Manitoba Hydro

# Bipole III Transmission Project

## Socio-Economic Monitoring Program For Construction

# MANITOBA HYDRO

# BIPOLE III TRANSMISSION PROJECT

## SOCIO-ECONOMIC MONITORING PROGRAM FOR CONSTRUCTION

PREPARED BY

Manitoba Hydro

For the period to September 2015

## TABLE OF CONTENTS

## TABLES



## FIGURES



## APPENDICES

# ABBREVIATIONS

| | |
|---|---|
| ATK | Aboriginal Traditional Knowledge |
| CHRPP | Cultural and Heritage Resources Protection Plan |
| EIA | Economic Impact Assessment |
| EIS | Environmental Impact Statement |
| ESS | Environmentally Sensitive Sites |
| GPS | Global Positioning System |
| HRIA | Heritage Resources Impact Assessment |
| HVDC | High Voltage Direct Current |
| km | Kilometer |
| kV | Kilovolt |
| m | Meter |
| PR | Provincial Road |
| ROW | Right-of-way |
| RTL | Registered Traplines |
| SE | Socio-Economic |
| SEMP | Socio-Economic Monitoring Program |
| VEC | Valued Environmental Component |

## 1.0 Introduction

This document describes the construction Socio-Economic Monitoring Program (SEMP) results for the Bipole III Transmission Project (the Project) from October of 2014 to September 30, 2015. Monitoring Project socio-economic (SE) effects was a commitment identified in the Bipole III Environmental Impact Statement (EIS). Monitoring SE effects is also a condition of the Bipole III *Environment Act* Licence No. 3055. The monitoring program focuses on key components of the SE environment that may be affected, including both direct and indirect effects during the construction phase of the Project. Monitoring program results will be used to assess success of mitigation measures and adaptive management measures will be taken if required.

## 2.0 Project Overview

The purpose of the Project is to provide enhanced reliability to Manitoba Hydro's electrical system, and to reduce the severity of the consequences of major outages. Approximately 70% of Manitoba's hydroelectric generating capacity is delivered to southern Manitoba, where most of the demand for energy is, via the Bipole I and Bipole II high voltage direct current (HVDC) transmission lines. Bipoles I and II share the same transmission corridor through the Interlake region over much of their length from northern Manitoba to a common terminus at the Dorsey Converter Station, northwest of Winnipeg. The existing transmission system is vulnerable to the risk of catastrophic outage of either (or both) Bipoles I and II in the Interlake corridor and/or at the Dorsey Converter Station due to unpredictable events, particularly severe weather. This vulnerability, combined with the significant consequences of prolonged, major outages, justifies a major initiative to reduce dependence on the Dorsey Converter Station and the existing HVDC Interlake transmission corridor.

The Project includes:

- A new converter station, the Keewatinohk Converter Station;
- A northern ground electrode site connected by a low voltage feeder line to the Keewatinohk Converter Station;
- New 230 kV transmission lines linking the Keewatinohk Converter Station to the northern ac collector system at the existing 230 kV switchyards at the Henday Converter Station and Long Spruce Generating Station;
- Modifications to the 230 switchyards at the Henday Converter Station and the Long Spruce Generating Station to accommodate the new collector lines;
- The development of a new +/-500 kV HVDC transmission line, approximately 1,400 km in length, that will originate at the Keewatinohk Converter Station, follow a westerly route to southern Manitoba and terminate at a new converter station, the Riel Converter Station, immediately east of Winnipeg;

- The completion of the Riel Converter Station, development of the site was completed pursuant to a separate licence; and
- A southern ground electrode site connected by a low voltage feeder line to the Riel Converter Station.

## 3.0 Purpose and Objectives

The SEMP for the Project is intended to document conditions over time for Valued Environmental Components (VECs) and other environmental parameters to:

- Confirm impact predictions in the EIS;
- Identify unanticipated effects;
- Confirm adherence to EIS commitments regarding follow-up monitoring;
- Monitor the effectiveness of mitigation measures;
- Identify other mitigation or remedial actions that may be implemented;
- Confirm compliance with regulatory requirements including project approvals and environmental regulations; and
- Provide baseline data and development information and experience for other Manitoba Hydro projects.

The monitoring program does not attempt to address all potential changes to the environment described in the EIS, but rather focuses on important effects to key components of the SE environment. The program builds on the assessment studies conducted for the EIS using established methods for data collection and analysis.

A separate monitoring program has been undertaken in relation to physical, terrestrial and aquatic components. Where quantitative information is not available, qualitative trends are described in the monitoring report to the extent feasible.

## 4.0 Socio-Economic Monitoring Geographic Area

Monitoring activities occurred throughout the Project Study Area in relation to the final preferred route (See Appendix A). For routing, the relatively large study area allowed for appropriate range of planning choices for consideration based on the collection of environmental information about its physical and biological characteristics (including vegetation, wildlife and aquatic resources), as well as SE and land use characteristics (including locations of communities, conservation areas, economic land uses [e.g., agriculture], archaeological and heritage resources). The Project Study Area defines the broadest area used to provide spatial context and comparison to the Project components (with allowance for some SE topics that require a larger regional context such as northern Manitoba and communities just outside the study area such as Gillam). The majority of the SE monitoring activities

occurred at the Project Study Area level.

## 5.0 Socio-Economic Topics

Monitoring activities linked to broad environmental components of the SE environment that were identified in the EIS include:

- Economy[1];
- Community Services;
- Resource Use; and
- Personal, Family and Community Life.

Monitoring activities focused on those effects that are potentially significant, effects where there is high uncertainty regarding the effects prediction, or effects that discipline specialists identified as requiring further monitoring.

Monitoring activities occurred throughout the Project Study Area and will be presented by the three primary project components, Keewatinohk Converter Station, Transmission Line Construction and Riel Converter Station.

## 6.0 Economy

Economic monitoring includes monitoring of employment and business activities associated with the Project. The objectives of economic monitoring for the Project are as follows:

- To track employment outcomes;
- To track construction business outcomes; and
- To track the effect on Project income levels, including labour income resulting from direct employment, as well as estimated taxes paid to the government.

All information regarding economic monitoring is provided from the reporting period of September 1, 2012 to September 30, 2015. Data will be collected over a number of years to assess the actual economic benefits from the Project. Multiple years of data will permit more meaningful comparison of actual benefits with the economic analysis presented in the Bipole III Transmission Project EIS.

### 6.1 Employment Outcomes

The EIS estimated the workforce for all project components. Estimates vary by project component

[1] *The monitoring results for Economy includes activities described in the Keewatinohk Construction Camp Lagoon and Start-up Camp - Environment Proposal for which Environment Act Licence No. 3015 was issued. These activities occurred prior to the issuance of Environment Act Licence No. 3055 but the activities were part of the overall Bipole III Transmission Project and included in the EIS (Construction Schedule and Workforce Table for Keewatinohk Converter Station within the project description (figures 3.5-15 & 3.5-16 of the EIS).*

and year depending on the activity. The majority of employment opportunities occur during the construction phase of the Project with fewer opportunities during the operations phase of the Project. Due to seasonality constraints for some aspects of the work, certain project components will have activities concentrated at specific times of the year (e.g., clearing and construction of the transmission line in the winter months for certain areas), while other project construction components occur throughout the entire year (e.g., Riel and Keewatinohk Converter Stations).

During construction, employment data is collected on-site by contractors through an employee self-declaration form designed specifically for the Project ("Employee Report-Bipole III Transmission Project"). All completed forms are provided by on-site contractors to Manitoba Hydro and stored in a central database for the Project. Contractors also provide information to Manitoba Hydro on hours worked and labour income to enable calculations for person years and income estimates during construction.

Employment data is provided in the categories outlined below:

- Person years – When part-time and/or seasonal workers are used, it is useful to standardize the hires in terms of person years of employment. Person years of employment are defined as the amount of work that one worker could complete during twelve months of full-time employment. For economic planning purposes and to compare to the Economic Impact Assessment (EIA), the number of hours worked per year is approximately 2,000 hours per year (assuming 40-44 regular hours weekly) in most trade categories. For construction comparison purposes, the number of hours worked per year is approximately 3,000 hours per year (assuming 60 regular hours weekly). As this report can be used for various types of comparisons, the data has been presented in terms of 2,000 and 3,000 hours per year.
- Hires - Refers to the number of people hired on the Project site for any duration.
- Employees - Refers to the number of individuals hired. The variance between Hires and Employees can be attributed to an individual being hired to the Project more than once.
- Average duration of work on the Project.
- Type (job classifications) of work available.

### 6.1.1 Person Years of Employment

Over the duration of construction, direct Project employment for on-site Manitoba Hydro and contractor employees is estimated at 5,194[2] person years. During construction, hours of direct employment data is collected by contractors and Manitoba Hydro. Table 1 presents the direct Project employment for on-site Manitoba Hydro and contractor employees.

[2] *Bipole III Transmission Project, Economic Impact Assessment Technical Report Manitoba Bureau of Statistics - November 2011: Table 1, Economic Impact on Manitoba - Construction Phase [Transmission Line 3,181; Converter Facilities 2,013]*

For the reporting period, Bipole III construction generated 1,041 person years of direct Project employment in terms of a 2,000 hour per year basis (694 person years in terms of a 3,000 hour per year basis). This number represents approximately 20 percent of the total person years employment for the construction phase of the Project. To date, 74 percent of the person years of direct Project employment was derived from within the province of Manitoba. See the Table 1 for a further breakdown of person years of employment by project component.

Table 1: Person Years of Employment

| Measure | Keewatinohk Converter Station | | Transmission Line Construction | | Riel Converter Station | | Bipole III Transmission Project Total | |
|---|---|---|---|---|---|---|---|---|
| | Person years 2,000[3] (3,000)[4] | % of Project | Person years 2,000[3] (3,000)[4] | % of Project | Person years 2,000[3] (3,000)[4] | % of Project | Person years 2,000[3] (3,000)[4] | % of Project |
| Indigenous | 286 (191) | 27% | 185 (123) | 18% | 7 (5) | 1% | 478 (319) | 46% |
| Non-Indigenous | 416 (277) | 40% | 137 (91) | 13% | 10 (6) | 1% | 563 (375) | 54% |
| Northern Manitoba Indigenous | 175 (116) | 17% | 57 (38) | 6% | 0 (0) | 0% | 232 (155) | 22% |
| Northern Manitoba Non-Indigenous | 21 (14) | 2% | 6 (4) | 1% | 0 (0) | 0% | 27 (18) | 3% |
| Manitoba | 533 (356) | 51% | 224 (150) | 22% | 12 (8) | 1% | 770 (513) | 74% |
| Non-Manitoba | 168 (112) | 16% | 97 (65) | 9% | 5 (4) | 1% | 271 (180) | 26% |
| Total | 702 (468) | 67% | 322 (215) | 31% | 17 (11) | 2% | 1,041 (694) | 100% |

Note: Figures above are rounded to the whole number and are not additive.

### 6.1.2 Hires

Hires were not a parameter used in the EIA but are tracked by Manitoba Hydro for its projects. Hires refer to the number of people hired on the Project site for any duration. To September 30, 2015, there were 3,026 hires on the Bipole III Transmission Project. Fifty-seven percent of the total hires were for construction of the Keewatinohk Converter Station, and 40 percent of the hires were for transmission line construction. See Table 2 for a further breakdown of total hires.

[3] *This parameter is used for economic comparison purposes.*
[4] *This parameter is used for construction planning purposes and to compare to the estimates in the EA Report.*

Table 2: Total Hires

| Measure | Keewatinohk Converter Station | | Transmission Line Construction | | Riel Converter Station | | Bipole III Transmission Project Total | |
|---|---|---|---|---|---|---|---|---|
| | Hires | % of Total Project Hires | Hires | % of Total Project Hires | Hires | % of Total Project Hires | Hires | % of Total Project Hires |
| Indigenous | 760 | 25% | 673 | 22% | 11 | 0% | 1444 | 48% |
| Non-Indigenous | 955 | 32% | 529 | 17% | 98 | 3% | 1582 | 52% |
| Northern Manitoba Indigenous | 497 | 16% | 402 | 13% | 0 | 0% | 899 | 30% |
| Northern Manitoba Non-Indigenous | 33 | 1% | 28 | 1% | 0 | 0% | 61 | 2% |
| Manitoba | 1451 | 48% | 1054 | 35% | 104 | 3% | 2609 | 86% |
| Non-Manitoba | 264 | 9% | 148 | 5% | 5 | 0% | 417 | 14% |
| Total | **1715** | **57%** | **1202** | **40%** | **109** | **4%** | **3026** | **100%** |

Note: Figures above are not additive.

### 6.1.3 Employees

The total number of employees is less than the total number of hires because the same individual may have been hired more than once. For example, an individual may have moved to work on a different contract or moved to a different job classification to improve their position. To date, a total of 2,283 employees were hired on the Bipole III Transmission Project. A total of 83% of the total employees to date reside in Manitoba. See Table 3 for the breakdown of total employees.

Table 3: Total Employees

| Measure | Keewatinohk Converter Station | | Transmission Line Construction | | Riel Converter Station | | Bipole III Transmission Project Total | |
|---|---|---|---|---|---|---|---|---|
| | Employees | % of Total Project Employees | Employees | % of Total Project Employees | Employees | % of Total Project Employees | Employees | % of Total Project Employees |
| Indigenous | 522 | 23% | 525 | 23% | 11 | 0% | 1017 | 45% |
| Non-Indigenous | 789 | 35% | 423 | 19% | 98 | 4% | 1266 | 55% |
| Northern Manitoba Indigenous | 332 | 15% | 321 | 14% | 0 | 0% | 624 | 27% |
| Northern Manitoba Non-Indigenous | 33 | 1% | 21 | 1% | 0 | 0% | 52 | 2% |
| Manitoba | 1062 | 47% | 811 | 36% | 104 | 5% | 1896 | 83% |
| Non-Manitoba | 249 | 11% | 137 | 6% | 5 | 0% | 387 | 17% |
| Total | **1311** | **57%** | **948** | **42%** | **109** | **5%** | **2283** | **100%** |

Note: Figures above are not additive. Some employees may work across multiple Project components.

The number of employees to date does not reflect the number of employees on-site at a given time. The number of employees on-site at any given time varies depending on the work in progress and the time of year. The actual number of employees on-site over the course of the year ultimately depends upon the work plans and schedules of the contractors for the various project components. To date, the Bipole III Transmission Project has experienced 88 employees who have worked on multiple components of the Project.

### 6.1.4 Employment Duration

From start of construction to September 30, 2015, the average employment duration was 4.6 months. Data for the calculation includes both separated and active hires (hires that were still working on September 30, 2015). At September 30, 2015, 389 hires were active. See Table 4 for a breakdown of employment duration.

Table 4: Breakdown of Employment Duration

| Measure | Average Employment Duration (Months) | | | |
|---|---|---|---|---|
| | Keewatinohk Converter Station | Transmission Line Construction | Riel Converter Station | Bipole III Transmission Project Total |
| Indigenous | 5.4 | 2.7 | 4.7 | 4.2 |
| Non-Indigenous | 5.8 | 2.8 | 3.6 | 4.8 |
| Northern Manitoba Indigenous | 5.3 | 2.6 | 0.0 | 4.2 |
| Northern Manitoba Non-Indigenous | 4.4 | 2.8 | 0.0 | 3.9 |
| Manitoba | 5.4 | 2.8 | 3.8 | 4.4 |
| Non-Manitoba | 6.6 | 2.3 | 2.4 | 5.1 |
| **Total** | **5.6** | **2.7** | **3.7** | **4.6** |

Note: Figures above are not additive.

### 6.1.5 Type (Job Classifications) of Work Available

Total hires by job classification are provided in Table 5 below. In total there were 27 job categories in which 3,026 workers were hired. The top three combined categories as a percentage of total hires were equipment operators (26%), "other" (19%), and labourers (18%). For employee privacy and confidentiality reasons, the numbers of hires by residency cannot be disclosed, as the numbers are low for some of the classifications listed.

Table 5: Total Hires by Job Classification

| Classification | Keewatinohk Converter Station | | Transmission Line Construction | | Riel Converter Station | | Bipole III Transmission Project Total | |
|---|---|---|---|---|---|---|---|---|
| | Hires | % of Total Project Hires | Hires | % of Total Project Hires | Hires | % of Total Project Hires | Hires | % of Total Project Hires |
| Equipment Operators | 227 | 8% | 541 | 18% | 5 | 0% | 773 | 26% |
| Labourers | 194 | 6% | 332 | 11% | 20 | 1% | 546 | 18% |
| Carpenters | 148 | 5% | 9 | 0% | 19 | 1% | 176 | 6% |
| Teamsters, Chauffeurs, Warehousemen and Helpers | 130 | 4% | 43 | 1% | 0 | 0% | 173 | 6% |
| Catering and Janitorial Staff | 132 | 4% | 37 | 1% | 0 | 0% | 169 | 6% |
| Office and Professional Employees | 102 | 3% | 18 | 1% | <5 | 0% | 122 | 4% |
| Electrical Workers | 86 | 3% | 6 | 0% | 9 | 0% | 101 | 3% |
| Linemen and Associated Collector Line Trades | 0 | 0% | 82 | 3% | 0 | 0% | 82 | 3% |
| Plumbers and Pipefitters | 76 | 3% | <5 | 0% | 0 | 0% | 78 | 3% |
| Iron Workers | 54 | 2% | 0 | 0% | 5 | 0% | 59 | 2% |
| Security Guards | 45 | 1% | 0 | 0% | 0 | 0% | 45 | 1% |
| Roofers | 24 | 1% | 0 | 0% | 0 | 0% | 24 | 1% |
| Insulator Workers | 18 | 1% | 0 | 0% | 0 | 0% | 18 | 1% |
| Floor Covering Installers | 17 | 1% | 0 | 0% | 0 | 0% | 17 | 1% |
| Crane Operators | 7 | 0% | 5 | 0% | 0 | 0% | 12 | 0% |
| Sheeters, Deckers and Cladders | 11 | 0% | 0 | 0% | 0 | 0% | 11 | 0% |
| Boilermakers | 10 | 0% | 0 | 0% | 0 | 0% | 10 | 0% |
| Sheet Metal Workers | 8 | 0% | 0 | 0% | 0 | 0% | 8 | 0% |
| Painters | 7 | 0% | 0 | 0% | 0 | 0% | 7 | 0% |
| Lathing and Drywall Workers | 5 | 0% | 0 | 0% | 0 | 0% | 5 | 0% |
| Glass Workers | <5 | 0% | 0 | 0% | 0 | 0% | <5 | 0% |
| Cement Masons | 0 | 0% | 0 | 0% | <5 | 0% | <5 | 0% |
| Refrigeration Workers | <5 | 0% | 0 | 0% | 0 | 0% | <5 | 0% |
| Bricklayers and Allied Craftsmen | <5 | 0% | 0 | 0% | 0 | 0% | <5 | 0% |
| Sprinkler System Installers | <5 | 0% | 0 | 0% | 0 | 0% | <5 | 0% |
| Elevator Constructors | <5 | 0% | 0 | 0% | 0 | 0% | <5 | 0% |
| Other [5] | 403 | 13% | 127 | 4% | 46 | 2% | 576 | 19% |
| **Total Hires** | **1715** | **57%** | **1202** | **40%** | **109** | **4%** | **3026** | **100%** |

[5] *The "Other" category refers to hires in non-craft job classifications. This would include managerial and supervisory staff (both contractor and Manitoba Hydro), other Manitoba Hydro on-site staff and certain technical staff (engineers and technicians).*

## 6.2 Business Outcomes

Construction of the Project has resulted in business opportunities locally, regionally and throughout the province and Canada. Manitoba Hydro has policies in place to promote local businesses on its projects. For example, Manitoba Hydro's Northern Purchasing Policy's objective is to guide actions with the aim of promoting business, contract and employment opportunities for northern Indigenous people and northern Manitoba businesses on work within the Province of Manitoba's Northern Affairs Boundary. The goal is to enhance business relationships with the communities and to assist them in building capacity and competitiveness of their businesses through involvement in Manitoba Hydro contracts.

Application of this policy ensures northern Indigenous and northern Manitoba businesses have the opportunity to participate in the economic activity resulting from project construction. Manitoba Hydro has also entered into Direct Negotiated Contracts. Business outcomes are measured in terms of direct expenditures of the Project for goods and services.

Monitoring both direct and indirect business effects provides data on the success and effectiveness of efforts to enhance local business participation, as well as an indication of the general economic impact of the Project in communities in the vicinity of Bipole III. Business outcomes are measured in terms of data on the direct expenditures of the Project for goods and services with a focus on Indigenous and northern spending.

### 6.2.1 Direct Project Expenditures

There was $724.5 million spent on goods and services for the Project during the reporting period. During construction it is estimated that there will be approximately $2,115.2 million in expenditures. This reporting period represents approximately 34% of the total expenditures for the Project during the construction phase of the Project. Table 6 summarizes the breakdown of total purchases to date.

Table 6: Direct Purchases

| Measure | Keewatinohk Converter Station | | Transmission Line Construction | | Riel Converter Station | | Bipole III Transmission Project Total | |
|---|---|---|---|---|---|---|---|---|
| | $ (Millions) | % of Total Project | $ (Millions) | % of Total Project | $ (Millions) | % of Total Project | $ (Millions) | % of Total Project |
| Indigenous | $ 18.8 | 3% | $ 135.7 | 19% | $ 0.0 | 0% | $ 154.5 | 21% |
| Non-Indigenous | $ 355.0 | 49% | $ 109.5 | 15% | $ 105.4 | 15% | $ 569.9 | 79% |
| Northern Manitoba Indigenous | $ 17.8 | 2% | $ 108.5 | 15% | $ - | 0% | $ 126.3 | 17% |
| Northern Manitoba Non-Indigenous | $ 3.9 | 1% | $ 3.3 | 0% | $ - | 0% | $ 7.2 | 1% |
| Manitoba | $ 246.5 | 34% | $ 193.7 | 27% | $ 52.3 | 7% | $ 492.5 | 68% |
| Non-Manitoba | $ 127.3 | 18% | $ 51.6 | 7% | $ 53.1 | 7% | $ 232.0 | 32% |
| **Total** | **$ 373.8** | **52%** | **$ 245.3** | **34%** | **$ 105.4** | **15%** | **$ 724.5** | **100%** |

Note: Figures above are not additive.

## 6.3 Labour Income and Tax Revenue

Labour income is an important indicator of direct economic impact of a project. Income levels also affect the general standard of living of individuals and families by influencing the acquisition of basic human needs including housing, food and clothing. Consequently, monitoring income levels can provide a general indication of a project's contribution to overall standard of living. The estimate of labour income reflects the direct income of wages and salaries associated with direct person-years of employment.

Regarding taxation, direct taxes paid reflect incremental revenue sources generated for governments as a result of a project. The incremental revenues, in turn, contribute to societal programs and general well-being. The following parameters are monitored during the construction phase:

- Labour income – direct income earned by workers from employment on the Project
- Taxes paid
- Provincial sales tax
    - Payroll tax
    - Corporate capital tax
    - Fuel tax

The EIS estimated the entire project construction expenditure would contribute $482.3 million in labour income, $352.4 million in tax revenue to Manitoba, $721.3 million in labour income and

$489.1 million in tax revenue to all of Canada.

### 6.3.1 Labour Income

The estimate of labour income reflects the direct income earned by workers from employment on the Project. It is the sum of wages and salaries associated with direct person years of employment[6]. Total labour income earned is approximately $85.3 million to date. Table 7 lists the breakdown of labour income earned on the Project.

Table 7: Labour Income

| Measure | Keewatinohk Converter Station | | Transmission Line Construction | | Riel Converter Station | | Bipole III Transmission Project Total | |
|---|---|---|---|---|---|---|---|---|
| | Labour Income (Millions) | % of Project | Labour Income (Millions) | % of Project | Labour Income (Millions) | % of Project | Labour Income (Millions) | % of Project |
| Indigenous | 18.7 | 22% | 9.1 | 11% | 0.1 | 0% | 27.9 | 33% |
| Non-Indigenous | 37.5 | 44% | 18.0 | 21% | 1.2 | 1% | 56.6 | 67% |
| Northern Manitoba Indigenous | 12.3 | 14% | 4.4 | 5% | 0.0 | 0% | 16.8 | 20% |
| Northern Manitoba Non-Indigenous | 1.5 | 2% | 1.2 | 1% | 0.0 | 0% | 2.7 | 3% |
| Manitoba | 44.0 | 52% | 24.5 | 29% | 1.3 | 2% | 69.8 | 82% |
| Non-Manitoba | 12.9 | 15% | 2.5 | 3% | 0.0 | 0% | 15.4 | 18% |
| Total | 56.9 | 67% | 27.1 | 32% | 1.3 | 2% | 85.3 | 100% |

Note: Figures above are not additive.

### 6.3.2 Taxes

The Project also contributed to government revenues. This includes revenues received by federal and provincial governments such as payroll tax, personal income tax, capital tax, fuel tax and provincial sales tax. Not all of these taxes are payable by the Project; however, they are generated as a result of the work undertaken. The estimate provided here does not include taxes received by the local or municipal government or taxes associated with indirect or induced employment.

The estimate of total tax impacts to the end of September 30, 2015 is $76.1 million. The estimate includes $1.8 million in payroll taxes[7], $22.1 million in personal income taxes[8], $7.0 million in capital tax, $2.6 million in fuel tax[9] and $42.6 million in provincial sales tax[10].

---

*[6] Labour income is calculated based on information provided by contractors and Manitoba Hydro.*
*[7] Health and Post-secondary Education Tax is calculated as 2.15 percent of the estimated labour income of $85.3 million.*
*[8] Personal income taxes are paid by individual employees to the federal and provincial governments. Each individual's personal tax situation (and therefore taxes payable) will vary. However, this estimate is based on a range of reasonable assumptions.*
*[9] The fuel tax estimate is based on provincial taxes of 14 cents/litre for both diesel and gasoline and federal taxes of 4 cents/litre for diesel fuel and 10 cents/litre for gasoline; provincial taxes of 3.0 cents/litre for propane fuel; provincial and federal taxes of 3.2 cents/litre and 4.0 cents/litre, respectively, for aviation fuel.*

## 7.0 Community Services

Community-based services (e.g., emergency, health and social) have the potential to be impacted in communities in close proximity to various components of the Project. Such effects are more likely to occur for the Keewatinohk Converter Station than for the Bipole III Transmission Line, given the differences in workforce magnitude and the use of mobile construction camps for the transmission line. Monitoring the extent of the Project's construction effects on community services in the Gillam area forms an important component of the Bipole III SEMP.

Information related to Project impacts is being sought, in part, through a Worker Interaction Subcommittee (the Subcommittee) that has been established by Manitoba Hydro. The Subcommittee is part of a corporate-wide initiative intended to address anticipated increases in the Gillam area workforce resulting from several Manitoba Hydro projects being constructed in the area in an overlapping timeframe, as well as from other Manitoba Hydro-related work in the area. Subcommittee members during 2014-15 included Manitoba Hydro, Fox Lake Cree Nation, the Town of Gillam, the RCMP (Gillam Detachment), the Gillam Hospital, and the Gillam School. Other stakeholder members may be identified by the Subcommittee on an as needed basis.

From October 1, 2014 to September 30, 2015, the Subcommittee met three times (December 11, 2014; June 23, 2015; and September 17, 2015). During the period, the Subcommittee developed and refined plans and processes for monitoring and considering areas of community interest regarding potential Project impacts. This included the development of an ongoing reporting and tracking process for specific community concerns and incidents identified by or to its members. Through these mechanisms, as well as Subcommittee meetings and ongoing communications between members, the Subcommittee discussed service and infrastructure-related matters in areas such as local road conditions (e.g. PR 280 and Butnau Road) and Gillam facility use (e.g. the airport and fitness centre). In addition, the Subcommittee considered information and data provided by the Gillam Hospital and the Gillam RCMP related to demands for health services (e.g. Gillam hospital worker visits) and policing (e.g. RCMP calls) over the period.

Manitoba Hydro activities during the period with relevance to matters discussed by the Subcommittee included various transportation and traffic safety-related measures; the parking of Keewatinohk shuttles in designated areas at the airport to reduce impacts on other users; and provision of a fact sheet developed by the Gillam Hospital (regarding hospital facilities, medical staff availability, and related hours) to contractors for communication to workers.

Given privacy requirements in data collection, as well as the various developments currently taking

---

[10] *PST is based on estimates of taxes paid directly by the project and PST on materials provided by suppliers under real property contracts.*

place in the area, it was not always possible over the period to link demand for services (e.g. health and policing services) specifically to a particular project. In addition, due to the sensitive nature of the topics addressed, specific data gathered by the Subcommittee will remain confidential. However, Manitoba Hydro will continue to use the information provided by community and service providers' representatives on the Subcommittee to assist in identifying areas in which the Corporation may take adaptive measures to reduce Project impacts.

Additional information on the Worker Interaction Subcommittee is provided under Section 9.1 Public Safety - Worker Interaction.

# 8.0 Resource Use

## 8.1 Trapping

The furbearer and trapline monitoring program focuses on commercial trappers who are trapping on active registered traplines (RTL) that are set aside by Manitoba Sustainable Development as Community/Youth RTLs. The main purpose of the program is to help Manitoba Hydro and local communities better understand the impacts of transmission facilities on furbearer behaviour and trapper success. This program is based on the Wuskwatim Transmission Line Furbearer Pilot Project.

Manitoba Hydro potentially has six community RTLs to work with (e.g., Fox Lake Cree Nation, Tataskweyak Cree Nation, Thicket Portage, Wabowden, Cormorant and Opaskwayak Cree Nation). The initial part of the program is to conduct a trapper training workshop with the participating Community/Youth RTLs. Manitoba Hydro will continue to work with communities after the training program to establish a three year trapping program on the Community/Youth RTLs involving both elders and youth. Other project deliverables will include documentation of project meetings and other communications, trapper/community involvement summaries, project mapping, trapper diaries, program results and reports.

To date, there have been two trapper education courses conducted in both Fox Lake Cree Nation and Tataskweyak Cree Nation in preparation for commencing the trapping program. This involved approximately ten youth from each community who participated in a course that was conducted by the Manitoba Trappers Association. The participants learned about the different trap types, trapping regulations and fur preparation. In the evening, there was also an opportunity for elders from each community to educate the participants about traditional harvesting techniques. Each participant wrote the provincial exam and received a certificate allowing them to purchase a trappers licence.

There also have been two kick-off meetings with Opaskwayak Cree Nation and Thicket Portage. The Opaskwayak Cree Nation trapping program will be facilitated through an existing school

program and involves twelve youth that are currently participating in the Environmental Studies curriculum; students have received the trapping presentation as well as the trapping supply kit. The Thicket Portage trapping program has yet to select a community coordinator and a trapping education course for the youth involved. Manitoba Hydro will continue to work with Thicket Portage to initiate the program.

## 9.0 Personal, and Community Well Being

Personal, family and community life can be affected by a variety of Project-related effects (e.g., physical changes to the land; noise and nuisance effects during construction). The experience of such effects will vary for individuals, families and communities as a whole.

A potential Project-related issue identified in the EIS is related to public safety and the interaction of workers with community members in Gillam and the surrounding area.

### 9.1 Public Safety - Worker Interaction

Construction of the Keewatinohk Converter Station and associated facilities requires a sizeable workforce drawn from a wide geographic area. Neighbouring communities have identified concerns regarding potential adverse effects of increased numbers of construction workers in the area.

Manitoba Hydro has established a Worker Interaction Subcommittee to serve as a forum for information sharing and communication related to anticipated increases in the Gillam area workforce. These increases are expected to result from several Manitoba Hydro projects being constructed in the area in an overlapping timeframe, as well as from other Manitoba Hydro-related work in the area. Subcommittee communications are intended to provide for early identification of potential issues, prevention of issues to the extent possible, and identification of ways and means to work cooperatively to address issues as they arise.

During the period of October 1, 2014 to September 30, 2015, the Subcommittee considered public safety and worker interaction-related matters in areas such as traffic safety, behaviour of non-local persons at community facilities, and cultural awareness training for short-term contractors. Due to the sensitive nature of the topics addressed, specific information gathered by the Subcommittee will remain confidential.

Manitoba Hydro activities during the period with relevance to matters discussed by the Subcommittee included communication with contractors regarding workers' behaviour in public; working with Fox Lake Cree Nation to implement cultural awareness training for short-term contractors; and various traffic safety-related measures.

(Additional information on Worker Interaction Subcommittee membership, meeting dates, and

monitoring activities is provided under Section 7.0 – Community Services.)

## 9.2 Transportation

### 9.2.1 Road Traffic

A commitment in the Bipole III EIS was to conduct transportation monitoring in the vicinity of northern project infrastructure. Traffic counters were to be installed during this reporting period; however, upgrades to PR 280 required an alternate approach and trail cameras were used. The locations of the traffic counters are north of PR 290 prior to any major construction access and south of PR 290. See Figure 1 for trail camera locations and Photo 1 for an example of the installed trail cameras.

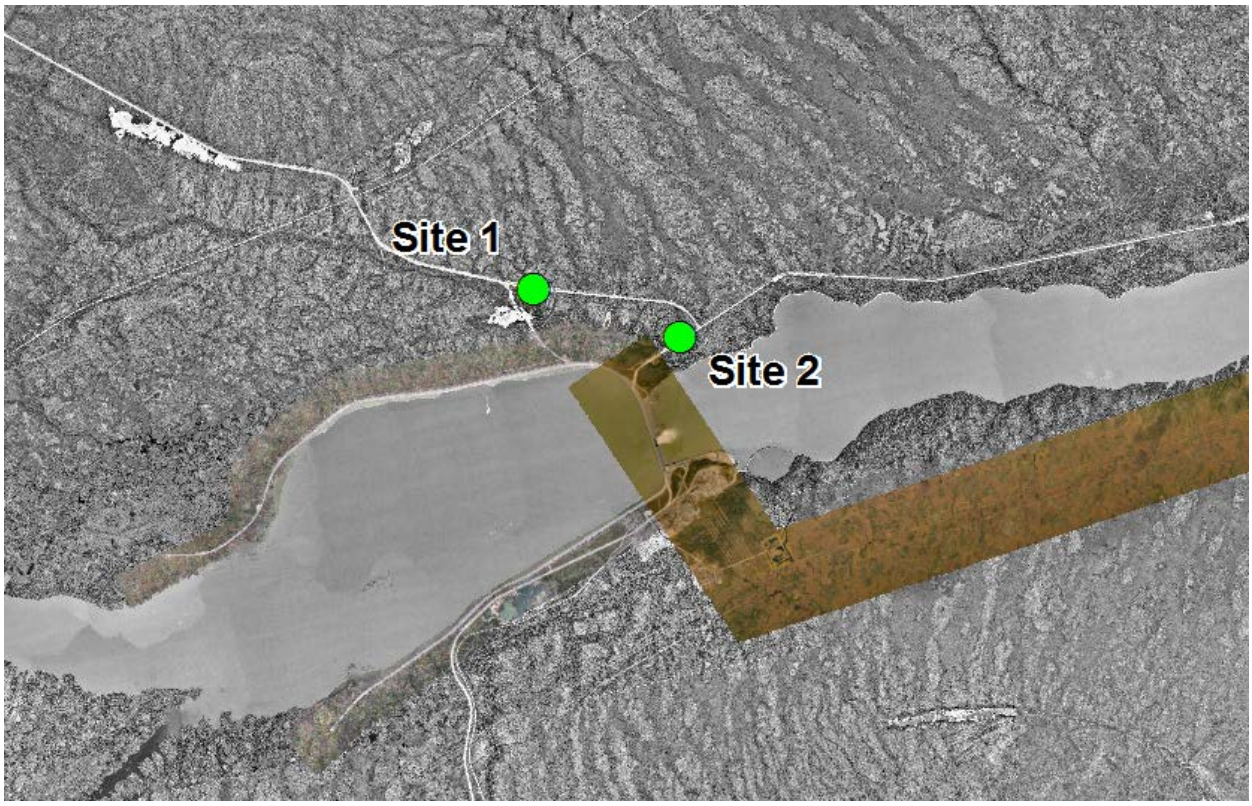


Figure 1: Location of Trail Cameras

Figure 2: Installed Trail Camera

Both sites #1 and #2 were deployed on February 10, 2015. The final retrieval date for site #1 was on September 9, 2015, and for site #2 on October 12, 2015. While traffic volume data was collected during this period, the data was not robust enough to facilitate analysis and present results. Permanent traffic counters have since been installed and that data will be presented during the next reporting period.

In addition to traffic volumes, gate records at Keewatinohk are also collected and reported. Data collection for the Keewatinohk Converter Station work site is through a Direct Negotiated Contract

signed with the Fox & Sodexo Joint Venture Company. Security staff at the control/security gate monitor the movement of traffic to and from the Project site at all hours of operation. Table 8 provides a summary of traffic coming to and from the Project site. The table presents the total number of vehicles passing through the security gate in a month, as well as the average number of vehicles passing through the security gate in a day for each month in the reporting period. On average 76 vehicles per day used the road during the reporting period beginning October 1, 2014 to September 31, 2015.

Table 8: Security Gate Counts at Keewatinohk Converter Station, October 1, 2014 to September 30, 2015

| Period | | Gate Count Total | Daily Average |
|---|---|---|---|
| Previous Reporting Period* | | 33,088 | 123 |
| | | | |
| 2014 | October | 2,899 | 94 |
| | November | 1,743 | 58 |
| | December | 1,255 | 40 |
| 2015 | January | 2,178 | 70 |
| | February | 2,993 | 107 |
| | March | 2,672 | 86 |
| | April | 2,963 | 99 |
| | May | 1,599 | 52 |
| | June | 2,287 | 76 |
| | July | 2,473 | 80 |
| | August | 2,366 | 76 |
| | September | 2,510 | 84 |
| | **Total** | **27,938** | **76** |

* Gate record keeping began January 6th, 2014
Source: Manitoba Hydro gate records
Note: Vehicles by month, with daily average

## 10.0 Cultural and Heritage Monitoring

For the environmental assessment of cultural and heritage resources, Aboriginal Traditional Knowledge (ATK) played an important role in identifying areas of potential cultural and heritage concern for the Project. Various methods and sources of information provided identification of areas of high heritage potential known as heritage Environmentally Sensitive Sites (ESS). Locations include water crossings, level, well-drained terrain and proximity to known archaeological sites. As noted in the Effects Assessment chapter in the EIS, construction activities such as excavation and clearing can cause changes to the physical environment which could potentially indirectly affect culture.

ATK assisted in providing the cultural context to these heritage ESS locations, some of which were not able to be investigated prior to filing the EIS but were investigated subsequently during the monitoring of clearing and construction activities. Examples of areas of interest along the final

preferred route for Bipole III identified by archaeological methods and ATK information are presented in the following section (See Bipole III – Culture and Heritage Resources – 8.3.6 of Bipole III Effects Assessment and Mitigation for further information). A brief description is provided below of the heritage ESS locations, monitoring that has taken place to date, efficacy of mitigation, future commitments and adaptive management measures that have occurred.

## 10.1 Cultural and Heritage Resources Protection Plan

A Cultural and Heritage Resources Protection Plan (CHRPP) was developed for the Project. The role of the CHRPP in the Environmental Protection Program is to describe processes and protocols with communities to allow Manitoba Hydro to safeguard cultural and heritage resources and appropriately handle human remains or cultural and heritage resources discovered or disturbed during the construction of the Project. Recorded cultural and heritage resources and their protection measures have been incorporated into the applicable Construction Environmental Protection Plans. The Operations and Maintenance Environmental Protection Plans will also include protection measures to be used for the ongoing protection of cultural and heritage resources during operations.

Heritage Resources training has occurred every year since 2014 to familiarize Environmental Monitors, Community Liaisons, Construction Supervisors, and Contractors in protocols related to the CHRPP. This training provides detailed description of methods and key actions to ensure the safeguarding and appropriate handling of human remains or cultural and heritage resources if discovered through construction of the Bipole III Transmission Project. Examples of heritage or cultural resources are also presented and illustrate examples of artifacts, features, or evidence of cultural practices (e.g. prayer ribbons hanging in trees) that may be found in the project area. The presentation also provides an overview of governing legislation protecting heritage resources, as well as status and results of the ongoing heritage monitoring program.

### *Keewatinohk Converter Station*

Two archaeological sites were identified within the proposed Project Site/Footprint of the Keewatinohk Converter Station during a Heritage Resource Impact Assessment. Site one is situated immediately south of the Keewatinohk Converter Station. The site contained a possible Palaeo-Inuit occupation and three possible burial features. Site two is located on the north side of the Keewatinohk Converter Station. It consists of three possible tent rings. Currently, both sites are protected by permanent chain link fencing.

In July 2014, follow-up monitoring occurred at the two sites, which included a pedestrian survey and GPS documentation of exposed artifacts or any stone features identified. The site assessment included the Project Archaeologist, Fox Lake Cree Nation community members and others.

At site one, the archaeological survey team surveyed the area within the protective fencing using a pedestrian survey to visually inspect the ground surface for exposed heritage resources. Controlled artifact collection and recording of possible stone features using handheld GPS units was carried out. The majority of the heritage resources have been collected through previous investigations that have occurred at this site. The permanent fencing will ensure on-going protection during the construction and operation of the Project. Re-vegetation is providing additional natural protection. Consequently, there are no further recommended mitigation measures for this site.

At the second site the archaeological survey focused on the area within the protective fencing. The monitoring also examined the location of an area of snow removal that had occurred the previous winter of 2013/2014 and determined there were no impacts to heritage resources. The team traversed the area using a pedestrian survey to visually inspect the ground surface for exposed heritage resources.

Artifact collection and recording of possible stone features using handheld GPS units was also carried out. Of special note is the account from a Fox Lake Cree Nation Elder who indicated that the area has spiritual significance and that caution and respectful work practices should occur at this site. The majority of the heritage resources have been collected through the various investigations that have previously occurred at this site. The permanent fencing will ensure on-going protection of the existing stone features during the construction and operation of the Bipole III Transmission Project. Re-vegetation is providing additional natural protection. Consequently, there are no recommended further mitigation measures for this site.

### *Cormorant Bottleneck*

In the Cormorant area, a petroform is situated within 16 m of the centre line of the final preferred route for the Bipole III HVDC transmission line. The site was discovered during Heritage Resources Impact Assessment (HRIA) archaeological investigations for the Wuskwatim Transmission Project in 2002. The petroform is located approximately 50 m east of the existing Herblet Lake to Rall's Island 230 kV transmission line rights-of-way (ROW) and within the Bipole III right-of-way. Temporary signage was established adjacent to the site.

The Cormorant Petroform site was mitigated through avoidance and the establishment of a series of snow fence buffers in February 2014 with openings to allow for wildlife passage. Prescribed mitigation measures included tree removal by hand-clearing or reaching a feller buncher arm into the buffered area. The trees to which the fencing had been attached were to be cut off at a four foot height and left in place. The site was revisited during the August 2014 summer field survey to ensure mitigative actions were implemented and successful. During the summer field survey, there was evidence that disturbance to the petroform rocks had occurred at some time in the recent past

as a number of rocks had been overturned, likely by animals in pursuit of bugs and fungus. Snow fencing was still in place protecting the petroform. A permanent fence is to be installed to provide ongoing protection.

### *Red Deer River Bottleneck*

The Red Deer River Bottleneck had limited investigations prior to EIS filing due to accessibility issues and high water levels. The Red Deer River was noted by at least five communities as being of historic interest noting that human remains have been found along this river historically. The Red Deer River is an important waterway historically and was one of the first waterways explored by Henry Kelsey in the 1690s. Currently the river is used as a transportation route for fishing and recreation. As a result of the ATK, monitoring was proposed post EIS filing to determine appropriate mitigation measures. Recommended mitigation for the Red Deer River crossing included having Environmental Monitors on-site during tree clearing and tower footing excavation within 100 metres of the waterway; field assessments of the cleared line and tower locations will be assessed by the Project Archaeologist prior to or in conjunction with tower footing excavation. As of 2016, the Red Deer River had not been cleared on the south side of the crossing. An investigation will occur post-clearing.

### *Assiniboine River Crossing*

The Assiniboine River Crossing was identified by Long Plain, Dakota Tipi, Swan Lake and Dakota Plain First Nations as an area of concern. The famous Yellow Quill Trail crosses the river nearby. Yellow Quill was the first Chief of these First Nations and was signatory to Treaty 1. As noted in the EIS, Swan Lake First Nation has completed some heritage field work, but the area would require detailed survey by the Project Archaeologist working with the Swan Lake First Nation archaeologist prior to construction.

Both banks of the Assiniboine River Crossing were assessed during the 2015 field survey as well a post-clearing impact assessment was undertaken of the southern crossing at the request of Swan Lake First Nation. The Assiniboine River crossing was examined in partnership with a representative from Swan Lake First Nation, Manitoba Hydro and the Project Archaeologist due to the presence of a number of archaeological sites in the area. Adjustments to the northern alignment of the transmission line ROW resulted in the avoidance of one heritage ESS site from the ROW. The remaining six registered archaeological sites were revisited and tested with negative results, indicating that these sites were small isolated finds and no further mitigation was required. Overall, 13 areas were investigated and did not result in the discovery of heritage resources. The northern crossing will still require a post-clearing assessment and monitoring of tower locations on either side of the Assiniboine River by a professional archaeologist.

*Plant Species Important to Indigenous Peoples*

As noted in the Biophysical Monitoring and Mitigation Report (2014), during the environmental assessment and approval process for the Bipole III Transmission Project, a number of plant species were identified for protection based on their importance to Indigenous people who gather them for food, medicinal and traditional purposes. The Cowan blueberry site was the focus of monitoring in 2014 as it was identified by many people as a highly valued local resource. Three community members from Pine Creek First Nation and two community members from Camperville joined the survey team in July 2014 to see and participate in the investigation of the Cowan site. Ten sites were investigated with side-by-side paired surveys conducted on the future location of the Bipole III ROW. Two species of blueberry plants were observed during the surveys: velvetleaf blueberry and low sweet blueberry. Blueberry plants were more commonly observed in areas with deciduous tall shrub cover. Species richness, cover and diversity were not significantly different between the paired sites. Blueberry occurrence was similar on ROW and off ROW sites. Manitoba Hydro is planning follow-up visits with community members post-clearing and as the ROW re-vegetates.

## 10.2 Liaising With Communities

Many mitigation measures relating to culture focused on continuous dialogue and involvement of local communities to ensure any matters relating to heritage and culture are addressed in an appropriate manner. Some of the activities communities were involved in since construction are outlined below.

*Wabowden*

Wabowden community members participated in ground transect surveys during the winter as part of mammal monitoring along with consultants. Community members snow shoed transects up to one kilometer off the ROW and noted animal track observations to determine the presence and extent of furbearer activity both on and off the ROW.

*Opaskwayak Cree Nation*

An Opaskwayak Cree Nation community member participated in camera deployment and maintenance for access monitoring for the Project. In addition to the above, a traditional use survey with Opaskwayak Cree Nation Natural Resource Council also occurred as well as a field tour to determine the efficacy of ROW clearing prescriptions.

*Pine Creek, Duck Bay and Camperville*

As noted in the previous section, Pine Creek, Duck Bay and Camperville community members participated in vegetation monitoring related to blueberry abundance in areas of importance to the communities. Survey plots on and off the ROW were investigated to determine blueberry abundance and the impact of ROW clearing.

*Swan Lake First Nation*

Members of Swan Lake First Nation participated in heritage resource monitoring activities in S1 and S2 construction segments. Community members did shovel testing, ground surveys and artifact collection.

In addition to the above activities, Manitoba Hydro is committed to engaging community-based expertise during the construction of the Project, and has developed two positions for communities to ensure on-going dialogue and capacity building activities – Environmental Monitors and Community Liaisons. There are currently ten communities that have Environmental Monitors and/or Community Liaisons.

Primary activities for the Environmental Monitors include contributing to the implementation and reporting of the Environmental Monitoring Program, and contributing ATK to the Environmental Monitoring Program.

For the Community Liaisons, key activities and responsibilities include:

- Provide traditional knowledge of the area and Indigenous perspective and cultural awareness to the project site;
- Participate in site safety meetings as required including daily tailboard / job planning meetings;
- Be familiar with, and adhere to, Manitoba Hydro's Life Saving Rules, Safe Work Procedures, and all other regulations, approved practices and procedures;
- Make regular reports to the community, Manitoba Hydro Construction Supervisor and Chief and Council regarding inspection and monitoring activities, construction schedules, community interests and concerns;
- Share Project information and community concerns with Environmental Monitors;
- Assist in making recommendations for improving mitigation measures; and
- Provide local knowledge about project area to facilitate construction (e.g. identify creeks that freeze over, access trails, contact information, timing and type of use by resource users, and community values).

Examples of activities undertaken by some of the Community Liaisons and Environmental Monitors during construction to date are:

- Reviewing sensitive Caribou areas with Natural Resource Officers;
- Observations of construction activities (e.g., clearing, tower and anchor installations);
- Wildlife observations;

- Participation in daily construction tailboard meetings;
- Flagging sensitive sites (including heritage and cultural sites of importance); and
- Review buffer zones.

## 11.0 Mitigation

A number of measures were prescribed to mitigate socio-economic effects and address local concerns. Below are some examples of mitigation measures implemented to mitigate effects:

- Worker Interaction Subcommittee meetings provided an opportunity to share information related to the increased workforce in the Gillam area as a result of Manitoba Hydro projects and activities, as well as to identify and work cooperatively to address related issues;
- Cultural Awareness training was provided for workers;
- A regular air transportation charter service was implemented to accommodate the Keewatinohk workforce to ensure that scheduled flights are still available for local residents. There is also a shuttle service to transport workers to and from the airport;
- Prior to construction activities, registered trapline holders are notified as to the schedule for construction activities;
- Subject to detailed engineering analysis, tower location (i.e., tower spotting) is being used, where feasible, to reduce potential negative effects; and
- Agencies responsible for infrastructure crossed by the transmission line have been consulted.

## 12.0 Summary

Initial results of the second year of the monitoring plan have begun to establish information to evaluate long-term changes or trends. Monitoring results have been reviewed and as additional data is collected it will be used to develop appropriate responses consistent with an adaptive management approach to facilitate environmental protection throughout the implementation of the Bipole III Transmission Project.

# Appendix A: Final Preferred Route