Keeyask Generation Project

Environmental Impact Statement

Executive Summary

KEEYASK

Hydropower Limited Partnership

June 2012

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Executive Summary

The Keeyask Hydropower Limited Partnership (consisting of Manitoba Hydro and investment entities representing Tataskweyak Cree Nation and War Lake First Nation acting together as the Cree Nation Partners, York Factory First Nation and Fox Lake Cree Nation) is pleased to submit the Environmental Impact Statement for the Keeyask Generation Project.

This Executive Summary highlights findings and conclusions from the Environmental Impact Statement submission to regulatory authorities.

Artist's renderings of principal structures.

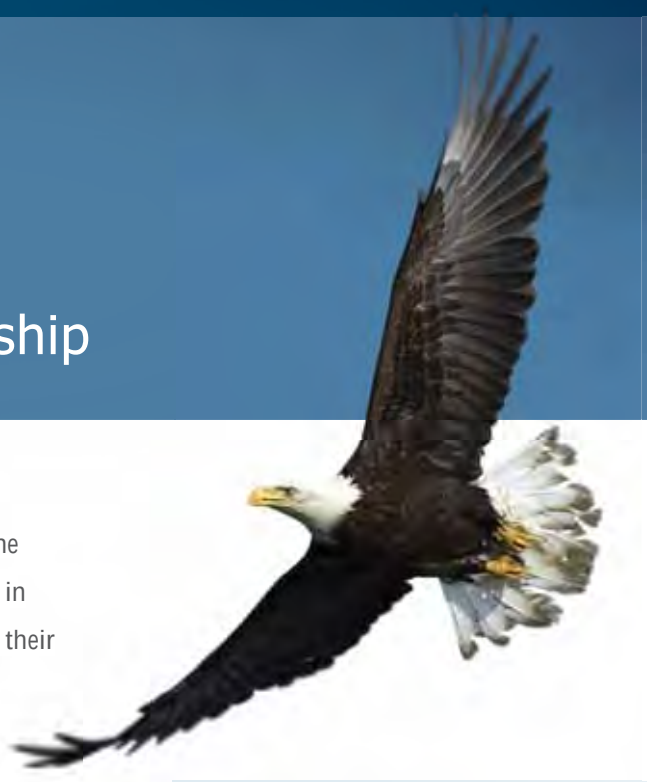
Keeyask Generating Station

Capacity:	695 megawatts (4,400 gigawatt hours average annual energy)
In-service Date:	First generator: 2019 All generators: 2020
Construction Start:	June 2014
Flooding:	45 square kilometres
Keeyask Cree Nations Partners:	Tataskweyak Cree Nation, War Lake First Nation, Fox Lake Cree Nation, York Factory First Nation
First Nations' Ownership:	Up to 25%

Note To Readers

This Executive Summary uses concise language to summarize several complex subjects. Readers are referred to the full Environmental Impact Statement for a complete understanding of these subjects.

Keeyask Cree Nations and Manitoba Hydro:
A Collaborative Working Relationship



The four Keeyask Cree Nations and Manitoba Hydro have been involved in a negotiating process that has led to a collaborative working relationship to develop the Keeyask Generation Project on the Nelson River.

This collaborative relationship has created a two-track approach in the production of the Environmental Impact Statement in which the Cree worldview basis of the Keeyask Cree Nations' evaluations of the environmental impact of the Project upon themselves is given equal weight and recognition to technical science.

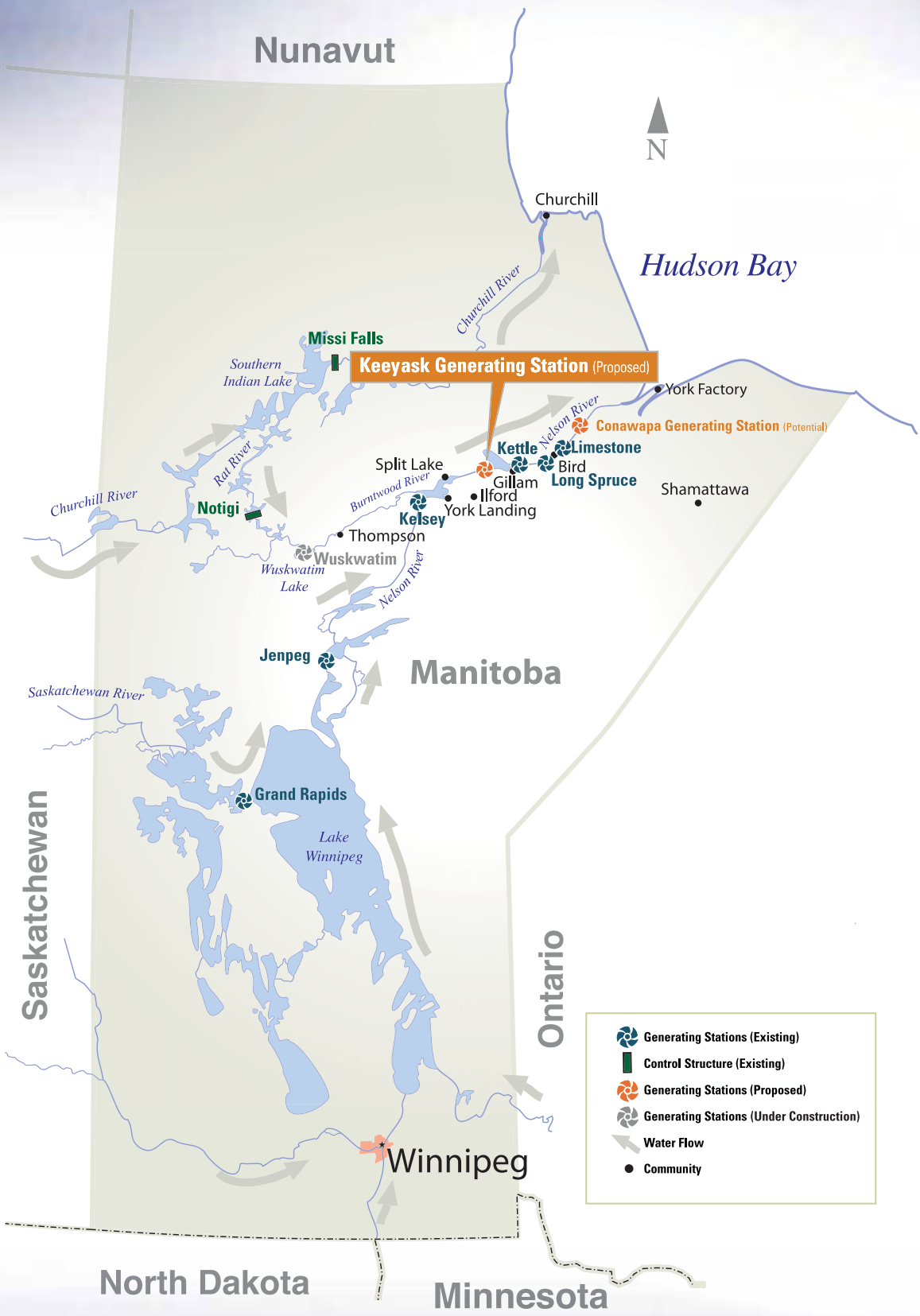
This unique approach, in which the Keeyask Cree Nations have evaluated the effects of the Project on themselves based on their worldview, has the Cree participating meaningfully in the evaluation of the Project in their ancestral homeland, and provides a realistic picture of what has been happening between Manitoba Hydro and the Cree in their efforts to reach a just and equitable agreement.

This approach is reflected in the Environmental Impact Statement and demonstrates the real efforts of both the Keeyask Cree Nations and Manitoba Hydro to reconcile their differing worldviews in a mutually beneficial and respectful way.

This unique two-track approach has the Keeyask Cree Nations participating meaningfully in the evaluation of the Project in their ancestral homeland.

Table of Contents

The Environmental Impact Statement for the Keeyask Generation Project consists of this Executive Summary, the Response to the EIS Guidelines, the Keeyask Cree Nations Environmental Evaluation Reports, and a video (Keeyask: Our Story). The Environmental Impact Statement is supplemented by six supporting volumes. All documents are available in the Manitoba Conservation and Water Stewardship Public Registry. Except for the supporting volumes, they are also available on the Keeyask Hydropower Limited Partnership website (www.keeyask.com). You may also order a CD through the website.


Nunavut
N
Churchill
Hudson Bay
Churchill River
Missi Falls
Keeyask Generating Station (Proposed)
Southern Indian Lake
York Factory
Nelson River
Conawapa Generating Station (Potential)
Kettle
Limestone
Bird
Long Spruce
Split Lake
Gillam
Rat River
Churchill River
Notigi
Burntwood River
Ilford
York Landing
Kelsey
Shamattawa
Thompson
Wuskwatim
Wuskwatim Lake
Nelson River
Jenpeg
Manitoba
Saskatchewan River
Grand Rapids
Lake Winnipeg
Saskatchewan
Ontario
Winnipeg
North Dakota
Minnesota
Generating Stations (Existing)
Control Structure (Existing)
Generating Stations (Proposed)
Generating Stations (Under Construction)
Water Flow
Community

The Project provides a broad spectrum of economic, social and environmental attributes important to the Keeyask Cree Nations, the local region, the province of Manitoba, Canada and energy consumers in U.S. markets.

1. Introduction

The Keeyask Generation Project (the Project) is a proposed 695-megawatt plant on the lower Nelson River in northern Manitoba. The Project represents the culmination of a decade-long planning process involving Manitoba Hydro and four Cree Nations known collectively as the Keeyask Cree Nations: Tataskweyak Cree Nation and War Lake First Nation (working together as the Cree Nation Partners), Fox Lake Cree Nation and York Factory First Nation.

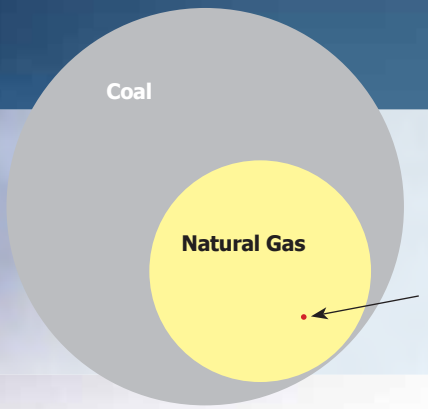
The Crown corporation and these Cree Nations have together formed the Keeyask Hydropower Limited Partnership (the Partnership) to develop this secure, renewable energy Project in an environmentally and socially responsible manner. The Project is aligned and grounded in the sustainable development principles of Canada, Manitoba, Manitoba Hydro and the Cree worldview.

Working as partners, Manitoba Hydro and the Keeyask Cree Nations have assessed the Project using both technical science and Aboriginal traditional knowledge, along with information gained through extensive public and government consultation and involvement. The Keeyask Cree Nations have also undertaken and submitted their own Project environmental evaluations. This integrated and collaborative approach maximizes the Project's potential benefits and avoids, reduces or mitigates potential adverse effects associated with a large hydroelectric development.

The Project provides a broad spectrum of economic, social and environmental attributes important to the Keeyask Cree Nations, the local region, the province of Manitoba, Canada and energy consumers in U.S. markets.

As Partners, the Keeyask Cree Nations brought the Cree worldview and Members' perspectives to Project planning and design, a process that will continue throughout Project construction and operation. Manitoba Hydro and each of the Keeyask Cree Nations negotiated Adverse Effects Agreements well in advance of Project construction that address known and foreseeable adverse effects through traditional and cultural programs and other measures. Project construction will provide Keeyask Cree Nations Members with both employment and business opportunities, and potential to expand and strengthen local capacity. The Keeyask Cree Nations also have the opportunity to become equity owners in the Project, which has the potential to provide them with ongoing investment income.

Manitoba Hydro



The Keeyask Generation Project will produce a fraction of the greenhouse gas emissions produced by a natural gas or coal station of the equivalent size.

For Manitoba Hydro, the Project will further optimize the Crown corporation's investment in the Nelson River system where five large hydroelectric generating stations produce over 70 percent of Manitoba Hydro's electricity. The Project will provide Manitoba homes and businesses, as well as customers in U.S. export markets, with renewable energy that results in net global greenhouse gas reduction.

During eight-and-a-half years of construction, the Project will provide a major stimulus to the provincial economy and, once operating, generate an ongoing revenue stream for many decades.

During the planning and design process, the Keeyask Cree Nations and Manitoba Hydro identified and addressed concerns to avoid, reduce and mitigate Project environmental effects. The Project offers the lowest reservoir-level option among the technically and economically feasible options studied, resulting in the least amount of flooding and operating within a small, one-metre reservoir range. Special precautions have been taken to reduce impacts on fish, particularly lake sturgeon, and other sensitive aquatic and terrestrial species and habitats.

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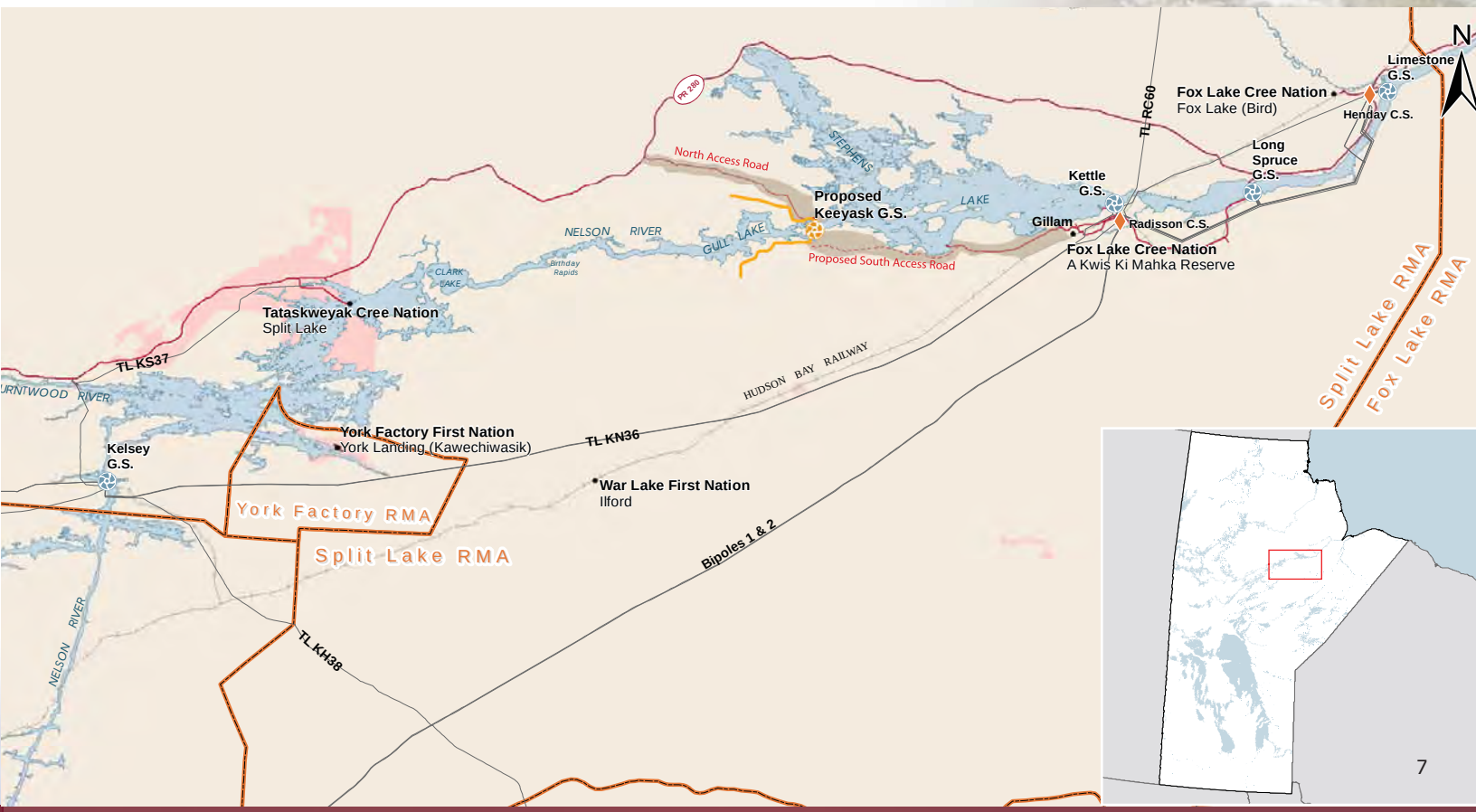


Joint Keeyask Development Agreement signing ceremony, May 2009.

"The energy produced by our rivers can be a resource that is clean and renewable, if managed with care."

Victor Spence,
Tataskweyak Cree Nation Member

and other sensitive aquatic and terrestrial species and habitats. Project effects and mitigation measures will be carefully monitored and adaptive-management plans are in place to address issues that might arise in the future.

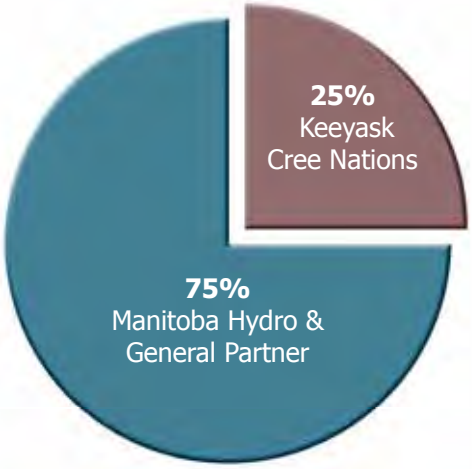
In the words of Victor Spence, a Tataskweyak Cree Nation Member, "Our water resources represent a major part of the wealth of our people. The energy produced by our rivers can be a resource that is clean and renewable, if managed with care." The Keeyask Generation Project has been planned and designed in this spirit of promise and responsibility.

The Partnership and Ownership

The Keeyask Hydropower Limited Partnership will own and operate the Project under terms outlined in the *Joint Keeyask Development Agreement* that Manitoba Hydro and the four Keeyask Cree Nations signed in May 2009. The signing followed independent ratification votes by each Keeyask Cree Nation supporting its Chief and Council to proceed with the Agreement and individual Adverse Effects Agreement.

Manitoba Hydro and three Keeyask Cree Nations investment entities are limited partners in the Partnership. There is one general partner, 5900345 Manitoba Ltd. a corporation owned by Manitoba Hydro. It will manage and operate the Partnership and be liable for all its debts.

Potential Keeyask Partnership Ownership



It will contract Manitoba Hydro to design, construct and run the station as part of Manitoba Hydro's integrated power system. Manitoba Hydro will also provide financing for Project construction.

Manitoba Hydro will subcontract virtually all services and supplies to build the Project. Several construction, services, labour and materials contracts will first be offered to the Keeyask Cree Nations as direct-negotiated contracts. The general civil, electrical and mechanical contracts will be publicly tendered.

Manitoba Hydro, the general partner and each of the Keeyask Cree Nations' investment entities will invest in the equity of the Partnership. Manitoba Hydro and the general partner will own at least 75 percent of the equity and the Keeyask Cree Nations, through their respective investment entities, can in total own up to 25 percent.

The Partnership will sell all of the Project's production to Manitoba Hydro, which is responsible for providing transmission facilities as required during construction and operation of the

Project. In the fall of 2012, Manitoba Hydro will submit a separate project description and related environmental impact statement for the Keeyask Transmission Project to provide construction power and generation outlet transmission from the Project to the Radisson Converter Station.

The Partnership's Roles and Responsibilities in the Environmental Assessment

The *Joint Keeyask Development Agreement* clearly outlines the arrangements for the Partners' participation in developing the Project and includes an Environmental and Regulatory Protocol that sets out roles and responsibilities for the Partnership's environmental assessment. The Protocol establishes committees for collectively developing the assessment process and for strategic decision-making among the Partners. It has been followed throughout the assessment process and will continue to be implemented throughout the formal regulatory approvals process.

The Regulatory Framework

The Project is subject to an environmental assessment under the *Canadian Environmental Assessment Act* and *The Environment Act* (Manitoba) and must meet combined federal and provincial regulatory requirements before it can be built. Provincial and federal regulators are working together in the environmental review process.

In July 2011, the Partnership provided a Project Description to federal authorities. In December 2011, the Partnership submitted the Environment Act Proposal Form and Scoping Document for the environmental assessment of the Project. In February 2012, the Canadian Environmental Assessment Agency issued draft Guidelines and, after reviewing public and departmental comments, the Agency issued Final Environmental Impact Statement Guidelines for the Project in March 2012.

The Canadian Environmental Assessment Agency will be responsible for the comprehensive study report on the Project that is to be submitted to the federal Minister of Environment.

Manitoba's Minister of Conservation and Water Stewardship is expected to direct the Clean Environment Commission to conduct public hearings to provide the Minister with recommendations on the Project.

The Project must meet combined federal and provincial requirements before it can be built.

Gull Rapids, site of the proposed Keeyask Generation Project.

Keeyask's renewable energy will be integrated into Manitoba Hydro's power system and used to meet growing energy demands in Manitoba and for export.

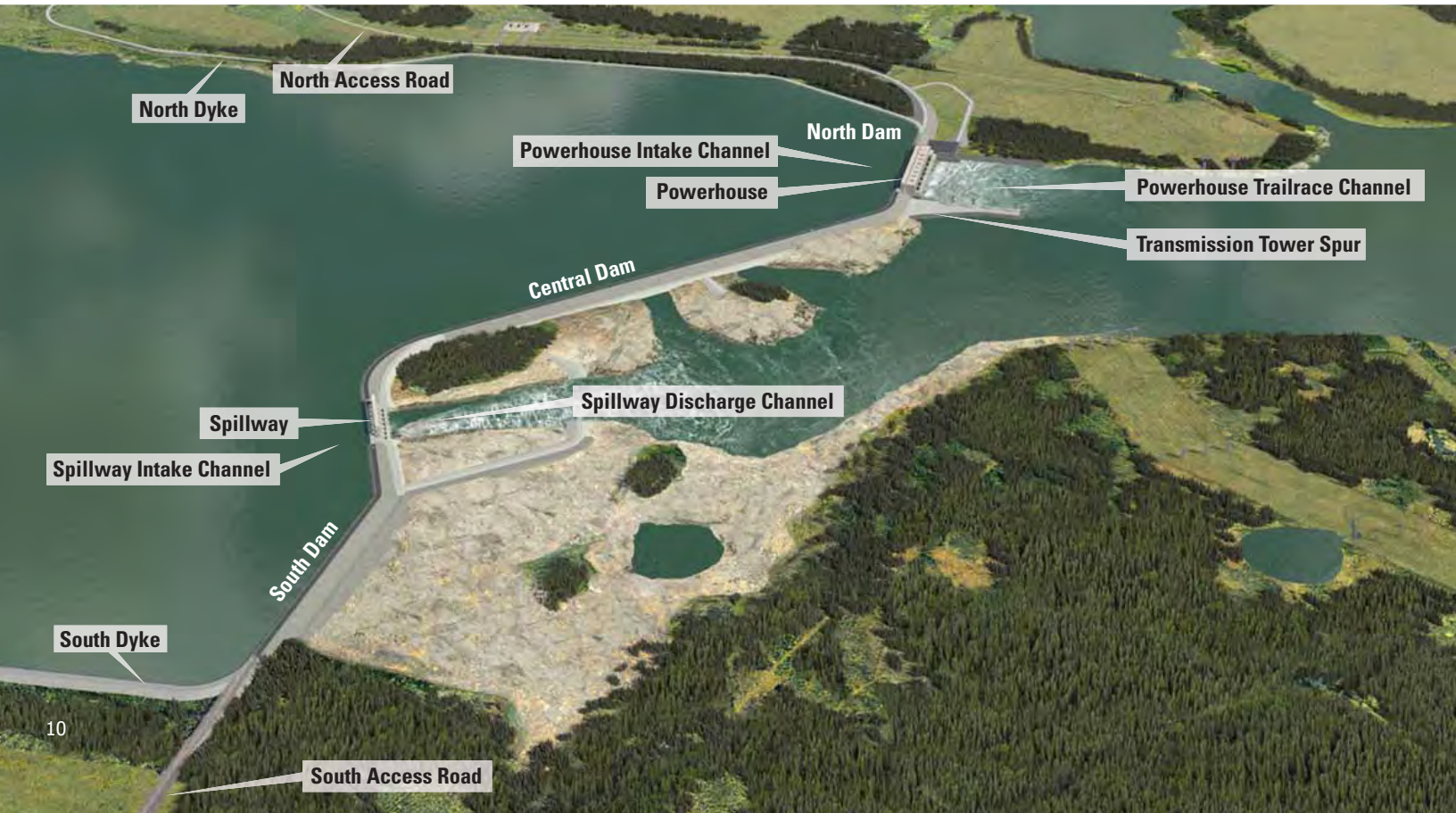
2. Project Description

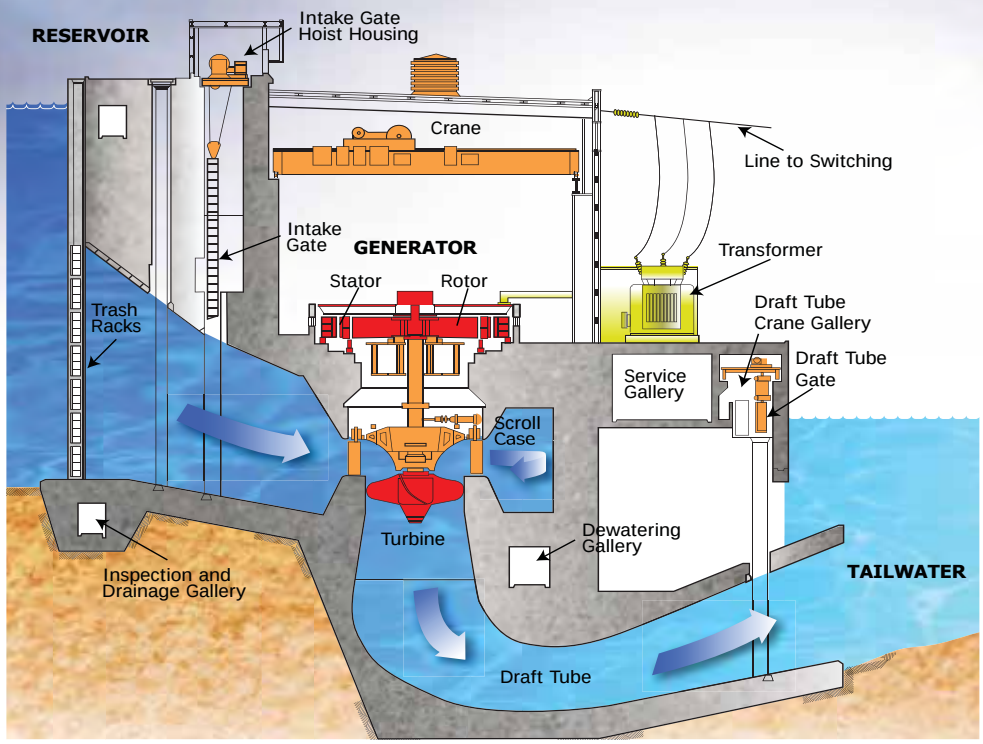
The Keeyask Generation Project involves development of a 695-megawatt hydroelectric generating station and supporting infrastructure at Gull (*Keeyask*) Rapids on the lower Nelson River in northern Manitoba. The Project is about 730 kilometres northeast of Winnipeg and 180 kilometres northeast of Thompson. If built, Keeyask will be the fourth largest generating station in Manitoba.

Keeyask's renewable energy will be integrated into Manitoba Hydro's power system and used to meet growing energy demands in Manitoba and for export. The Project's average annual electricity production will be about 4,400 gigawatt-hours, enough to power approximately 400,000 homes.

Subject to regulatory approval, Project construction will begin in 2014, with first power produced in 2019 and construction and site rehabilitation completed in 2022 – an eight-and-a-half-year process.

The Project will be built within the Split Lake Resource Management Area immediately upstream of Stephens Lake between two existing Manitoba Hydro generating stations developed in the late 1950s and early 1970s. By road, the nearest community west of the Project is Split Lake, home of Tataskweyak Cree





Cross section of a typical powerhouse with a vertical shaft turbine.

Nation. The nearest communities to the east are Bird, home of the Fox Lake Cree Nation, and Gillam, the location of Manitoba Hydro's northern operations centre and a Fox Lake Cree Nation reserve. War Lake First Nation, at Ilford on the Hudson Bay rail line, and York Factory First Nation at York Landing on Split Lake, are located southwest of the Project.

Principal Structures

Principal structures will consist of a powerhouse with seven turbines, other equipment for generating electricity and a service bay complex, a seven-bay spillway, three dams, two dykes and a reservoir. The spillway will manage surplus river flows, and the dams and dykes will contain the reservoir created upstream of the principal structures.

Supporting Infrastructure

Supporting infrastructure will consist of permanent facilities used to construct and operate the Project and temporary facilities required only to construct the principal structures.

Permanent supporting infrastructure will include a north and south access road (the north access road is being constructed under the Keeyask Infrastructure Project), a transmission tower spur, communications tower, some borrow areas, excavated-material placement areas, boat launches, a portage and public-safety measures. Once the Project is constructed, the north and south access roads will be connected with the Project and will be integrated into the provincial highway network.

Temporary support infrastructure will include: the main camp, contractor work areas, a landfill, water- and sewage-treatment facilities, an explosives magazine, cofferdams, rock groins and an ice boom.

Borrow areas and placement areas for excess excavated materials will be developed, including roads to these areas. Some borrow areas will be required for both construction and operation purposes and others will be decommissioned and rehabilitated after Project construction.

The Project will also include the operation and decommissioning of components of the Keeyask Infrastructure Project, such as construction camp facilities and a security gatehouse.

Project Parameters

The Project will use approximately 18 metres of the 27-metre drop in elevation (hydraulic head) available between Split Lake and Stephens Lake, including a 12-metre elevation drop through Gull Rapids.

The reservoir level will operate within a narrow one-metre range. The full supply level is 159 metres and the minimum operating level is 158 metres.

Project Activities

Project activities will include: constructing, operating and maintaining permanent facilities; constructing, operating and decommissioning temporary facilities required to construct the Project; and operating and decommissioning the construction camp and work areas previously licensed and constructed as part of the Keeyask Infrastructure Project.

Alternative Approaches for Developing the Project

Since the early 1990s, a joint process was undertaken to optimize the Project design, initially by Manitoba Hydro, then with Tataskweyak Cree Nation, and over the past decade including War Lake First Nation, York Factory First Nation and Fox Lake Cree Nation. During the planning and design phase, many potential effects were either avoided or minimized based on decisions related to reservoir size, level and operating range, site selection, general arrangement of principal structures, and turbine design.

The selected site at Gull Rapids provides a number of economic, technical, social and environmental advantages.

The low-level reservoir option avoids impacting open-water levels on both Split Lake and Clark Lake and reduces impacts at Birthday Rapids upstream.

Reservoir Level and Site Selection

Several alternatives for developing this reach of the Nelson River were examined, including options to construct generating stations at both Birthday Rapids and Gull Rapids. Larger generation options would have caused additional flooding on Split Lake, home of Tataskweyak Cree Nation and York Factory First Nation. For example, one high-level reservoir option at Gull Rapids would have initially flooded 180 square kilometres, four times greater than the proposed Project, which will initially flood 45 square kilometres – the least amount among viable options studied for this site. The low-level reservoir option avoids impacting open-water levels on both Split Lake and Clark Lake and reduces impacts at Birthday Rapids upstream. The high-level option would have produced 1,150 megawatts of power versus the current Project, which will produce 695 megawatts.

Turbine Design

Because the turbines are being designed to minimize potential for injury and mortality to fish as they move downstream, over 90 percent of fish passing through the generating station are expected to survive.

Keeyask turbines are designed to minimize fish injury and mortality.

3. The Keeyask Cree Nations Evaluation Processes

More than fifty years of dam building has already greatly impacted the Keeyask Cree Nations' prime resource area and traditional territory. Now, with more changes coming, the Keeyask Cree Nations want Manitoba Hydro and the regulators to fully understand their close and enduring relationships with the lands, waters and animals where the Project will be built.

The Partnership submitted a video call *Keeyask: Our Story* to present a more personal view in the Cree oral tradition.

The Keeyask Generation Project Environmental Impact Statement includes one volume, the *Keeyask Cree Nation's Environmental Evaluation Reports* with an individual report submitted by each of the Keeyask Cree Nations. The Cree Nation Partners (i.e., Tataskweyak Cree Nation and War Lake First Nation) provided its *Keeyask Environmental Evaluation Report* to describe its Members' understanding of expected Project impacts on them and to explain their independent decisions to be Project proponents. York Factory First Nation provided its report, *Kipekiskwaywinan* (Our Voices), and Fox Lake Cree Nation is expecting to provide its *Environment Evaluation Report*.

The Cree Worldview

The Cree worldview brings an important perspective to Project environmental evaluation. It centres on *Askiy,* the word used by the Ininewak for the whole of the land, water (*nipi*), animals (*aweassisak*), plants including medicines (*muskikeya*), people (*Ininewak*), all other creatures and the interrelatedness of all things. All things are alive, have a spirit and are a part of *Askiy. Askiy* and all things come from something greater than us – *Manitou*. Cree culture, spirituality and history are part of *Askiy. Kakenaw kakona ota askiy nikanatentennan* – everyone and everything on *Askiy* is sacred.

Embedded within Cree society is a philosophy called *mino-pimatisiwin*, a fundamental Cree value, which means living a good and honourable life. Human well-being is dependent upon the well-being of *Askiy*. The people are responsible to care for and nurture the well-being of *Askiy* so, in return, it can provide for future generations.

Independent Evaluation Processes

As Partners, the Keeyask Cree Nations have jointly planned and assessed the Project with Manitoba Hydro and are directly involved in the regulatory approvals process. They have also developed and undertaken their own independent, community-specific processes to review and approve the Project. These processes have been underway for more than a decade with financial support from Manitoba Hydro and have included extensive and ongoing consultations with Members and Project environmental evaluations based on their

Dance troupe, Joint Keeyask Development Agreement signing ceremony, May 2009.

The Cree worldview brings an important perspective to Project environmental evaluation. It centres on Askiy, *the word used by the Ininewak for the whole of the land, water, animals, plants including medicines, people, all other creatures and the interrelatedness of all things.*

own worldview, values and experiences with past hydroelectric developments.

The Cree Nation Partners developed the Mother Earth Ecosystem Model that established a vision statement, a set of core beliefs, land-use planning objectives and a description of their relationships with *Askiy*.

York Factory First Nation undertook studies that documented traditional economic and land-based activities and community history; examined existing and potential socio-economic and environmental conditions; established a socio-economic baseline and sustainability indicators; and established and clarified community goals and future priorities.

Fox Lake Cree Nation is completing a draft community-history report and associated video. It includes a compilation of oral histories and a draft traditional knowledge report that defines twelve recommendations associated with the Keeyask Generation Project and other developments affecting its Members.

Helping Shape Project Compensation and Planning

The Keeyask Cree Nations' evaluation processes have helped them and their Members to evaluate the Project and its impacts on their communities and to independently decide on their support for the Project. The outcomes of these processes have shaped the content of the *Joint Keeyask Development Agreement* and form the basis of the Adverse Effects Agreements negotiated with each of the Keeyask Cree Nations.

The Adverse Effects Agreements encompass agreed-upon mitigation measures for effects that are foreseen or are foreseeable through due diligence. The core of each Adverse Effects Agreement is a set of Offsetting Programs to provide appropriate replacements, substitutions or opportunities to offset unavoidable adverse Project effects on the practices, customs and traditions integral to the First Nations' distinctive cultural identity. These programs were developed

Keeyask Cree Nation Elders on field tour of proposed reservoir areas, 2004.

by each of the Keeyask Cree Nations based, in part, on their perspectives about potential Project effects. Among other things, they include programs to provide access to alternative resource use locations in areas the Project does not affect, Cree language programming and cultural programming.

The Keeyask Cree Nations' evaluation processes have also shaped Project plans and the overall environmental assessment process. Their involvement and participation resulted in modifying the design, size, and location of the Project and in naming the Project "*Keeyask*," the Cree word for gull. Plans were also made for clearing the reservoir, waterway management, ice monitoring, navigation and hazard marking, and reclamation of disturbed sites.

Keeyask Cree Nations Perspectives on the Project

The Keeyask Cree Nations know that the effects of past developments cannot be undone. The way forward lies in enabling the river and land that has sustained the northern Cree for thousands of years to do so again. After long deliberation, the Keeyask Cree Nations have chosen to support the Project for the benefit of present and future generations.

Cree Nation Partners Accept Certain Unavoidable Effects

The Cree Nation Partners concluded that, like previous hydroelectric developments, the Project will have certain major, unavoidable effects. Knowing this, they are nevertheless hopeful because they believe the Adverse Effects Agreements

The Cree involvement and participation resulted in modifying the design, size and location and in naming the Project 'Keeyask', the Cree word for gull.

The south side of the south channel of Gull Rapids.

and benefit provisions in the *Joint Keeyask Development Agreement* will enhance their culture by providing opportunities to engage in the customs, practices and traditions integral to their distinctive Cree cultural identity. Similarly, they are hopeful that other benefits – employment, business opportunities and potential income opportunities from the sale of the Project's power – will sustain them physically and culturally and that their homeland ecosystem, although transformed by the Project, can be sustainable, harmonious and balanced.

The Project is creating training and job opportunities that will be transferable to other projects.

York Factory First Nation Cautious, Adaptable and Looking to the Future

York Factory First Nation Members are cautious *(ayakohmisewin)* about what lies ahead but, as they have had to do many times before, they see the need and importance of adapting while maintaining their culture, teachings and way of life. They are approaching the Keeyask Partnership with hope and are determined to keep their values and are intent on participating in mitigation, monitoring, follow-up and adaptive management. They especially want to provide opportunities for their youth and future generations who will inherit the larger outcomes of the Project and the Partnership.

Fox Lake Cree Nation Taking Advantage of Opportunities

Fox Lake Cree Nation and its Members are continuing to grow and move forward while maintaining their culture, traditional knowledge and ways of being. By understanding and reuniting with their history, values and language, Fox Lake Cree Nation is better able to take control and to self-determine its future. Through their involvement in the Project, Fox Lake Cree Nation Members want to ensure a repeat of the past will never occur again and hope to be better prepared to work to mitigate the potential negative impacts of the Project. Fox Lake Cree Nation intends to take full advantage of positive opportunities resulting from the Project, while protecting and maintaining their Treaty and Aboriginal rights.

4. Public Involvement

Extensive public involvement has been a cornerstone in the Project development process to arrive at a technically feasible, economically viable and environmentally sustainable generation project.

In addition to the involvement of the Keeyask Cree Nations with their own Members, the Partnership undertook two broader public-involvement processes:

- A Public Involvement Program that targeted general audiences to present Partnership-approved Project information at key stages and invite public input; and
- Discussions with federal and provincial government agencies with a regulatory interest in the Project.

Targeted and General Audiences

The Partnership's Public Involvement Program has completed two rounds of public involvement to learn about people's Project-related interests and concerns and to share initial results from the regulatory environmental assessment process.

Round one, held between June and December 2008, introduced the proposed Project in an effort to learn about any related issues or concerns, informed the public about the process and requirements for the environmental assessment, and determined how different groups wished to be consulted in future rounds. Round two,

Newsletters and other print and display materials have been an important part of the Public Involvement Program to keep audiences informed about the Project.

Public Involvement Program

Round One: 2008
Project Description and Issue Identification

Purpose & Scope

- Initiate dialogue about the proposed Project
- Provide a description of the Project
- Identify issues and concerns
- Inform the public about the process/requirements and schedule for EA
- Determine how interested/affected parties would like to be involved in PIP
- Document what was heard

Round Two: 2012
Preliminary Environmental Assessment Results

Purpose & Scope

- Describe Project features and changes since Round One
- Discuss initial findings (biophysical, socio-economic)
- Obtain input on possible mitigation measures
- Document what was heard

Round Three: To Follow
Final Environmental Impact Statement Review

Purpose & Scope

- Discuss format and content of EIS
- Communicate supplemental information
- Document what was heard

Extensive consultations to explain the Project's environmental impacts were held with organizations, groups and individuals in northern communities and at open houses in Winnipeg, Thompson and Brandon.

held between February and May 2012, described Project features and changes after round one and obtained feedback on the initial effects assessment and proposed methods to mitigate Project effects.

The audiences for the Public Involvement Program include potentially affected Aboriginal and other northern Manitoba communities and groups, other interested organizations and the general public. In northern Manitoba, meetings were sought with Aboriginal and other communities within the Churchill-Burntwood-Nelson area that were affected by past hydroelectric developments. Meetings were also held with Shamattawa First Nation, Manitoba Keewatinowi Okimakanak, Keewatin Tribal Council and Northern Association of Community Councils. Open houses were held in Thompson, Winnipeg and Brandon and workshops were held with non-governmental organizations and recreational and resource users.

Manitoba Hydro, acting on behalf of the Partnership, is also undertaking consultations with certain Aboriginal groups via bilateral discussions. These groups include Nisichawayasihk Cree Nation, a partner with Manitoba Hydro in the Wuskwatim Generation Project; Cross Lake First Nation (Pimicikimak Cree Nation), which has rights under the Northern Flood Agreement; and the Manitoba Metis Federation.

Issues identified in the first two rounds generally fell into seven categories: project planning; training, employment and business; physical environment; aquatic and terrestrial environment; socio-economic and heritage resources; resource use; and the consultation process. Effects on fish and animal species such as sturgeon, caribou and moose, along with potential employment and training opportunities were specific topics raised most often.

Round three of the Public Involvement Program will be conducted after the Environmental Impact Statement has been submitted, to discuss its format and content.

Discussions with Federal and Provincial Agencies

Meetings with federal and provincial agencies began as early as 2005. Informal meetings were held between 2008 and 2011 to introduce the Project and to learn about the environmental review process.

Federal agencies included: the Canadian Environmental Assessment Agency, the Major Projects Management Office of Natural Resources Canada, Transport Canada, Fisheries and Oceans Canada, Environment Canada, and Aboriginal Affairs and Northern Development Canada.

Effects on fish and animal species such as sturgeon, caribou and moose, and potential employment and training opportunities were specific topics raised most often.

The Keeyask Hydropower Limited Partnership operates a website (www.keeyask.com) to make information about the Partnership and Project easily accessible.

Provincial agencies included: Manitoba Conservation and Water Stewardship; Manitoba Culture, Heritage and Tourism; Manitoba Aboriginal and Northern Affairs; Manitoba Local Government; Manitoba Health; Manitoba Infrastructure and Transportation; and Manitoba Innovation, Energy and Mines.

Technical meetings about aquatic effects began September 2009 between the Partnership, Fisheries and Oceans Canada and Manitoba Conservation and Water Stewardship's Fisheries Branch and are ongoing. In 2011, meetings with Manitoba Conservation and Water Stewardship were held regarding licensing under *The Water Power Act* and with Transport Canada regarding licensing under the *Navigable Waters Protection Act*. Meetings were also held with the provincial and federal governments' Section 35 Consultation Steering Committee.

How Public Involvement Has Shaped the Project

During the Public Involvement Program, other Aboriginal groups, other communities, interested groups and the general public raised many similar issues already identified by the Keeyask Cree Nations. These issues and perspectives helped confirm the focus of the environmental assessment studies and the search for effective mitigation measures.

Particular interest in adverse effects on fish, especially sturgeon, indicated the importance of the mitigation works that the Partnership was planning. Similarly, concern for effects on caribou and moose populations reflected concerns that had been identified by the Partnership and supported the design of monitoring and mitigation measures to minimize effects.

Interest in participating in Project employment and business opportunities supported measures already in place, such as the current collective agreement that includes hiring preferences for qualified Aboriginal and northern workers, and employee retention measures like cultural awareness training and counselling services available for Project workers.

Extensive public involvement has been a cornerstone in the project development process.

5. Environmental Effects Assessment

***Valued Environmental Component (VEC)**: is an element of the environment that has scientific, social, cultural, economic, historical, archaeological or aesthetic importance. The value may be determined on the basis of cultural ideals or scientific concern.*

Soil sampling is one of the tools used in assessing potential environmental effects of the Project.

The Partnership has concluded an assessment of the potential environmental effects of the Project in accordance with guidelines issued by regulatory authorities. This assessment has been prepared with the direct involvement of each of the Partners and input from the Public Involvement Program.

The assessment first described the existing environment and then compared its predicted future condition with and without the Project. After predicting potential environmental effects of the Project, the Partnership identified ways to avoid or mitigate adverse effects. The effects that remain after mitigation are called residual effects. The Partnership also undertook a cumulative effects assessment, considering the effects of the Project in combination with the effects of other past, current and potential future projects.

The Partnership studied a full range of topics under two general categories of environmental components: namely, the biophysical environment and the socio-economic environment. From these, 38 components were selected for more detailed assessment as valued environmental components (18 biophysical and 20 socio-economic), based on their scientific and cultural importance and potential to be affected by the Project. The assessment predicted the residual effects of the Project on each valued environmental component. The significance of adverse residual effects on valued environmental components was assessed according to guidance provided by regulatory authorities.

The predicted residual effects of the Project on each of the valued environmental components are summarized below for the biophysical and the socio-economic environments. More detail on potential effects on each valued environmental component is provided in the Appendix.

The Partnership recognizes this approach to environmental assessment differs from the Cree worldview, which places equal importance on all components of the environment, as all parts are important and interrelated. Given this distinct worldview, results of the technical scientific assessment may not be readily accepted by all of the Partners. Accordingly, an emphasis has been placed on monitoring and adaptive management which is also consistent with guidance provided by regulatory authorities.

Effects on the Biophysical Environment

The Project will have effects on the physical, aquatic and terrestrial environments, all of which have been substantially altered by previous hydroelectric developments. Eighteen valued environmental components were

Coastal caribou near the Hayes River.

selected for the biophysical assessment and, following mitigation, none of the residual adverse effects exceeded the regulatory test for significance.

Physical Environment

The analysis of effects to the physical environment included the following components: climate, air quality and noise; physiography; surface water and ice; groundwater; water temperature and dissolved oxygen; and erosion, sediment, and debris. Although no valued environmental components were identified for the physical environment, the analysis and characterization of the effects to the physical environment formed the pathways and foundation for the analysis of effects to aquatic, terrestrial and socio-economic valued environmental components.

Climate, Local Air Quality and Noise

The Project will reduce future greenhouse gas emissions by displacing the need for electricity produced by coal or gas thermal generation facilities. The Project will produce fewer greenhouse gases in a century of operation than an equivalent coal-fired generating station would produce in 100 days and a gas-fired station in half a year.

The Project will have small and short-term effects on local air quality and noise during the construction period. The effects of the Project on air quality and noise during operation will be minor; however the sound of water flowing through Gull Rapids will no longer be heard.

Physiography

The Project will directly impact the physiography in the local area through the creation of a reservoir, clearing of land, development of new structures and the south access road, and related construction activities at borrow areas and excavated material placement areas. Including the reservoir, the Project will have a footprint of about 134 square kilometres during construction and 138 square kilometres during operation.

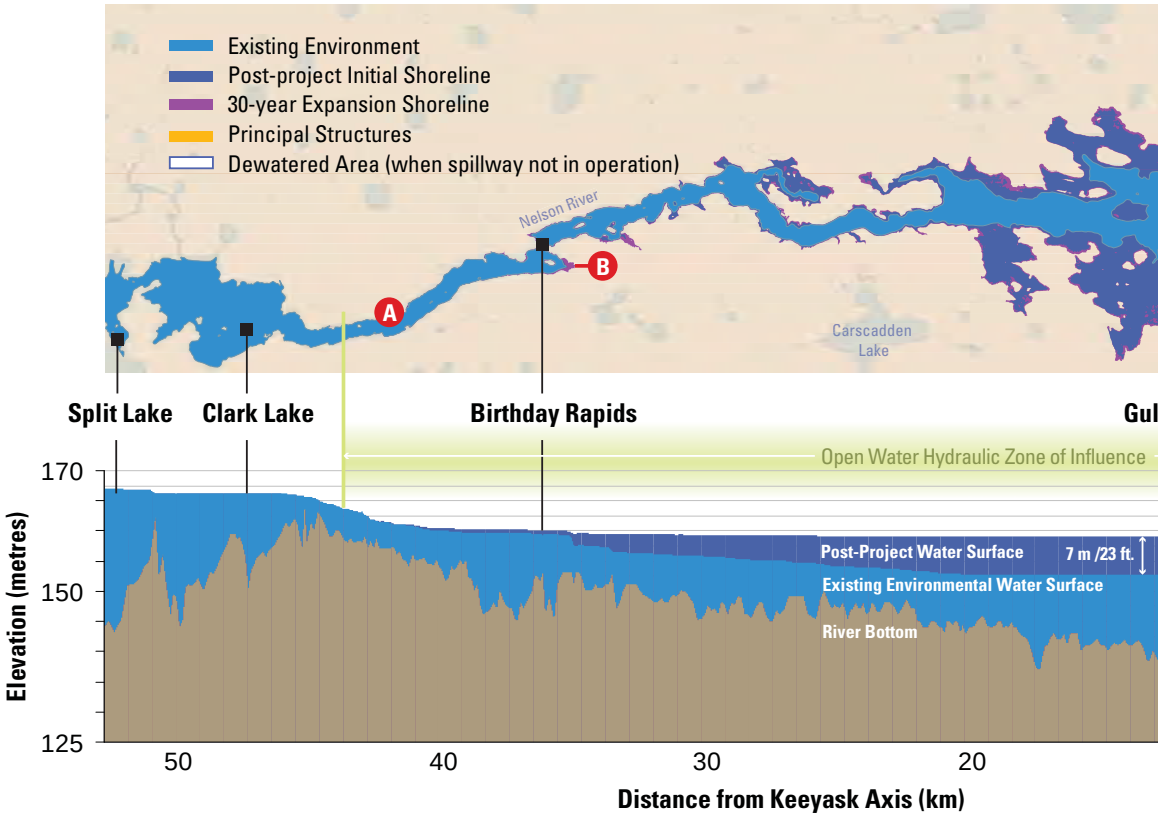
Surface Water, Ice and Groundwater

The Project's reservoir surface area will initially be approximately 93 square kilometres, of which 45 square kilometres will be newly flooded area and 48 square kilometres will consist of existing Nelson River area in which water levels will rise. The reservoir is predicted to expand by seven to eight square kilometres over the first three decades of Project operation due to ongoing shoreline erosion and peatland disintegration.

Immediately upstream of the generating station, water levels will be raised about 15 metres above existing water levels and Gull Rapids will be submerged. During open-water conditions, the resulting backwater effect will extend 41 kilometers upstream (about three kilometres downstream of the outlet of Clark Lake). The increasing water level will affect Birthday Rapids, reducing flow velocities in this fast-water area. During operation, technical studies predict there will be no effect on Split Lake water levels in open-

Weighing a lake sturgeon before release.

Water Surface Profiles



Water levels in the reservoir may be stable, or may fluctuate up to one metre on a daily or weekly basis.

Ice formation on Gull Lake.

water conditions, and only small changes during winter with low flows which occur (about once every 20 years). Water levels in the reservoir may be stable, or may fluctuate up to one metre on a daily or weekly basis.

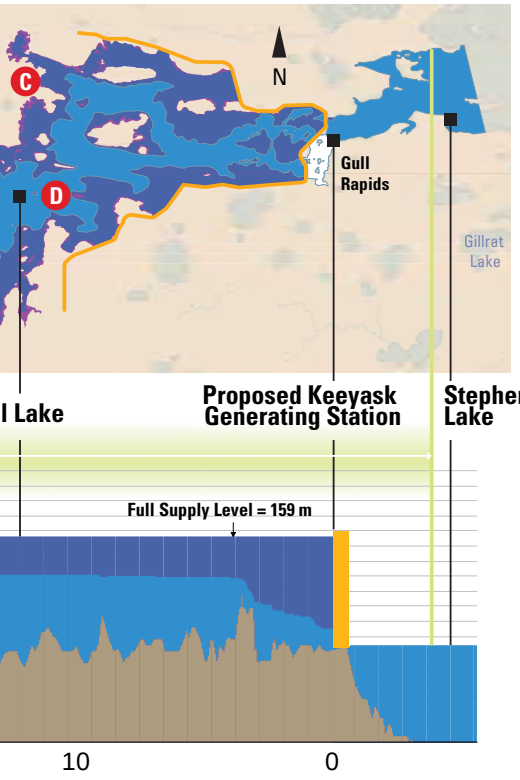
Changes in the distribution of flow are expected to occur in the river channel for up to three kilometres downstream of the Project. A portion of the current south channel of Gull Rapids downstream of the dam will be dewatered.

The winter ice cover upstream of the generating station will be different from that which presently forms. The ice cover will form earlier and extend farther upstream than presently occurs. A thinner and smoother ice cover, like the ice on Split Lake or Stephens Lake, will develop on the reservoir in place of the thick, rough ice that is formed in the river at present. A thinner and smoother ice cover is also expected to form downstream of the Project to the inlet of Stephens Lake, in place of the rough, thick ice that currently develops.

Groundwater levels are expected to rise in existing and newly formed islands in the reservoir and in the vicinity of the new reservoir shorelines.

Water Temperature and Dissolved Oxygen

Dissolved oxygen concentrations in the main body of the reservoir and a large part of the flooded area are predicted to meet Manitoba water quality objectives. During summer, water temperatures will be warmer and dissolved oxygen will be intermittently low in newly formed off-current bays away from the main body of the reservoir. Low dissolved oxygen concentrations will occur in off-current



A Water levels will increase approximately 41 km (25.6 mi.) upstream of the generating station almost to the outlet of Clark Lake. Water levels on Split Lake will not be affected during open-water conditions.

B Shoreline expansion in the bay immediately upstream of Birthday Rapids is predicted to occur with or without the Project.

C Approximately 45 km^2 (17.4 mi^2) of flooding will occur immediately, primarily in the low-lying areas adjacent to Gull Lake. During the first 30 years of operations, the reservoir will expand by 7-8 km^2 due to erosion of shorelines and peatland disintegration.

D The water level on Gull Lake will be raised approximately 7 m (23 ft.).

Water surface profiles for existing environment, Project environment and flooded area (50th percentile).

bays in winter due to lack of mixing with the main flow and the presence of an ice cover.

Erosion, Sediment and Debris

The flooded area is largely comprised of low-lying peatlands that will disintegrate, resulting in floating peat and breakdown of peat shorelines. As the peat shorelines break down, additional underlying mineral materials will be exposed and will erode over time. The rate of erosion of shorelines and the input of organic and mineral sediment into the water is expected to be greatest in the first year of operation. Within 15 to 30 years the amount of organic sediment entering the water will be substantially reduced, while mineral sediment loads will stabilize at a lower long-term rate.

Most of the mineral sediments resulting from shoreline erosion are expected to be deposited in nearshore areas. Generally, the concentration of suspended mineral sediment in the reservoir is expected to be lower with the Project than in the existing environment. While organic sediment entering the water will be greater with the Project, it is predicted that the overall amount of organic suspended sediment in the reservoir will be very low after the first few years of operation and will continue to be very low.

The Partnership will implement plans and measures to mitigate effects including: the Reservoir Clearing Plan to remove trees and woody vegetation before the reservoir is flooded; the Waterways Management Program to collect debris from the

A sub-adult lake sturgeon.

Gillnetting near Split Lake.

Increases in suspended solids will generally be small and only be detectable in Stephens Lake.

reservoir once it is impounded; and a Sediment Management Plan to monitor the effects of construction activity on suspended sediment concentrations in the river so that actions can be taken if target levels are exceeded.

Aquatic Environment

The analysis of effects to the aquatic environment considered the following components: water quality, habitat for aquatic biota, aquatic plants and algae, aquatic invertebrates (including zooplankton and benthic invertebrates), fish, and fish quality (including mercury in fish). Water quality and four fish species (lake sturgeon, pickerel, jackfish and lake whitefish) were selected as valued environmental components. The Committee on the Status of Endangered Wildlife in Canada has assessed lake sturgeon populations as endangered, and they are being considered for protection under the federal *Species at Risk Act*.

Water Quality

The Project's main effect to water quality during construction will be the input of suspended solids due to construction in the river. Increases in suspended solids will generally be small and only be detectable in Stephens Lake. For a few months during two years of construction, work in the river will release enough sediment to cause increases to extend downstream past the Kettle Generating Station. However, the increase in the concentration of total suspended solids is not expected to be large enough to harm plants and animals living in the river.

During initial years of Project operation, effects to water quality will occur in the newly flooded areas but will diminish over 10 to 15 years. In the main part of the reservoir and part of Stephens Lake, total suspended solids concentrations will decline due to settling of sediments in the reservoir. Overall, water quality will always be suitable for aquatic life in the main part of the reservoir, and will be suitable at most locations and most times of the year in the flooded area.

Fish

Construction and operation of the Project has the potential to affect lake sturgeon, lake whitefish, pickerel and jackfish.

Effects of construction activities such as inputs of total suspended solids, blasting, and dewatering of construction areas will be mitigated through management measures, including avoiding spawning periods. Within Stephens Lake, the loss of Gull Rapids as spawning habitat is the largest effect to fish populations. During the construction phase, this loss will likely reduce the number of pickerel, lake whitefish and sturgeon being produced. During the operation phase, replacement spawning habitat will be provided at several locations, including the tailrace of the generating station and in Stephens Lake. Stocking during both construction and operation phases will replace lost production of lake sturgeon.

Pickerel (walleye).

Over time, productive habitat for fish species such as jackfish, pickerel and lake whitefish will develop in the reservoir. However, during the first years after flooding, spawning habitat for pickerel and lake whitefish will likely be limited in the downstream areas of the reservoir so spawning shoals will be constructed near existing spawning sites.

Water level increases may make Birthday Rapids less suitable for lake sturgeon spawning and may affect the occurrence and distribution of habitat for other life stages. If monitoring shows that habitat to support all life stages of lake sturgeon is no longer available, replacement habitat will be developed.

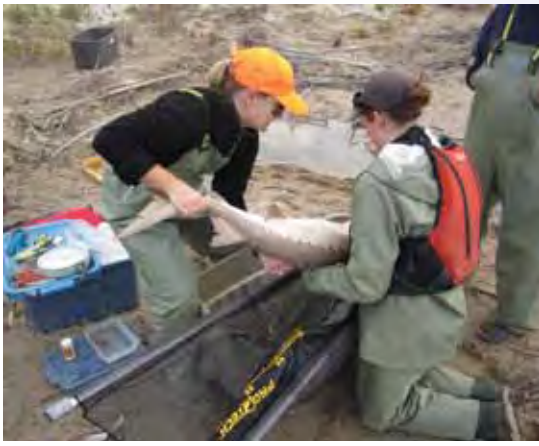
Lake sturgeon are receiving special attention. A new program will stock fry, fingerlings and yearlings in the area directly affected by the Project, as well as in the broader region, while the Project is being constructed and for an extended period after it goes into operation. Stocking is a proven method for increasing lake sturgeon numbers and has been an important feature of many recovery programs.

Plans are also in place to address fish passage. Although habitat will be available both upstream and downstream of the generating station to meet all life history requirements for these fish species, upstream and downstream fish passage will be provided to maintain existing connections among fish populations.

Overall, in the long term, the numbers of pickerel, jackfish and lake whitefish are expected to remain similar to the present day environment in the Keeyask reservoir and Stephens Lake, though there may be short term declines during construction and initial years of operation. While lake sturgeon may experience some short-term declines in recruitment during construction, in the long term their numbers in the reservoir and Stephens Lake are expected to be at least comparable to those of today because habitat will be available to support all life stages. In addition, a long-term conservation-stocking program will increase sturgeon numbers in the region.

Terrestrial Environment

The analysis of effects to the terrestrial environment considered the following components: ecosystems and habitat, terrestrial plants, invertebrates, amphibians and reptiles, birds, and mammals. Valued environmental components were organized within these broader components as follows: ecosystems and habitat (ecosystem diversity, intactness, and wetland function), terrestrial



Preparing a lake sturgeon for tagging with an acoustic transmitter as part of studies near Stephens Lake.

A long-term conservation-stocking program will increase sturgeon numbers in the region.

Coring a tree to determine age.

plant (priority plants), birds (Canada goose, mallard, bald eagle, olive-sided flycatcher, common nighthawk, and rusty blackbird), and mammals (caribou, moose and beaver). The olive-sided flycatcher, rusty blackbird, and common nighthawk are protected under the *Species at Risk Act.*

While boreal woodland caribou have been protected under the *Species at Risk Act*, their current range as designated by Environment Canada and Manitoba Conservation and Water Stewardship, does not extend to the Keeyask area.

Ecosystems and Habitat

A combination of mitigation measures will reduce effects on ecosystems and habitat components. During the planning phase, boundaries of excavated materials placement areas and borrow area boundaries were adjusted to avoid sensitive terrestrial areas and habitats. Once construction is completed, portions of these areas will be rehabilitated, and the entrance to some access trails and cutlines will be blocked and re-vegetated.

Land clearing, flooding and higher groundwater levels along the reservoir shoreline due to flooding are predicted to remove or alter up to approximately 94 square kilometres of terrestrial habitat (includes areas that are unlikely to be used).

Ecosystem diversity will be affected in that there will be area losses for some priority habitat types. In terms of intactness, there will be a slight reduction in the regional amount of undisturbed core area.

Some losses of wetlands will occur, but there will be no net loss of particularly important wetlands because wetland development is planned to replace the loss of high quality, off-system marsh wetlands.

Overall, the effects on ecosystems and habitat valued environmental components are expected to be adverse but regionally acceptable.

Terrestrial Plants

No very rare plant species are known to occur or are expected to occur in the Project area. Effects to most plant species of particular interest to the Keeyask Cree Nations will be low due to their widespread distribution. For the remaining species, the Project is predicted to have minor effects on their known locations and/or available habitat.

Birds

Most birds that use habitat close to the construction site will be disturbed by construction activity such as noise, dust, presence of vehicles and people, and blasting. To reduce avoidance by birds of nesting habitat and prevent disruption of established nests in the construction area, clearing and blasting activity will be restricted to the extent practicable during the bird-breeding season from April 1 to July 31. Wherever practicable, vegetated

buffers will also be established around lakes and creeks to minimize disturbances.

Flooding from the reservoir will reduce the quality of Canada goose migratory staging habitat and there will likely be small losses of breeding habitat for Canada goose and mallard. Waterfowl may be exposed to greater risks of harvesting by construction workers, but implementation of an access management plan during construction will reduce potential effects. During operation, increased access to the area may increase harvest. Blocking some access trails and cutlines and re-vegetating them will help to reduce access-related waterfowl losses.

Olive-sided flycatcher.

Bald eagle.

Canada goose.

Off-system marsh wetlands will be developed to provide some replacement habitat for species such as Canada goose, mallard and rusty blackbird. Permanent and long-term loss of some waterbird nesting habitat will be mitigated by enhancing existing colonial waterbird nesting islands, creating new sites, and installing nesting platforms. Other mitigation measures include erecting bald eagle nesting structures, to replace nests disturbed by the Project, retaining trees in some flooded back bays as olive-sided flycatcher habitat, and enhancing borrow areas as potential nesting sites for common nighthawk.

The effects on Canada geese, mallards, olive-sided flycatchers, rusty blackbirds and common nighthawks are expected to be adverse but regionally acceptable because of the widespread availability of the type of habitat affected and implementation of mitigation measures. The effect on bald eagles is expected to be regionally acceptable as the adverse construction effects are small and operation effects are neutral overall.

Moose in the regional study area.

Coastal caribou crossing a lake in the Keeyask region.

Mammals

Three groupings of caribou are found in the region: barren-ground caribou, coastal caribou (a forest-tundra migratory woodland caribou ecotype) and summer resident caribou (a type of woodland caribou whose exact range and herd association is uncertain).

During construction, noise, blasting, vehicle traffic and the presence of humans have the potential to disturb caribou, moose and beaver in the vicinity of the construction area, but these disturbances are of particular concern for caribou. Limiting clearing and blasting activity to the extent practicable during the calving period from May 15 to June 30 will mitigate effects to caribou calving areas.

Mammals such as moose could be vulnerable to harvesting by construction workers, but implementation of an access management plan, including a prohibition on firearms on the construction site, will help to address this effect.

Moose and caribou could also be adversely affected by increased long-term resource harvest and predation due to increased access. Once construction is completed, blocking and re-vegetating some access trails and cutlines will reduce the potential for these effects. In addition, Tataskweyak Cree Nation has prepared a Moose Harvest Sustainability Plan for the Split Lake Resource Management Area which includes the Keeyask site and surrounding areas.

Flooding of the reservoir and clearing for infrastructure such as the camp and access roads will result in habitat loss, alteration and fragmentation for caribou, moose and beaver. A small long-term regional loss of caribou calving and rearing habitat is also expected. Potential effects to some areas of caribou calving habitat were avoided by siting and/or modifying boundaries of excavated materials placement areas, temporary and permanent access roads and borrow areas. Rehabilitation of roadside ditches using native plant species and maintaining vegetated buffers around wetlands and creeks will reduce effects.

Overall effects to moose and caribou are expected to be adverse but regionally acceptable because habitat loss is small compared to its widespread regional availability, and there is a negligible change to intactness and mortality. Habitat losses to beaver are somewhat larger, but are regionally acceptable because beaver are resilient to Project-related effects. Beaver will continue to create their own habitat, compensate for population reductions, and adjust to some changing conditions in the reservoir.

Effects on the Socio-Economic Environment

The Project will have effects on the socio-economic environment, including effects on resource use and heritage resources. Twenty valued environmental components were selected for the socio-economic assessment and, following mitigation, none of the residual adverse effects exceeded the regulatory test for significance.

Six communities are located in the vicinity of the Project: Split Lake, home to Tataskweyak Cree Nation; Ilford, home to War Lake First Nation; York Landing, home to York Factory First Nation; Fox Lake/Bird, home to Fox Lake Cree Nation; Gillam, Manitoba Hydro's key operations and service center and home to Fox Lake Cree Nation Members and their urban reserve; and Thompson.

Each of the Keeyask Cree Nations has documented the history of their people and their stories illustrate how changes since first contact have had a profound effect on their relationships with the environment, changing their way of life and culture. Among all the changes that have occurred, hydroelectric development over the past 55 years has been one of the most profound. In total, more than 35 major generation, conversion and transmission projects have been undertaken by Manitoba Hydro in northeastern Manitoba affecting the traditional territories of the Keeyask Cree Nations, their communities and Members. These Cree Nations continue to be a key part of the region's population and economy and adhere to the Cree worldview that emphasizes respect for and stewardship of *Askiy* (the land, water and living things).

Resource use, including hunting, fishing, trapping, and gathering for both domestic/subsistence and commercial purposes, continues to be important to the Aboriginal people who live in this region.

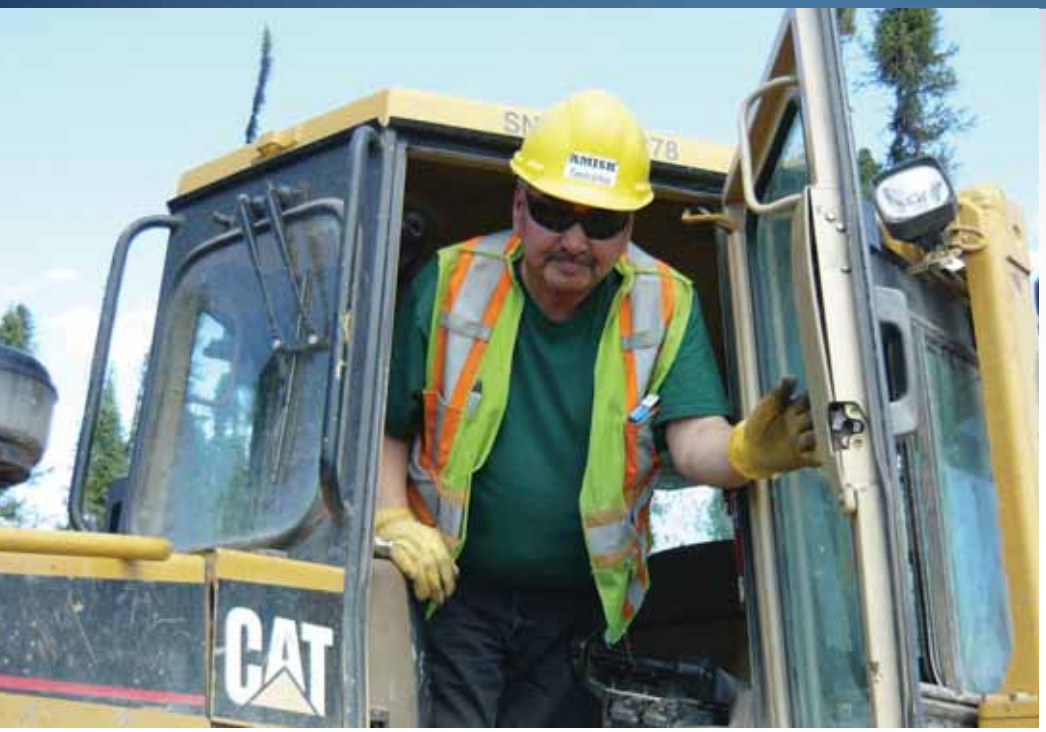
Economy

Expenditures to build and operate the Project will generate substantial employment and business opportunities and labour income. Several measures have been taken to enhance Project-related employment and business opportunities available to the Keeyask Cree Nations, Aboriginal northerners and other northerners during Project construction.

Direct negotiated contracts will provide substantive, short-term business opportunities for the Keeyask Cree Nations, which will increase their business capacity, provide revenues for community-based businesses, and improve employment opportunities for Keeyask Cree Nations Members working on the Project.

Preference measures are included in the Burntwood-Nelson Collective Agreement for employing qualified Keeyask Cree Nations Members, other Aboriginal and other northern residents. Measures to retain workers at the site will include cultural training, counselling services, on-site Keeyask Cree Nations liaison

The Keeyask Project will provide a range of opportunities for jobs during construction and when the station is operating.



Keeyask Cree Nations Members are estimated to fill between 235 and 600 person-years of construction employment on the Keeyask Project.

workers and an Aboriginal union representative. Aboriginal people from the regional study area are estimated to fill between 550 and 1,700 person-years of construction employment, which is between 13 and 40 percent of total construction employment. Keeyask Cree Nations Members are estimated to fill between 235 and 600 person-years of this employment.

During Project operation, 46 new full-time positions will be based at the Keeyask Generating Station and Gillam and Keeyask Cree Nations Members could fill some of these. In addition, targets have been established to increase employment for Keeyask Cree Nations Members in Manitoba Hydro's operational workforce.

Each of the Keeyask Cree Nations also has the opportunity to invest in the equity of the Project and the potential to receive ongoing income from this investment.

Infrastructure and Services

Population change and the effect on physical infrastructure during construction are expected to be minimal since workers will be hired through the job referral service and cannot be hired at site. In addition, there is limited local accommodation available. However, lifestyle changes associated with Project employment and potential worker-interaction issues related to the non-local construction workforce are expected to increase social-services demands in Keeyask Cree Nations communities, Gillam and Thompson.

Keeyask's operational workforce will be based in Gillam with a population of about 1,200, based on the 2006 census. Operation workers and a small number of indirect workers along with their families who move to Gillam will create new demand for community infrastructure and services. A land-use-planning process involving the Town of Gillam, Manitoba Hydro, and Fox Lake Cree Nation is addressing these needs.

Personal, Family and Community Life

Public Safety and Worker Interaction

Concern has been expressed about potential adverse interactions between non-local construction workers and local residents during construction, particularly in Gillam, Thompson and Split Lake. For Gillam, these concerns relate to the community's proximity to the south

access road and construction camp, along with potential cumulative effects from other proposed Manitoba Hydro projects in the vicinity. Fox Lake Cree Nation has concerns related to experience with earlier hydroelectric developments.

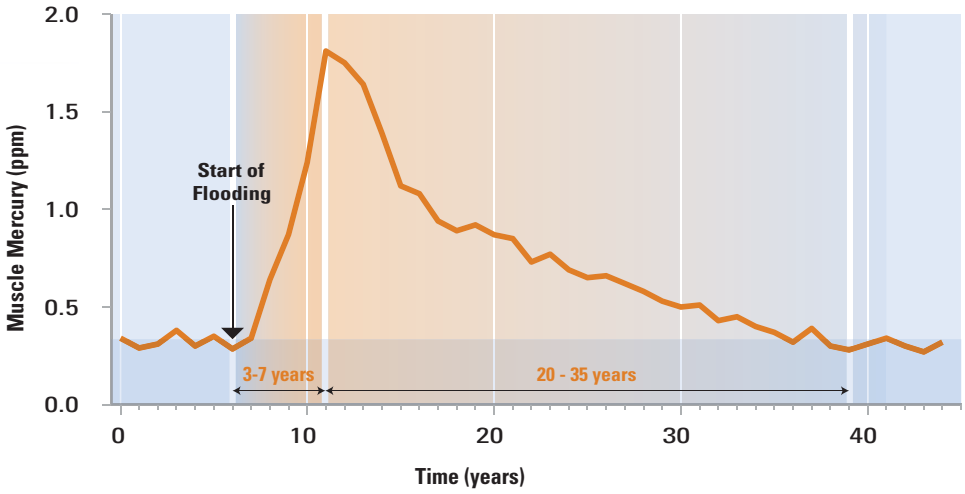
Issues related to worker interaction include: increased disposable income and the potential for inappropriate spending on alcohol and drugs; the temporary, transient nature of a non-local construction workforce; and increased road traffic with the potential for related increases in traffic incidents.

Interaction with non-local construction workers could increase demand for emergency services and social services in Gillam and Split Lake. Demand for emergency services could also increase in Thompson from non-local workers visiting the community during their leisure hours.

Several mitigation measures will be in place to address possible worker-interaction issues, including cultural training for all construction workers, and a lounge and recreational facilities to encourage workers to spend leisure hours at the main camp. Public visits to the camp will be restricted. A shuttle will transfer incoming and outgoing workers between Gillam, Thompson and the site.

Ongoing dialogue with the Gillam and Thompson RCMP during construction will assist in identifying worker interaction issues. Discussions between Manitoba Hydro, the Town of Gillam, Fox Lake Cree Nation and Tataskweyak Cree Nation will also begin before construction starts to determine the best means of tracking and addressing worker-interaction issues and concerns across all Manitoba Hydro proposed projects in the vicinity of Gillam.

Typical Time Course of Mercury Concentrations in Predatory Fish After Reservoir Flooding in Northern Manitoba



Methylmercury and Health

Increased methylmercury levels, especially in jackfish and pickerel in Gull Lake and to a lesser extent in Stephens Lake, are expected during the period after impoundment. These levels are estimated to peak about 3 to 7 years after impoundment and then return to current levels over about 30 years.

The Waterways Management Program as well as waterways public safety measures will address overall safety for water- and ice-based travel upstream and downstream of the Project.

Efforts have been made to develop mitigation measures so that Keeyask Cree Nations Members can continue to safely eat nutritious country foods from the land and waters during this time period. Most notable are programs in the Adverse Effects Agreements, which allow for harvesting healthy fish and other country foods from areas unaffected by the Project. Mitigation measures also include developing a risk-communications strategy for the Keeyask Cree Nations, Gillam and other users of Gull and Stephens lakes.

Travel, Access and Safety

The Project will potentially affect both water-based and road-based travel during construction and operation.

During construction, for safety reasons, boat and snowmobile users of the Nelson River will be restricted from traveling close to the main construction site. The Waterways Management Program as well as waterways public safety measures will address overall safety for water- and ice-based travel upstream and downstream of the Project. Once operating, the reservoir is expected to improve water and ice-based travel, although slush ice along reservoir shorelines may be encountered.

In addition, the Reservoir Clearing Plan has been developed to minimize potential for debris in the reservoir following impoundment. Technical studies predict no changes to open-water levels on Split Lake during operation, and only small changes during winter periods with low flows that occur about once every 20 years.

Substantial Project-related traffic during construction on Provincial Trunk Highway 6, Provincial Road 391 and Provincial Road 280 has the potential to affect road travel. Manitoba Infrastructure and Transportation is upgrading Provincial Road 280 to improve safety and accommodate

increased traffic; however, traffic volumes remain a concern for the Keeyask Cree Nations. During construction, the new north and south access roads will be private roads with security-gates restricting traffic and an Access Management Plan controlling access. Once the Project is complete and the north and south access roads are integrated into the provincial highway network, travel time between Thompson and Gillam will be reduced by about 45 minutes.

Culture and Spirituality and the Way the Land Looks (Aesthetics)

The way the landscape looks (aesthetics) will be changed by the construction of the physical works associated with the Project, by the loss of Gull Rapids, and by flooding and ongoing erosion. While some aspects of the Project will be rehabilitated, the landscape will be permanently changed. Measures to help the Keeyask Cree Nations to deal with these effects include ceremonies to mark the changes and counselling for workers at the site. The Keeyask Cree Nations' Adverse Effects Agreements include programs to improve Members' connection to the land and their culture.

Participating as Partners also provides the Keeyask Cree Nations with meaningful involvement in Project decision-making and influence over how the Project has been planned and will be constructed and operated. Through this approach, the Keeyask Cree Nations are able to bring the Cree worldview and implications for Cree culture and spirituality into Project decision-making and post-Project monitoring.

Land, Resource Use and the Resource Economy

No reserve or Treaty Land Entitlement land is required for the Project.

Many measures already identified will assist travel for fishing, hunting and gathering in the area and facilitate adjustments to new conditions by resource users. The Offsetting Programs established under the Adverse Effects Agreements will provide Keeyask Cree Nations Members with opportunities to undertake domestic resource-use activities while expressing their respect for *Askiy* and passing on skills and this worldview to younger generations. These programs were negotiated to meet the specific needs of the Keeyask Cree Nations.

The resource economy is comprised of cash and in-kind income from commercial and domestic resources. No change in cash income is expected with respect to mining. Reductions to cash income from commercial fishing and trapping will be addressed through compensation agreements. Effects on tourism in the region are expected to be small due to shifts in the patterns of resource use that may infrequently increase competition for resources in local areas. Potential reduction of in-kind income from domestic resources acquired in the vicinity of the Project is expected to be offset by opportunities to harvest country food through Offsetting Programs of the Adverse Effects Agreements.

Participating as Partners also provides the Keeyask Cree Nations with meaningful involvement in Project decision-making and influence over how the Project has been planned and will be constructed and operated.

Artifacts collected during archaeological excavations (2003-2010) include items such as buckles, beads, projectiles and pottery.

Heritage resources will be salvaged to enable long-term preservation of portable artifacts and to enhance public and local heritage awareness.

Heritage Resources

An extensive program has been undertaken to identify heritage resources that the Project will disturb during construction or through flooding once the Project is in operation. Heritage resources will be salvaged to enable long-term preservation of portable artifacts and to enhance public and local heritage awareness through education kits, interpretive displays and other forms of cultural media.

A cemetery, prepared and consecrated for the reburial of human remains found during construction and operation of the Project, including a memorial marker, will be developed in an area selected by Tataskweyak Cree Nation, in consultation with the other Partners. Keeyask Cree Nations Members will be involved in identifying and contributing to impact management measures at important spiritual and heritage sites.

Archaeological shoreline survey at Split Lake.

The 12-metre elevation drop through Gull Rapids makes the site ideal for the 695 megawatt Keeyask hydroelectric generating station, which will produce enough energy to power 400,000 homes.

6. Cumulative Effects of the Project

The cumulative effects assessment of the Project responds to guidelines provided by regulatory authorities. It describes the incremental adverse environmental effects likely to result from the Project in combination with the effects of other past, present and future projects or human activities.

The cumulative effects assessment focuses on valued environmental components that will be adversely affected by the Project, based on the effects assessment summarized in Section 5 of this Executive Summary.

The Partnership recognizes that the valued environmental component approach as required by the regulatory process does not capture the broader concept of the Cree worldview, which places equal importance on all components of the environment, as all parts are important and interrelated. Further, a cumulative effects perspective is inherent to the Cree worldview, which considers the effects of the Project in the context of everything that has happened in the past and everything that is anticipated to happen in the future.

Other Projects and Activities Considered

Past and current projects and activities considered in the cumulative effects assessment include the following Manitoba Hydro generation-related developments:

- Churchill River Diversion;
- Lake Winnipeg Regulation;
- The five existing generating stations on the Nelson River;
- The new Wuskwatim Generating Station on the Burntwood River;
- The Kelsey Re-Runnering Project; and
- The Keeyask Infrastructure Project.

Other regional developments such as transmission lines, rail lines and highways, including upgrades to Provincial Road 280 were also considered along with mining, commercial forestry and commercial fishing.

The cumulative effects assessment was expanded to consider effects of the Project that overlap with other foreseeable

Transmission projects and the Conawapa Generation Project are included in the cumulative effects assessment.

future projects and activities. Based on this evaluation, the Partnership included the following future developments in the cumulative effects assessment:

- The Bipole III Transmission Project, including the Keewatinoow Converter Station, with potential construction from 2013 to 2017;
- The Keeyask Transmission Project with potential construction in mid-2014 to mid-2015 and in early 2017 to 2020;
- Gillam Redevelopment between 2013 and 2019; and
- The potential Conawapa Generation Project that, if developed, could be under construction in early 2017 for completion in 2027.

Effects on Biophysical Environment

The Project is located on the Nelson River, a river that has been substantially altered over the past 55 years by the development of the Lake Winnipeg Regulation, the Churchill River Diversion and construction of five generating stations. Hydroelectric development has replaced large rapids with dams, changed stretches of the river into reservoirs and diverted flows from the Churchill River into the lower Nelson River. These changes have altered the aquatic environment, and have negatively affected species such as lake sturgeon that require large rapids habitat. The terrestrial environment has also been altered, due to loss of lands to flooding, damaged riparian areas, and the construction of other projects, such as roads, rail lines and transmission lines.

After considering the effects of past and current activities, which are summarized in Section 5, and of future projects and activities, the Partnership has not identified cumulative effects on the biophysical environment requiring further mitigation. Accordingly, no residual adverse cumulative effects on the biophysical environment will exceed the regulatory test of significance.

Most adverse Project residual effects on aquatic valued environmental components occur only in the Keeyask reservoir and Stephens Lake, and usually only during construction and the first years of Project operation. These effects overlap with the effects of existing hydroelectric developments, such as the Churchill River Diversion, Lake Winnipeg Regulation and the operation of the nearby Kettle Generating Station. They do not generally overlap with future developments on the Nelson River, such as the potential Conawapa Generating Station, or with future transmission projects considered in the cumulative effects assessment.

However, there is potential for a cumulative adverse effect to water quality for one to three months per year over two years if construction of the Project and Conawapa occur at the same time. This short-term, small effect could occur due to the simultaneous release of suspended sediments to the Nelson River during some construction activities at the

Project site and further downstream at the Conawapa project site, which could potentially be under construction in early 2017. It is expected any cumulative effect of sediment from concurrent construction of the Keeyask and Conawapa projects will have no measurable adverse effects to aquatic animal and plant life at Conawapa and further downstream because inputs from both projects will be managed to maintain levels that would not have harmful effects.

In the terrestrial environment, cumulative adverse effects with other future projects are expected during construction and operation of the Project. Cumulative adverse effects of the Project on ecosystem and habitat valued environmental components and priority plants are predicted to remain in the nil to moderate range, depending on the specific habitat type, indicator or species. Cumulative adverse effects of the Project on bird valued environmental components, including species at risk (olive-sided flycatcher, common nighthawk, and rusty blackbird), and on caribou and beaver are expected to be minimal. Cumulative adverse effects of the Project on moose in combination with the effects of the identified future projects are focused on access issues and sustainability of moose harvest, and are considered manageable with the implementation of the Tataskweyak Cree Nation moose harvest sustainability plan throughout the Split Lake Resource Management Area.

Archaeological excavation at Pointe West site.

Effects on Socio-Economic Environment

The Project is located close to communities that have been greatly affected by past hydroelectric and other developments. Each of the Keeyask Cree Nations has documented the history of its people, and the profound effect that hydroelectric development over the past 55 years has had on its relationships with the environment, changing its way of life and culture.

This Executive Summary (Section 5) summarizes effects of the Project on socio-economic valued environmental components in combination with the effects of past and current projects.

In addressing the Project's effects on socio-economic valued environmental components, the Partnership has recognized that each of the Keeyask Cree Nations has entered into an agreement with Manitoba Hydro to address adverse effects of the Project on each respective Cree Nation and its Members.

The Partnership has identified several instances where other future projects and

The Project is located close to communities that have been greatly affected by past hydroelectric and other developments.

View north across Gull Rapids, with the south channel in the foreground and the middle channel in the background. Once the Project is complete, both sets of rapids and much of the island between them will form part of the Keeyask reservoir.

activities considered in the cumulative effects assessment have the potential to result in cumulative adverse effects of the Project on socio-economic valued environmental components. Assuming that appropriate mitigation and monitoring measures are carried out as part of these future projects, no residual adverse cumulative effects on the socio-economic environment will exceed the regulatory test of significance.

Potential cumulative adverse effects of the Project have been identified for valued environmental components of infrastructure and services, personal, family and community life, and heritage resources. This is linked primarily with the construction workforce associated with each identified future project and the larger potential for effects from visits by non-local construction workers to Gillam (and possibly other local communities) and related adverse interaction opportunities.

Manitoba Hydro is committed to working with local communities, including the Keeyask Cree Nations, the Town of Gillam and others so that these future projects are planned, constructed and developed in a coordinated way that minimizes adverse effects. This includes the implementation of incremental mitigation and monitoring, as required, to minimize adverse socio-economic effects and, where appropriate, the negotiation of agreements with affected Keeyask Cree Nations and others prior to the start of construction of these future projects. As with Keeyask, these agreements will address known and foreseeable adverse effects of these future projects on these communities, and seek to enhance potential benefits.

7. Monitoring and Follow-up

An Environmental Protection Program has been developed to mitigate, manage and monitor environmental effects during the Project construction and operation phases.

While descriptions of the existing environment are based on measurement and observation, descriptions of effects and mitigation designed to address adverse effects are predictions based on technical scientific studies and analysis, professional judgement and Aboriginal traditional knowledge. Monitoring will determine if these predictions are correct and if mitigation measures are working as expected. If unexpected effects are detected, the program will also define processes for determining appropriate adaptive management programs and practices.

The Environmental Protection Program covers the "who, what, when, where and how" of protecting and monitoring the environment. Manitoba Hydro has a contractual responsibility for implementing the program delegated by the Partnership. The Program will consist of three types of plans:

1. **Environmental Protection Plans**, to provide detailed, site-specific environmental protection measures to be implemented by the contractors and construction staff to minimize environmental effects from construction of the generating station and the south access road;
2. **Environmental Management Plans**, focused on specific environmental issues, such as sediment management, access management, fish habitat and heritage resources; and
3. **Environmental Monitoring Plans**, to describe monitoring the effects of construction and operations on the biophysical, physical and socio-economic environments using both technical science and Aboriginal traditional knowledge.

Each plan includes an implementation strategy that, as required, may include contractual arrangements, training, compliance inspections and communication of results.

The Keeyask Cree Nations will be directly involved in monitoring implementation by leading the Aboriginal traditional knowledge monitoring program and working side-by-side with scientists as part of the technical science-based monitoring and participating in the Partnership's Monitoring Advisory Committee. Manitoba Hydro will oversee monitoring activity to confirm that work is in accordance with the finalized, regulator-approved plans.

Laboratory analysis of samples.

Collecting a benthic invertebrate sample with an Ekman dredge.

8. The Project and Sustainable Development

Sustainable development has been an underlying principle of the Project from the earliest discussions with the Keeyask Cree Nations and it has been carefully planned and designed to ensure social, economic and environmental sustainability.

The Project addresses environmental, social and economic goals, principles and guidelines of relevant sustainable-development legislation and other initiatives currently in force, including the *Federal Sustainable Development Act* (2008) and *The Sustainable Development Act* (Manitoba)(1998).

Social Sustainability

The Keeyask Cree Nations, whose ancestors lived sustainably in the lower Nelson River region for thousands of years, are directly involved in the planning and assessment process of the Project and have provided an important foundation for its sustainable-development focus. In their Environmental Evaluation Reports they have shared their perspectives about how past hydroelectric projects have affected their communities and their desire to restore harmony and balance with *Askiy* and to enhance their culture and traditions.

To achieve these goals, the Keeyask Cree Nations have been influential in identifying and advocating measures to reduce the Project's environmental effects. Each of their Adverse Effects Agreements provides continued access to healthy country foods and programs to maintain and strengthen traditions, language and culture. They will also have a direct role in Project monitoring and follow-up activities, including implementing community-specific Aboriginal traditional knowledge programs. They will also conduct appropriate activities at major Project milestones, including rituals and ceremonies to show respect and give thanks to *Askiy*.

Project participation has and will continue to provide the Keeyask Cree Nations with employment and business opportunities. They will have a continuing role in Partnership governance, serving on the Board of Directors and on various Partnership Committees. They also have opportunities to invest in the Project and to receive long-term income from their investment.

Economic Sustainability

The Project will contribute to economic sustainability at the national, provincial and regional levels.

The Project is an innovative model for First Nation and corporate partnership in renewable resource development. It will provide employment, business opportunities and income that will

stimulate the provincial economy while increasing tax revenue to federal and provincial governments. The province will also realize ongoing revenue from waterpower rights over the Project's life.

More than 4,000 person-years of Project employment over eight-and-a-half years will help build skills, capacity, job experience and economic benefits for Manitobans, but especially will help northern workers to sustain employment once the Project is complete. This complements employment training for the Project that has already benefitted hundreds of workers, resulting in long-lasting skilled labour, transferable to other jobs in the future.

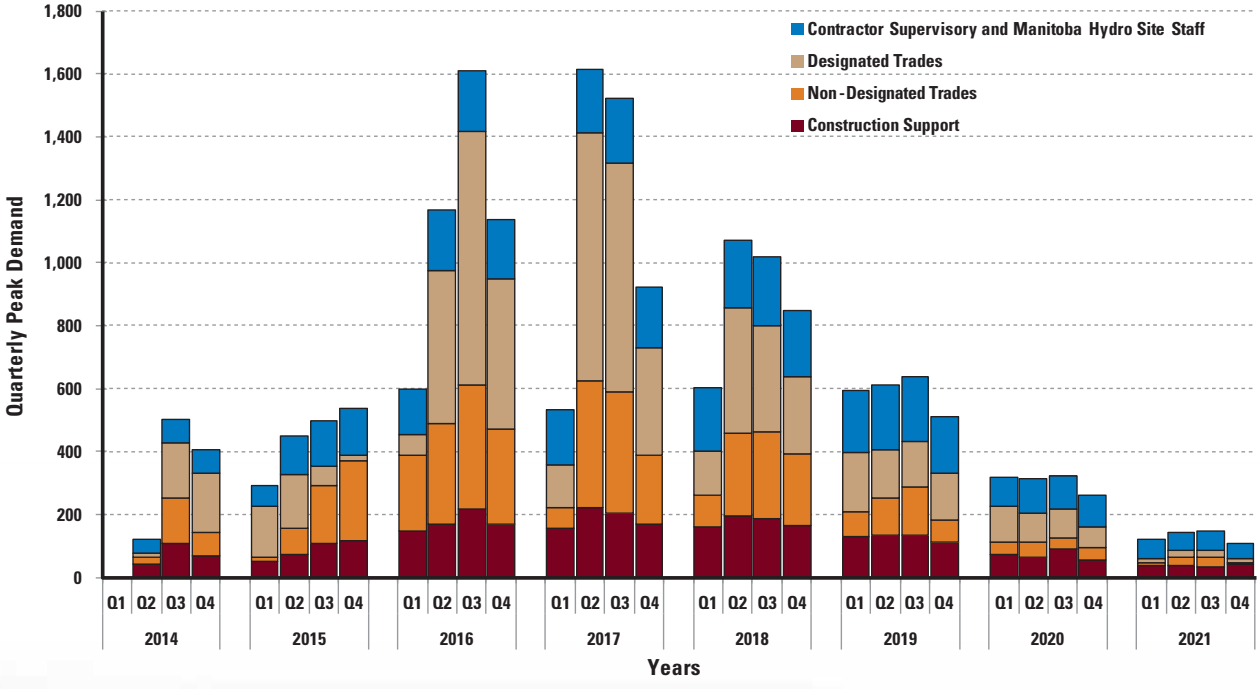
To reflect true and sustainable Project costs, expenditures for the many measures taken to avoid or mitigate adverse effects and enhance social benefits have been integrated into the Project design. By doing this these external social costs become absorbed as internal corporate costs.

The Project will contribute to regional economic sustainability for the Keeyask Cree Nations, other regional First Nations and northern residents, and the Town of Gillam, which will benefit from long-term population growth with well-paid operational jobs at the generating station.

Project-related economic activity will stimulate opportunities for regional commercial and industrial businesses.

The Keeyask Cree Nations have been influential in identifying and advocating measures to reduce the Project's environmental effects. Each of their Adverse Effects Agreements provides continued access to healthy country foods and programs to maintain and strengthen traditions, language and culture.

Construction Peak Employment



Source: Derived from data provided by Manitoba Hydro, 2011. Note: Employment opportunities in 2021 (Q3 and Q4) are for the decommissioning of temporary supporting infrastructure. Estimated construction schedule is subject to change by contractor.

Lake sturgeon exhibiting pre-spawning behavior.

Environmental Sustainability

Equal consideration to both technical-scientific studies and Aboriginal traditional knowledge has created a thorough and comprehensive planning and environmental assessment process.

With over a decade of study to understand and decrease environmental effects, the Project has been planned to avoid or reduce long-term effects. This has primarily been accomplished by reducing the size of the Project from a 1150-megawatts station requiring a high-level reservoir that would flood 180 square kilometres, to a smaller 695-megawatt station with a low-level reservoir that floods 45 square kilometres. In creating the lowest reservoir-level/lowest-effect design that is both technically and economically feasible, the project is able to reduce flooding by 75 percent while maintaining 60 percent of the generating capacity of the high-level design.

With over a decade of study to understand and decrease environmental effects, the Project has been planned to avoid or reduce long-term effects.

Consistent with federal and provincial climate-change policy, the Project will significantly displace coal-or-gas-generated electricity that could produce over 200-times more greenhouse gas.

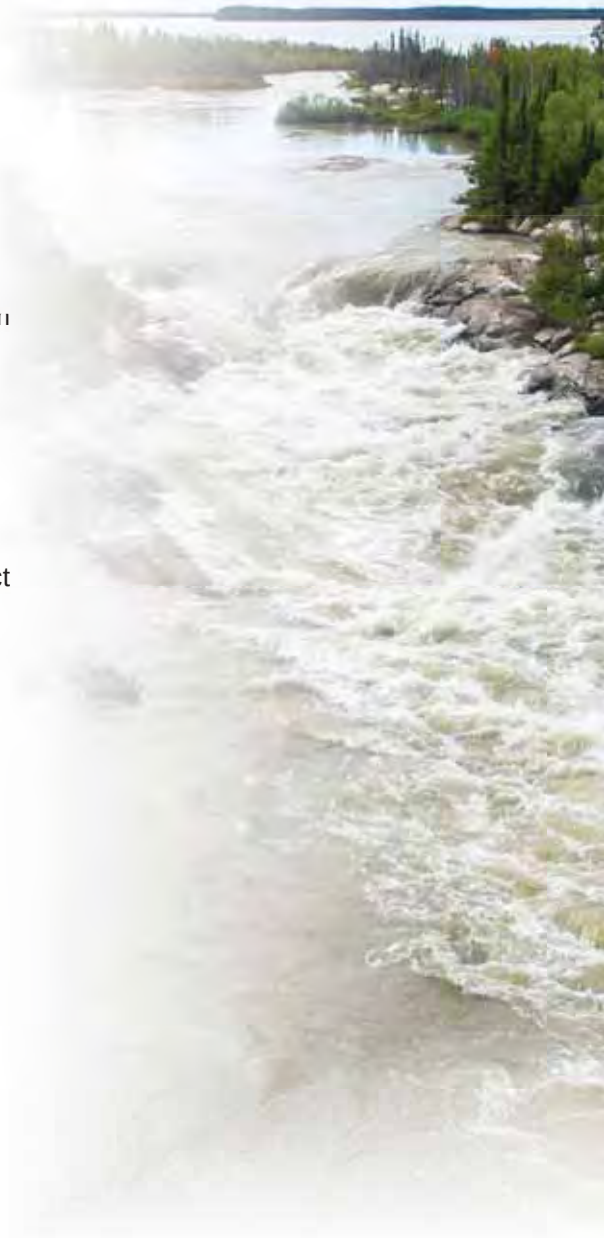
Special attention has been paid to sensitive species and habitats, specifically lake sturgeon, which has been assessed as endangered by the Committee on the Status of Endangered Wildlife in Canada and is being considered for protection under the *Species at Risk Act*. A combination of mitigation measures including habitat enhancement, and a large-scale stocking program are intended to not only maintain existing stocks but to increase the population size in the region.

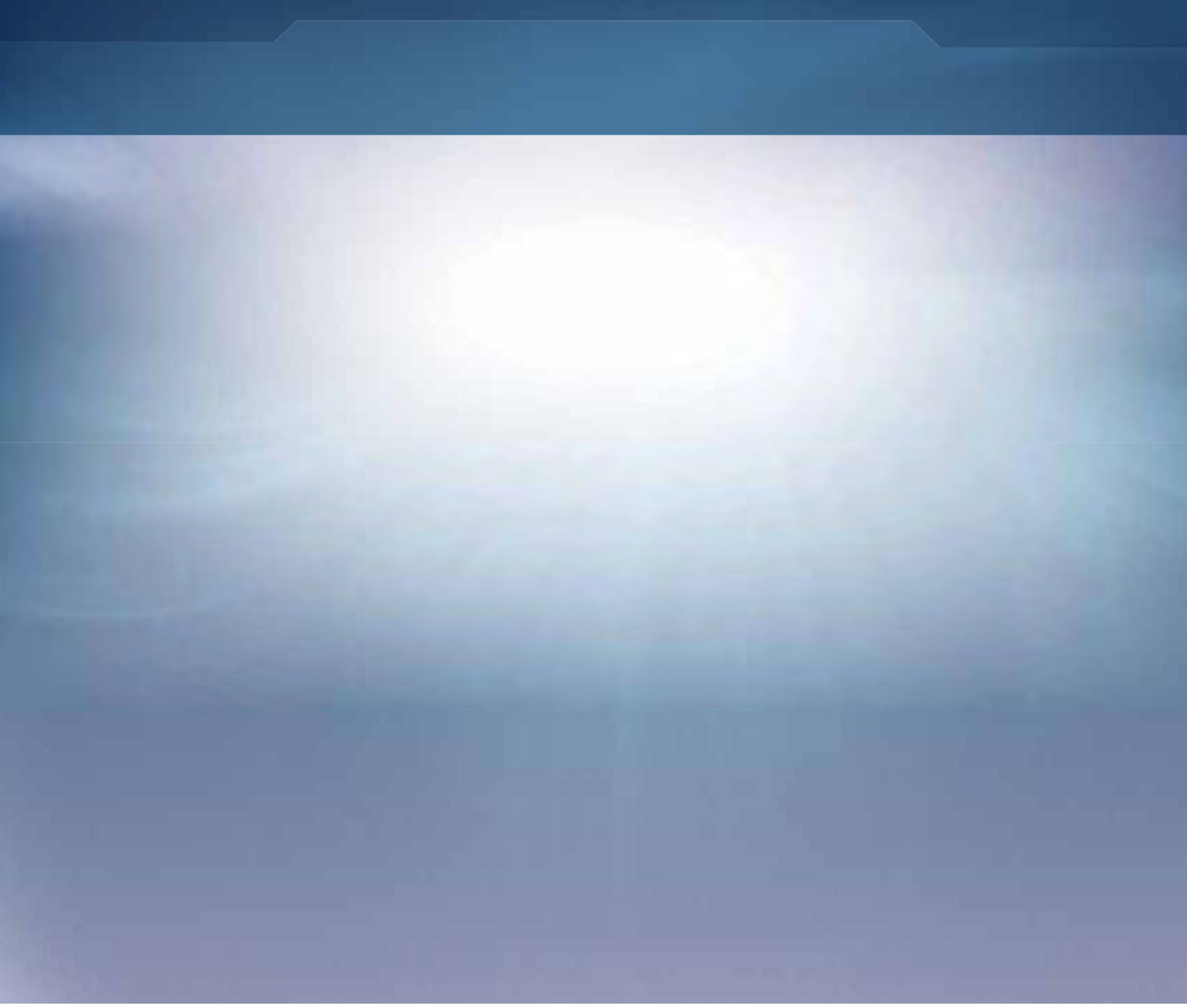
9. Conclusion

In voting to approve the Joint Keeyask Development Agreement, the Keeyask Cree Nations expressed the hope – a realistic hope based on careful evaluation – that the Project will help to restore harmony and balance to relationships and their lives; and that the Project will provide opportunities for current and future generations while respecting and caring for *Askiy.*

The Project will cause numerous and widespread environmental and social effects, some of which would have had the potential to be significant. However, using past experience, Aboriginal traditional knowledge and leading scientific and engineering techniques, the Partnership has mitigated, remediated and/or compensated for these effects, such that the Partnership is confident the Project should proceed.

The Project will also produce substantial environmental, social and economic benefits, all of which are consistent with the principles of sustainability established by the Governments of Canada and Manitoba. The Project will contribute to reductions in greenhouse gases and increases in lake sturgeon populations; it will provide training and employment for hundreds of Aboriginal and northern workers; it will enable the Keeyask Cree Nations Partners to build capacity and profit from construction contracts and their investment as equity partners; and it will produce clean renewable energy for Manitobans and export markets. As such, the Partnership believes the Project should be granted regulatory approval to proceed.





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