

**Bipole III**  
**Economic Impact Assessment**  
**Technical Report**



**Economic Analysis  
Department**

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## 1. Executive Summary

The Bipole III project consists of a north-south high voltage direct current transmission line with two converter stations at each end. It is designed to deliver power from northern hydroelectric generating stations and improve the reliability of Manitoba Hydro's high voltage transmission system.

The Bipole III transmission project includes:

- A 500-kilovolt HVDC transmission line linking the northern power generating complex on the lower Nelson River with the conversion and delivery system in southern Manitoba. The capital cost of the high voltage transmission line with associated collector and electrode lines is estimated to be \$961 million (in 2010 dollars) to build.
- Two new converter stations – one in northern Manitoba northeast of Gillam (Keewatinoow) and one east of Winnipeg at the Riel Station site. The converter stations are large complexes consisting of AC and DC switchyards. The capital costs associated with the northern converter station, Keewatinoow, and southern converter station, Riel, are estimated to be \$1,154 million (in 2010 dollars).

Although the gross estimated cost of the Bipole III project is estimated to be \$3.28 billion, the economic impact analysis of the project takes into account only direct expenditures associated with on-site construction totalling approximately \$2.12 billion (in 2010 dollars). The economic impact analysis does not include sunk costs, interest and escalation during construction, costs associated with pre-project planning, design, and training, costs associated with environmental studies, and any potential local development payments.

The major economic benefit of the project is from construction. In total, the entire project construction expenditure is expected to contribute to **Manitoba** as follows:

- **8,782 person-years of direct and indirect employment,**
- **\$482.3 million in labour income,**
- **\$688.7 million in GDP,**
- **\$352.4 million in tax revenue.**

Operating and maintaining the project is expected to contribute, on average, annually to **Manitoba** as follows:

- **130 person-years of direct and indirect employment,**
- **\$7.9 million in labour income,**
- **\$9.0 million in GDP,**
- **\$9.4 million in tax revenue.**

In total, the entire project construction expenditure is expected to contribute to all of **Canada** as follows:

- **14,392 person-years of direct and indirect employment,**
- **\$721.3 million in labour income,**
- **\$1,185.0 million in GDP,**
- **\$489.1 million in tax revenue.**



In total, operating and maintaining the project is expected to contribute, on average, annually to all of **Canada** as follows:

- **150.1 person-years of direct and indirect employment,**
- **\$8.6 million in labour income,**
- **\$10.5 million in GDP,**
- **\$9.8 million in tax revenue.**

## 2. Introduction

The purpose of this document is to present the results of an economic impact analysis of the proposed Bipole III transmission line and associated conversion and system connections. The project is required to improve overall system reliability and dependability. The Bipole III transmission project includes:

- A 500-kilovolt HVDC transmission line linking the northern power generating complex on the lower Nelson River with the conversion and delivery system in southern Manitoba. The capital cost of the high voltage transmission line with associated collector and electrode lines is estimated to be \$961 million (in 2010 dollars) to build.
- Two new converter stations – one in northern Manitoba northeast of Gillam (Keewatinoow) and one east of Winnipeg at the Riel Station site. The converter stations are large complexes consisting of AC and DC switchyards. The capital costs associated with the northern converter station, Keewatinoow, and southern converter station, Riel, are estimated to be \$1,154 million (in 2010 dollars).

Although the gross estimated cost of the Bipole III project is estimated to be \$3.28 billion, the economic impact analysis of the project takes into account only direct expenditures associated with on-site construction totalling approximately \$2.12 billion (in 2010 dollars). The economic impact analysis does not include sunk costs, interest and escalation during construction, costs associated with pre-project planning, design, and training, costs associated with environmental studies, and any potential local development payments.

The economic impact analysis provides an estimate of the total employment impacts of the project on the economies of Manitoba and the rest of Canada. It also estimates the total Gross Domestic Product, tax revenue impacts, and labour income. It indicates not only the potential impacts generated directly by the project, but also the potential spin-off effects generated as a result of purchases of domestic goods and services and the local recirculation of increased income.

The economic impacts for the construction phase represent the estimated impacts for the entire construction period. The economic impacts for the operational phase are expressed on an annual basis.

Economic impacts have been calculated separately for construction and operational phases of the project. The analysis is based on construction, and operation and maintenance cost estimates available as of May 2011. Total construction spending is estimated to be about \$2,115.2 million in 2010 dollars, made up of an estimated \$961.4 million for transmission, collector, and electrode lines and an estimated \$1,153.8 million for the converter stations, switchyards, and synchronous condensers. Analysis of the operational phase incorporates estimated average annual expenditures of \$2.1 million in 2010 dollars for the transmission line and \$6.5 million for the converter stations. The construction and operating and maintenance cost estimates for the Bipole III transmission line and associated converter facilities may change as a result of further enhancements to the design. This may lead to changes in the economic impacts presented in this report.

While economic impact analysis can be a useful component in decision making, it does have some limitations. Economic impact analysis differs from socio-economic benefit-cost analysis in that it is a gross, rather than net, measure of benefits and it only considers the impact of project expenditures. It does not consider the opportunity cost of labour and capital in the project nor does it consider the revenue generated by the project. By itself, it cannot measure the profitability of the project. Thus, the results of this study should be treated as general estimates and never as absolutes.

### 3. Methodology

Assessing economic impacts of the construction and subsequent operation of the Bipole III project involves estimating (1) direct expenditures that would be made by entities within Manitoba or Canada, and (2) the secondary impacts that would be expected to result from these direct expenditures. The economic modelling framework used for estimating these economic impacts is the Manitoba Bureau of Statistics' Input-Output model. The model is based on statistical information about the flow of goods and services among various sectors of Manitoba's economy. In effect, it allows one to trace the demands placed on one industry resulting from increased activity in another. Thus the model provides estimates of direct, indirect, and induced impacts of the proposed Bipole III project on the economy of Manitoba or Canada. In summary, economic impact analysis refers to three different types of impacts:

- **Direct.** These are the impacts of the initial project expenditures.
- **Indirect.** These are the impacts that are created through increased sales for suppliers to the direct activity. For example, direct expenditures on transmission line towers will create an indirect increase in spending on transportation fuel and transportation repair services.
- **Induced.** These are impacts that are created by additional income and profits earned by workers and company owners associated with the project directly or indirectly. This additional income leads to more spending on food, housing, entertainment, transportation, and all of the other expenses that make up a typical household budget.

In determining the economic impact, there are two major purchasing categories considered: local purchases and non-local purchases. Non-local purchases represent a leakage or loss to a local economy.

The results of economic impact analysis are reported with the following data:

- **Employment.** This is a straightforward measure of the number of person-years of employment (full-time job equivalents) that are generated by the project, including direct employment, indirect employment with suppliers to the main project, and induced employment that is associated with the extra spending by households.
- **Labour Income.** This is the additional income earned by workers as a result of the project.
- **Gross Domestic Product (GDP).** Also referred to as "value-added," GDP represents the additional value of production that is generated by the project after removing the cost of intermediate inputs. For the purpose of this analysis, GDP at market price is reported. GDP at market price is a measure of the total value of goods and services produced in the economy.
- **Tax Revenue.** Tax revenue is calculated for all three levels of government – federal, provincial, and local.

Key economic impacts resulting from the Bipole III project are presented in the sections that follow. In addition to beneficial economic impacts for Manitoba or Canada, this project will also contribute to federal and provincial objectives in terms of reliability and capacity building (i.e., skills developed for Northern peoples as a result of employment and increased business opportunities).

## 4. Potential Economic Impacts on Manitoba

### 4.1 Construction Phase

Total expenditures during the construction phase are estimated to be \$2,115.2 million. The majority, \$1,439.9 million, is estimated to be spent outside the province (mainly on specialized equipment such as steel towers and converters). The remaining \$675.3 million are assumed to be spent within the province and are estimated to yield the impacts set out in Table 1 and Figure 1.

**Table 1**  
**Economic Impact on Manitoba – Construction Phase<sup>(1), (2)</sup>**

	Construction Phase		
	Transmission Line	Converter Facilities	Total
Employment (person-years) <sup>(3)</sup>			
Project Direct <sup>(4)</sup>	3,181	2,013	5,194
Other Direct <sup>(5)</sup>	273	413	686
Indirect and Induced <sup>(6)</sup>	1,365	1,537	2,902
<b>Total Employment (person-years)</b>	<b>4,819</b>	<b>3,963</b>	<b>8,782</b>
<b>Labour Income (\$ millions)<sup>(7)</sup></b>	<b>\$201.7</b>	<b>\$280.5</b>	<b>\$482.3</b>
<b>GDP (\$ millions)<sup>(8)</sup></b>	<b>\$359.7</b>	<b>\$328.9</b>	<b>\$688.7</b>
Tax Revenues (\$ millions) <sup>(9)</sup>			
Provincial	\$ 59.0	\$107.2	\$166.2
Local	\$ 11.8	\$ 11.6	\$ 23.4
Federal	\$ 61.1	\$101.7	\$162.8
<b>Total Tax Revenue (\$ millions)</b>	<b>\$131.9</b>	<b>\$220.5</b>	<b>\$352.4</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in “person-years.” A person-year is defined as one person being fully employed for one year.

Note 4: On-site direct employment of Manitoba Hydro and contractor employees which is directly generated by the project.

Note 5: Employment of suppliers to support the main project and other jobs created by additional spending by households.

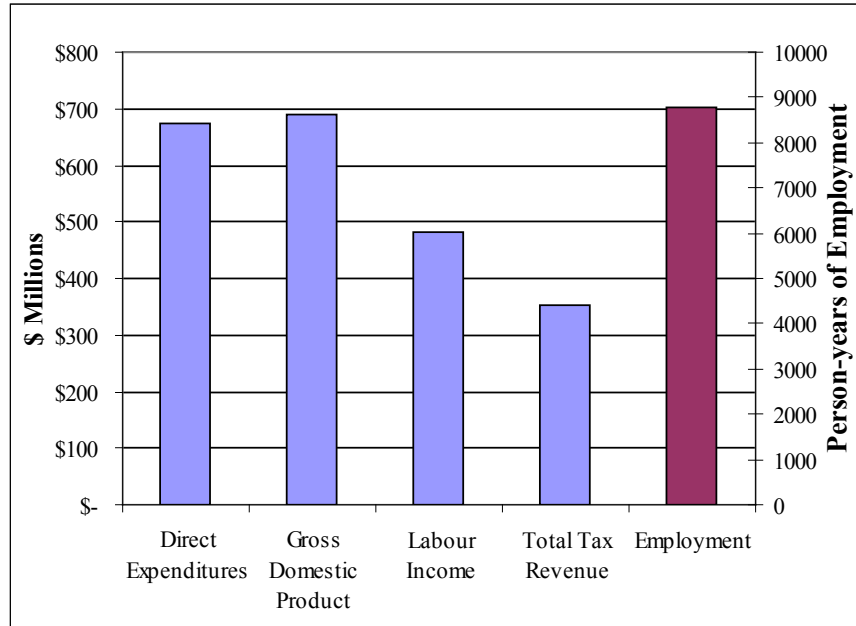
Note 6: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

Note 7: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 8: GDP at market price is the total value of goods and services produced in Manitoba’s economy.

Note 9: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

**Figure 1**  
**Economic Impact on Manitoba – Construction Phase**



### 4.1.1 Employment

The major economic benefit of the project is from construction. Total provincial employment impacts of the Bipole III transmission line and conversion facilities construction/capital expenditures are estimated at 8,782 person-years. This represents about 0.15% of the total number of full time employees in Manitoba's construction industry in 2009. For every \$1 million direct capital expenditure in Manitoba, the Bipole III project is expected to generate 13 person-years of employment.

### 4.1.2 Labour Income

The total provincial labour income impact of the Bipole III transmission line and conversion facilities construction/capital expenditures is estimated at \$482.3 million. This represents about 0.19% of total labour income of full time employees in Manitoba's construction industry in 2009. For every \$1 million direct capital expenditure in Manitoba, labour income impact in the province is estimated at \$0.7 million for the Bipole III project.

### 4.1.3 Gross Domestic Product

Total provincial GDP at market price impacts of the Bipole III transmission line and conversion facilities construction/capital expenditure is estimated at \$688.7 million. For every \$1 million direct capital expenditure in Manitoba, the GDP impact in the province is estimated at \$1.0 million for the Bipole III project.

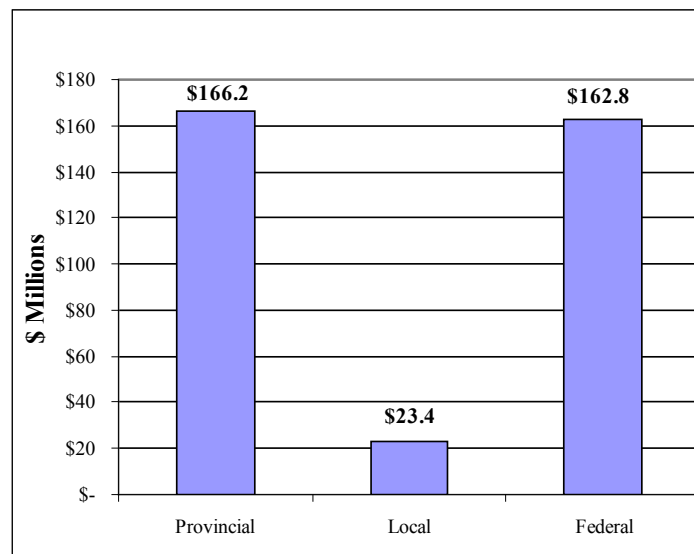
### 4.1.4 Tax Revenue

Provincial, local, and federal tax revenues generated in Manitoba are estimated at \$352.4 million for the transmission line and converter stations construction. As shown in Figure 2, this is comprised of \$166.2 million in provincial, \$23.4 million in local, and \$162.8 million in federal taxes.

For every \$1 million direct capital expenditure in Manitoba, the tax revenue impacts are estimated at \$0.2 million at the provincial, \$0.03 million at the local, and \$0.2 million at the federal levels for the Bipole III project.

Figure 2

Tax Revenue– Construction Phase



## 4.2 Operational Phase

Average annual expenditures during the operational phase are estimated at \$8.6 million. Approximately ninety-nine per cent (99%) of the total annual expenditures are assumed to be direct expenditures in Manitoba. Table 2 and Figure 3 provide the detailed economic impacts.

**Table 2**  
**Economic Impact on Manitoba – Operational Phase<sup>(1), (2)</sup>**

	Operations – Per Year		
	Transmission Line	Converter Facilities	Total
Employment (person-years) <sup>(3)</sup>			
Project Direct <sup>(4)</sup>	11.5	68	79.5
Other Direct <sup>(5)</sup>	1.9	3	4.9
Indirect and Induced <sup>(6)</sup>	7.6	37	44.6
<b>Total Employment (person-years)</b>	<b>21.0</b>	<b>109</b>	<b>130.0</b>
<b>Labour Income (\$ millions)<sup>(7)</sup></b>	<b>\$1.5</b>	<b>\$6.4</b>	<b>\$7.9</b>
<b>GDP (\$ millions)<sup>(8)</sup></b>	<b>\$1.7</b>	<b>\$7.3</b>	<b>\$9.0</b>
Tax Revenues (\$ millions) <sup>(9)</sup>			
Provincial <sup>(10)</sup>	\$1.6	\$6.1	\$7.7
Local	\$0.1	\$0.2	\$0.3
Federal	\$0.3	\$1.1	\$1.4
<b>Total Tax Revenue (\$ millions)</b>	<b>\$2.0</b>	<b>\$7.4</b>	<b>\$9.4</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in “person-years.” A person-year is defined as one person being fully employed for one year.

Note 4: On-site direct employment of Manitoba Hydro and contractor employees which is directly generated by the project.

Note 5: Employment of suppliers to support the main project and other jobs created by additional spending by households.

Note 6: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

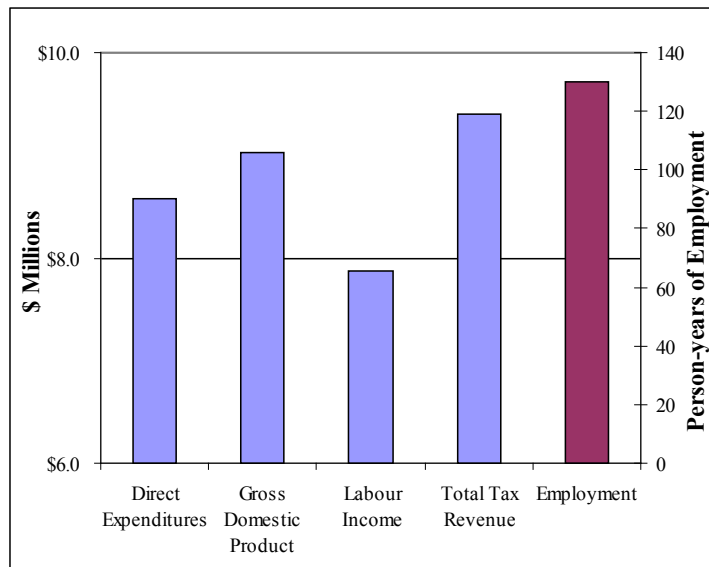
Note 7: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 8: GDP at market price is the total value of goods and services produced in Manitoba’s economy.

Note 9: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

Note 10: Estimates associated with annual corporation capital tax revenue are included in the Provincial tax revenues.

**Figure 3**  
**Economic Impact on Manitoba – Operational Phase**





### 4.3 Summary of Manitoba Economic Impacts

Table 3 provides the overall impacts of the Bipole III project in Manitoba.

**Table 3**  
**Manitoba Economic Impacts of Bipole III Project<sup>(1), (2)</sup>**

	Transmission Line		Converter Facilities		Total Project	
	Construction (total)	Operations (per year)	Construction (total)	Operations (per year)	Construction (total)	Operations (per year)
Employment (person-years) <sup>(3)</sup>						
Project Direct <sup>(4)</sup>	3,181	11.5	2,013	68	5,194	79.5
Other Direct <sup>(5)</sup>	273	1.9	413	3	686	4.9
Indirect and Induced <sup>(6)</sup>	1,365	7.6	1,537	37	2,902	44.6
<b>Total Employment (person-years)</b>	<b>4,819</b>	<b>21.0</b>	<b>3,963</b>	<b>109</b>	<b>8,782</b>	<b>130.0</b>
<b>Labour Income (\$ millions)<sup>(7)</sup></b>	<b>\$201.7</b>	<b>\$1.5</b>	<b>\$280.5</b>	<b>\$6.4</b>	<b>\$482.3</b>	<b>\$7.9</b>
<b>GDP (\$ millions)<sup>(8)</sup></b>	<b>\$359.7</b>	<b>\$1.7</b>	<b>\$328.9</b>	<b>\$7.3</b>	<b>\$688.7</b>	<b>\$9.0</b>
Tax Revenues (\$ millions) <sup>(9)</sup>						
Provincial <sup>(10)</sup>	\$ 59.0	\$1.6	\$107.2	\$6.1	\$166.2	\$7.7
Local	\$ 11.8	\$0.1	\$ 11.6	\$0.2	\$ 23.4	\$0.3
Federal	\$ 61.1	\$0.3	\$101.7	\$1.1	\$162.8	\$1.4
<b>Total Tax Revenue (\$ millions)</b>	<b>\$131.9</b>	<b>\$2.0</b>	<b>\$220.5</b>	<b>\$7.4</b>	<b>\$352.4</b>	<b>\$9.4</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in "person-years." A person-year is defined as one person being fully employed for one year.

Note 4: On-site direct employment of Manitoba Hydro and contractor employees which is directly generated by the project.

Note 5: Employment of suppliers to support the main project and other jobs created by additional spending by households.

Note 6: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

Note 7: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 8: GDP at market price is the total value of goods and services produced in Manitoba's economy.

Note 9: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

Note 10: Estimates associated with annual corporation capital tax revenue are included in the Provincial tax revenues associated with the operational phase.

## 5. Potential Economic Impacts to Rest of Canada

### 5.1 Construction Phase

During the construction phase, \$397.1 million are estimated to be spent in the Rest of Canada, outside Manitoba, and are estimated to yield the impacts set out in Table 4 and Figure 4.

**Table 4**  
**Economic Impact on Rest of Canada – Construction Phase<sup>(1), (2)</sup>**

	Construction Phase		
	Transmission Line	Converter Facilities	Total
Employment (person-years) <sup>(3)</sup>			
Project Direct <sup>(4)</sup>	1,484	0	1,484
Other Direct <sup>(5)</sup>	665	9	674
Indirect and Induced <sup>(6)</sup>	2,449	1,002	3,451
<b>Total Employment (person-years)</b>	<b>4,598</b>	<b>1,011</b>	<b>5,609</b>
<b>Labour Income (\$ millions)<sup>(7)</sup></b>	<b>\$189.2</b>	<b>\$49.8</b>	<b>\$239.0</b>
<b>GDP (\$ millions)<sup>(8)</sup></b>	<b>\$412.7</b>	<b>\$83.6</b>	<b>\$496.3</b>
Tax Revenues (\$ millions) <sup>(9)</sup>			
Provincial	\$ 43.9	\$12.1	\$ 56.0
Local	\$ 10.5	\$ 2.9	\$ 13.4
Federal	\$ 52.7	\$14.6	\$ 67.3
<b>Total Tax Revenue (\$ millions)</b>	<b>\$107.1</b>	<b>\$29.6</b>	<b>\$136.7</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in “person-years.” A person-year is defined as one person being fully employed for one year.

Note 4: Direct employment related to direct suppliers (i.e., contractors) from outside Manitoba.

Note 5: Employment of suppliers to support the main project and other jobs created by additional spending by households.

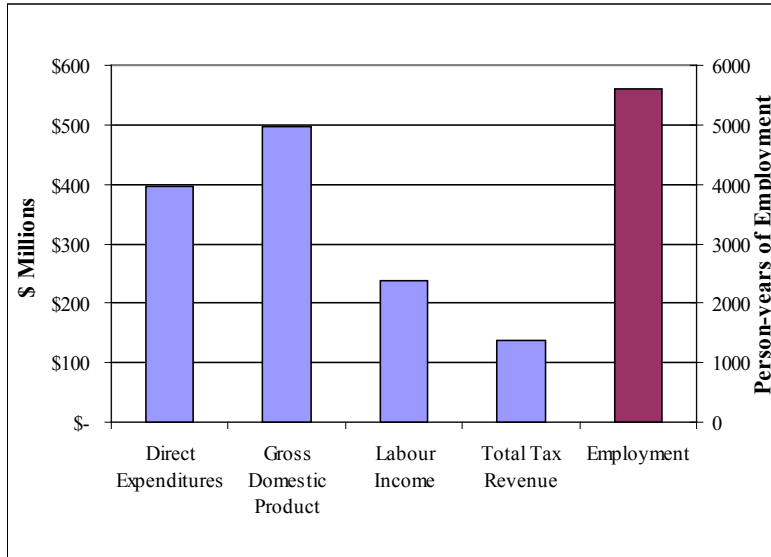
Note 6: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

Note 7: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 8: GDP at market price is the total value of goods and services produced in the “Rest of Canada’s” economy.

Note 9: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

**Figure 4**  
**Economic Impact on Rest of Canada – Construction Phase**



## 5.2 Operational Phase

During the operations and maintenance phase, \$43,000 are estimated to be spent annually in the Rest of Canada, outside of Manitoba, and are estimated to yield the impacts set out in Table 5 and Figure 5.

**Table 5**  
**Economic Impact on Rest of Canada – Operational Phase<sup>(1), (2)</sup>**

	Operations – Per Year		
	Transmission Line	Converter Facilities	Total
Employment (person-years) <sup>(3)</sup>			
Project Direct <sup>(4)</sup>	0.0	0.0	0.0
Other Direct <sup>(5)</sup>	0.4	1.0	1.4
Indirect and Induced <sup>(6)</sup>	3.7	16.0	19.7
<b>Total Employment (person-years)</b>	<b>4.1</b>	<b>17.0</b>	<b>21.1</b>
<b>Labour Income (\$ millions)<sup>(7)</sup></b>	<b>\$0.2</b>	<b>\$0.6</b>	<b>\$0.8</b>
<b>GDP (\$ millions)<sup>(8)</sup></b>	<b>\$0.3</b>	<b>\$1.1</b>	<b>\$1.4</b>
Tax Revenues (\$ millions) <sup>(9)</sup>			
Provincial	\$0.04	\$0.14	\$0.19
Local	\$0.01	\$0.03	\$0.04
Federal	\$0.05	\$0.17	\$0.22
<b>Total Tax Revenue (\$ millions)</b>	<b>\$0.10</b>	<b>\$0.35</b>	<b>\$0.45</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in “person-years.” A person-year is defined as one person being fully employed for one year.

Note 4: Direct employment related to direct suppliers (i.e., contractors) from outside Manitoba.

Note 5: Employment of suppliers to support the main project and other jobs created by additional spending by households.

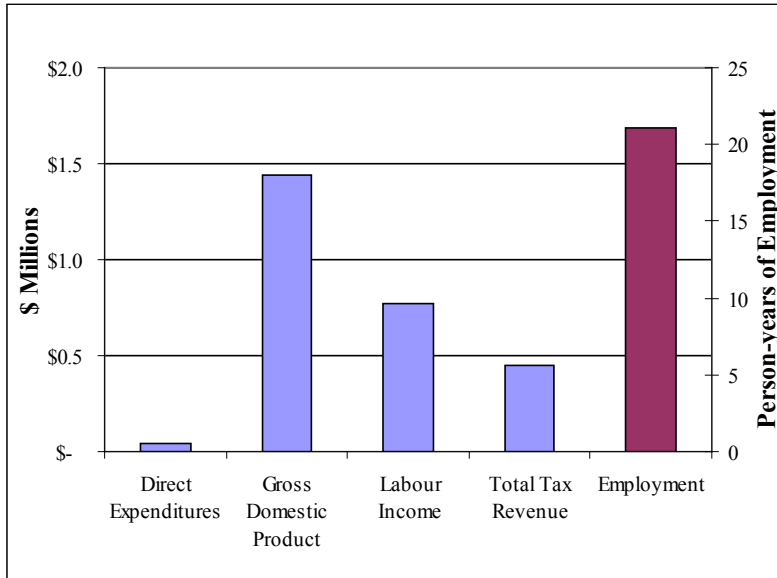
Note 6: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

Note 7: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 8: GDP at market price is the total value of goods and services produced in the “Rest of Canada’s” economy.

Note 9: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

**Figure 5**  
**Economic Impact on Rest of Canada – Operational Phase**



### 5.3 Summary of Economic Impacts to Rest of Canada

Table 6 provides the overall impacts of the Bipole III project in the Rest of Canada.

**Table 6**  
**Rest of Canada Economic Impacts of Bipole III Project<sup>(1), (2)</sup>**

	Transmission Line		Converter Facilities		Total Project	
	Construction (total)	Operations (per year)	Construction (total)	Operations (per year)	Construction (total)	Operations (per year)
Employment (person-years) <sup>(3)</sup>						
Project Direct <sup>(4)</sup>	1,484	0.0	0	0	1,484	0.0
Other Direct <sup>(5)</sup>	665	0.4	9	1	674	1.4
Indirect and Induced <sup>(6)</sup>	2,449	3.7	1,002	16	3,451	19.7
<b>Total Employment (person-years)</b>	<b>4,598</b>	<b>4.1</b>	<b>1,011</b>	<b>17</b>	<b>5,609</b>	<b>21.1</b>
<b>Labour Income (\$ millions)<sup>(7)</sup></b>	<b>\$189.2</b>	<b>\$0.2</b>	<b>\$49.8</b>	<b>\$0.6</b>	<b>\$239.0</b>	<b>\$0.8</b>
<b>GDP (\$ millions)<sup>(8)</sup></b>	<b>\$412.7</b>	<b>\$0.3</b>	<b>\$83.6</b>	<b>\$1.1</b>	<b>\$496.3</b>	<b>\$1.4</b>
Tax Revenues (\$ millions) <sup>(9)</sup>						
Provincial	\$ 43.9	\$0.04	\$12.1	\$0.14	\$ 56.0	\$0.19
Local	\$ 10.5	\$0.01	\$ 2.9	\$0.03	\$ 13.4	\$0.04
Federal	\$ 52.7	\$0.05	\$14.6	\$0.17	\$ 67.3	\$0.22
<b>Total Tax Revenue (\$ millions)</b>	<b>\$107.1</b>	<b>\$0.10</b>	<b>\$29.6</b>	<b>\$0.35</b>	<b>\$136.7</b>	<b>\$0.45</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in “person-years.” A person-year is defined as one person being fully employed for one year.

Note 4: Direct employment related to direct suppliers (i.e., contractors) from outside Manitoba.

Note 5: Employment of suppliers to support the main project and other jobs created by additional spending by households.

Note 6: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

Note 7: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 8: GDP at market price is the total value of goods and services produced in the “Rest of Canada’s” economy.

Note 9: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

## 6. Potential Economic Impacts to All of Canada

### 6.1 Construction Phase

During the construction phase, \$1,072.4 million are estimated to be spent in all of Canada and are estimated to yield the impacts set out in Table 7 and Figure 6.

**Table 7**  
**Economic Impact on all of Canada – Construction Phase<sup>(1), (2)</sup>**

	Construction Phase		
	Transmission Line	Converter Facilities	Total
Employment (person-years) <sup>(3)</sup>			
Project Direct <sup>(4), (5)</sup>	4,665	2,013	6,678
Other Direct <sup>(6)</sup>	938	423	1,361
Indirect and Induced <sup>(7)</sup>	3,814	2,539	6,353
<b>Total Employment (person-years)</b>	<b>9,417</b>	<b>4,975</b>	<b>14,392</b>
<b>Labour Income (\$ millions)<sup>(8)</sup></b>	<b>\$390.9</b>	<b>\$330.4</b>	<b>\$721.3</b>
<b>GDP (\$ millions)<sup>(9)</sup></b>	<b>\$772.4</b>	<b>\$412.6</b>	<b>\$1,185.0</b>
Tax Revenues (\$ millions) <sup>(10)</sup>			
Provincial	\$102.9	\$119.4	\$222.2
Local	\$ 22.3	\$ 14.5	\$ 36.8
Federal	\$113.8	\$116.2	\$230.1
<b>Total Tax Revenue (\$ millions)</b>	<b>\$239.0</b>	<b>\$250.0</b>	<b>\$489.1</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in “person-years.” A person-year is defined as one person being fully employed for one year.

Note 4: On-site direct employment of Manitoba Hydro and contractor employees.

Note 5: Direct employment related to direct suppliers (i.e., contractors) from outside Manitoba.

Note 6: Employment of suppliers to support the main project and other jobs created by additional spending by households.

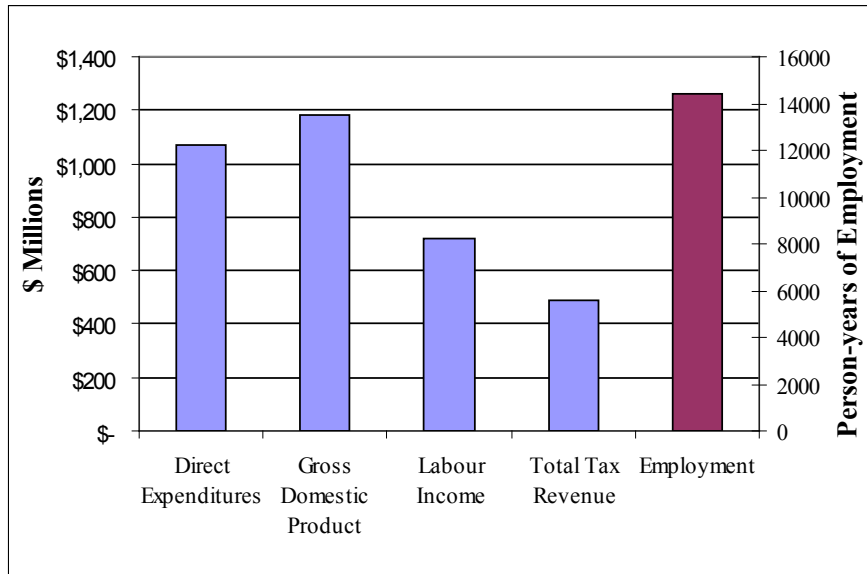
Note 7: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

Note 8: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 9: GDP at market price is the total value of goods and services produced in Canada’s economy.

Note 10: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

**Figure 6**  
**Economic Impact on all of Canada – Construction Phase**





## 6.2 Operational Phase

During the operations and maintenance phase, \$8.6 million are estimated to be spent annually in Canada and are estimated to yield the impacts set out in Table 8 and Figure 7.

**Table 8**  
**Economic Impact on all of Canada – Operational Phase<sup>(1), (2)</sup>**

	Operations – Per Year		
	Transmission Line	Converter Facilities	Total
Employment (person-years) <sup>(3)</sup>			
Project Direct <sup>(4), (5)</sup>	11.5	68	79.5
Other Direct <sup>(6)</sup>	2.3	4	6.3
Indirect and Induced <sup>(7)</sup>	11.3	53	64.3
<b>Total Employment (person-years)</b>	<b>25.1</b>	<b>125</b>	<b>150.1</b>
<b>Labour Income (\$ millions)<sup>(8)</sup></b>	<b>\$1.6</b>	<b>\$7.0</b>	<b>\$8.6</b>
<b>GDP (\$ millions)<sup>(9)</sup></b>	<b>\$2.1</b>	<b>\$8.4</b>	<b>\$10.5</b>
Tax Revenues (\$ millions) <sup>(10)</sup>			
Provincial <sup>(11)</sup>	\$1.7	\$6.2	\$7.9
Local	\$0.1	\$0.3	\$0.4
Federal	\$0.3	\$1.3	\$1.6
<b>Total Tax Revenue (\$ millions)</b>	<b>\$2.1</b>	<b>\$7.8</b>	<b>\$9.8</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in “person-years.” A person-year is defined as one person being fully employed for one year.

Note 4: On-site direct employment of Manitoba Hydro and contractor employees.

Note 5: Direct employment related to direct suppliers (i.e., contractors) from outside Manitoba.

Note 6: Employment of suppliers to support the main project and other jobs created by additional spending by households.

Note 7: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

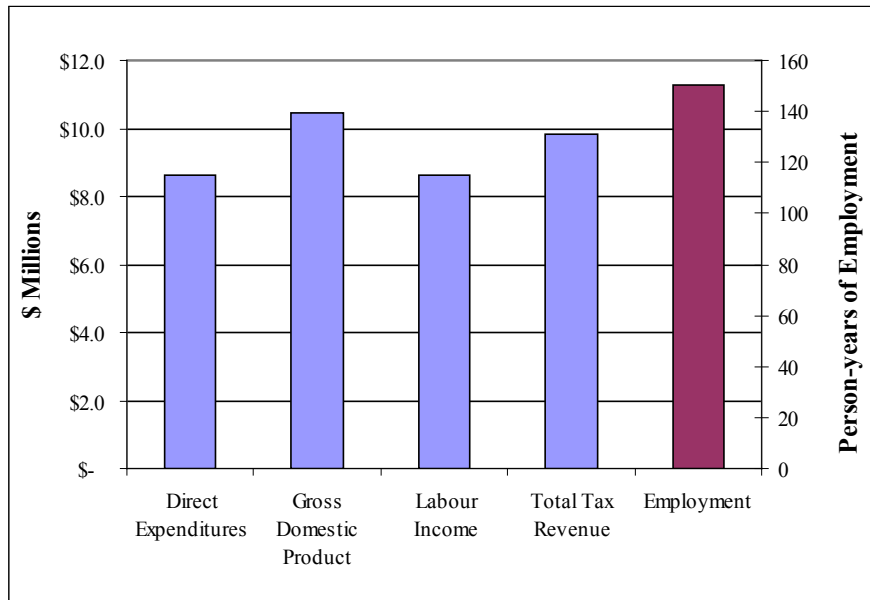
Note 8: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 9: GDP at market price is the total value of goods and services produced in Canada’s economy.

Note 10: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

Note 11: Estimates associated with annual corporation capital tax revenue are included in the Provincial tax revenues.

**Figure 7**  
**Economic Impact on all of Canada – Operational Phase**



### 6.3 Summary of Economic Impacts to All of Canada

Table 9 provides the overall impacts of the Bipole III project in all of Canada.

**Table 9**  
**Canada Economic Impacts of Bipole III Project<sup>(1), (2)</sup>**

	Transmission Line		Converter Facilities		Total Project	
	Construction (total)	Operations (per year)	Construction (total)	Operations (per year)	Construction (total)	Operations (per year)
Employment (person-years) <sup>(3)</sup>						
Project Direct <sup>(4), (5)</sup>	4,665	11.5	2,013	68	6,678	79.5
Other Direct <sup>(6)</sup>	938	2.3	423	4	1,361	6.3
Indirect and Induced <sup>(7)</sup>	3,814	11.3	2,539	53	6,353	64.3
<b>Total Employment (person-years)</b>	<b>9,417</b>	<b>25.1</b>	<b>4,975</b>	<b>125</b>	<b>14,392</b>	<b>150.1</b>
<b>Labour Income (\$ millions)<sup>(8)</sup></b>	<b>\$390.9</b>	<b>\$1.6</b>	<b>\$330.4</b>	<b>\$7.0</b>	<b>\$721.3</b>	<b>\$8.6</b>
<b>GDP (\$ millions)<sup>(9)</sup></b>	<b>\$772.4</b>	<b>\$2.1</b>	<b>\$412.6</b>	<b>\$8.4</b>	<b>\$1,185.0</b>	<b>\$10.5</b>
Tax Revenues (\$ millions) <sup>(10)</sup>						
Provincial <sup>(11)</sup>	\$102.9	\$1.7	\$119.4	\$6.2	\$222.2	\$7.9
Local	\$22.3	\$0.1	\$ 14.5	\$0.3	\$ 36.8	\$0.4
Federal	\$113.8	\$0.3	\$116.2	\$1.3	\$230.1	\$1.6
<b>Total Tax Revenue (\$ millions)</b>	<b>\$239.0</b>	<b>\$2.1</b>	<b>\$250.0</b>	<b>\$7.8</b>	<b>\$489.1</b>	<b>\$9.8</b>

Note 1: Figures may not add to total, due to rounding.

Note 2: In 2010 dollars.

Note 3: Employment impacts are in "person-years." A person-year is defined as one person being fully employed for one year.

Note 4: On-site direct employment of Manitoba Hydro and contractor employees.

Note 5: Direct employment related to direct suppliers (i.e., contractors) from outside Manitoba.

Note 6: Employment of suppliers to support the main project and other jobs created by additional spending by households.

Note 7: Indirect employment refers to the employment of people who supply raw materials, equipment, or services to the initial direct suppliers to the project.

Note 8: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 9: GDP at market price is the total value of goods and services produced in Canada's economy.

Note 10: Tax revenue estimates are based on 2009-10 Manitoba Budget and 2006 income tax data adjusted to 2010 rates.

Note 11: Estimates associated with annual corporation capital tax revenue are included in the Provincial tax revenues associated with the operational phase.

## 7. Potential Economic Impacts on Northern Manitoba

### 7.1 Introduction

This section of the report focuses on the economic impacts of the Bipole III transmission line project and its associated converter station facilities in Northern Manitoba, with specific reference to Northern Manitoba Aboriginals.

### 7.2 Scope and Approach

The scope of the northern Manitoba impact analysis for this project has been narrowed to assessing direct employment and labour income impacts, for the following reasons:

- Direct employment and labour income are the only variables that can be estimated using available information and existing economic models.
- Indirect employment and GDP cannot be estimated because there is no regional input-output model for Northern Manitoba. The provincial input-output model cannot be adapted or used for this purpose. The Manitoba Bureau of Statistics was not able to develop Northern Manitoba multipliers based on information from other comparable regions or from other sources.
- Since provincial and federal taxes have already been estimated for the project, it is not meaningful to estimate them for Northern Manitoba. Municipal taxes are not included, since the estimated amounts paid in conjunction with the Bipole III project are expected to be very small.

Estimates of direct employment and labour income are provided with respect to:

- Northern Manitoba residents, and
- Aboriginal residents of Northern Manitoba.

The estimates encompass the construction phase of the Bipole III transmission line and its associated converter station facilities and are intended to provide a range of potential direct employment and labour income impacts of the project on residents of Northern Manitoba and Aboriginal residents of Northern Manitoba.

### 7.3 Construction Phase

A range, from low to high, in employment and labour impact estimates for the construction phase of the Bipole III project are provided in the tables that follow. These estimates are derived from:

- The direct construction employment and labour income impact estimates on Manitoba, presented in a previous section of this report (Table 1).
- Northern Manitoba and Northern Manitoba Aboriginal participation rates for construction employment and labour are based on the experience derived from the recent construction of the Wuskwatim project in addition to the professional judgment and knowledge of experienced Manitoba Hydro staff and an external consultant.

Given that this method may have limitations, we caution that the results are general estimates and never absolutes, and should not be used for reasons other than those prescribed in the request for this study.

The estimated range in direct employment impacts on Northern Manitoba residents including Northern Manitoba Aboriginal residents from the construction of the Bipole III transmission line and converter facilities is provided in Table 10.

**Table 10**  
**Economic Impact on Northern Manitoba – Construction Phase**  
**Direct Employment Impacts**

	Northern Manitoba Residents			Northern Manitoba Aboriginal Residents		
Direct Employment Impacts (person-years) <sup>(1), (2)</sup>						
	Transmission Line <sup>(3)</sup>	Converter Facilities <sup>(4)</sup>	Total	Transmission Line <sup>(5)</sup>	Converter Facilities <sup>(6)</sup>	Total
<b>Low</b>	<b>795</b>	<b>345</b>	<b>1,141</b>	<b>636</b>	<b>230</b>	<b>866</b>
<b>Medium</b>	<b>954</b>	<b>403</b>	<b>1,357</b>	<b>795</b>	<b>322</b>	<b>1,118</b>
<b>High</b>	<b>1,113</b>	<b>461</b>	<b>1,574</b>	<b>954</b>	<b>403</b>	<b>1,357</b>

Note 1: Employment impacts are in “person-years.” A person-year is defined as one person being fully employed for one year.

Note 2: On-site direct employment of Manitoba Hydro and contractor employees.

Note 3: The range in Northern Manitoba residents’ impacts for the transmission line has been estimated at 25% (low), 30% (medium), and 35% (high) of the total direct Manitoba employment estimate of 3,181 person-years.

Note 4: The range in Northern Manitoba residents’ impacts for the converter facilities has been estimated at 30% (low), 35% (medium), and 40% (high) of the total direct Manitoba employment estimate of 1,151 person-years.

Note 5: The range in Northern Manitoba Aboriginal residents’ impacts for the transmission line has been estimated at 20% (low), 25% (medium), and 30% (high) of the total direct Manitoba employment estimate of 3,181 person-years.

Note 6: The range in Northern Manitoba Aboriginal residents’ impacts for the converter facilities has been estimated at 20% (low), 28% (medium), and 35% (high) of the total direct Manitoba employment estimate of 1,151 person-years.

The estimated range in labour income impacts on Northern Manitoba residents including Northern Manitoba Aboriginal residents from the construction of the Bipole III transmission line and converter facilities is provided in Table 11.

**Table 11**  
**Economic Impact on Northern Manitoba – Construction Phase**  
**Labour Impacts**

	Northern Manitoba Residents			Northern Manitoba Aboriginal Residents		
Labour Impacts (\$ millions): <sup>(1), (2)</sup>						
	Transmission Line <sup>(3)</sup>	Converter Facilities <sup>(4)</sup>	Total	Transmission Line <sup>(5)</sup>	Converter Facilities <sup>(6)</sup>	Total
<b>Low</b>	<b>\$40.3</b>	<b>\$24.2</b>	<b>\$64.5</b>	<b>\$30.3</b>	<b>\$18.2</b>	<b>\$48.4</b>
<b>Medium</b>	<b>\$50.4</b>	<b>\$30.3</b>	<b>\$80.7</b>	<b>\$40.3</b>	<b>\$24.2</b>	<b>\$64.5</b>
<b>High</b>	<b>\$60.5</b>	<b>\$36.3</b>	<b>\$96.8</b>	<b>\$50.4</b>	<b>\$30.3</b>	<b>\$80.7</b>

Note 1: Labour income is the sum of wages, supplementary labour income, and net income of unincorporated business. Any or all of these may be present in the direct expenditures and resultant direct, indirect, and induced impacts.

Note 2: In 2010 dollars.

Note 3: The range in Northern Manitoba residents' impacts for the transmission line has been estimated at 20% (low), 25% (medium), and 30% (high) of the total labour income estimate of \$201.7 million.

Note 4: The range in Northern Manitoba residents' impacts for the converter facilities has been estimated at 20% (low), 25% (medium), and 30% (high) of the total labour income estimate of \$121.0 million.

Note 5: The range in Northern Manitoba Aboriginal residents' impacts for the transmission line has been estimated at 15% (low), 20% (medium), and 25% (high) of the total labour income estimate of \$201.7 million.

Note 6: The range in Northern Manitoba Aboriginal residents' impacts for the converter facilities has been estimated at 15% (low), 20% (medium), and 25% (high) of the total labour income estimate of \$121.0 million.