

8.10 LABOUR AND ECONOMY

Labour and Economy refers to the labour market and availability, employment, employment income and business income, and their aggregate environmental effects on taxes and such indicators as the provincial gross domestic product (GDP). Labour and Economy is a valued environmental component (VEC) because the Project will generate benefits to local, regional, and provincial economies during Construction and Operation through expenditures, employment, taxation, royalties, and other direct, indirect, and induced¹ benefits to the local, regional, and provincial economies. These benefits will also result in potential adverse environmental effects from employment and spending that may require management to optimize overall benefit.

Potential positive and adverse environmental effects on Labour and Economy have been the subject of both public and regulatory interest and consultation, which informed the scope of assessment. The requirement to assess the environmental effects of the Project on Labour and Economy is in the Final Guidelines (NBENV 2009) and the Terms of Reference for the Project (Stantec 2012a).

The Project has potential to generate adverse residual environmental effects on Labour and Economy by creating increased demand for labour, goods, and services. If Project demand for skilled labour were to exceed supply, labour market competition could cause wage inflation and labour shortages. Similarly, Project-related demand for goods and services has potential to exceed the capacity of local and regional supply, resulting in price inflation, and reduced availability of goods and services for other projects and economic sectors. However, it is anticipated that the existing and forecast supply of labour, goods, and services will be sufficient to meet Project demand and those of other future projects or activities.

The Project will generate considerable benefits to local, regional, and provincial economies through the generation of employment, incomes, taxes, and GDP. These benefits result directly from the Project, while indirect and induced benefits will accrue through economic spin-off related to the Project. An estimate of the economic benefits generated by the Project was made using an economic model (EcoTec 2013) that predicts Project expenditures throughout the regional, provincial, and national economies. Based on this model, it is estimated that direct employment for Construction (2 years) and Operation (27 years) will reach 9,826 person-years over its lifetime, over 90% of which will be created in New Brunswick. Including direct, indirect, and induced employment, the Project will support an estimated 32,619 person-years of employment, with 16,406 person-years of that employment directly within New Brunswick.

The expected direct, indirect, and induced GDP generated over the life of the Project is \$5.91 billion, including \$3.75 billion (63.5%) of that total contributing directly to the New Brunswick economy. The direct, indirect, and induced GDP generated by the Project in New Brunswick will be approximately \$2.76 billion, \$474.4 million, and \$522.6 million, respectively.

¹ Direct economic benefits are the employment and expenditures related to activities at the Project site, e.g., the employment of workers during Construction and employees during Operation, and capital and operating expenditures associated with the Project. Indirect economic benefits are the employment and expenditures that result from contracts awarded to supplier companies who do not work at the Project site. This represents the total economic benefits of business-to-business purchases. Induced economic benefits are generated by the consumer expenditures of employees of all of the firms that benefited from the direct and indirect economic benefits of the Project.

The Project will also contribute substantially to tax revenue provincially and federally. In total, the Project will generate an estimated \$1.78 billion in tax over its lifetime, of which \$742.9 million (41.7%) will go to the Province of New Brunswick.

Based on the magnitude of these economic benefits, as will be demonstrated in the sub-sections that follow, the Project is expected to generate significant positive environmental effects on Economy during Construction and Operation. During Decommissioning, Reclamation and Closure, there will be minor positive environmental effects through some additional employment; however, these environmental effects are rated not significant due to the reduced magnitude of economic benefits.

Potential adverse environmental effects on a Change in Economy related to local price inflation and goods and services supply are assessed and rated not significant for all Project phases. It is anticipated that the existing business capacity of the local, regional, and provincial economies will be able to meet the Project demand for goods and services. While the Project will generate substantial economic benefits by awarding contracts to businesses within the LAA and the rest of the province, it is expected that goods and services required in New Brunswick will not exceed supply or lead to price inflation or goods and services shortages.

Adverse environmental effects on a Change in Labour (*i.e.*, wage inflation and labour shortage) are rated not significant for all Project phases. Given current labour market conditions in the LAA and local interest in employment opportunities that has been expressed through consultation activities, it is anticipated that there will be a considerable supply of labour from the LAA for all Project phases. In addition, while SML intends to promote a proactive local employment strategy, it is expected that the Project will also employ New Brunswickers (including First Nations) from outside the region, as well as from other areas. As such, it is not expected that Project labour demands will cause a highly competitive labour market leading to wage inflation or labour shortages.

8.10.1 Scope of Assessment

This sub-section defines the scope of the environmental assessment of Labour and Economy in consideration of the nature of the regulatory setting, issues identified during public, stakeholder, and First Nations engagement activities, potential Project-VEC interactions, and existing knowledge.

8.10.1.1 Rationale for Selection of Valued Environmental Component, Regulatory Context, and Issues Raised During Engagement

Labour and Economy refers to the labour market and availability, employment, employment income and business income, and their aggregate environmental effects on taxes and such indicators as the provincial GDP. Labour and Economy is a VEC because these socioeconomic components are the primary means through which the Project will generate benefits to local, regional, and provincial economies. This includes direct effects of Project expenditure (primarily on labour, supplies, and services) and their multiplier effects through the economy, as well as contributions to provincial GDP and tax revenues. Project-related expenditures, combined with expenditures by people who gain Project-generated direct, indirect, or induced employment, will contribute considerable benefit to the local, regional, and provincial economies. Conversely, not managed and mitigated, the Project could make demands on the local labour market that could contribute to local labour shortages or wage inflation.

The Final Guidelines (NBENV 2009) and Terms of Reference for the Project (Stantec 2012a) require the assessment of environmental effects on Labour and Economy and other socioeconomic effects of the Project. Specifically, the Final Guidelines require an assessment of *“the direct and indirect creation of employment in the area associated with the construction and operation of this facility. The availability and potential use of skilled and unskilled workers in the local area to meet the job requirements should be outlined, along with predictions for the increase in the population of the surrounding area as vacant jobs are filled.”* They also state that *“A study on socioeconomic impacts of the life cycle of the mine on surrounding communities must be carried out by a qualified individual, including the impacts of mine closure, unexpected or otherwise, citing examples of other mining projects where appropriate.”* This section assesses these issues regarding Labour and Economy. The Final Guidelines also require the assessment of the environmental effects of the Project on existing tourism and recreational activities, local property values, and effects on industries including the recreational, commercial and Aboriginal fishing industries. This section also assesses these issues regarding Labour and Economy, as they are inherently part of the local, regional, and provincial economy within which the Project will exist.

During Northcliff/SML’s public engagement activities, members of the public raised several issues related to Labour and Economy, which informed the scope of assessment for this VEC. Issues included the potential economic benefits of the Project, particularly the opportunities for local and regional employment and business as well as for First Nations employment and contracting opportunities. There is public concern for the possibility of inflation, whereby Project demand for labour and for goods and services could exceed supply, leading to wage and price inflation and potentially affecting other employers and businesses. There is also concern that the Project would lead to large-scale demand for labour, goods, and services during Construction and Operation which would end upon Project closure, thus leading to a “boom-bust” economy (*i.e.*, a period of high levels of economic benefits associated with the Project followed by a sudden economic decline upon Project closure). At the same time, there is considerable interest in, and excitement about, the direct and indirect employment opportunities that the Project may bring (particularly in communities proximal to the Project), in addition to contracting and other opportunities for indirect and induced economic benefits to local and regional businesses. This section considers these issues regarding Labour and Economy.

During Aboriginal engagement activities conducted by Northcliff/SML for the Project, First Nations indicated an interest in Project-related training, employment and business opportunities.

8.10.1.2 Selection of Environmental Effects and Measurable Parameters

The environmental assessment of Labour and Economy focuses on the following environmental effects:

- Change in Labour; and
- Change in Economy.

Change in Labour is an environmental effect because activities and physical works associated with the Construction, Operation, and Decommissioning, Reclamation and Closure of the Project will generate direct, indirect, and induced employment, resulting in increased demand and competition for labour.

Change in Economy is an environmental effect because the direct, indirect, and induced employment and business effects of the Project (including expenditures, tax revenues, and royalties, among others) will contribute to the local, regional, and provincial economies.

The measurable parameters used for the assessment of the environmental effects discussed above, and the rationale for their selection, are in Table 8.10.1.

Table 8.10.1 Measurable Parameters for Labour and Economy

Environmental Effect	Measurable Parameter	Rationale for Selection of the Measurable Parameter
Change in Labour	Labour availability in New Brunswick, particularly in York County and the eastern portion of Carleton County (number of workers)	<ul style="list-style-type: none"> The direct, indirect and induced employment effects of the Project will place additional demand on the local and regional labour market, but will contribute to the local and regional economies.
Change in Economy	Income and taxes (\$)	<ul style="list-style-type: none"> The direct, indirect and induced effects of Project expenditures, together with proponent business taxes and royalties, will contribute to municipal and provincial revenues.
	Gross Domestic Product (GDP) (\$)	<ul style="list-style-type: none"> GDP provides a standard overall measure of the Project's economic effects on New Brunswick.
	Value of contracts awarded to New Brunswick businesses (\$)	<ul style="list-style-type: none"> Project contracts awarded to New Brunswick businesses will contribute to the provincial economy.

Throughout this section, all references to monetary values are in Canadian dollars (\$).

8.10.1.3 Temporal Boundaries

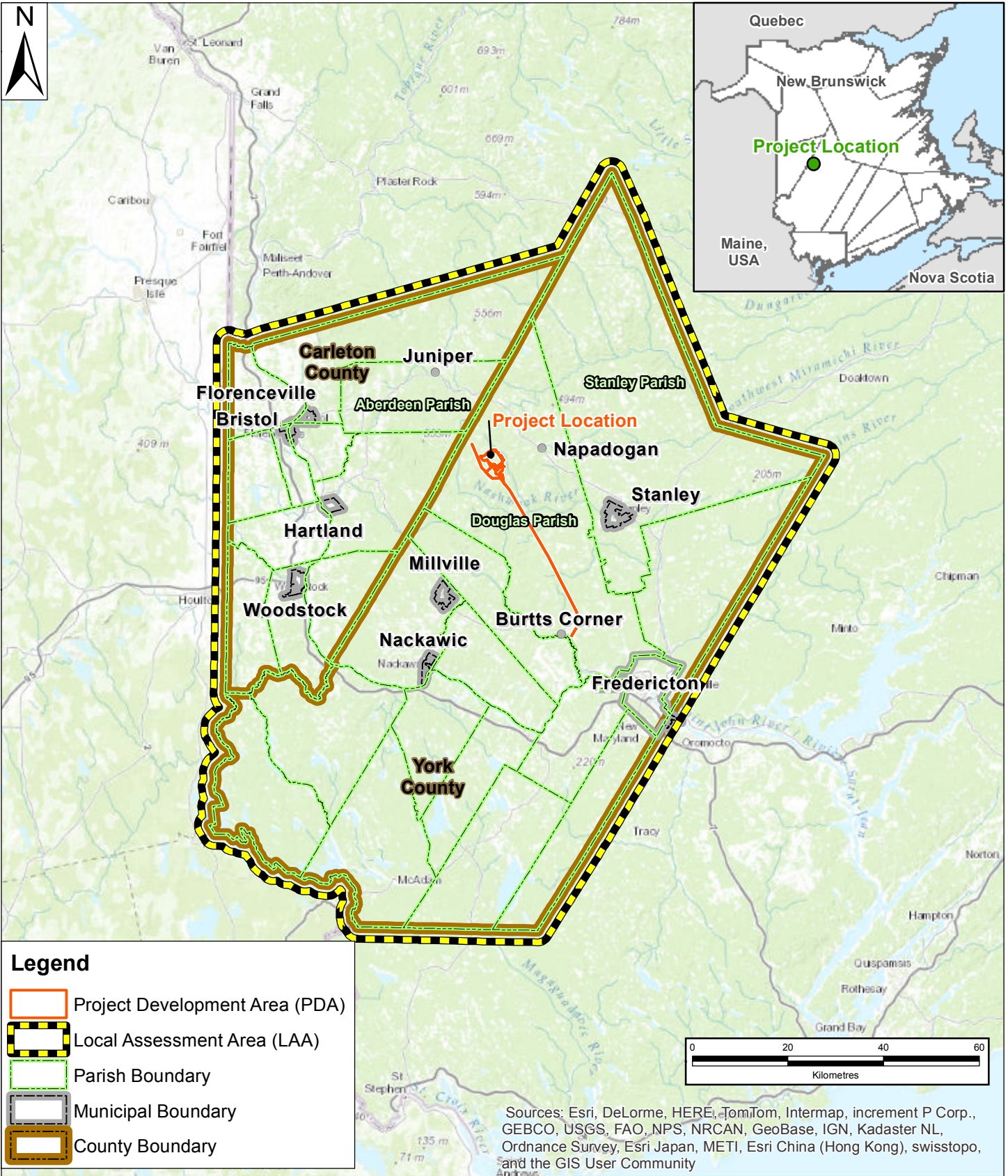
The temporal boundaries for the assessment of the potential environmental effects of the Project on Labour and Economy include the three phases of Construction, Operation, and Decommissioning, Reclamation and Closure (including Post-Closure) of the Project. Potential environmental effects on Labour and Economy will occur through all phases of the Project.

8.10.1.4 Spatial Boundaries

The spatial boundaries for the environmental effects assessment of Labour and Economy are below.

Project Development Area (PDA): The PDA (Figure 8.10.1) is the most basic and immediate area of the Project, and consists of the area of physical disturbance associated with the Construction and Operation of the Project. Specifically, the PDA consists of an area of approximately 1,253 hectares that includes: the open pit; ore processing plant; storage areas; TSF; quarry; the relocated Fire Road and new Project site access road; and new and relocated power transmission lines. The PDA is the area represented by the physical Project footprint as detailed in Chapter 3.

Local Assessment Area (LAA): The maximum area predicted or measured with a reasonable degree of accuracy and confidence within which Project-related environmental effects will occur defines the LAA. For Labour and Economy, the LAA (Figure 8.10.1) is defined as York County and Carleton County, within Central New Brunswick. This area includes the city of Fredericton; Stanley Parish, which includes the village of Stanley; Douglas Parish, including the communities of Burtt's Corner and Napadogan; and Aberdeen Parish, which includes the community of Juniper; the village of Millville; and the towns of Woodstock, Hartland, and Nackawic. For positive environmental effects on Economy, for which some measurable parameters (e.g., GDP and taxes) are measured at the provincial level, the LAA is necessarily extended to the province of New Brunswick.



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Legend

- Project Development Area (PDA)
- Local Assessment Area (LAA)
- Parish Boundary
- Municipal Boundary
- County Boundary

Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC PROJECT AND SHOULD NOT BE USED FOR OTHER PURPOSES.					
Project Development Area (PDA), and Local Assessment Area (LAA) for Labour and Economy Sisson Project: Environmental Impact Assessment (EIA) Report, Napadogan, N.B.		Scale: 1:1,100,000	Project No.: 121810356	Data Sources: SNB NRCAN, ESRI	Fig. No.: 8.10.1
		Date: (dd/mm/yyyy) 23/11/2014	Dwn. By: JAB	Appd. By: DLM	
Client: Sisson Mines Ltd.					

Regional Assessment Area (RAA): The RAA is the area within which the Project's environmental effects may overlap or accumulate with the environmental effects of other past, present, or future projects or activities. For Labour and Economy, the RAA is the province of New Brunswick. The extent to which cumulative environmental effects for Labour and Economy may occur depend on socioeconomic conditions and the type and location of other past, present, or reasonably foreseeable future projects or activities that have been or will be carried out, as defined within the RAA.

8.10.1.5 Administrative and Technical Boundaries

Both the local and the provincial economies may experience the environmental effects of the Project on employment, income, tax revenues, economic output, and labour supply. The provincial government of New Brunswick has primary responsibility for the management of the provincial economy, economic development, and the labour force throughout New Brunswick. In addition, the Government of Canada and the various municipal governments within the LAA have partial responsibility for employment and/or economic development strategies within their regions of operation.

The potential environmental effects on Labour and Economy are assessed using available statistical models, data, and documents. Existing conditions were characterized primarily using information from Statistics Canada and other agencies for available data on population, labour force, and other relevant socioeconomic factors, supplemented by information obtained from stakeholder interviews. A proprietary input-output economic model (EcoTec 2013) was used to estimate changes in GDP, employment, and tax revenues to government based on available Project information.

Technical boundaries for Labour and Economy include the jurisdictions defined by Statistics Canada and other agencies for available data on population, labour force, and other relevant socioeconomic factors that do not necessarily align with the boundaries of the LAA. The level of geographic detail for the description of existing conditions for some factors depends on the aggregation of data for communities and regions in the original data sources. This may limit the assessment of some environmental effects to regional or provincial levels rather than to the LAA. The availability of timely and relevant information on Labour and Economy from primary or secondary sources limits the analysis. In particular, supplementary information obtained through stakeholder interviews is often not verified or reproducible. Inherent uncertainties in input-output modelling techniques may also represent a technical limitation for the assessment.

8.10.1.6 Residual Environmental Effects Significance Criteria

The assessment of Labour and Economy considers the direction, magnitude, geographic extent, duration, and frequency of the environmental effects of the Project. It also takes into account the socioeconomic context, insofar as it considers the degree to which the area has previously been subject to, and hence may have developed methods of managing, similar types of activity.

For Labour and Economy:

- a significant positive residual environmental effect of the Project will result if the Project causes substantial increases in the direct, indirect and induced employment, labour income, business income, and provincial tax revenues over the life of the Project in the RAA; or

- a significant adverse residual environmental effect of the Project will result if the Project causes greater wage and price increases in the LAA than in the province as a whole, and/or where demand for goods and services exceeds the available supply, over the life of the Project.

Note that in some cases residual environmental effects could be both positive and adverse, for example, when the Project affects different groups in different ways.

8.10.2 Existing Conditions

This sub-section describes the existing conditions for Labour and Economy in New Brunswick, as well as within the LAA (*i.e.*, York and Carleton counties). The description of existing conditions discusses population demographics, provides an overview of local and provincial economies, and summarizes labour force conditions. Existing conditions with respect to Labour and Economy are inherently reflective of past or present projects or activities that have been or are being carried out in the LAA and RAA.

8.10.2.1 Population Demographics

Section 6.4.1 briefly discusses population demographics. As of 2011, the population of New Brunswick stood at 751,171. This represented a population increase of 2.9% since 2006 (Statistics Canada 2012a). Population increases between 2010 and 2011 are attributable to increased immigration, as the natural population increase (births minus deaths) has continued to decrease (NBDF 2012).

The provincial population is aging; the median age in New Brunswick increased from 38.6 to 43.7 years between 2001 and 2011 (Statistics Canada 2002a, 2007a). As of 2006, the Aboriginal population of New Brunswick was 17,655. The provincial population of visible minorities stood at 13,345 in 2006 (Statistics Canada 2007a).

The populations of York and Carleton counties also increased between 2006 and 2011. In 2011, the population of York County was 97,238, marking an increase of 8.0% since 2006 (Statistics Canada 2012b). The population of Carleton County increased 1.5% between 2006 and 2011, rising to 27,019 (Statistics Canada 2012c).

The proportion of New Brunswick's population living in York and Carleton counties has been increasing. In 2006, approximately 15.9% of New Brunswick's population lived in these two counties. As of 2011, the combined population of York and Carleton counties was 124,255, accounting for 16.5% of the provincial population. The population of Fredericton, the largest community in the LAA, also increased between 2006 and 2011, from 50,535 to 56,224 (an increase of 11.3%) (Statistics Canada 2012d).

8.10.2.2 Economy

A high-level overview of the New Brunswick economy as well as that in the LAA was provided in Section 6.4.2. Further information is provided below.

8.10.2.2.1 New Brunswick

Natural resource development dominates the New Brunswick economy. Forests occupy approximately 6.1 million hectares (85%) of the province’s land, and forestry has been an economic mainstay; however, the sector has become less important to the overall provincial economy over the past decade. The closure of several lumber, and pulp and paper mills, including two large sawmills located near the Project, has resulted in a decreasing contribution to employment from this sector. Mining and oil and gas development are also important, with prospects of increasing in future.

The New Brunswick GDP increased steadily between 2001 and 2010 (Table 8.10.2). From 2006 to 2010, the increase was approximately 14%. In 2010, New Brunswick led the nation in export and manufacturing sales growth, and real economic growth increased by 2% that year. This growth is attributable to the high price of energy, and production from the new Canaport LNG terminal, and increasing potash exports. However, the provincial economy lagged in other areas. New Brunswick was one of only two provinces to show a decline in total employment in 2010, while growth in average weekly earnings and retail sales failed to keep pace with the rest of the country (NBDF 2011).

Table 8.10.2 Gross Domestic Product (GDP), New Brunswick, 2001 to 2010

Economic Indicator	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
GDP (\$Million CAN)	20,684	21,169	22,366	23,672	24,716	25,847	27,044	27,499	27,920	29,448

Source: Statistics Canada (2011).

Economic growth slowed during 2011, with a real GDP increase of 0.1% over 2010 (NBDF 2012). The provincial job market was weak in 2011, with employment falling by 4,000 as gains in part-time employment were not enough to offset full-time losses (NBDF 2012).

The major employment sectors are:

- mining, energy, and oil and gas;
- commercial fisheries and aquaculture;
- agriculture;
- forestry;
- tourism; and
- military.

8.10.2.2.2 York County

The largest community in York County is the city of Fredericton. Other communities in York County include the town of Nackawic, the villages of Stanley and Millville, and the communities of Burtt's Corner and Napadogan, plus other smaller communities.

York County's economy centres primarily within the Greater Fredericton Region, which is home to many communities and nearby rural areas. York County's urban areas have service-based economies dominated by health care, education, civil service, retail, finance, and insurance sectors. Rural areas of York County (like the communities in the LAA other than Fredericton) have an economy primarily driven by forestry, mining, and mixed farming. The forestry sector, though decreasing in recent years, also remains one of the main employers in central New Brunswick (Enterprise New Brunswick 2011). Stanley in particular is a local centre in the LAA but does have a strong connection to Fredericton as a bedroom community. Millville and Napadogan are truly rural in character and their economy is dominated by the forestry sector.

A large concentration of economic activity within the county occurs in the city of Fredericton. The Greater Fredericton Region has experienced a trend of sustained growth in the past decade (Stantec 2012i). As of January 2012, the Greater Fredericton Region was home to 5,524 businesses, with the largest percentages being in: other services (except public administration); retail trade; professional, scientific, and technical services; and health care and social assistance (City of Fredericton 2011). As the provincial capital, Fredericton's economy closely ties to the public sector.

8.10.2.2.3 Carleton County

The largest community in Carleton County is the town of Woodstock. Other communities in Carleton County include the town of Hartland, the village of Florenceville-Bristol, and the community of Juniper, plus other smaller communities.

Key economic activities for the Carleton County include agriculture and food processing, forestry and value-added wood products, metal fabrication, and transportation. Strong growth in the retail and service sector has been reported in Woodstock, Hartland, and Florenceville-Bristol (Enterprise Carleton Region 2011).

The agricultural sector in Carleton County produces potatoes, grain, soybeans, and other crops. Also located in the region are specialty chemical plant and distribution facilities, farm equipment dealers, specialized contractors, and consulting firms (Enterprise Carleton Region 2011). Carleton County forms part of the "potato belt" of the province. The local potato industry generates approximately \$1.3 billion toward New Brunswick's economy annually (Enterprise Carleton Region 2011).

Carleton County's local manufacturing sector employs more people than any other industry, and is forecast to experience substantial growth in the future (Enterprise Carleton Region 2011).

8.10.2.3 Labour

A high-level overview of the New Brunswick labour force as well as that in the LAA is in Section 6.4.3. Further information is provided below.

8.10.2.3.1 New Brunswick

Labour market indicators showed an improvement in New Brunswick employment conditions between 2001 and 2006 (Stantec 2012i). As of 2006, the provincial labour force totaled 382,970 (Table 8.10.3). Employment in the province increased for the period of 2001 to 2006, with the number of persons being employed rising by 6% from 325,330 to 344,770. The participation rate in the province was 63.7% in 2006, a nominal increase from 63.1% in 2001 (Statistics Canada 2002a; 2007a).

Table 8.10.3 Labour Force Characteristics: New Brunswick, York and Carleton Counties, 2006

Location	Total Population 15 years and Over	Labour Force	Employed	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Provincial Total	601,420	382,970	344,770	63.7	57.3	10.0
York County	75,040	50,830	47,145	67.7	62.8	7.3
Carleton County	21,390	14,105	13,140	65.9	61.4	6.8

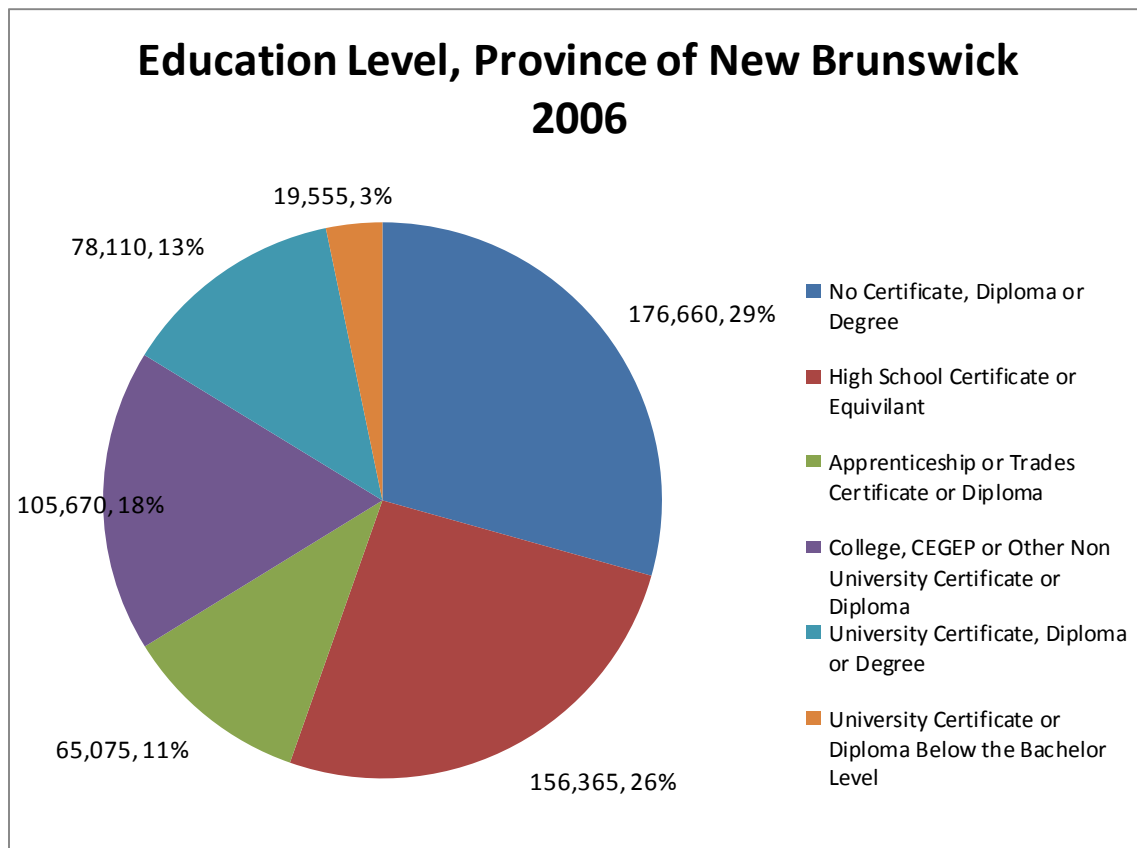
Source: Statistics Canada (2007a); (2007b); (2007c).

The majority of New Brunswick’s employed labour force work in service-related and trades occupations (Stantec 2012i). In 2006, the provincial labour force was concentrated in three main occupations: sales and services (26.0%), business services (18.0%), and trades and transport (16.4%). Service sectors accounted for over a quarter of all provincial employment in 2006 (Statistics Canada 2007a).

The construction sector is a substantial source of employment in New Brunswick, providing 8.0% of all employment in the province in 2011. In 2011, the construction labour force in New Brunswick was 32,900, with 28,100 employed, resulting in a relatively high unemployment rate of 14.6%. For comparison, the unemployment rate for all industries stood at 9.5% in 2011 (New Brunswick Career Development Action Group 2012).

Industry forecasts indicate that, while construction activity in New Brunswick will gradually decrease by 10% between 2012 and 2020, construction sector employment is expected to remain stable (Construction Sector Council 2012).

Figure 8.10.2 shows the education and training levels in New Brunswick as of 2006. In 2006, 29% of the province’s adult population had not completed high school (Figure 8.10.2), and 13% had a university certificate, diploma, or degree (Statistics Canada 2007a). Just over half of New Brunswick’s working population (those aged 25 to 64 years of age) had completed some form of post-secondary education in 2006, the smallest proportion of all provinces (GNB 2011).



Source: Statistics Canada (2007a).

Figure 8.10.2 Education Level, New Brunswick, 2006

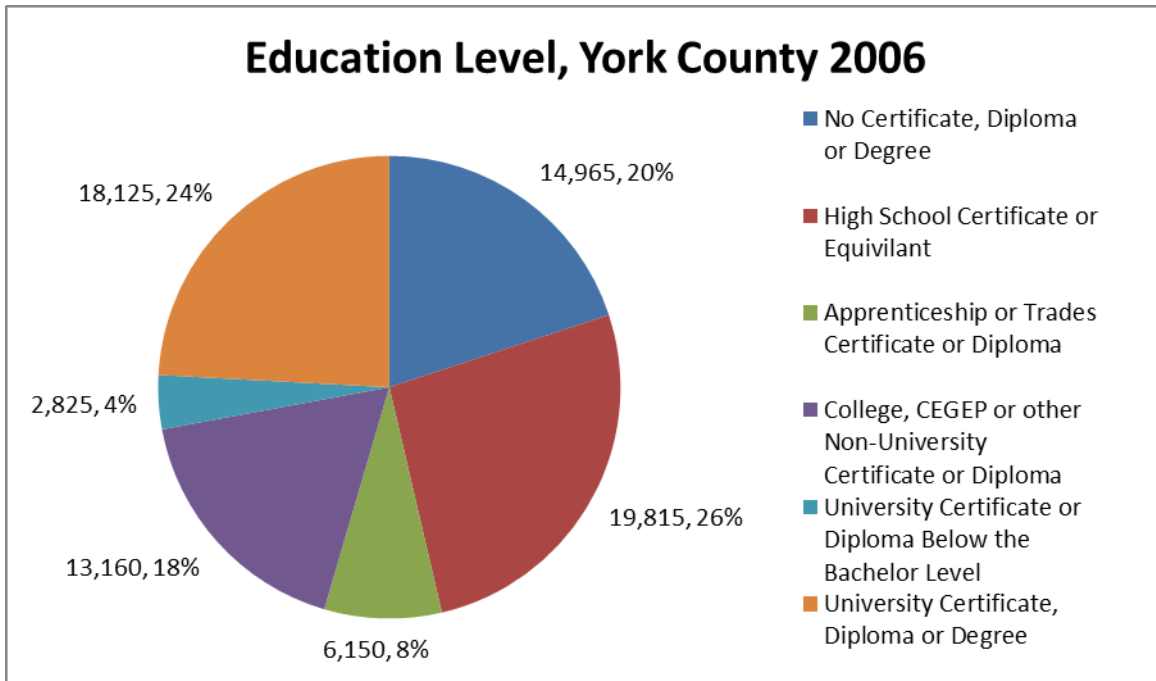
The provincial rate of wage inflation has slowed in recent years; the New Brunswick Department of Finance (2012) reports that the provincial growth in wages was similar in 2011 (3.9%) and 2010 (4.0%), having declined from 2007 and 2008 levels (6.4% and 6.5%, respectively). The national increase in wages outpaced New Brunswick for both 2010 and 2011.

8.10.2.3.2 York County

In 2006, the total experienced labour force in York County was 50,830. In 2006, York County's participation rate was 67.7%, just slightly lower than the 68.0% reported for 2001. Employment conditions in York County have been improving; from 2001 to 2006, the unemployment rate decreased from 10.0% to 7.3% (Statistics Canada 2002b; 2007b), with the highest percentage of employed workers (92.3%) living in the city of Fredericton.

Similar to the pattern described above for New Brunswick, York County's main labour force occupational groups are sales and services (employing 12,745 people, or 25.4%); business services (9,970, or 19.8%); and trades and transport (6,495, or 12.9%), with service sectors accounting for over a quarter of all employment. However, social science, education, and government services occupations represented 10.3% of the labour force, as compared to 7.3% for New Brunswick (Statistics Canada 2007b).

Figure 8.10.3 shows the education and training levels in York County as of 2006. Fredericton has the fourth highest percentage of university-educated citizens in major Canadian cities (31%), well above the national and provincial averages (18% and 13%, respectively). Similarly, York County (includes Fredericton) has a higher percentage of university-educated people (24%), which is above both the national and provincial averages (Figure 8.10.3).



Source: Statistics Canada (2007c).

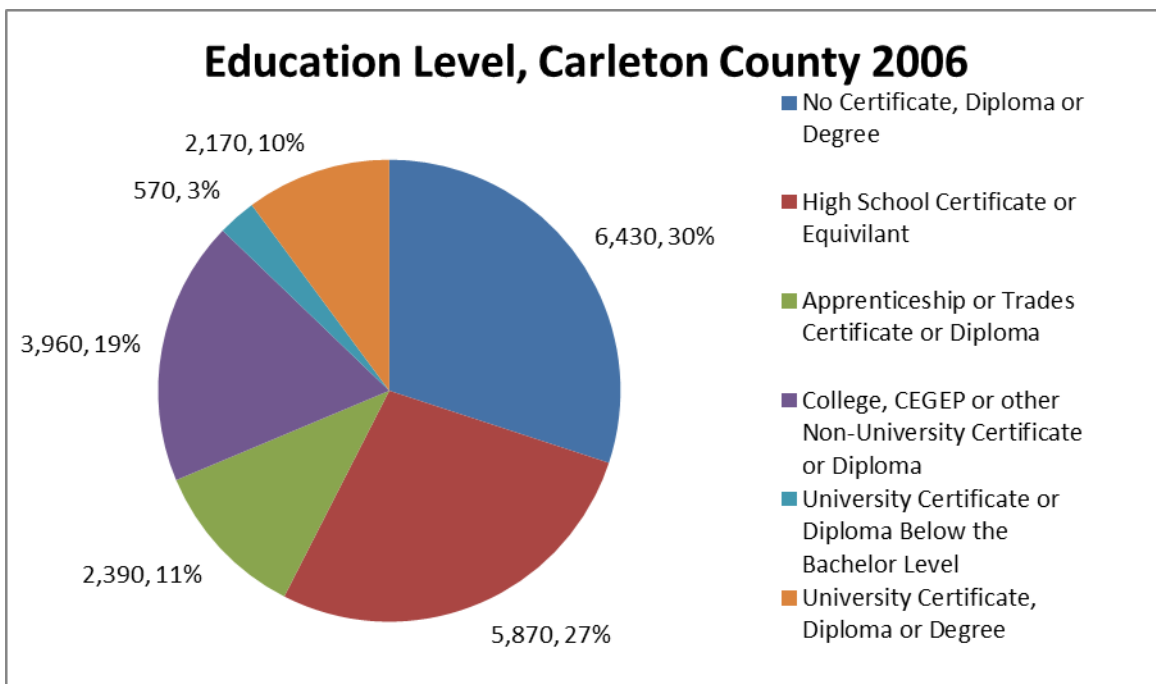
Figure 8.10.3 Education Level, York County, 2006

8.10.2.3.3 Carleton County

In 2006, the total experienced labour force in Carleton County was 14,105, with the most employed workers (92.7%) living in the town of Woodstock. In 2006, Carleton County’s participation rate was 65.9 percent, compared with the 66.4% for 2001. Employment conditions improved between 2001 and 2006, with the unemployment rate decreasing from 8.6% to 6.8% (Statistics Canada 2002c; 2007c).

Carleton County’s main occupational groups align with those of the province and York County (Stantec 2012i). In 2006, the highest employment was for occupations in sales and services, trades and transport, and business services, with service sectors accounting for almost a quarter of all employment. As of 2006, trades and transport occupations represented 20% of employment in Carleton County. In comparison, these occupations represent only 14.9% and 12.9% of the employed labour force for New Brunswick and York County, respectively.

Figure 8.10.4 shows the education and training levels in Carleton County as of 2006. While 19% of Carleton County’s population had a college, CEGEP, or other non-university certificate or diploma, the percentage of the population with a university certificate, diploma, or degree was below both the national and provincial averages at 10% (Figure 8.10.4).



Source: Statistics Canada (2007d).

Figure 8.10.4 Education Level, Carleton County, 2006

8.10.2.4 Aboriginal Employment

Characteristics of the labour force and business sectors for the Aboriginal population in New Brunswick are provided in the tables below. References made to labour force indicators of the non-Aboriginal population draw from information presented in Section 4.2 of the document entitled “Sisson Project: Baseline Socioeconomic Technical Report” (Stantec 2012i).

Table 8.10.4 Labour Force Characteristics, New Brunswick, York and Carleton Counties – Aboriginal Identity Population (2013)

Location	Total Aboriginal Population 15 Years and Over	Labour Force	Employed	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
Provincial Total	16,905	10,340	8,195	48.5	61.2	20.8
York County	2,380	1,440	1,215	60.5	51.1	15.6
Fredericton	2,410	1,485	1,265	61.6	52.5	15.2
Carleton County	420	260	225	61.9	53.6	13.5

Source: Profile of the New Brunswick Labour Force (2013).

As shown in Table 8.10.4 above, labour force characteristics for the portion of the population that identifies themselves as Aboriginal within New Brunswick as well as in York and Carleton Counties show that although the participation rates of Aboriginal and non-Aboriginal groups are similar (48.5 percent for the Aboriginal population compared to 56.8 percent for the non-Aboriginal population), in New Brunswick, Aboriginal people have a much higher unemployment rate (20.8 percent), than the non-Aboriginal population (10.7 percent) (Profile of the New Brunswick Labour Force 2013).

Table 8.10.5 Experienced Aboriginal Labour Force by Industry, Province of New Brunswick (2011)

Sector	Experienced Labour Force by Industry in New Brunswick (total)	Experienced Labour Force by Industry in New Brunswick (%)
Total Experienced Labour Force	10,340	100%
Agriculture and Other Resource-based Industries	690	6.6%
Mining, Quarrying, and Oil and Gas Extraction	125	1.2%
Construction	720	6.9%
Manufacturing	610	5.9%
Wholesale Trade	265	2.6%
Retail Trade	1,175	11.4%
Transportation and Warehousing	445	4.3%
Finance and Insurance	235	2.2%
Professional, scientific and technical services	200	1.9%
Administrative and Support, Waste Management and Remediation Services	490	4.7%
Educational Services	510	4.9%
Health Care and Social Assistance	1,090	10.5%
Arts, Entertainment and Recreation	210	2.0%
Accommodation and Food Services	680	6.6%
Other Services (except public administration)	415	4.0%
Public Administration	1,855	17.9%

Source: Statistics Canada (2011)

As shown in Table 8.10.5 above, in 2011, the main sources of employment by industry for Aboriginal persons over 15 years of age were public administration, which employed 1,855 people or 17.9 percent of the labour force, retail trade (11.4 percent), health care and social assistance (10.5 percent). To a lesser extent, Aboriginal persons over 15 years of age were employed in construction (6.9 percent), accommodation and food services (6.6 percent), agriculture and other resource based industries (6.6 percent), manufacturing (5.9 percent), educational services (4.9 percent), administrative support, and waste management and remediation services (4.7 percent). Industries that employed the fewest Aboriginal persons were mining, quarrying, oil and gas extraction (125, 1.2 percent); professional, scientific and technical services (1.9 percent); arts, entertainment and recreation (2.0 percent); finance and insurance (2.2 percent); wholesale trade (2.6 percent); transportation and warehousing (4.3 percent); and other services (except public administration) (4.0 percent).

Table 8.10.6 Experienced Aboriginal Labour Force by Occupation, New Brunswick (2011)

Occupation	Experienced Aboriginal Labour Force by Occupation in New Brunswick (2011)	Experienced Aboriginal Labour Force by Occupation (%)
Total Experienced Labour Force	10,340	100%
Management Occupations	695	6.7%
Business, Finance and Administrative Occupations	1,310	12.6%
Natural and Applied Sciences and Related Occupations	450	4.3%

Table 8.10.6 Experienced Aboriginal Labour Force by Occupation, New Brunswick (2011)

Occupation	Experienced Aboriginal Labour Force by Occupation in New Brunswick (2011)	Experienced Aboriginal Labour Force by Occupation (%)
Health Occupations	460	4.4%
Occupations in Education, Law and Social, Community and Government Services	1,340	12.9%
Occupations in Art, Culture, Recreation and Sport	140	1.3%
Sales and Service Occupations	2,610	25.2%
Trades, Transport and Equipment Operators and related Occupations	1,640	15.9%
Natural Resources, Agriculture and related Production Occupations	775	7.5%
Occupations and Manufacturing and Utilities	500	4.8%

Source: Statistics Canada (2011)

As shown in Table 8.10.6 above, New Brunswick’s Aboriginal labour force is concentrated in three main occupations: sales and services (25.2 percent); trades, transport and equipment operators (15.9); and education, law and social, community and government services (12.9 percent). The lowest percentage is represented in the art, culture, recreation and sport occupations at 1.3 percent. Similarly to the overall representation of New Brunswick’s non-Aboriginal labour force, the service sectors account for over a quarter of all employment (Table 8.10.6 above).

It is worth noting that some of these occupations would tend to lend themselves well to the needs of the Sisson Project, both during construction and operation (e.g., trades, equipment operators).

SML is aware of the educational and occupational challenges faced within Aboriginal communities, and recognize that some within the Aboriginal population face challenges that can create barriers to economic inclusion, with education representing the most significant determinant of labour market outcomes (Employment and Social Development Canada 2014). For example, in New Brunswick, the Aboriginal community has a much larger share of individuals with less than a high school diploma (34.5 percent) compared with the non-Aboriginal population (24.6 percent) (Profile of the New Brunswick Labour Force 2013). There is also a significant gap in the attainment of university certificates, diplomas or degrees between Aboriginal people (8.7 percent) and the non- Aboriginal population (15.5 percent). Conversely, Aboriginal people in New Brunswick have a modestly larger proportion of Apprenticeship/Trades Certificates (12.8 percent) than the non-Aboriginal population (11.2 percent).

SML has committed to working with interested First Nations throughout the life of the Project, and is of the view that the company’s record to date demonstrates a clear objective to continuing this engagement with First Nations in order to create positive effect s from the Project within the Aboriginal communities (e.g., employment and business).

SML has committed to facilitating and securing training, employment and business opportunities with the Project that are consistent with the capabilities within the First Nation communities (see Table 8.13.5, Concern/Comment #2). This commitment has been demonstrated, for example, by hiring First Nations field technicians for the archaeology program, and providing university scholarships to

four First Nations students in 2011 and 2012. SML's local hire policy will provide the opportunity for interested and qualified First Nation individuals to be considered for employment on the Project. SML will further encourage the participation of First Nations workers and businesses on the Project by providing information to Aboriginal communities to help identify and implement relevant training opportunities. SML will also continue to work with organizations such as the Joint Economic Development Initiative (JEDI, the Saint John River Tribal Council) and the Aboriginal Workforce Development Initiative (AWDI) focused on providing training and education opportunities to First Nations. Over the past few years, SML has collaborated with these organizations to, for example, support their application for federal training funds under the NB Aboriginal Mining, Energy and Trades program. SML has a representative on the steering committee with AWDI for this initiative. The application for funding was successful, and led to a recently completed heavy equipment operator's course held on Tobique First Nation; SML received six resumes from graduates of the course.

SML is committed to engaging with, and providing an inclusive and supportive work environment for First Nations throughout the life of the Project. Information will be provided to Aboriginal communities through Community Economic Development Officers in advance of Project construction and operation to provide employment qualification information. It is noted that almost 16% of those who identify themselves as Aboriginal in New Brunswick are working in trades and/or operating heavy equipment – both skillsets that will be in high demand during the construction and operational phases of the Project. SML will provide the First Nation communities with job descriptions once they are defined as well as any certification requirements for these positions such that those with the desired skillsets or those close to achieving certification in the needed trades will be ready when hiring for construction and operational jobs begins. SML will also make additional effort by directly contacting the employment development staff within each First Nation community and providing them with information on pending hiring activities for each phase of the Project.

As summarized in Table 4.3.3 of the EIA Report and as supplemented by the information in Table 8.13.5, SML has worked extensively with First Nations not only to share information about the Project but also to provide opportunities to participate meaningfully in its planning and development. Some of those initiatives include: the formation of the First Nations Environmental Assessment Working Group (FNEAWG) and the hosting of frequent meetings through it; providing capacity funding to participate in the review of the EIA Report; offered to work with First Nations communities to carry out an IKS study; funding an Indigenous Knowledge Study (IKS) for the Project carried out on behalf of St. Mary's, Woodstock and Madawaska Maliseet First Nations, the only communities which took up SML's offer; working with JEDI and AWDI to assist in developing training and education opportunities to First Nations; providing the opportunity for First Nations to harvest resources of interest to them in the LAA prior to construction; and various other initiatives undertaken since 2010 as summarized in Table 8.13.5. SML will continue to develop meaningful relationships with First Nations, at a community level, as a primary component to executing a local hiring strategy that prioritizes the hiring of local workers, including Aboriginal community members. Outreach methods will be used to match opportunities with potential candidates, with employment and procurement programs actively promoted within the First Nations community.

SML recognizes that people who identify themselves as Aboriginal account for a small, but growing share of Atlantic Canada's total population, with increasing education levels (Employment and Social Development Canada 2014). As education levels increase, Aboriginal persons will continue to

position themselves to experience more success in the labour market. SML acknowledges the value that the Aboriginal community can add to the Project in all aspects (e.g., trades and apprenticeship, management and supervision), and will work with each interested First Nation community to assist them in supporting their members to secure employment opportunities with the Project.

8.10.3 Potential Project-VEC Interactions

Table 8.10.7 lists each Project activity and physical work for the Project, and ranks each interaction as 0, 1, or 2 based on the level of interaction each activity or physical work will have with Labour and Economy.

Table 8.10.7 Potential Project Environmental Effects to Labour and Economy

Project Activities and Physical Works	Potential Environmental Effects	
	Change in Labour	Change in Economy
Construction		
Site Preparation of Open Pit, TSF, and Buildings and Ancillary Facilities	0	0
Physical Construction and Installation of Project Facilities	0	0
Physical Construction of Transmission Lines and Associated Infrastructure	0	0
Physical Construction of Realigned Fire Road, New Site Access Road, and Internal Site Roads	0	0
Implementation of Fish Habitat Offsetting/Compensation Plan	0	0
Emissions and Wastes	0	0
Transportation	0	0
Employment and Expenditure	1	2
Operation		
Mining	0	0
Ore Processing	0	0
Mine Waste and Water Management	0	0
Linear Facilities Presence, Operation, and Maintenance	0	0
Emissions and Wastes	0	0
Transportation	0	0
Employment and Expenditure	1	2
Decommissioning, Reclamation and Closure		
Decommissioning	0	0
Reclamation	0	0
Closure	0	0
Post-Closure	0	0
Emissions and Wastes	0	0
Transportation	0	0
Employment and Expenditure	1	2
Project-Related Environmental Effects		
Notes:		
Project-Related Environmental Effects were ranked as follows:		
0 No substantive interaction. The environmental effects are rated not significant and are not considered further in this report.		
1 Interaction will occur. However, based on past experience and professional judgment, the interaction would not result in a significant environmental effect, even without mitigation, or the interaction would clearly not be significant due to application of codified practices and/or permit conditions. The environmental effects are rated not significant and are not considered further in this report.		
2 Interaction may, even with codified mitigation and/or permit conditions, result in a potentially significant environmental effect and/or is important to regulatory and/or public interest. Potential environmental effects are considered further and in more detail in the EIA.		

This section collectively considers the environmental effects of the Project on Labour and Economy, including both a Change in Labour and a Change in Economy under the activity identified as Employment and Expenditure in Table 8.10.7. The EIA thus considers Project-related activities that generate employment and expenditures (e.g., employment, income, expenditures, taxation, royalties, and other economic and employment benefits of the Project) under a single activity during each phase. Therefore, all other Project activities are ranked as 0 in Table 8.10.7 are rated not significant, and there is no requirement to consider these further in the EIA.

As will be discussed in Section 8.10.4.3, a Change in Economy resulting from Employment and Expenditure associated with the Project will be substantial, and as such, these interactions require more analysis in detail and consideration in the environmental assessment to predict, manage, and evaluate the potential environmental effects. The Project will create thousands of person-years of employment, and will inject billions of dollars into the Canadian economy over its life. The interactions between Employment and Expenditure and a Change in Economy during all phases of the Project are ranked as 2 in Table 8.10.7 and are considered further in Section 8.10.4.

The Project's labour requirements will interact with a Change in Labour by increasing the demand on the labour market during all Project phases. However, these demands will be largely within the available supply of workers and tradespeople in New Brunswick. During Construction, the Project will require up to approximately 500 workers of various trades and skills at the peak of Construction. This represents an important contribution to employment in Central New Brunswick, where unemployment rates tend to be high with reduced economic activity as well as recent mill closures, which have historically represented a major employment sector in rural areas of the province. With development of the Project, as with all economic development, there is potential for the labour demand to exceed the existing labour supply, leading to wage inflation and labour supply issues for other businesses (e.g., increased competition for labour). Current labour market conditions for the construction sector in New Brunswick are characterized by relatively high unemployment. For the period of 2013 to 2015 (i.e., the years leading into and spanning most of the Construction phase), availability issues in the province have not been forecast for the majority of construction trades and occupations. Short-term increases in demand for labour in certain trades and skillsets may temporarily limit the availability for some positions and employers may need to compete to attract workers. The Construction Sector Council (2012) has predicted that established patterns of recruitment and worker mobility will be able to accommodate job requirements for all construction trades and occupations during 2013 to 2015. This will likely continue through Construction. During all Project phases, SML will mitigate potential adverse environmental effects to a Change in Labour through a number of measures, including cooperating with training and educational institutions, and promoting a diverse workforce through various employment practices (e.g., Aboriginal employment). The Project will likely meet labour requirements in Construction by the existing labour force in New Brunswick, supplemented by labour from elsewhere in Eastern Canada. The Project is not likely to create a highly competitive labour market that would cause greater wage increases in the LAA than in the province as a whole. Accordingly, the environmental effects of Employment and Expenditure on a Change in Labour during Construction have been ranked as 1 in Table 8.10.7 and are not significant.

During Operation, the Project will create up to 300 direct full-time jobs over the planned 27 years of Operation. This again is an important contribution to employment in Central New Brunswick, where skilled labour availability seems to be good as a result of mill closures and reduced economic activity in

rural areas, as evidenced by the considerable interest in employment opportunities expressed by numerous area residents during consultation and engagement activities carried out for the Project (see Section 4.3). As with Construction, there is potential for minor adverse environmental effects to a Change in Labour, should the labour demand exceed available labour supply, potentially leading to wage inflation and labour supply issues for other businesses and industries. However, the magnitude of direct employment associated with the Project, while creating large-scale economic benefits for the region and the province, will not be large enough to result in labour shortages in New Brunswick. Labour demands during Operation will be within the available supply of workers in the province, supplemented by labour from other provinces, especially New Brunswickers who have relocated or commute to find work. Thus, the Project will not lead to wage increases in the LAA greater than the rate of provincial wage inflation. The environmental effects of Employment and Expenditure on a Change in Labour during Operation have accordingly been ranked as 1 in Table 8.10.7 and are not significant.

As the Project nears the completion of Operation, there will be diminishing employment during Decommissioning, Reclamation and Closure, leading to the end of Project employment upon Post-Closure. There will be some need for labour during decommissioning and reclamation activities for the Project, but to a much lesser scale than during Construction or Operation. Once closure is completed, there will be limited employment for the Project. Decommissioning, Reclamation and Closure will thus result in minor positive environmental effects to a Change in Labour as skilled workers return to the available work force, resulting in greater availability of skilled labour for other Projects and economic sectors. After 27 years of Operation, SML will work with these displaced workers to transition to retirement or retraining to re-enter the workforce as necessary. With retraining, the remaining workers displaced by the Project will be available to fulfill the labour needs of other projects in the region that require skilled trades or labour. With up to 300 workers returning to the available pool of skilled labour following the completion of Operation, the environmental effect of Decommissioning, Reclamation and Closure is not of great magnitude in the LAA where currently the labour pool is about 65,000 workers. The skills and experience developed through the Project will be in high demand to supply other industrial developments in the province or elsewhere; “boom and bust” effects arising from the Project will not greatly affect the labour supply in the LAA. As such, the environmental effects of Employment and Expenditure on a Change in Labour during Decommissioning, Reclamation and Closure have been ranked as 1 in Table 8.10.7 and are not significant.

The potential environmental effects of all Project activities and physical works that were ranked as 0 or 1 in Table 8.10.7, including cumulative environmental effects, on Labour and Economy during all phases of the Project are rated not significant, with a high level of confidence, and are not considered further in this assessment. This conclusion is in consideration of the nature of the interactions and the planned implementation of known and proven environmental effects mitigation and management that SML will implement.

8.10.4 Assessment of Project-Related Environmental Effects

A summary of the environmental effects assessment and prediction of residual environmental effects on Labour and Economy resulting from interactions ranked as 2 is provided in Table 8.10.8.

Table 8.10.8 Summary of Residual Project-Related Environmental Effects on Labour and Economy

Potential Residual Project-Related Environmental Effects	Project Phases, Activities, and Physical Works	Mitigation / Compensation Measures	Residual Environmental Effects Characteristics							Significance	Prediction Confidence	Likelihood	Cumulative Environmental Effects?	Recommended Follow-up or Monitoring
			Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological/Socioeconomic Context						
Change in Economy	Construction • Employment and Expenditure	Mitigation to be implemented during Construction and Operation will be as follows.	P	H	L/R	MT/C	R	D	S	H	H	Y	None recommended	
	Operation • Employment and Expenditure	<ul style="list-style-type: none"> • Qualified local workers will be given priority consideration for Project employment. • SML will work with local education and training institutions and communicate work requirements to improve the availability of appropriate programs, allowing local people opportunities to gain qualifications for employment. • Local companies will be given preference for site contract work where qualified companies and suppliers can be identified. • SML will work with the local business community to communicate requirements and expectations for contracting opportunities and to identify new Project-related business opportunities for local companies. • SML will continue to engage with the public throughout Operation, allowing sufficient time to plan for and mitigate any adverse environmental effects on Economy that may occur during Decommissioning, Reclamation and Closure. 	P	H	L/R	LT/C	R	D	S	H	H	Y		

Table 8.10.8 Summary of Residual Project-Related Environmental Effects on Labour and Economy

Potential Residual Project-Related Environmental Effects	Project Phases, Activities, and Physical Works	Mitigation / Compensation Measures	Residual Environmental Effects Characteristics							Significance	Prediction Confidence	Likelihood	Cumulative Environmental Effects?	Recommended Follow-up or Monitoring
			Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological/Socioeconomic Context						
	Decommissioning, Reclamation and Closure • Employment and Expenditure	• SML will continue to engage with the public throughout its planning procedures for Decommissioning, Reclamation and Closure, allowing optimal time to plan for and mitigate environmental effects.	P	M	L/R	MT/C	R	D	N	H	-	Y		
	Residual Environmental Effects for all Phases								S	H	H	Y		
<p>KEY</p> <p>Direction P Positive. A Adverse.</p> <p>Magnitude L Low: Environmental effects limited to specific businesses and trades directly required by the Project. M Moderate: Environmental effects felt by businesses and labour directly and indirectly related to Project. H High: Environmental effects felt broadly by businesses and labour throughout the economy.</p> <p>Geographic Extent S Site-specific: Within the PDA. L Local: Within the LAA. R Regional: Within the RAA.</p> <p>Duration ST Short-term: Occurs and lasts for short periods (e.g., days/weeks). MT Medium-term: Occurs and lasts for extended periods of time (e.g., years). LT Long-term: Occurs during Construction and/or Operation and lasts for the life of Project. P Permanent: Occurs during Construction and Operation and beyond.</p> <p>Frequency O Occurs once. S Occurs sporadically at irregular intervals. R Occurs on a regular basis and at regular intervals. C Continuous.</p> <p>Reversibility R Reversible. I Irreversible.</p> <p>Ecological/Socioeconomic Context U Undisturbed: Area relatively or not adversely affected by human activity. D Developed: Area has been substantially previously disturbed by human development or human development is still present. N/A Not Applicable.</p> <p>Significance S Significant. N Not Significant.</p> <p>Prediction Confidence Confidence in the significance prediction, based on scientific information and statistical analysis, professional judgment and known effectiveness of mitigation: L Low level of confidence. M Moderate level of confidence. H High level of confidence.</p> <p>Likelihood If a significant environmental effect is predicted, the likelihood of that significant environmental effect occurring, based on professional judgment: L Low probability of occurrence. M Medium probability of occurrence. H High probability of occurrence.</p> <p>Cumulative Environmental Effects? Y Potential for environmental effect to interact with the environmental effects of other past, present or foreseeable projects or activities in RAA. N Environmental effect will not or is not likely to interact with the environmental effects of other past, present or foreseeable projects or activities in RAA.</p>														

8.10.4.1 Potential Project Environmental Effects Mechanisms

During Construction, the Project will generate substantial economic benefits related to a Change in Economy from Employment and Expenditure activities. Such benefits will include increased employment rates and income paid to workers through direct, indirect, and induced employment that contribute to a Change in Economy. Direct employment refers to employees working at the Project site during Construction and Operation, while indirect and induced employment refers to employees working for Project supplier companies and additional employment resulting from Project-related increases in consumer expenditures, respectively. There is potential for economic spin-off benefits from increased spending as members of the local, regional, and provincial labour force gain Project-generated employment and associated incomes, as well as from spending by SML and its contractors and sub-contractors during Construction. There will also be increases to government revenues from provincial and federal taxes during Construction (and to a greater extent during Operation).

Construction activities and physical works will require the procurement of a wide range of goods and services. These range from highly specialized goods and services, such as the fabrication of process equipment, that are only offered by a few global specialist companies, to activities such as site clearing, equipment servicing, and catering that can be accommodated by the local business capacity. Business contracts secured through the construction of major projects result in increased employment and income locally and regionally. Additionally, such contracts may allow for the establishment or further development of local, regional, and provincial business capacity and expertise related to mining and other industries, which can increase competitiveness for future economic opportunities. There is also potential for adverse environmental effects on a Change in Economy during Construction. Because the Project would increase demand for local, regional, and provincial goods and services, there is potential for both increased prices and reduced availability of goods and services required by other businesses.

During Operation, the benefits to the local, regional, and provincial economies will increase as residents gain employment, purchase homes, purchase goods and services, and other economic activity arising from Project workers, leading to increased personal incomes and taxes for government. Proponent taxes and royalties will also contribute greatly to government revenue. New Brunswick businesses will continue to receive the benefit of awarded contracts, as was discussed above for Construction.

Similar to Construction, there is also potential for adverse environmental effects to a Change in Economy during Operation where the demand for goods and services exceeds the available supply.

Public concern has been expressed regarding the potential consequences of a “boom and bust” economy (*i.e.*, a period of high levels of employment and economic benefits associated with the Project followed by a sudden economic decline upon Closure of the Project). Employment and Expenditure related to Project activities during Decommissioning, Reclamation and Closure will still require workers, with mine closure activities typically employing trades personnel, equipment operators and mechanics, inspectors and security personnel (GOC 2006) who will contribute to the economy directly and indirectly. However, employment and economic activity during this Project phase will be far less than that of Construction or Operation.

8.10.4.2 Mitigation of Project Environmental Effects

The key objective of mitigation related to Economy is to manage environmental effects in such a way to generate or enhance positive environmental effects, while avoiding and reducing adverse environmental effects. Many potential environmental effects on a Change in Economy can be anticipated and managed through Project design and Proponent policies and practices established and implemented at the outset of the Project, including initiatives to enhance economic benefits to regional and provincial economies. SML intends to continue a proactive strategy for local recruitment and procurement through the life of the Project.

SML will implement the following environmental effects management and mitigation measures, through careful design and planning, to generate or enhance positive environmental effects and avoid or reduce adverse environmental effects of the Project on a Change in Economy.

- Qualified local workers, including First Nations, will be given priority consideration for Project employment.
- SML will work with local education and training institutions and communicate work requirements to improve the availability of appropriate programs, allowing local people opportunities to gain qualifications for employment.
- Local companies will be given preference for site contract work where qualified companies and suppliers can be identified.
- SML will work with the local business community to communicate requirements and expectations for contracting opportunities and to identify new Project-related business opportunities for local companies.
- SML will continue to engage with the public throughout Operation, allowing sufficient time to plan for and mitigate any adverse environmental effects on a Change in Economy that may occur during Decommissioning, Reclamation and Closure.
- SML will continue to engage with the public throughout its planning procedures for Decommissioning, Reclamation and Closure, allowing optimal time to plan for and mitigate environmental effects.

8.10.4.3 Characterization of Residual Project Environmental Effects

The Project will generate substantial positive residual environmental effects on the economy of New Brunswick, as well as for Canada, throughout its life. EcoTec Consultants, an expert socioeconomic consulting firm specializing in economic modelling, modelled the economic benefits of the Project (EcoTec 2013). Based on projected capital expenditures and operating costs provided by SML, EcoTec used advanced economic modelling techniques to provide a comprehensive analysis of economic benefits. The economic model calculated the direct, indirect, and induced effects of the Project on employment, GDP, and tax revenues. The model reports employment generation numbers as person-years of employment. This can provide a general approximation of the total numbers of workers that will be required (*i.e.*, job creation numbers); however, the number of workers required will

vary throughout each Project phase depending on the specific activity being carried out. A summary of the economic modelling results carried out by EcoTec is below (EcoTec 2013).

Overview

Economic modeling results (EcoTec 2013) indicate that the Project overall will support an estimated 32,619 person-years of employment over Construction (2 years) and Operation (27 years), with 16,406 person years of employment in New Brunswick. This will result in a yearly average of 566 direct, indirect, and induced positions in New Brunswick over the combined Construction and Operation period. Total direct employment will reach an estimated 9,826 person-years, of which 8,849 person-years (90.1%) will be in New Brunswick. This equates to an annual average of 339 direct full-time equivalent positions during Construction and Operation, with an annual average of 305 positions going to New Brunswick workers.

The direct, indirect, and induced GDP generated by the Project is \$5.91 billion, including \$3.75 billion (63.5%) in New Brunswick. The direct, indirect, and induced GDP generated by the Project in New Brunswick will be approximately \$2.76 billion, \$474.4 million, and \$522.6 million, respectively.

The Project will also contribute substantially to tax revenues provincially and federally. In total, the Project will generate an estimated \$1.78 billion in tax revenues over its lifetime, of which \$742.9 million (41.7%) will go to the Province of New Brunswick.

Construction

During the two years of Construction, it is estimated that the Project will generate 4,942 person-years of employment, including direct, indirect, and induced jobs. Of this total, 1,844 person-years (37.3%) will be in New Brunswick. The Project will create approximately 844 person-years of direct employment during Construction, of which 568 (67.3%) will be in New Brunswick. A summary of direct, indirect, and induced employment created in Canada and New Brunswick during Construction is in Table 8.10.9.

Table 8.10.9 Employment Generated During Construction

	Canada (Total) (person-years)	New Brunswick	
		Person-years	Percent of total
Direct	844	568	67.3 %
Indirect	2,467	916	37.1 %
Induced	1,630	361	22.1 %
Total	4,942	1,844	37.3 %

Source: EcoTec (2013).

During the two years of Construction, the Project will contribute to government revenue through direct income taxes paid by Project employees, indirect taxes paid by the owners of companies supplying goods and services to the Project, and taxes resulting from the Project’s environmental effects on income in the broader economy. The Project will also generate government revenue from the taxes and royalties paid by SML, as well as goods and services taxes related to Proponent and employee spending. As shown in Table 8.10.10, Construction will generate an estimated total of \$109.1 million in direct, indirect, and induced taxes to the federal and provincial governments over the two years of Construction. Of this total, approximately \$20.1 million (18.4%) in tax revenues will go to the Province of New Brunswick.

Table 8.10.10 Tax Revenues Generated During Construction (\$ Millions)

	Direct	Indirect	Induced	Total
Province of New Brunswick	\$5.2	\$4.5	\$10.4	\$20.1
Federal Government	\$7.7	\$19.8	\$23.1	\$50.6
Other Provincial Governments	\$2.2	\$12.3	\$23.9	\$38.4
Total	\$15.1	\$36.6	\$57.4	\$109.1

Source: EcoTec (2013).

There will be considerable economic benefit to the provincial and national economies resulting from Construction-generated GDP. Construction will generate an estimated total of \$519.0 million for the Canadian GDP, including \$170.3 million (32.8%) in New Brunswick. Direct GDP in New Brunswick resulting from Construction will be \$59.1 million. In addition to direct GDP, there will be substantial GDP generated by economic spin-off from Construction activities. Indirect GDP generated by Construction will be \$230.3 million, of which \$64.5 million (28.0%) will be in New Brunswick. Induced Canadian GDP from Construction will be \$201.1 million, with \$46.7 million (23.2%) in New Brunswick (Table 8.10.11).

Table 8.10.11 Economic Activity Generated During Construction, as GDP (\$ Millions)

	Canada (Total GDP)	New Brunswick	
		GDP	Percent of Canadian Total
Direct	\$87.6	\$59.1	67.5 %
Indirect	\$230.3	\$64.5	28.0 %
Induced	\$201.1	\$46.7	23.2 %
Total	\$519.0	\$170.3	32.8 %

Source: EcoTec (2013).

The amount of household income included within the total Construction-generated GDP is estimated at \$347.0 million, representing 66.9% of the total. Within New Brunswick, household income generated during Construction will be \$127.6 million (EcoTec 2013).

New Brunswick companies will receive a variety of supply and service contracts for the Project, which will result in a range of positive environmental effects on a Change in Economy. For all Project phases, the magnitude of positive environmental effects for local and regional businesses will depend on their capacity to meet Project requirements. As discussed above, New Brunswick companies will have priority consideration for contracts where such capacity exists. As outlined in the Project's Environmental and Social Management System (ESMS) (Appendix D), the Proponent will work with the local business community to communicate requirements and expectations for contracting opportunities to maximize their potential to experience positive environmental effects from the Project.

Total expenditures by the Proponent during Construction will be approximately \$578.8 million over an approximate two-year period. Based on the nature of goods and services required during Construction, the economy of the province, and previous studies completed for other mining projects throughout Canada, it is estimated that Construction expenditures in New Brunswick will total \$245.1 million (42.3% of total construction costs) (EcoTec 2013). Most of the direct expenditures in New Brunswick will relate to the construction of Project features such as buildings, facilities, and the TSF, and Site Preparation in general. Contracting and supply opportunities that will be available to New Brunswick companies will range from professional services, to trucking, to mechanical services, to road and building construction (EcoTec 2013).

Increased demand for local, regional, and provincial goods and services during Construction could result in both increased prices and reduced availability of goods and services required by other businesses. However, any increased demand for goods and services required for Construction would be limited to the two-year Construction phase, and requirements will be communicated to the business community in advance to enable time to manage expected demands. New Brunswick’s existing industrial base will be able to supply a substantial portion of the goods and services required to construct and operate the Project (EcoTec 2013). As such, substantial supply shortages or price inflation are not anticipated to result from the Project.

Operation

Over the 27 years of Operation, the Project will result in substantial economic benefits to Canada and to New Brunswick in particular. Economic modeling indicates that Operation will directly support an annual average of 333 full-time positions, while generating substantial indirect and induced employment (EcoTec 2013). In total, Operation will generate over 27,000 person-years of direct, indirect, and induced employment. In New Brunswick, the Project will create close to 8,300 person-years of direct employment during Operation (Table 8.10.12).

Table 8.10.12 Employment Generated During Operation

	Canada (Total) (person-years)	New Brunswick	
		Person-years	Percent of total
Direct	8,982	8,281	92.2 %
Indirect	8,553	2,485	29.1 %
Induced	10,143	3,795	37.4 %
Total	27,677	14,561	52.6 %

Source: EcoTec (2013).

Government revenues will accrue from federal and provincial taxes on mining operations, as well as other (indirect and induced) tax revenues such as personal income tax and sales tax. During the 27 years of Operation, government revenues from the Project will reach \$1.67 billion for Canada as a whole (Table 8.10.13). Of this, \$722.8 million (43.2%) will be tax revenue to the Province of New Brunswick.

Table 8.10.13 Tax Revenues Generated During Operation Expenditures (\$ Millions)

	Revenues From Mining Operations	Other Tax Revenues	Total
Province of New Brunswick	\$525.2	\$197.6	\$722.8
Government of Canada	\$367.5	\$647.5	\$715.0
Other Provincial Governments	N/A	\$234.4	\$234.4
Total	\$892.7	\$779.6	\$1,672.3

Source: EcoTec (2013).

Project-generated GDP, including direct, indirect, and induced, during the 27 years of Operation will reach \$5.4 billion, including \$3.6 billion in New Brunswick (66.5%). The Project will directly contribute \$2.8 billion to the Canadian GDP, of which \$2.7 billion will be in New Brunswick (EcoTec 2013) (Table 8.10.14).

Table 8.10.14 Economic Activity Generated During Operation, as GDP (\$ Millions)

	Canada (Total GDP)	New Brunswick	
		GDP	Percent of Canadian total
Direct	\$2,815.8	\$2,698.5	95.8%
Indirect	\$1,340.9	\$409.9	30.7%
Induced	\$1,235.0	\$476.0	38.5%
Total	\$5,391.8	\$3,584.3	66.5%

Source: EcoTec (2013).

The Project will contribute substantively to household incomes. Over the 27 years of Operation, the Project will generate a total of \$2.1 billion in household income (composed of wages and salaries, benefits and revenues of unincorporated businesses). Of this total, \$1.2 billion will accrue to New Brunswick (56.0%) (EcoTec 2013).

Canadian companies will benefit from goods and service contracts during Operation. Projected expenditures during Operation are \$4.1 billion over a period of 27 years. Up to \$1.8 billion of these contracts could go to New Brunswick companies. As with Construction, SML's proactive strategy for local procurement will help optimize economic benefits to New Brunswick businesses during Operation.

If demands for goods and services were to exceed the available supply, adverse environmental effects to Economy could occur. However, it is anticipated that the existing business capacity of the local, regional, and provincial economies will be able to meet the Project demand for goods and services during Operation. The Proponent's plans to communicate with the business community in advance of Operation to advise them of contracting opportunities and to allow them time to prepare for upcoming demands will minimize the potential for adverse environmental effects.

Decommissioning, Reclamation and Closure

While Project closure activities will generate some minor positive environmental effects through employment for removing Project facilities and rehabilitating the site, there will be a considerable decrease in employment, government revenues, and goods and services procurement related to the Project once Operation ceases. However, SML will continue public engagement through Operation to plan for anticipated environmental effects on a Change in Economy upon Closure of the Project. SML's proactive employment and procurement strategies will help build local and regional labour and business capacity throughout the Project lifespan, which will increase competitiveness for future economic development opportunities.

8.10.5 Assessment of Cumulative Environmental Effects

This section assesses the potential cumulative environmental effects for other projects or activities that have the potential to cause environmental effects that overlap with those of the Project. Table 8.10.15 summarizes the potential cumulative environmental effects to Labour and Economy, and ranks each interaction with other projects or activities as 0, 1, or 2 with respect to the nature and degree to which important Project-related environmental effects overlap with those of other projects or activities.

Table 8.10.15 Potential Cumulative Environmental Effects to Labour and Economy

Other Projects or Activities With Potential for Cumulative Environmental Effects	Potential Cumulative Environmental Effects	
	Change in Labour	Change in Economy
Past or Present Projects or Activities That Have Been Carried Out		
Industrial Land Use (Past or Present)	1	1
Forestry and Agricultural Land Use (Past or Present)	1	1
Current Use of Land and Resources for Traditional Purposes by Aboriginal Persons (Past or Present)	0	0
Recreational Land Use (Past or Present)	1	1
Residential Land Use (Past or Present)	1	1
Potential Future Projects or Activities That Will Be Carried Out		
Industrial Land Use (Future)	1	1
Forestry and Agricultural Land Use (Future)	1	1
Current Use of Land and Resources for Traditional Purposes by Aboriginal Persons (Future)	0	0
Recreational Land Use (Future)	1	1
Planned Residential Development (Future)	1	1
Cumulative Environmental Effects		
Notes:		
Cumulative environmental effects were ranked as follows:		
0 Project environmental effects do not act cumulatively with those of other projects or activities that have been or will be carried out.		
1 Project environmental effects act cumulatively with those of other projects or activities that have been or will be carried out, but are unlikely to result in significant cumulative environmental effects; or Project environmental effects act cumulatively with existing significant levels of cumulative environmental effects but will not measurably change the state of the VEC.		
2 Project environmental effects act cumulatively with those of other projects or activities that have been or will be carried out, and may result in significant cumulative environmental effects; or Project environmental effects act cumulatively with existing significant levels of cumulative environmental effects and may measurably change the state of the VEC.		

The interactions between the environmental effects of the Project in combination with the environmental effects of past, present, and future Current Use of Land and Resources for Traditional Purposes by Aboriginal Persons on Labour and Economy have been ranked as 0 in Table 8.10.15. Current Use of Land and Resources for Traditional Purposes by Aboriginal Persons does not and will not have labour demands or economic inputs that may overlap with those of the Project. All other interactions between the environmental effects of the Project and those of all other projects or activities in Table 8.10.15 have been ranked as 1 for both a Change in Labour and a Change in Economy. All other projects or activities have the potential to have labour demands, though none of these are expected to be substantive and outside the capacity of the labour market. Additionally, all other projects or activities will result in some level of economic benefits, including increases to employment, GDP, and income, business, and property tax revenues which when overlapping with those of the Project will contribute positively to cumulative environmental effects on Labour and Economy.

Existing conditions with respect to Labour and Economy are inherently reflective of past and present projects and activities that have been or are being carried out in the RAA, along with the many other complex and interacting regional, provincial, national, and global forces that contribute to the overall health of the provincial economy. The assessment of the Project-related environmental effects on Labour and Economy inherently considers the past and present labour and business activity of the economy in the LAA and RAA. It follows that the cumulative environmental effects of the Project in combination with those of other past or present projects and activities are not significant, but overall positive.

The Project will contribute positively to a Change in Economy, though it will be a relatively small contributor to the overall health of the provincial economy in a cumulative sense. All future projects or activities that will be carried out will also contribute to the attraction and retention of new workers to central New Brunswick, which will contribute to the overall health of the local community and economy. Any increase in the demand on labour will be easily manageable through mitigation such as planning and consultation with business and industry groups and other initiatives as outlined in Section 8.10.4.2. Employment, GDP, and government revenues will increase from the Project, and any additional development that may arise from other future projects or activities will add to those positive environmental effects. No substantive future projects or activities will likely affect Labour and Economy in combination with the Project and other past or present projects or activities in a way that would be adverse and significant in the RAA. Consequently, the cumulative adverse environmental effects of the Project on Labour and Economy, in combination with other past, present or future projects or activities, are not significant.

8.10.6 Determination of Significance

8.10.6.1 Residual Project Environmental Effects

The Project will generate considerable opportunities for employment, income, taxation, royalties, and other direct, indirect, and induced economic benefits, particularly during Construction and Operation. Based on economic modelling, the Project will create considerable direct employment (approximately 9,826 person-years over its lifetime, over 90% of which will be in New Brunswick). The Project will be an important contributor to the Canadian GDP (\$5.91 billion over the life of the Project, of which \$3.75 billion will be to the New Brunswick economy). Tax revenues (\$1.78 billion over the Project life, of which \$742.9 million will go to the Province of New Brunswick) will contribute significantly to provincial and federal government revenues. The Project will also contribute substantive indirect and induced employment and GDP from the supply of goods and services to the Project and from general improvement to the local, regional, and provincial economies.

The economic and employment benefits of the Project will be reduced during Decommissioning, Reclamation and Closure compared to Construction and Operation as Closure activities are undertaken, and will be negligible Post-Closure. However, by that time, the Project will have contributed substantially to the advancement of the local and regional economies such that any local goods or services added to the area to service the Project would be available for other industrial projects nearby or elsewhere. Similarly, the training and skills development of the labour force associated with the Project will be transferrable to other projects nearby or elsewhere and these skilled tradespeople would be available to service other projects upon closure.

The residual positive environmental effects of the Project on a Change in Economy are expected to be significant for Construction and Operation, based on the magnitude of Project-generated economic benefits predicted for those phases. During Decommissioning, Reclamation and Closure, there will be minor positive environmental effects through some additional employment; however, these environmental effects are rated not significant due to the reduced magnitude of economic benefits. Throughout the Project life, economic benefits will be enhanced by management strategies that will give priority consideration to qualified local workers and businesses for the procurement of labour, goods, and services.

The residual adverse environmental effects of the Project on a Change in Economy related to local price inflation and goods and services supply were assessed and rated not significant for all Project phases. It is anticipated that the existing business capacity of the local, regional, and provincial economies will be able to meet the Project demand for goods and services. While the Project will generate substantial economic benefits by awarding contracts to businesses within the LAA and the rest of the province, it is expected that goods and services required in New Brunswick will not exceed supply and lead to price inflation or goods and services shortages. This conclusion has been determined with a high level of confidence because it is expected that adverse residual environmental effects will be successfully anticipated and managed by SML and community stakeholders over the life of the Project.

As discussed in sub-section 8.10.3, the residual adverse environmental effects of the Project on a Change in Labour during all phases are rated not significant, with a high level of confidence. Though the Project will place demands on the local labour market, these demands are not expected to cause wage inflation or labour shortages in other industries.

8.10.6.2 Residual Cumulative Environmental Effects

Other projects or activities that have been or will be carried out may have environmental effects on Labour and Economy that overlap those of the Project. As discussed above, however, while other projects or activities have the potential to have labour demands, none of these are expected to generate demands that, together with those of the Project, will exceed the capacity of the labour market. Additionally, all other projects or activities in the RAA (whether past, present, or future) will result in some level of economic benefits to the province, including increases to employment, GDP, and income, business, and property tax revenues which when overlapping with the those of the Project will contribute positively to cumulative environmental effects on Labour and Economy. As such, the residual cumulative environmental effects of a Change in Labour and a Change in Economy in combination with other projects or activities that have been or will be carried out, are rated not significant, with a high level of confidence.

8.10.7 Follow-up or Monitoring

No follow-up or monitoring to verify the environmental effects prediction or the effectiveness of mitigation with respect to Labour and Economy is required.

