reacting to and remedying such effects after they have occurred. Purchase, where practical, environmentally sound products taking into account the life cycle of the products.* *Address adverse environmental effects of Corporate activities that cannot be prevented by:* *• First, endeavouring, wherever feasible, to restore the environment to pre-development conditions or developing other beneficial uses through rehabilitation and reclamation;* *• Second, striving to replace the loss with substitutes that would enhance the environment and/or associated resource uses while offsetting the type of damage experienced; and* *• Third, making monetary payments for compensable damages on a fair, equitable and timely basis*	**Prevention Principle:** *Manitobans should anticipate, and prevent or mitigate, significant adverse economic, environmental, human health and social effects of decisions and actions, having particular careful regard to decisions whose impacts are not entirely certain but which, on reasonable and well-informed grounds, appear to pose serious threats to the economy, the environment, human health and social well-being.*	MMTP-specific means of achieving Principle • The transmission line routing analysis has narrowed the routing options from about 700,000 down to the final preferred route, specifically using parameters and criteria to anticipate and prevent threats to the economy, the environment, human health and social well-being. • Using a precautionary approach, the assessment of Project effects on the economy, environment, human health and social well-being has taken a conservative approach where worst-case scenarios are assumed to occur and mitigation measures developed to address the effects of such scenarios. In reality, the effects are expected to be less than the worst case and the proposed measures are expected to adequately mitigate the effects. Monitoring and other follow-up programs will be undertaken, as required, to test predictions and make adjustments as necessary. • Where effects cannot be prevented, such as actual tower placement on private lands, monetary compensation is provided through the Landowner Compensation Program (see Chapter 3). • Part of Manitoba Hydro's commitment to environmental protection includes a comprehensive Construction Environmental Protection Plans (CEnvPPs) specific to the Project. The CEnvPPs provide general and specific environmental protection information for project components and are intended for use by construction contractors and environmental staff Manitoba Hydro-specific means of achieving Principle • The Manitoba Hydro planning process, in conjunction with the Public Utilities Board and the legislated environmental assessment processes, anticipate, prevent and mitigate adverse environmental and economic effects of developments, including the MMTP.
Waste Minimization: *Manage all wastes arising from Corporate activities by:* *first, endeavouring to eliminate or reduce the amount generated; second, striving to fully utilize reuse and recycling opportunities; and third, disposing of remaining waste in an environmentally sound manner.*	**Provincial Guideline on Waste Minimization and Substitution:** *Encouraging and promoting the development and use of substitutes for scarce resources where such substitutes are both environmentally sound and economically viable; and reducing, reusing, recycling and recovering the products of society.*	MMTP-specific means of achieving Principle and Guideline • Manitoba Hydro recognizes the need to proactively address the issue of waste management. A framework will be provided to guide contractors in the preparation and implementation of a Waste and Recycling Plan to manage waste generation and disposal. The goal of the Waste and Recycling Plan is to reduce the amount of waste disposed at landfills while optimizing waste reduction, reuse and recycling activities. To obtain this goal, Plans will include strategies related to waste minimization and avoidance, appropriate waste treatment and the applicable handling, storage, collection, recycling and disposal of waste. Plans must be submitted for approval by the contractor to the Senior Environmental Assessment Officer in the Transmission Line Construction Department or the Senior Environmental Specialist for New Generation Construction • There are negligible operational wastes associated with electrical transmission Manitoba Hydro-specific means of achieving Principle and Guideline • In all projects, MH addresses waste management consistent with the MH Waste Minimization principle: "first, endeavouring to eliminate or reduce the amount generated; second, striving to fully utilize reuse and recycling opportunities; and third, disposing of remaining waste in an environmentally sound manner".

Manitoba Hydro Sustainable Development Principles	Manitoba Principles and Guidelines	Means of Achieving Guideline or Principle (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
Efficient Use of Resources: *Encourage the development and application of programs and pricing mechanisms for efficient and economic use of electricity by our customers. As well, efficient and economic use of energy and materials will be encouraged throughout all our operations.*	**Provincial Guideline on Efficient Use of Resources:** *Encouraging and facilitating development and application of systems for proper resource pricing, demand management and resource allocation together with incentives to encourage efficient use of resources; and employing full-cost accounting to provide better information for decision makers.*	MMTP-specific means of achieving Principle and Guideline • The Project is specifically related to the provision of affordable power for Manitoba consumers by facilitating the sale of surplus power to offset capital costs of its generation in advance of domestic need. Through its Power Smart Programs, Manitoba Hydro maximizes the amount of power available for export while supporting efficient use of electricity domestically. • The Project will be operated as part of Manitoba Hydro's integrated generation and transmission systems, allowing for peak efficiency and optimum water usage for all generating stations. • The Project is an efficient use of a renewable resource that displaces the use of gas and coal which are the main sources of electricity in the mid-continent market area. Manitoba Hydro-specific means of achieving Principle and Guideline • While Manitoba Hydro's low domestic electricity rates may encourage consumption, it has an exceptionally strong program to explicitly encourage customers to be efficient in the use of electricity. In fact, the Manitoba Hydro Power Smart Program is recognized as a national leader for transforming the market through its ongoing commitment to promote energy efficient products and practices. • Further demand side management initiatives will be developed and implemented in the future.
Public Participation: *Provide opportunities for input by potentially affected and interested parties when evaluating development and program alternatives and before deciding on a final course of action*	**Provincial Guideline on Public Participation:** *Establishing forums which encourage and provide opportunity for consultation and meaningful participation in decision making processes by Manitobans; endeavouring to provide due process, prior notification and appropriate and timely redress for those adversely affected by decisions and actions; and striving to achieve consensus amongst citizens with regard to decisions affecting them.*	MMTP-specific means of achieving Principle and Guideline • During the transmission line routing process considerable effort has been made to include Manitobans in a meaningful way, including explaining the process and opportunities to provide input and influence decisions – early on, and at key milestones, with regular communications to explain decisions and compromises made among various inputs and requests. • MH undertook an extensive Public Engagement Process and a First Nation and Metis Engagement Process as described in Chapters 3 and 4 respectively. Three rounds of engagement provided opportunity for input at key Project stages: reviewing alternative routes and proposed border crossings; reviewing refined alternative routes and a preferred border crossing; and reviewing Hydro's preferred route, respectively. Decisions made leading to each stage of development were informed by the previous round of engagement. Manitoba Hydro provided opportunities for the following participants to engage in the engagement processes including First Nations, the MMF, Aboriginal Organizations, municipalities, stakeholders, landowners and the interested general public. • Manitoba Hydro used multiple communication media to identify, inform and involve interested First Nations, the MMF and the public in the planning and environmental assessment processes, including websites, newsletters, leadership meetings, open houses, information sessions, stakeholder meetings, and meetings with individual landowners (see Chapter 3 and 4). • Efforts have been made throughout the process to accommodate the concerns identified by the participants. Adjustments were made to the preferred route to mitigate concerns raised where possible (outlined in Chapter 5) . Many of the criteria informing the selection from 700,000 potential routes to the final recommendation resulted from understanding the concerns of the public and stakeholders. For example, proximity to homes and public use areas are criteria used to compare routing options Manitoba Hydro-specific means of achieving Principle and Guideline • The Public and First Nation and Metis engagement processes are an integral component of Manitoba Hydro's development planning process.

Manitoba Hydro Sustainable Development Principles	Manitoba Principles and Guidelines	Means of Achieving Guideline or Principle (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
Access to Adequate Information: *Share relevant information on a timely basis with employees, interested people and governments to promote a greater understanding of Manitoba Hydro's current and planned business activities and to identify impacts associated with the Corporation's plans and operations.*	**Provincial Guideline on Access to Information:** *Encouraging and facilitating the improvement and refinement of economic, environmental, human health and social information; and promoting the opportunity for equal and timely access to information by all Manitobans.*	MMTP-specific means of achieving Principle and Guideline • The EA process undertaken for the Project has resulted in an accumulation of a large amount of biophysical, social and economic information related to the study area. This information provides an inventory of the terrestrial and aquatic flora and community and social characteristics, employment and economic development and heritage resources in the area. Details on this process is provided in the documentation that has been submitted to government as a part of the EIS. • During the transmission line routing process considerable effort has been made to include Manitobans in a meaningful way, including explaining the process and opportunities to provide input and influence decisions – early on, and at key milestones, with regular communications to explain decisions and compromises made among various inputs and requests. • By design, the routing process, in conjunction with the engagement processes are transparent. Criteria help to facilitate tradeoffs among the various considerations in selecting a preferred route are transparent and quantitative. Details on routing are published in Chapters 5 of this EIS. Manitoba Hydro-specific means of achieving Principle and Guideline • For Manitoba Hydro projects. information has been and will continue to be shared with interested parties and through the Public and First Nation and Metis Engagement Processes, including dedicated websites, meetings, open houses and newsletters and with governments through meetings and formal submissions. Project information is also available at government registries.
Scientific and Technological Innovation: *Research, develop, test and implement technologies, practices and institutions that will make electrical supply and services more efficient, economic and environmentally sound.*	**Provincial Guideline on Research and Innovation:** *Encouraging and assisting the researching, development, application and sharing of knowledge and technologies which further our economic, environmental, human health and social well-being.*	MMTP-specific means of achieving Principle and Guideline • A great deal of research, study and sharing of knowledge has contributed to the current plans for the Project. Associated with the environmental assessment processes, there have been many technical and ATK studies related to biophysical, social and economic conditions, heritage resources, history and culture that will be part of the record of the Project and will be of ongoing benefit far beyond their use in the EIS for the Project. Monitoring activities, involving ATK and technical science will continue through the construction and operation phases. Manitoba Hydro-specific means of achieving Principle and Guideline • Manitoba Hydro participates in industry interest groups, like the Centre for Energy Advancement through Technological Innovation and the Electric Power Research Institute. Participation in these research groups allows our investments to be leveraged by jointly funding projects with other utilities with similar interests and issues and facilitates collaboration of industry professionals and experts. • Academic institutions play a significant role in research endeavours. Funding is provided to undergraduate, graduate, and postdoctoral projects of direct interest and benefit to the Corporation. For example, studies are currently underway at the University of Manitoba to develop mathematical models to help determine the exact location of damaged lines so electrical service can be restored more quickly following storms or other causes of broken lines. Most of these projects are cost-shared with other funding agencies such as the Natural Sciences and Engineering Research Council of Canada (NSERC) and MITACS. Manitoba Hydro also funds fund three NSERC Industrial Research Chairs in the areas of Power System Simulation, Alternative Energy, and Water Resources. • Manitoba Hydro operates a High Voltage testing facility to determine if an electrical apparatus meets specified requirements. These tests can be performed on new equipment following transport and on service-aged equipment that is being considered for re-use. The aim is to prevent in-service failures that may pose a safety hazard to staff, damage other equipment, or jeopardize service reliability which can result in substantial lost revenue and significant repair and replacement costs.

Manitoba Hydro Sustainable Development Principles	Manitoba Principles and Guidelines	Means of Achieving Guideline or Principle (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
Global Responsibility: *Recognize there are no political and jurisdictional boundaries to our environment, and that there is ecological interdependence among provinces and nations. Consider environmental effects that occur outside of Manitoba when planning and deciding on new developments and major modifications to facilities and to methods of operation.*	**Global Responsibility Principle:** *Manitobans should think globally when acting locally, recognizing that there is economic, ecological and social interdependence among provinces and nations, and working cooperatively, within Canada and internationally, to integrate economic, environmental, human health and social factors in decision making while developing comprehensive and equitable solutions to problems.*	MMTP-specific means of achieving Principle • The Project will contribute to substantial reductions in GHG by facilitating the displacement of fossil fuel electricity generation by transmitting clean energy to markets where the optional energy sources are coal or gas. (See Pembina Institute Technical Data Report). • MMTP will diminish existing transmission constraints allowing for the capture of additional surplus hydroelectric energy in certain high flow scenarios, resulting in a corresponding decrease in fossil-fueled generation in the export region. • The Project is explicitly international in its purpose, scope and benefits. By transmitting clean energy, it facilitates security of clean power for both countries, it reduces GHG output – a global issue – and it provides marketing access for both nations. Reliable energy is foundational for today's social structure. Manitoba Hydro-specific means of achieving Principle • Reducing GHG emissions is consistent with local and global efforts to provide a healthy environment for present and future generations. The provision and transmission of hydroelectric energy displaces coal and gas energy production and reduces GHG emissions substantially, contributing to local and global efforts to combat climate change.
	Rehabilitation and Reclamation Principle: *Manitobans should: (a) endeavour to repair damage to or degradation of the environment; and b) consider the need for rehabilitation and reclamation in future decisions and actions.*	MMTP-specific means of achieving Principle • Efforts will be made to minimize effects to the environment during the construction process; damage to the environment caused during construction of the Project will be mitigated as summarized in Chapter 23 • Future decommissioning will be undertaken in accordance with applicable laws and best practice extant at that time. Manitoba Hydro-specific means of achieving Principle • MH Environmental Management Policy and Sustainable Development Principles and Guidelines guide developmental decision making into the future. Environmental Management policy follows; Manitoba Hydro is committed to protecting the environment by: ○ preventing or minimizing any adverse impacts, on the environment, and enhancing positive impacts ○ continually improving our Environmental Management System ○ meeting regulatory, contractual and voluntary requirements ○ considering the interests and utilizing the knowledge of our customers, employees, communities, and stakeholders who may be affected by our actions ○ reviewing our environmental objectives and targets annually to ensure improvement in our environmental performance ○ documenting and reporting our activities and environmental performance

Table 23B–2 Sustainable Development Analysis, Canada Sustainable Development Strategy Themes

Theme	Federal Sustainable Development Themes	Means of Addressing Themes (Manitoba Hydro continually works to achieve these principles or guidelines through both Project-level and Corporate endeavours)
1 Addressing Climate Change and Air Quality	**Goal 1:** Climate Change – In order to mitigate the effects of climate change, reduce greenhouse gas emission levels and adapt to unavoidable impacts.	The Project will contribute to reductions in greenhouse gases (GHG) by facilitating the displacement of fossil fuel electricity generation by transmitting clean energy to markets where the optional energy sources are coal or gas. The Project is consistent with Manitoba's policy of low GHG emissions through the continued development and use of hydroelectricity. For a more complete assessment of GHG emitted for MMTP, please see the Technical Data Report "Greenhouse Gas Life Cycle Assessment of the Manitoba–Minnesota Transmission Project" submitted as part of the EIS. For a more complete understanding of historic and future Climate Change scenarios, please see the Technical Data Report "Manitoba-Minnesota Transmission Project Historic and Future Climate Study"
	Goal 2: Air Pollution – Minimize the threats to air quality so that the air Canadians breathe is clean and supports healthy ecosystems.	Project-related activities that generate and release air contaminants to the atmosphere are expected to be temporary, unlikely to result in exceedance of Manitoba's Ambient Air Quality Guidelines. primarily distributed along linear infrastructure corridors including highways and transmission line ROWs, and intermittent in nature. During the operation phase, air pollution from transmission lines is negligible.
2 Maintaining Water Quality and Availability	**Goal 3**: Water Quality and Water Quantity – Protect and enhance water so that it is clean, safe and secure for all Canadians and supports healthy ecosystems	The complex and comprehensive routing process that began with over 700,000 optional routes and ended with one preferred route was designed to consider sensitive areas including wetlands and water bodies. Tower location and construction will consider nearby surface and subsurface water bodies
3 Protecting Nature and Canadians	**Goal 4**: Conserving and Restoring Ecosystems, Wildlife and Habitat, and Protecting Canadians – Resilient ecosystems with healthy wildlife populations so Canadians can enjoy benefits from natural spaces, resources and ecological services for generations to come.	The transmission line routing analysis has narrowed the routing options from about 700,000 down to the final preferred route, specifically using parameters and criteria to anticipate and prevent threats to the economy, the environment, human health and social well-being. The routing process is specifically designed to consider wildlife habitat, wetlands, sensitive riparian areas, and other environmentally sensitive areas. Through the route selection process, alternative routes that would have traversed large tracts of relatively intact, undisturbed crown lands with high levels of biodiversity and environmental value were eliminated from further consideration. Using a precautionary approach, the assessment of Project effects on the economy, environment, human health and social well-being has taken a conservative approach where often worst-case scenarios are assumed to occur and mitigation measures developed to address the effects of such scenarios. In reality, the effects are expected to be less than the worst case and the proposed measures are expected to adequately mitigate the effects. Monitoring and other follow-up programs will be undertaken, as required, to test predictions and make adjustments as necessary.
	Goal 5: Biological Resources – Efficient economic and ecological use of resources – Production and consumption of biological resources are sustainable.	Manitoba Hydro generates electricity primarily through the use of waterpower (over 97%), with auxiliary power generated through wind and natural gas. This practice has provided efficient and economic use of resources that is largely non-consumptive, providing adequate power at prices among the lowest in North America. The Project is subject to extensive federal and provincial public environmental assessment process to enable governments to make informed decisions with respect to the environmental and social effects of the Project.
4 Shrinking the Environmental Footprint – Beginning with Government	**Goal 6**: GHG Emissions and Energy – Reduce the carbon footprint and energy consumption of federal operations.	N/A – aimed at federal assets
	Goal 7: Waste and Asset Management – Reduce waste generated and minimize the environmental impacts of assets throughout their life-cycle.	N/A – aimed at federal assets
	Goal 8: Water Management – Improve water management in federal operations.	N/A – aimed at federal assets

Appendix 23C
International Association of Impact Assessment (IAIA)
Public Participation Principles

23C Participation Principles

IAIA defines public participation as "the involvement of individuals and groups that are positively or negatively affected by a proposed intervention (*e.g.*, a project, a program, a plan, a policy) subject to a decision-making process or are interested in it. Levels of participation in impact assessment vary, from passive participation or information reception (a unidirectional form of participation), to participation through consultation (such as public hearings and open-houses), to interactive participation (such as workshops, negotiation, mediation and even co-management)."

The engagement programs developed for the Project are consistent with these industry standards and guidelines and is represented in the methods utilized and decisions made regarding the Project. IAIA indicates that public participation practices in Impact Assessment should be:

- **Adapted to the context** – Understanding and appreciating the social institutions, values, and culture of the communities in the project area; and respecting the historical, cultural, environmental, political and social backgrounds of the communities which are affected by a proposal.
- **Informative and proactive** – Recognizing that the public has a right to be informed early and in a meaningful way in proposals which may affect their lives or livelihoods. Increased interest and motivation to participate occur by diffusing simple and understandable information to the affected and interested public.
- **Adaptive and communicative** – Recognizing that the public is heterogeneous according to their demographics, knowledge, power, values and interests. The rules of effective communication among people, in the respect of all individuals and parties, should be followed.
- **Inclusive and equitable** – Ensuring that all interests, including those non-represented or underrepresented are respected regarding the distribution of impacts, compensation and benefits. The participation or defense of the interests of less represented groups including indigenous peoples, women, children, elderly and poor people should be encouraged. Equity between present and future generations in a perspective of sustainability should be promoted.
- **Educative** – Contributing to a mutual respect and understanding of all IA stakeholders with respect to their values, interests, rights and obligations.
- **Cooperative** – Promoting cooperation, convergence and consensus- building rather than confrontation. Engaging conflicting perspectives and values as well as trying to reach a general acceptance of the proposal toward a decision that promotes and supports sustainable development should be pursued.
- **Imputable** – Improving the proposal under study, taking into account the results of the PP process; including reporting and feedback to stakeholders about the results of the PP process, especially how their inputs have contributed to decision-making.

Operating Principles

With respect to the Basic Principles previously identified, public participation should be:

- **Initiated early and sustained** – The public should be involved early (before major decisions are made) and regularly in the IA process. This builds trust among participants, gives more time for PP, improves community analysis, improves screening and scoping of the IA, increases opportunities to modify the proposal in regards to the comments and opinions gathered during the PP process, reduces the risk of rumors, and improves the public image of the proponent. It can also give the regulator more confidence in the approval decision they must make.
- **Well planned and focused on negotiable issues** – All IA stakeholders should know the aims, rules, organization, procedure and expected outcomes of the PP process undertaken. This will improve the credibility of the process for all involved. Because consensus is not always feasible, PP should emphasize understanding and respect for the values and interests of participants, and focus on negotiable issues relevant to decision-making.
- **Supportive to participants** – The public should be supported in their will to participate through an adequate diffusion of information on the proposal and on the PP process, and a just and equitable access to funding or financial assistance. Capacity- building, facilitation and assistance should also be provided particularly for groups who don't have the capacity to participate, and in regions where there is no culture of PP, or where local culture may inhibit PP.
- **Tiered and optimized** – A PP program should occur at the most appropriate level of decision-making (*e.g.,* at the policy, plan, program or project level) for a proposal. The public should be invited to participate regularly, with emphasis on appropriate time for involvement. Because PP is resource consuming (human, financial, time) for all the IA stakeholders, PP optimization in time and space will ensure more willing participation.
- **Open and transparent** – People who are affected by a proposal and are interested in participating, whatever their ethnic origin, gender and income, should have access to all relevant information. This information should be accessible to laypersons required or the evaluation of a proposal (*e.g.,* terms of reference, report and summary). Laypersons should be able to participate in relevant workshops, meetings and hearings related to the IA process. Information and facilitation for such participation should be provided.
- **Context-oriented** – Because many communities have their own formal and informal rules for public access to resources, conflict resolution and governance, PP should be adapted to the social organization of the impacted communities, including the cultural, social, economic and political dimensions. This shows respect for the affected community and may improve public confidence of the process and its outcomes.
- **Credible and rigorous** – PP should adhere to established ethics, professional behavior and moral obligations. Facilitation of PP by a neutral facilitator in its formal or traditional sense improves impartiality of the process as well as justice and equity in the right to information. It also increases the confidence of the public to express their opinions and also to reduce tensions, the risk of conflicts among participants, and opportunities for corruption. In a formal context, the adoption of a code of ethics is encouraged.

Appendix 23D
International Association of Public Participation (IAP2)
Core Values for the Practice of Public Participation

23D Core Values for the Practice of Public Participation

As an international leader in public participation, IAP2 has developed the "IAP2 Core Values for Public Participation" for use in the development and implementation of public participation processes. These core values were developed over a two year period with broad international input to identify those aspects of public participation which cross national, cultural, and religious boundaries. The purpose of these core values is to help make better decisions which reflect the interests and concerns of potentially aff ected people and entities. They include:

- Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.
- Public participation includes the promise that the public's contribution will influence the decision.
- Public participation promotes sustainable decisions by recognizing and communicating the needs and interests of all participants, including decision makers.
- Public participation seeks out and facilitates the involvement of those potentially affected by or interested in a decision.
- Public participation seeks input from participants in designing how they participate.
- Public participation provides participants with the information they need to participate in a meaningful way.
- Public participation communicates to participants how their input affected the decision.

Appendix 23E
NEB Electricity Filing Manual
Consultation Guidance

23E NEB Consultation Guidance

The intent is that the MMTP Environmental Impact Statement will meet the requirements of *The Environment Act* (Manitoba), as well as the *National Energy Board Act* (*NEB Act)* and the *Canadian Environmental Assessment Act, 2012* (*CEAA 2012*). In light of this, the Scoping Document integrated the requirements of the Environment Act Proposal Report Guidelines, NEB Electricity Filing Manual, and *CEAA 2012*. The NEB participated in the development of the Final Scoping Document.

The National Energy Board expects an applicant to have a company-wide Consultation Program that establishes a systematic, comprehensive and proactive approach for the development and implementation of project-specific consultation activities. The Board has suggested policies and goals for such a Consultation Program, including:

"5.1 Policies and Goals of the Consultation Program

Goal

The application outlines the corporate policy or vision with respect to consultation and the principles and goals that guide the applicant's Consultation Program.

Filing Requirement

Provide an overview of the company's consultation philosophy, which should include, but not be limited to:

- the corporate policy or vision with respect to consultation;
- the principles and goals established for the applicants's Consultation Program; and
- a copy of the Aboriginal consultation policy, if established, along with any documented policies and principles for collecting traditional knowledge or traditional use information, if applicable.

Guidance

The Board expects an applicant to develop and implement a Consultation Program to anticipate, prevent, mitigate and manage conditions which have the potential to affect persons and groups.

Goal

The application indicates why the design of project-specific consultation activities is appropriate for the nature of the project in alignment with the company's Consultation Program.

Filing Requirement

Provide a description of the project-specific consultation activities and the factors that influenced its design.

Guidance

When designing project-specific consultation activities, applicants should consider that the Board expects consultation activities will, at a minimum:

- be initiated as soon as possible in the planning and design phase of a project;
- provide clear, relevant and timely information to potentially affected persons or groups;
- be accessible to and inclusive of all potentially affected persons or groups;
- be responsive to the needs and input of potentially affected persons or groups; and
- continue throughout the regulatory process, as well as the construction and operation phases of a project.

When consultation includes Aboriginal groups, consider establishing a consultation protocol in collaboration with these groups that takes into consideration their needs and cultural elements.

Project-Specific Consultation Activities

Describe project-specific consultation activities. At a minimum describe the:

- potentially affected persons or groups to be consulted, including:
  - local residents, landowners and land or waterway users;
  - government authorities; and
  - Aboriginal groups;
- potential information needs of the persons or groups;
- the process by which potentially affected parties can comment to the Board before the Board makes its decision;
- methods and timing of consultation;
- procedure for responding to issues and concerns; and
- plans for future consultation and follow-up throughout the operations phase of a project.

Design Factors

Consider the following factors, where appropriate, in the design of consultation activities:

- the nature, magnitude and areal extent of the project;
- the potential environmental and socio-economic effects of the project;
- effects of the project on navigation and navigation safety;
- potential broad impacts of the project that may extend beyond the project boundaries (*e.g.*, noise and air emissions);
- all registered and non-registered interests held in the lands that may be affected by the project, which may include individuals or organizations identified through the consultation process;
- the specific or distinct needs of various potentially affected persons and groups;
- the location of Indian reserve lands, Métis settlements and traditional territories;
- existing local community concerns or sensitive issues that may be exacerbated by the project;
- the availability of emergency services;
- the compatibility of the project with current land use and zoning;
- the proximity of the project to urban centres;
- different project routing, design and construction alternatives, and their potential impacts on persons and groups; and
- any other relevant factors not included in this list.

Government Authorities

Ensure the appropriate government authorities (local, regional, provincial and federal) are included in consultation activities. In some cases, regulatory approval from another authority will be required. Contact that authority to determine their information requirements. ”