5 ECONOMIC EFFECTS ASSESSMENT

5.1 Economic Background

The Economy Valued Component (VC) addresses Project interactions with the labour market, economic development, and local government finances through Project associated: employment; procurement of materials, goods, and services; payment of taxes, fees and contributions to municipal and regional governments; and use of local government services. The Generation component of the Project is located within the municipal boundaries of the City of Revelstoke and within the boundaries of the Columbia Shuswap Regional District (CSRD). Baseline economic conditions within the Generation Project area are linked to the economic drivers of the CSRD and its communities, including; the operation of BC Hydro's Revelstoke Dam and Mica Dam on the Columbia River; the region's longstanding forestry, transportation, agricultural and government service operations; and the growing importance of the tourism sector. The Transmission component of the Project is located in Electoral Area F of the Regional District of Okanagan-Similkameen (RDOS) in close proximity to the communities of Summerland and Penticton. Existing conditions are detailed in Section 5.3 of the Economy assessment.

This section also presents assessment findings, including evaluation of Project-related interactions and potential adverse effects, mitigation and benefits enhancement measures, and identification of likely residual and cumulative effects. Adverse residual and cumulative effects are rated for significance.

The Economy VC assessment is informed by the Land and Resource Use VC (Section 6.3) and informs the Socio-community VC (Section 6.2).

5.2 Economy Valued Component

This section describes the process and results of the assessment of the Project-related potential, residual, and cumulative environmental effects on the economy that was conducted to meet the requirements of the British Columbia *Environmental Assessment Act* (BC*EAA 2015).* Section 5.2 describes the rationale for the selection of the Economy VC and its sub-components and the regulatory setting and assessment boundaries. Section 5.3 describes existing conditions of the economies used to form the basis for quantification or qualification of changes resulting from the Project. Sections 5.4 present the assessment results, mitigation and conclusions.

The assessment of effects on the Economy VC followed the procedure laid out in *Application Information Requirements Revelstoke Unit 6 Project* (BC Hydro 2016f), including identification of Project-VC interactions, potential effects, proposed mitigation measures, characterization, rating, and determination of significance of residual and cumulative effects. Recommended follow-up and monitoring programs are also described.

BC Hydro has undertaken direct consultations with interested and potentially affected First Nation communities, and engaged in a collaborative approach to researching and writing Part C of the Environmental Assessment Certificate Application (the Application). The communities are the Aboriginal Groups identified in Schedule C of the Section 11 Order issued by the BC Environmental Assessment Office (EAO). The Aboriginal Groups identified for the Project's Generation component are as follows:

- Ktunaxa Nation:
  - Ktunaxa Nation Council;
  - ʔakisq̓nuk First Nation (Columbia Lake First Nation);
  - yaqan nuykiy (Lower Kootenay Indian Band);
  - ʔaqan nuykiy (Lower Kootenay Indian Band); and
  - ʔakink̓um‡asnuq‡iʔit (Tobacco Plains Indian Band).
- Okanagan Nation:
  - Okanagan Nation Alliance;
  - Okanagan Indian Band; and
  - Westbank First Nation.
- Secwepemc Bands:
  - Adams Lake Indian Band;
  - Little Shuswap Lake Indian Band;
  - Neskonlith Indian Band;
  - Shuswap Indian Band;
  - Simpcw Indian Band; and
  - Splatsin.

The Aboriginal Groups identified for the Project's Capacitor Station component are as follows:

- Okanagan Nation:
  - Okanagan Nation Alliance;
  - Penticton Indian Band; and
  - Westbank First Nation.

Where information is available including information presented in Part C of the EAC Application, the Economy VC assessment reflects existing conditions and considers Project-related economic effects on the named member bands and organizations of the Ktunaxa Nation, Secwepemc Bands, and Okanagan Nation.

5.2.1 Context and Boundaries

This section provides the regulatory context of the VC, supporting information for the selection of the VC for assessment of Project-related effects, as well as defines the indicators used to measure effects on the VC, and, the study boundaries for the assessment of the VC.

5.2.2 Overview and Regulatory Setting

5.2.2.1 Labour Market

Labour market, as applied in this assessment, is defined as the exchange of the supply of labour by workers with the demand for labour by employers. Project labour will be supplied by workers with the relevant skills and associated occupational training. Labour will be drawn from individuals living close to the Project, as well as workers from other areas. Project labour demand will correlate with the number of positions of the necessary skills required to construct and operate the Project. Project labour demand will also include labour demand by supplier industries (i.e., indirect employment) connected to the Project's expenditures on goods and services, as well as labour demand by consumer industries (i.e., induced employment) connected to the household expenditures of Project-associated direct and indirect workers. The main factors that characterize the supply of labour are the number of people in the local and regional labour force by occupation and industry affiliation, unemployment rate, participation rate, part-time employment rate, and potential contribution of non-resident workers.

Labour markets are fluid and dynamic; they fluctuate both in terms of the numbers of labour force participants and the number of positions available through employers. These fluctuations can create periods of labour scarcity and labour surplus. Labour market forces (e.g., changing terms of employment and labour mobility) typically establish a balance between supply and demand. Provincial and federal initiatives supporting workers and employers also contribute to effective labour market functioning.

The regulation of the provincial labour market in BC takes place primarily through the following legislation:

- *Employment Standards Act* (2000) – sets out standards for minimum wage and daily pay, breaks, compensation, overtime work, vacation and leave, employment age, collective agreements and dispute resolution.
- *Labour Relations Code* (1996) – addresses collective bargaining and labour-management relations in BC, guaranteeing the right of all workers to join unions and the conditions through which this must occur.
- *Workers Compensation Act* (1996) – sets out occupational health and safety requirements, the duties of employees and employers, as well as liability and compensation in the case of injury at work.
- *Industry Training Authority Act* (2003) – establishes the Industry Training Authority and describes its powers and responsibilities. The organization administers BC's skilled trades system, working with employers, employees, industry, training providers and government to manage apprenticeships and credentials, sets program standards and increases opportunities in the trades.
- *Labour Mobility Act* (2009) – allows trades workers certified in any Canadian jurisdiction to be recognised and to practice their profession in any province or territory.
- *Trade, Investment and Labour Mobility Agreement Implementation Act* (2008) – through this statute, governments of BC and Alberta have reconciled rules that can hinder the free movement of people, goods and services between them, allowing labour market elements to move freely between the two provinces.

In addition, the following labour market policies and programs are relevant in terms of the Project:

- The Red Seal program allows qualified tradespeople to practice their trade in any province without having to write additional exams, thus improving labour mobility in Canada.
- Canada provides for the hiring of foreign workers on a temporary basis to fill immediate skills and labour shortages when Canadians and permanent residents are not available through the Temporary Foreign Worker Program, which is administered jointly by Employment and Social Development Canada and Immigration, Refugees and Citizenship Canada.

- Foreign skilled and experienced workers who wish to settle in BC permanently can also apply under the BC Provincial Nominee Program, which expedites the permanent resident application process. Workers can apply under either strategic occupations or business categories. Examples of strategic occupations are managers, technicians and skilled trades. The program is administered on behalf of the province of BC by the Ministry of Jobs, Tourism and Skills Training under the authority of Immigration, Refugees and Citizenship Canada.
- Under the federal *Canadian Human Rights Act* (1985) and the *BC Human Rights Code* (1996), it is not a discriminatory practice for an employer to give preferential treatment to Aboriginal persons in hiring, promotion, or other aspects of employment, when the primary purpose of the employer is to serve the needs of Aboriginal people.
- Installation of Revelstoke Generating Unit 6 is a named project under the Collective Agreement between Columbia Hydro Constructors Ltd. (CHC) and Allied Hydro Council of British Columbia [CHC Collective Agreement] (CHC. and Allied Hydro Council of British Columbia 2013). This collective agreement sets out wages and working conditions, including local hiring provisions and the promotion of greater participation by First Nations workers, women in non-traditional occupations, and other equity provisions.[1]

5.2.2.2 Economic Development

Economic development, as applied in this assessment, is defined as the change that occurs in an important attribute of the economy that is a major driver of a region's economic wellbeing. In the context of the Project, expenditures made by the Project would accrue to individuals, local businesses and contractors, and communities; thereby contributing to potential expansion of existing companies (e.g., in size or area of service) and new businesses could be created due to the Project. Local or regional companies could further benefit from the expanded capacity, and new skills developed as a result of the Project. This contribution to economic development is valued by municipalities and First Nations communities as it provides opportunities for income and wealth creation and contributes to a community's economic stability.

[1] For example, this collective agreement contains equity hire provisions for First Nations tradespeople (journeymen and apprentices) from throughout BC.

Regulation of materials, goods and services procurement is the main regulatory element for economic development considered in the context of this assessment and occurs through domestic and external trade policies including:

- New West Partnership Trade Agreement;
- Agreement on Internal Trade; and
- North American Free Trade Agreement[2].

The New West Partnership Trade Agreement, which came into effect July 1, 2010 and has been fully implemented since July 1, 2013, obligates BC, Alberta, and Saskatchewan to full mutual recognition, or reconciliation, of their rules affecting trade, investment, or labour mobility to remove barriers to the free movement of goods, services, investment, and people within, and between, the three provinces. Its requirements include:

- No obstacles – government standards and regulations cannot restrict or impair trade, investment, or labour mobility between BC, Alberta, and Saskatchewan Agreement in Internal Trade; and
- Non-discrimination – there will be no preferential treatment of a province's people, investments, and goods, except for justified actual cost-of-service differences and measures focused on Aboriginal people.

Article 1802 of the Agreement on Internal Trade and the New West Partnership Trade Agreement state that their provisions do not apply to any measure adopted with respect to Aboriginal people. This policy provides for the use of several affirmative action procurement practices to increase the involvement of Aboriginal groups in economic opportunities associated with the business of the procuring organization.

BC Hydro's Aboriginal Contract and Procurement Policy includes a commitment to increasing Aboriginal participation in providing its goods and services. This policy is consistent with the Agreement on Internal Trade and the New West Partnership Trade Agreement, as Article 1802 states that it does not apply to any measure adopted with respect to Aboriginal people. The use of several procurement practices to increase the involvement of Aboriginal people in economic opportunities associated with the business of the organization is provided for in this policy, and includes:

- Capacity building initiatives, where BC Hydro provides funding or resources to provide training, improve skills, or increase business capacity in Aboriginal businesses;

[2] There are additional 10 other free trade agreements in addition to the North American Free Trade Agreement.

- Directed Aboriginal procurement, such as set-asides, restricted tendering, and single-source negotiations;
- Aboriginal content evaluation criteria in procurement packages; and
- An Aboriginal Business Directory, which is web accessible to suppliers and contractors.

5.2.2.3 Local Government Finances

BC Local governments predominantly generate revenue through property taxes and sale of services. Generally, local government expenditures fall under the broad categories of expenditures directed to government operations, goods and services acquisition, and income transfers. The regulation of local and regional government finances occurs primarily through the following provincial legislation:

- Community Charter;
- Local Government Grants Act; and
- Local Government Act.

5.2.3 Selection of Valued Component

The process for identifying and selecting VCs and sub-components followed the EAO's *Guideline for the Selection of Valued Components and Assessment of Potential Effects* (EAO 2013), as outlined in Section 3 Environmental Assessment (EA) Methods. Valued components were identified based on an understanding of the Project, experience with EA's of other hydroelectric generation projects in BC including Revelstoke Units 1-4 project and Revelstoke Unit 5 project, input from consultation, and requirements set out in *Application Information Requirements Revelstoke Unit 6 Project* (BC Hydro 2016f).

Economy was selected as a VC based on its importance to named member bands and organizations of the Ktunaxa Nation, Secwepemc Bands and Okanagan Nation, the public, other stakeholders, and due to its regulatory importance. Concerns of stakeholders and First Nations regarding potential Project effects on the Economy VC were identified through Project consultations.

5.2.3.1 *Sub-Components*

Sub-components of the Economy VC were selected to structure and focus the assessment and have been chosen for their ability to represent key attributes of the local and regional economies that could be affected by the Project. Three sub-components were chosen to further describe the Economy VC: Labour Market, Economic Development, and Local Government Finances. Sub-components of the Economy VC and the rationale for their selection are summarized in (Table 5-1).

Table 5-1: Sub-components of Economy VC

Sub-component	Rationale for Selection
Labour Market	Project would have potential effects on direct, indirect, and induced employment and employment income, and the availability at the local level of persons with the required skills to satisfy the Project's labour needs. The effects would be influenced by the number of direct construction and operations positions required for the Project, and the average wage or salary levels of these positions. Training and skill development opportunities provided by the Project to the Project workforce and contractors or suppliers can enhance the skills of the local labour force and local business community.
Economic Development	Project's procurement requirements for materials, goods, and services would have potential effects for existing industries and on the business profile in the local and regional economies. Household- and consumer-oriented spending associated with the wages and salaries of Project employees and employees of Project contractors and suppliers would support business opportunities and economic development in the local and regional economies.
Local Government Finances	Local governments may receive revenues and experience fiscal outlays through: • Revenues due to the Project from property taxes, municipal and regional district taxes, permit fees, and grants in-lieu-of taxes. • Provision of services and infrastructure to meet the requirements of the Project. • Project induced in-migration and associated services and infrastructure requirements.

5.2.3.2 *Indicators and Linkages*

Indicators are used to measure and evaluate the interaction of the Project with a particular VC and associated sub-component. The following indicators have been selected for the Economy VC because they meet the criteria of being relevant, practical, measurable, responsive, accurate, and predictable (BC EAO 2013). Indicators for the Economy VC are summarized in Table 5-2.

Table 5-2: Indicators for Economy VC

Indicator	Direct or Indirect Linkage	Rationale
Labour Market Sub-component		
Number of workers by occupation, industry and residency	Direct	Parameter that indicates labour demand by industry, occupation and worker residency. Used in the assessment to help identify incremental effects on the local economy due to Project associated demand for labour.
Unemployment rate and labour force participation rate	Indirect	Indicates level of participation and unemployed labour resources in the labour market. Used in the assessment to help consider potential availability of local workers for the Project.
Income and wage levels	Indirect	A measure of how well an economy is faring. Used in the assessment to help consider labour income effects on the local economy due to wages from workers employed on the Project.
Labour market balance	Indirect	Parameter that indicates labour market balance in an economy based on comparison of actual unemployment rate relative to natural rate of unemployment. Used in the assessment to consider if Project-associated labour demand would result in labour supply constraints.
Training opportunities	Direct	Parameter that indicates type and amount of industry training. Used in the assessment to consider if Project-associated employment practices would affect training opportunities for the local labour force.
Economic Development Sub-component		
Business goods and services supply revenues Business contracting capabilities	Direct	Parameters that indicate business supply sector capabilities and revenues. Used in the assessment to help identify incremental effects on the local economy due to Project associated procurement. Estimate of contracting revenues is based on a modelled comparison of Project expenditures on materials, goods and services with local business and contracting profile.
Household goods and services supply revenues	Indirect	Parameter that indicates household supply sector revenues. Used in the assessment to help identify incremental effects on the local economy due to household spending of direct and indirect employment incomes associated with the Project. Estimate of household supply sector revenues is based on a modelled comparison of household expenditures of the Project associated employment residing in the local area with local retail and service business profile.
Local government and First Nation government economic development plans	Indirect	Indicator that takes into consideration economic development plans and strategies of local governments and First Nation governments. Project interactions can be informed by economic development plans and, to the extent possible, the Project should be consistent with economic development plans.

Table 5-2 Cont'd): Indicators for Economy VC

Indicator	Direct or Indirect Linkage	Rationale
Local Government Revenues Sub-component		
Local government revenues	Indirect	Project associated payments in connection with Grant in-lieu-of Taxes (GILT), property tax, municipal and regional district tax and permit fees would affect local government revenues.
Local government expenditures	Indirect	Direct provision of services and infrastructure for the Project and/or Project-associated in-migrants would affect local government expenditures.

Linkages are the pathways of effects between Project VCs and ICs. Project linkages are described in Section 3, Assessment Methodology. The Land and Resource Use VC (Section 6.3) informs the Economy VC. The Economy VC informs the assessment of the Socio-community VC (Section 6.2).

5.2.4 Assessment Boundaries

The following sections describe the spatial and temporal boundaries of the assessment of the Economy VC, as well as administrative and technical boundaries.

5.2.4.1 Spatial

The Local Study Areas (LSA) and Regional Study Areas (RSA) were determined and defined by the following:

- The proposed Project description;
- The Project location;
- The anticipated extent of potential Project effects; and
- Provincial, regional, and local government administrative boundaries.

The LSAs and RSAs for the Economy VC sub-components are summarized in Table 5-3.

Table 5-3: Spatial Boundaries for the Economy VC Sub-components

Sub-component	Generation		Capacitor Station	
	LSA	RSA	LSA	RSA
Labour Market	CSRD with a focus on Revelstoke	Same as LSA		Same as LSA
Economic Development	CSRD with a focus on Revelstoke	Same as LSA	Summerland, Penticton and Electoral Area F of Regional District of Okanagan-Similkameen	Same as LSA
Local Government Finances	Revelstoke and Electoral Area B of CSRD	Same as LSA	Electoral Area F of Regional District of Okanagan-Similkameen	Same as LSA

The LSA for the labour market and economic development sub-components of Generation is the CSRD with a focus on Revelstoke. This area reflects the geographic extent of most labour market effects due to the Project and the local statistical reporting units used by Statistics Canada and the Government of BC. The labour force within the CSRD is expected to provide a large portion of the workforce for both the Project's construction and operation stages, most of whom will be from the City of Revelstoke, which is approximately 5 km from the Revelstoke Dam site. The Project is a named project under the collective agreement between CDC and Allied Hydro Council of BC, and this agreement's 100 km local hire radius for trades workers will apply to Project construction (CDC and Allied Hydro Council of BC 2013). The communities of Revelstoke, Golden, Sicamous, and Salmon Arm are located within 100 km of the Project and are member municipalities of the CSRD. While most local economic effects are expected to occur in Revelstoke, spending by workers who commute from these other centres in the CSRD are expected to also generate incremental economic effects in their home communities.

Based on past experience of local businesses supplying the major contractors constructing the Revelstoke Unit 5 project and the Mica Unit 5 and 6 projects, and also based on established relationships between BC Hydro and local businesses acting as suppliers in support of the operations of the Revelstoke Dam and the Mica Dam, a substantial portion of the materials, goods, and services needed to construct and operate the Revelstoke Unit 6 Project is anticipated to be sourced from CSRD communities.

Although Nakusp is within 100 km of the Generation component site, a ferry across Upper Arrow Lake connects Nakusp to the Revelstoke area so the vehicle travel time between Nakusp and the Generation component site precludes a daily commute for employment purposes. Because of this vehicle commuting time, Nakusp was not included in the LSA for the labour market and economic development sub-components.

The RSA is the same as the LSA for these two sub-components as the LSA has an intrinsic regional context, and potential adverse effects due to the Project are not expected to occur outside of this area and would not combine cumulatively with projects outside of this area. Positive or beneficial effects due to Project hiring of workers and procurement of materials, goods and services are anticipated to occur outside the LSA and these non-local effects are presented and discussed in Section 1.2.9, Project Benefits.

The labour market and economic development LSA and RSA for the Generation component lies within the asserted traditional territories of the Ktunaxa, Okanagan, and Secwepemc First Nations.

The labour market and economic development LSA for the Transmission component (i.e., the Capacitor Station) encompasses the District of Summerland, City of Penticton and Electoral Area F of the Regional District of Okanagan-Similkameen. This area reflects the geographic extent of most labour market effects due to the Project at the local statistical reporting units used by Statistics Canada and the Government of BC. The labour force and business suppliers from this area, particularly from Penticton and Summerland, are expected to provide a large portion of the workforce and several goods and services items for the Transmission component's construction and operation.

The RSA is the same as the LSA for these two sub-components as the LSA has an intrinsic regional context and potential adverse effects due to the Project are not expected to occur outside of this area, and would not combine cumulatively with projects outside of this area. Positive or beneficial effects due to Project hiring of workers and procurement of goods and services are anticipated to occur outside the LSA and these non-local effects are presented and discussed in Part A Section 1.2.9, Project Benefits.

The labour market and economic development LSA and RSA for the Capacitor Station lies within the asserted traditional territories of the Penticton Indian Band and Westbank First Nation, both of which are members of the Okanagan Nation Alliance.

The Generation LSA for the Local Government Finances sub-component is the City of Revelstoke plus Electoral Area B of CSRD, and was established to encompass the area within which the Project is expected to interact with, and potentially have an effect on local government finances. The Project lies within the City of Revelstoke's municipal boundaries, and is therefore eligible for GILT payments from BC Hydro. Electoral

Area B surrounds the City of Revelstoke and encompasses the Revelstoke Reservoir. In determining LSA boundaries, consideration was given to the nature and characteristics of local government finance, its potential exposure to various influences, and local government entities that may:

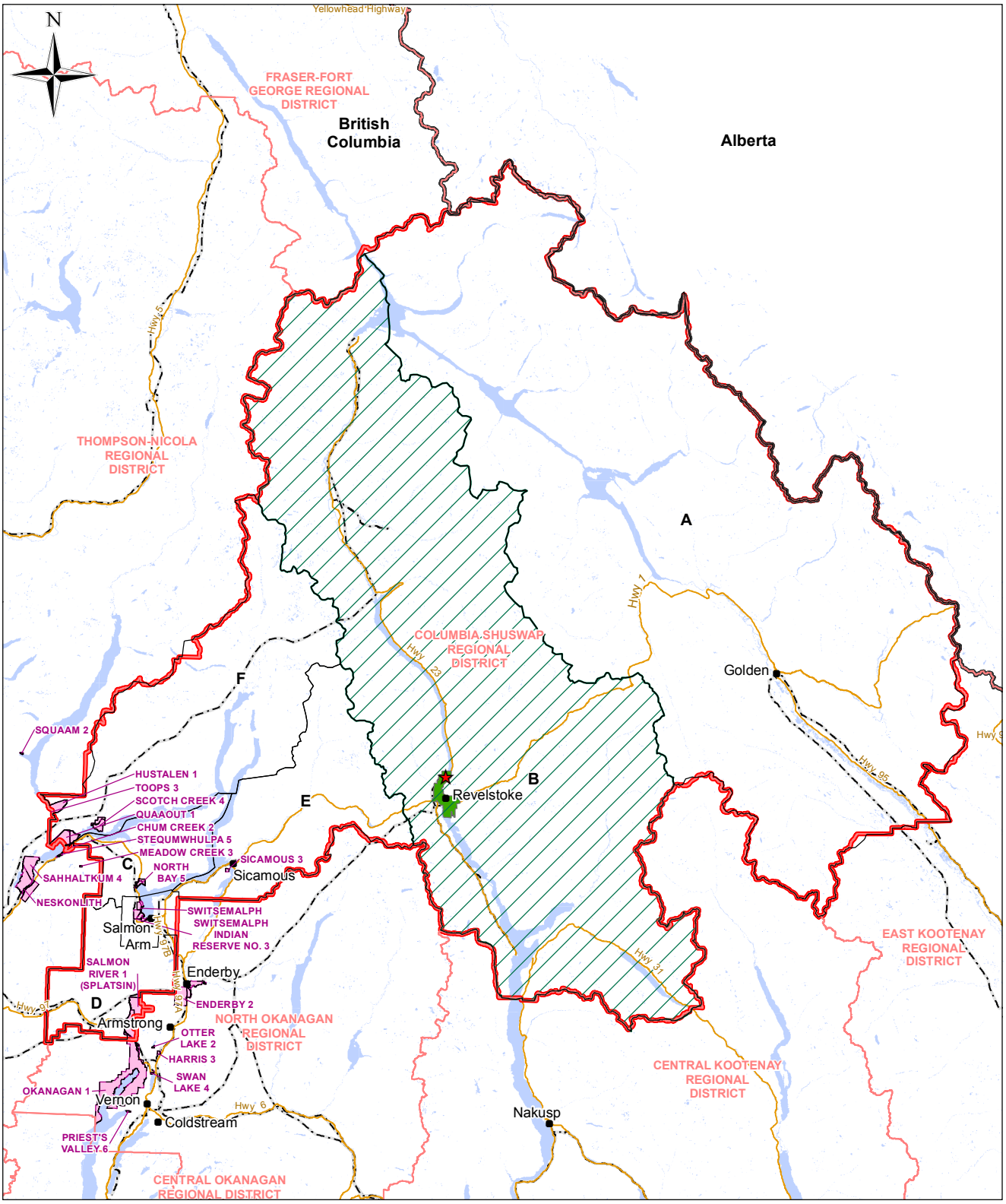
- Incur expenditures as a result of Project-related population change or provision of services to support Project construction and operation activities; or
- Receive property tax and other payments (including GILT) due to the Project.

The RSA is the same as the Generation LSA for the Local Government Finances sub-component as this LSA has an intrinsic regional context and potential adverse effects due to the Project are not expected to occur outside of this area and would not combine cumulatively with projects outside of this area.

The Transmission LSA for the Local Government Finances sub-component was determined to be Electoral Area F of Regional District of Okanagan-Similkameen. The Project lies within the boundaries of Electoral Area F.

The RSA is the same as the Transmission LSA for the Local Government Finances sub-component. The RSA is the same as the Transmission LSA for this sub-component as this LSA has an intrinsic regional context and potential adverse effects due to the Project are not expected to occur outside of this area and would not combine cumulatively with projects outside of this area.

The Generation LSAs and RSAs for the Economy VC are presented in Figure 5-1 and the Transmission LSAs and RSAs are presented in Figure 5-2.



Legend

- GENERATION PROJECT AREA
- LABOR MARKET AND ECONOMIC DEVELOPMENT LOCAL AND REGIONAL STUDY AREA
- LOCAL GOVERNMENT FINANCES LOCAL AND REGIONAL STUDY AREA
- PROVINCIAL BOUNDARY
- REGIONAL DISTRICT
- ELECTORAL AREA OF THE COLUMBIA SHUSWAP REGIONAL DISTRICT
- CITY OF REVELSTOKE
- INDIAN RESERVE
- WATERBODY
- HIGHWAY
- TRANSMISSION LINE
- CITY/TOWN

Notes:
1. Intended for Illustration purposes only.
2. Original in colour.
3. Site location is approximate.

Revisons:
C - SB - 2016-11-01 - DRAFT

References:
Cities / Towns, Highways, waterbodies, indian reserves, City of Revelstoke boundary, regional distrcits and Provincial boundaries obtained from the Province of British Columbia.
Transmission lines obtained from BC Hydro.

0 12,500 25,000 50,000 75,000 100,000 125,000 Meters

PROJECT LOCATION: Revelstoke, BC

CLIENT NAME: BC Hydro

Golder Associates

Figure 5-1 Economy VC Local and Regional Study Area Boundaries for Generation

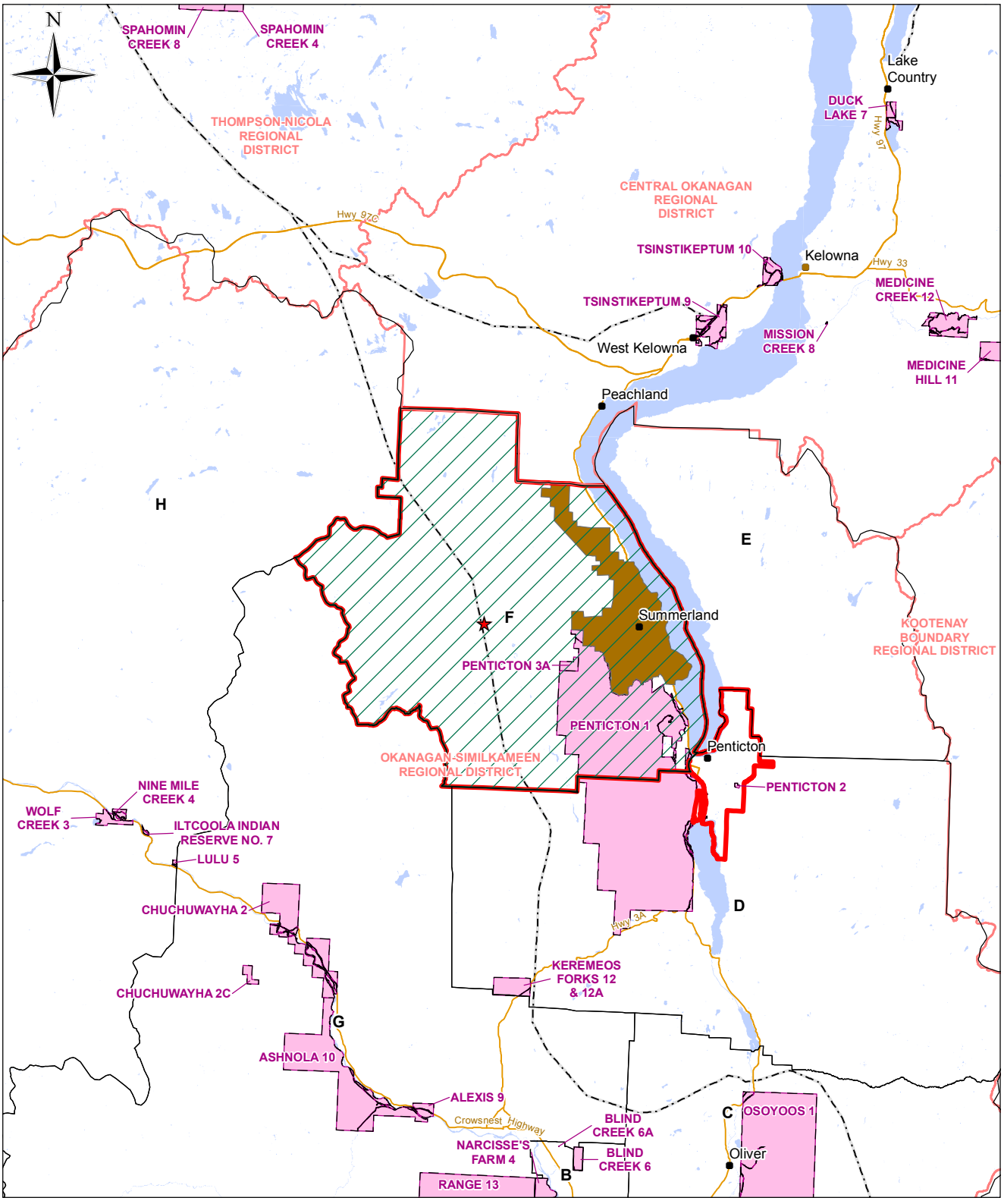
CHK'D: BY:

DATE: 11/2/2016 SCALE: 1:1,500,000

COORD SYS: NAD 1983 UTM Zone 11N

Ref Num: 5.2-1 REV: C

MXD Path: Y:\burnaby\CAD-GIS\Client\BC_Hydro\Revelstoke\99_PROJECTS\1415176_GeneratingStationUnit6\02_PRODUCTION\2000\MXD\Report\1415176_Figure_5_2-1_Economy_VC_LSA_RSA_Generation.mxd



Legend

- TRANSMISSION PROJECT AREA
- LABOUR MARKET AND ECONOMIC DEVELOPMENT LOCAL AND REGIONAL STUDY AREA
- LOCAL GOVERNMENT FINANCES LOCAL AND REGIONAL STUDY AREA
- REGIONAL DISTRICT
- ELECTORAL AREA OF THE OKANAGAN-SIMILKAMEEN REGIONAL DISTRICT
- CITY OF SUMMERLAND
- INDIAN RESERVE
- WATERBODY
- HIGHWAY
- TRANSMISSION LINE
- CITY/TOWN

Notes:
1. Intended for Illustration purposes only.
2. Original in colour.
3. Site location is approximate.

Revisons:
C - SB - 2016-11-01 - DRAFT

References:
Cities / Towns, Highways, waterbodies, indian reserves, regional districts and City of Summerland boundary obtained from the Province of British Columbia.
Transmission lines obtained from BC Hydro.

0 5,000 10,000 20,000 30,000 40,000 Meters

PROJECT LOCATION: Revelstoke, BC

CLIENT NAME: BC Hydro

Golder Associates

Figure 5-2 Economy VC Local and Regional Study Area Boundaries for Transmission

CHK'D: BY:

DATE: 11/2/2016 SCALE: 1:500,000

COORD SYS: NAD 1983 UTM Zone 11N

Ref Num: 5.2-2 REV: C

MXD Path: Y:\burnaby\CAD-GIS\Client\BC_Hydro\Revelstoke\99_PROJECTS\1415176_GeneratingStationUnit6\02_PRODUCTION\2000\MXD\Report\1415176_Figure_5_2-2_Economy_VC_LSA_RSA_Transmission.mxd

5.2.4.2 *Temporal*

The temporal boundaries selected for the effects assessment of the Economy VC included construction (short-term) and operations (long-term) phases. As the Project is considered permanent, a closure and decommissioning phase will not be assessed. The construction phase for the Generation component is anticipated to begin in 2018 and to last 40 months. The construction phase for the Transmission component is anticipated to begin in spring 2019 with an in-service date of 2021. The operations phase will begin after completion of construction and is considered to be at least 70 years in duration.

The existing conditions section describes recent past and present economic conditions in the LSA. Where available and relevant, historical trend data are presented to describe change over time for specific indicators. The most recent relevant datasets (largely in the 2011-2013 periods) are presented in this assessment.

5.2.4.3 *Administrative*

The administrative boundaries for the Generation component are inclusive of the CSRD and its incorporated municipalities. The administrative boundaries for the Transmission component are inclusive of Electoral Area F of the RDOS, District of Summerland and City of Penticton. The use of defined boundaries of regional districts and municipalities establishes constraints for presenting data and analysis of labour market conditions, as well as presenting effects by geographic areas. This allows for the fact that data are not publicly available for some unincorporated settlements and some First Nation communities.

5.2.4.4 *Technical*

5.2.4.4.1 Input-Output Model

An Input-Output economic impact model is used in the assessment to help estimate certain economic effects of the Project. This input-output model examines a limited number of economic parameters and in so doing, provides technical boundaries on the scope of the economic effects assessment. The model's parameters are employment, gross domestic product (GDP), economic output (gross revenues), employment income, and certain taxes (taxes of products, taxes on factors of production, personal income taxes and corporate income taxes). The economic impact estimates are based on a December 2013 estimate by BC Hydro of anticipated Project expenditures and a January 2014 estimate by BC Hydro of anticipated Project direct employment, but are subject to change as the Project design is refined in response to various internal and external BC Hydro

processes. Other technical boundaries relevant to the Economy VC effects assessment are also tied to the application of the input-output model to help estimate certain Project economic effects.

- Input-output models are linear and do not factor in economies of scale; i.e., they assume that a given change in the demand for a commodity will translate into a proportional change in production.
- Input-output models do not take into account the amount of time required for economic changes to occur. Economic adjustments resulting from a change in demand are assumed to happen immediately.
- Input-output models assume there are no capacity constraints and that an increase in the demand for labour will result in an increase in employment, rather than simply re-deploying workers.

While use of the input-output model has limitations, its commodity and industry relationships are based on a very large database accumulated over several years and the model has been found to generate impact estimates that are indicative of realized economic effects.

5.2.4.4.2 Government Statistical Data

In 2011, the voluntary National Household Survey (NHS) was collected in place of the previously mandatory long-form Census of Canada (Census) resulting in a lower response rate as compared to Census data. The 2011 NHS profile data includes an estimate of the global non-response rate (GNR) for each community dataset. The higher the GNR, the greater the risk of non-response bias, as there is a chance that people who did not respond to the survey may represent a different experience than those who did. If the GNR was higher than 50 per cent for a particular community, the data were not released to the public. GNR for the datasets reflected in this study are as follows:

- City of Revelstoke: 43.0 per cent GNR;
- Columbia Shuswap: 35.7 per cent GNR;
- Columbia Shuswap Area B: 45.7 per cent GNR;
- Salmon Arm: 22.8 per cent GNR;
- Penticton: 27.7 per cent GNR;
- Summerland: 28.2 per cent GNR;
- Kelowna Census Metropolitan Area (CMA): 27.8 per cent GNR;
- Okanagan Similkameen Area F: 36.0 per cent GNR;
- Penticton Indian Band Area: 29.5 per cent GNR;

- Okanagan (Part 1) Indian Reserve: 39.1 per cent GNR;
- Westbank First Nation Indian Band Area: 35.6 per cent GNR;
- Little Shuswap Lake Indian Band Area: 29.3 per cent GNR;
- Splatsin First Nation Indian Band Area: 28.6 per cent GNR;
- N Area: 19.4 per cent GNR;
- Adams Lake Indian Band Area: 17.9 per cent GNR; and
- BC: 26.1 per cent GNR.

In addition, questions used to identify Aboriginal people have historically been in the long form census and were included in the NHS in 2011. In addition to the data quality issues associated with the NHS, issues such as under-coverage of enumeration (i.e., individuals not counted), and/or incompletely enumerated reserves, have been long standing concerns with enumeration of Aboriginal people in the Census. Given these limitations, Census data may not accurately reflect socio-economic status/conditions of Aboriginal people or Aboriginal communities. Wherever possible, other sources of data were used. Where Census data have been used, additional available information collected from other primary and secondary sources, including data and information collected by First Nations as presented in Part C.

5.3 Existing Conditions

Existing conditions were characterized to provide context for the Economy VC assessment (BC EAO 2015). Potential changes due to the Project are assessed by comparing Project conditions for the primary measurement indicators against existing conditions. Baseline information was collected and analyzed to prepare a profile of the economy in the LSA.

Establishing the baseline setting for the Economy VC is a key step in the EA process. Adequate characterization of components, sub-components, and indicators in their existing state, is the preferred basis for identifying potential Project-VC interactions and predicting potential, residual, and cumulative environmental effects. This section presents baseline data that are of adequate quality and reliability, representing the metrics, ranges and trends of observable and measurable conditions in the existing environment in sufficient detail to allow for prediction of Project-related effects.

5.3.1 Methods

Development of the Economy VC baseline was completed using a combination of information from government databases, surveys completed by economic development agencies, and environment assessment and project monitoring reports.

5.3.1.1 Data Sources

Baseline information included, but were not limited to the following sources:

- Environmental Assessment documents on Mica Generating Station Units 5 and 6 Project and the Revelstoke Unit 5 Project;
- BC Hydro monitoring documents for the Mica Generating Station Units 5 and 6 Project and the Revelstoke Unit 5 Project;
- Census of Canada (Statistics Canada);
- NHS (Statistics Canada);
- Labour Force Survey (Statistics Canada);
- Community and local health area statistics (BC Stats);
- BC Hydro, Columbia Basin Trust (CBT), Selkirk College, regional district and municipal web sites;
- First Nation connectivity profiles and Aboriginal Canada Portal;
- Local Government and First Nations government's information from Official Community Plans and planning documents such as the *Integrated Sustainable Community Plan* of the City of Revelstoke;
- Statistical reports and secondary documentation from local governments;
- Regional and local economic development, sustainability and land use documents;
- Local media articles; and
- Company and industry reports.

A complete list of cited information and personal communications is in Section 5.2.7.

BC Hydro has undertaken direct consultation with the interested and potentially affected First Nation communities, and engaged in a collaborative approach to researching and writing Part C of the Application. Where available, components of the Part C study have been incorporated into the Economy VC baseline, assessment of potential effects, potential mitigation measures, and residual effects in this section.

5.3.1.2 Desktop and Field Studies

This economic effects assessment used estimates of the Project's direct expenditures and employment and input-output economic impact modelling to predict economic effects of the Project's construction of the new generating unit at Revelstoke Dam. The analytical approach included the following key elements:

- Use of BC Stats' BC Input-Output Model (BCIOM), an input-output model to assist in calculating the Project's economic effects on the BC and CSRD;
- Use of BC Hydro supplied estimates of expenditures and employment for Project construction[3];
- 'Shocking' of the input-output model with the proposed expenditures; and
- Exclusion of certain expenditures from the modelling that have no economic effects (e.g., land acquisition expenditures, which are a transfer of economic assets between parties).

To analyze the economic impact of the construction phase of the Generation component, a commodity shock modelling approach was used, and the standard production function for engineering construction in the model, which includes expenditures for labour, turbines, steel pipes, measuring and controlling devices, engineering, and related services was modified to take account of the Project's expenditure estimates, thereby creating a Project-specific production function for designing and constructing the new generation unit. The expenditures include the estimated costs for the work of tradespersons, engineers, and equipment operators, for equipment leasing services and for the many smaller capital items and materials involved in generation unit construction. The input-output model was run using the increase in expenditures on these materials, goods and services within the BC economy due to the spending of the Project.

No field studies were conducted for the Economy VC effects assessment.

[3] The economic impact input-output modelling is based upon a comprehensive estimate of expenditures on labour, services, goods and materials for the Project that is dated December 2013, and was prepared by BC Hydro.

5.3.2 Description of Existing Conditions – Generation Component

5.3.2.1 Overview

Columbia Shuswap Regional District

Baseline economic conditions within the Generation LSA[4] are linked to the economic drivers of the CSRD and its communities, including the construction and operation of BC Hydro's Revelstoke Dam and Mica Dam projects on the Columbia River, the region's longstanding forestry, transportation, agricultural and government service operations, and the growing importance of the tourism sectors in Revelstoke, Golden, Sicamous and Salmon Arm. These communities have relatively modest populations; the CSRD's population of about 52,000 is spread out over these four communities and surrounding rural areas. In comparison, nearby Kelowna has a population of approximately 125,000. Salmon Arm is the largest community in the CSRD and is the regional service centre but Kelowna's relative proximity to the CSRD communities means that many health, education, retail, professional and air transport services and business goods are sourced from here by CSRD residents and businesses.[5] The CSRD also has an older population in comparison to most other parts of the province, but this regional result is due to the large segment of 65 years and up persons residing in the Shuswap portion of the regional district. The construction of BC Hydro's Revelstoke Dam and Mica Dam projects left long-term and substantial imprints on the economies and community development of Revelstoke and Golden. Following is an overview by the main communities of the region.

City of Revelstoke

Currently, Revelstoke's primary employment sectors are transportation, government services, forestry, and tourism (City of Revelstoke 2015). Historically, residents of the City of Revelstoke relied to a large extent on the Canadian Pacific Railway (CPR) for employment. The symbolic "last spike" completing the railway was driven at Craigellachie in 1885, approximately 45 km west of Revelstoke. Today, the City of Revelstoke continues to have a strong relationship with the railway industry and the CPR, which is one of the city's top ten major employers (City of Revelstoke 2015). The city created and supports the Revelstoke Railway Museum.

Downie Timber Ltd. and its related company Selkirk Cedar Ltd. constitute the largest employer in the City of Revelstoke with a full-time workforce of approximately 300. The local forestry sector fared reasonably well during the province-wide 2007 downturn, due largely to local businesses producing high value wood products, such as quality dimension lumber, beams, architectural wood, and flooring (City of Revelstoke 2012b). The

[4] The LSA and RSA are the same for the Economy VC.
[5] The highway distance between Kelowna and Salmon Arm is 109 km, and 200 km between Kelowna and Revelstoke.

mountain pine beetle infestation has not adversely affected Revelstoke area mills to the same degree as has occurred with mills in other BC Interior regions. This result is due to the local wood processing industry being less reliant on pine tree logs than the sawmilling industry located elsewhere in the BC Interior.

In 2015, the Revelstoke operations with the largest workforces included:

1. Downie Timber/ Selkirk Specialty;
2. CPR;
3. Revelstoke Mountain Resort (RMR);
4. Interior Health;
5. Parks Canada;
6. City of Revelstoke;
7. School District no. 19;
8. BC Hydro (Mica and Revelstoke combined);
9. Selkirk Tangiers Helicopter;
10. Canadian Mountain Holidays Helicopter;
11. Coopers (grocery store);
12. Coast Hillcrest Hotel;
13. BC Wildfire Management Branch;
14. Community Connections; and
15. La Baguette (bakery, deli and restaurant).

Seven employers including Downie Timber, CPR, RMR, Interior Health, Parks Canada, City of Revelstoke, School District No. 19, and BC Hydro have over 100 workers and together represent an estimated 34 per cent of the local employed labour force (GRP Educational Services & JL Insights 2015).

In recent years, tourism has become a more important factor in the Revelstoke economy, and this trend is mainly due to the 2007 opening of RMR. The resort currently has 1,713 metres (5,632 ft) of vertical ski runs. When complete, RMR plans to have approximately 10,000 acres of skiable terrain and a vertical drop of 1,845 metres (6,100 ft), with 21 lifts and 115 ski and snowboard trails.[6] RMR has the longest lift-serviced

[6] In December 2003, a Master Plan to expand the existing Mount Mackenzie Ski Area was submitted to Land and Water BC by Mount Mackenzie Resort Ltd. and, in 2004, a City of Revelstoke and CSRD commissioned analysis of potential socio-economic and land use effects of the expansion plan and proposed mitigation was issued (Brent Harley & Associates 2004).

vertical in North America, 10 to 13 metres feet of annual snowfall, and is the only resort in the world to offer lift, cat and heli-skiing from one village base. RMR is already similar in skiable terrain and lift capacity to other major North American resorts such as Vail and Panorama. Whistler-Blackcomb is much larger; however, RMR is one-third its size.[7]

The resort has rapidly expanded the accommodation capacity of the Revelstoke area in the past decade. The resort's owner and developer, Northland Properties, is estimated to account for more than 40 per cent of Revelstoke's temporary accommodation through its Sandman and Sutton Place hotels (900+ accommodation units). The resort has also increased employment in the local tourism sector; in 2013-14, the various operations of Northland Properties in Revelstoke employed 180 to 200 workers on a full-time basis and another 300 on a seasonal basis (RMR 2015).

Revelstoke is one of BC's 14 designated Resort Municipalities. To be eligible, the city created a Resort Development Strategy outlining its long-term vision and objectives to guide and promote tourism development (City of Revelstoke 2011). Designated Resort Municipalities sign five-year agreements with the BC Government to receive a portion of the $10.5 million in annual provincial funding available through the Resort Municipality Initiative (Government of BC 2015). Associated with resort status is a 2 per cent municipal and regional district tax that is directed to marketing Revelstoke as a tourist destination through the Revelstoke Accommodation Association. Resort status also generates an additional 2.5 – 3 per cent near matching of the hotel tax from the BC government, and these funds are directed to tourism infrastructure developments.

The development of the resort by Northland Properties has brought along an overall expansion of the local business economy; between 2005 and 2012, annual business licence issuances by the City of Revelstoke increased from 635 to 920, a 45 per cent increase (City of Revelstoke 2012b). In 2013-14, Northland Properties estimated that approximately $7 million was spent on goods and services at local businesses by the ski hill operation, and another $8 million to $11 million was spent at local businesses by other Northland Properties operations (Sutton Hotel, Rockford Restaurant, mid mountain lodge, Mackenzie Tavern, BDC Construction and STHS) (RMR 2014).

Another important factor in Revelstoke's recent economic development has been the City's program of downtown revitalization, which includes a central downtown plaza area. This revitalization program was started in 1986 and proceeded over a period of two decades (City of Revelstoke Undated).

[7] http://www.revelstokemountainresort.com/real-estate/development-overview#developer

Town of Golden

Historically, the Golden area economy has focused on the forestry and rail transport industries. Tourism grew into a primary factor in the Golden area economy with the expansion starting in 2000 of a community ski hill (Whitetooth) into a resort operation known as Kicking Horse Mountain Resort, a project originally led by Netherlands-based Ballast Nedam. CBT is a minority investor in the resort, which has undergone a major expansion since 2009 pursuant to submission of its second master plan to the BC Government. Resorts of the Canadian Rockies Inc. bought Kicking Horse Mountain Resort in 2011.

A major driver in the Golden area tourism sector is that five national parks are situated near the town; Kootenay, Yoho, Banff, Jasper and Glacier. An influx of outdoor adventure companies has boosted local tourism economic activity. Tourism activities in Golden include golf, fishing, mountain biking, bird watching and wildlife viewing and whitewater rafting in the summer, and skiing and snowmobiling in the winter.

Golden is also one of BC's 14 designated Resort Municipalities, and accordingly reports on the usage of Resort Municipality Initiative funds and local tourism sector trends (Town of Golden 2015). The Town of Golden signed its second 5-year resort development strategy with the BC Government in 2012.

The evolving structure of the Golden area economy is reflected in the changed employment pattern between its goods and services sectors. In 1986, 39 per cent of Golden area jobs were in goods-producing industries and 61 per cent in service industries. Two decades later, by 2006, the employment shares of these two sectors had reversed; 34 per cent of Golden area employment was in the goods-producing industries and 66 per cent was in the services-producing industries (Peak Solutions et al 2009). Nine larger enterprises account for a third of the Golden area's employment (Miller Dickenson Blais 2012).

City of Salmon Arm

The City of Salmon Arm has a relatively large senior population as it is a popular retirement community. This older population has also changed the economic character of the City, and over the past decade Salmon Arm has been moving from a goods-producing economy to a service-based economy with growing numbers of workers in retail, health care, social services, and education, and fewer in the resource-based industries, manufacturing and business services (City of Salmon Arm 2011).

As the largest population centre in the CSRD, Salmon Arm is the administrative and retail centre for the region. Tourism and vacation properties also contribute to the city's economic activity.

District of Sicamous

Situated on the shores of Shuswap Lake, Sicamous self identifies as the "Houseboat Capital of Canada", with a fleet of over 200 rental houseboats available for tourists. The primary economic driver in Sicamous is tourism, and some of the area's outdoor offerings for visitors include fishing, golfing, hiking, cycling, snowmobiling, and ziplining. Along with Salmon Arm, Sicamous is also a popular retirement destination, and has a much higher proportion of residents over the age of 65 than in the province as a whole.

5.3.2.2 Hydroelectricity Generation and Transmission Development

The Columbia River Treaty (CRT) and previous projects undertaken by BC Hydro within the Columbia River Basin have played a major role in the economic fortunes of the communities and residents of the Generation LSA. BC Hydro's construction of the Revelstoke and Mica dams on the Columbia River created the Revelstoke and Kinbasket reservoirs resulting in both positive and negative effects on recreation, tourism and other land and water uses. The dams' generating facilities created both short-term construction employment and long-term operations employment, and a reliable revenue stream for local governments in the region.

The CRT was signed between Canada and the United States in 1961 and ratified in 1964. Pursuant to the CRT, BC Hydro operates 15.5 million acre-feet of storage at the Mica, Hugh Keenleyside and Duncan dams to maximize storage capacity, flood mitigation, and power production for both countries. The CRT has no termination date, but either Canada or the US can unilaterally terminate most provisions of the treaty after September 16, 2024, subject to notice being given at least ten years' in advance of planned termination (BC Hydro 2013c).

Under the CRT, the BC Government received an upfront lump-sum payment of $64 million for an assured flood control plan during the first 60 years of the treaty through 2024. The BC Government also received a lump sum payment of $254 million US for the initial 30 years of the "Canadian Entitlement Benefits", which is calculated as one-half of the potential annual additional power generation benefits at the downstream US projects resulting from water flow regulation provided by Canadian storage. By 2003, all additional power benefits had returned to the BC Government and annual delivery of Canadian Entitlement Benefits between 2003 and 2012 averaged 1,176 MW capacity and 4,073 GWh of energy to the province, worth $100 to $300 million per year (Penfold 2012). The US federal government has estimated this benefit to be worth $150-350 million US per year (US Army Corps of Engineers, United States Entity 2013).

Another benefit the province received through the CRT is the ability to generate additional power from storage and flow regulation, and this has been realized through construction and operation of the Kootenay Canal (1975), Revelstoke Dam (1984), Arrow Lakes Generating Station (2002), and Brilliant Expansion (2007). Total BC Hydro power production on the Columbia River provides about 45 per cent of the province's electricity supply (Penfold 2012).[8]

The adverse economic effects on other sectors attributable to the construction of the Revelstoke Generating Station (Units 1-4) and Revelstoke Reservoir include the following: (Penfold 2012).[9]

- A total forestry volume of 1,670,880 m^3 was removed from the timber harvesting landbase through the clearing for, and filling of the Revelstoke Reservoir. As a consequence, the BC Government lowered the annual allowable cut (AAC) for commercial timber harvesting in the region by approximately 20,390 m^3.[10] This AAC reduction reduced the local log supply to Revelstoke area timber processing facilities. By 2012, this AAC reduction resulted in an estimated annual loss in the local forestry sector of about 23 person-years in direct employment, 20 person-years of indirect employment, and $1,550,000 of annual gross payroll.
- Operational costs to log the west side of the valley increased because a ferry is required to cross the reservoir to access this area for timber harvesting purposes.
- The steep rocky shorelines of the Revelstoke Reservoir limit tourism and recreation potential for much of its 130 km length. The west side of the reservoir is boat access only. Game fish spawning habitat was eliminated and the river fishery was severely curtailed. Upland habitat for large game wildlife was lost with the clearing and filling of the reservoir.
- The life of municipal roads and the Revelstoke area landfill was reduced due to additional use associated with construction of the projects.[11]
- The economic boom from constructing Revelstoke Units 1-4 caused housing price inflation, property speculation, and increased costs for municipal services in Revelstoke.
- The local recession following completion of Revelstoke Units 1-4 left much of the housing, which was built to accommodate the Project's construction workers, vacant and deteriorating through the late 1980s.

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8 This estimates does not incorporate power production from more recent projects, Mica Units 5 and 6 and Waneta Expansion.

9 This source reviews the findings of past studies of the adverse and beneficial effects of the storage dam and hydroelectricity generation projects on the Columbia River. Additional information on the effects of these projects can be found in this document entitled "A Review of the Range of Impacts and Benefits of the CRT on Basin Communities, the Region and the Province".

10 The current average AAC in the Revelstoke Timber Supply Area is 225,000 m^3. http://www.for.gov.bc.ca/hts/tsa/tsa27/2009/Revelstoke_TSR4_Analysis_Report_23_Feb_10.pdf

11 BCH contributed $150,000 to help pay for repairs to the Westside Road attributed to wear and tear from the Revelstoke Unit 5 Project.

- When Revelstoke Unit 5 was built over the 2007-2010 period, BC Hydro did not directly build new housing or operate a worker camp because this project was smaller than the Revelstoke Units 1-4 project with a forecasted construction workforce of about 285 person-years and because more than 30 per cent of the Revelstoke Unit 5 project workforce was hired locally.[12] This approach led to adverse issues around temporary accommodation and rental housing in Revelstoke with non-local tradespersons and operators bidding up rental rates and out-competing low income local residents for available units (an effect that is further discussed in Section 6.2.2 - Accommodation).

The adverse economic effects on other sectors attributable to the construction of the Mica Generating Station and Kinbasket Reservoir include the following (Penfold 2012; Smith and Torgerson 2013):

- The filling of the Kinbasket Reservoir eliminated 11,491 ha of productive forest land, and resulted in an estimated annual timber harvest loss of 75,390 m^3. The estimated annual loss to the forestry sectors of Golden and Revelstoke is roughly $6-8 million due to lost timber harvesting and processing opportunities. Estimated annual foregone forest industry employment opportunities in Golden are 72 direct and 60 indirect jobs and approximately $3.4 million in wages.
- Timber harvesting costs increased due to fluctuating water levels on the Kinbasket Reservoir, elimination of the Big Bend Highway, and movement of harvesting operations to steeper terrain.
- Loss of Canoe Valley and Canoe Hot Springs for recreation and tourism use.
- Severe constraints on the recreation and tourism use and potential of the Kinbasket Reservoir due to large fluctuations in water levels, extensive debris, and inadequate road access to shoreline areas for recreational use.

The Revelstoke Unit 5 and Mica Units 5 and 6 projects generated short-term labour market benefits in the LSA, especially in Revelstoke, and in other parts of BC during their construction periods, 2007 to 2010 and 2012 to 2015, respectively.

The Revelstoke Unit 5 Project EA Certificate Application estimated that project construction would create 364 person-years (PYs) of employment, of which 285 PYs would be in the construction labour force and 79 would be in engineering or management roles (McDaniel's Research 2006). Construction workforce positions were hired under the provisions of the CHC Collective Agreement.

[12] BC Hydro contributed $250,000 to the City of Revelstoke, which used these monies to help construct two duplexes.

Actual hiring of construction workers for the Revelstoke Unit 5 project exceeded the estimate in the EAC Application; a total of 380 PYs of construction employment was hired between November 2007 and January 2011 to construct the Revelstoke Unit 5 project (BC Hydro 2011a).

The Revelstoke Unit 5 EAC Application included an estimate of 79 engineering and management PYs, and 22 of these PYs were expected to be filled by local people (no relocation required), while the remaining 57 PYs were to be based in BC Hydro's Burnaby office, travelling to the project site as required. No monitoring of hiring for these engineering and management positions was undertaken.

To support local and First Nations employment, BC Hydro contributed approximately $30,000 to the Okanagan College Residential Construction Program and created the Columbia Basin First Nations Employment and Skills Bridging Opportunities Program for members of the Ktunaxa Kinbasket Tribal Council, Okanagan Nation Alliance, and Shuswap Nation Tribal Council. The grant contribution to Okanagan College resulted in eight students receiving training, five of whom acquired jobs on this project (BC Hydro 2011a).

Through the Columbia Basin First Nations Employment and Skills Bridging Opportunities Program, funding for training was provided to 22 individuals for a wide range of skills including carpentry, medical clerk, computer programming, welding, and culinary arts.

Mitigation measures requiring BC Hydro to use the equity hiring provisions in the CHC were also included in both the Revelstoke Unit 5 and Mica Units 5 and 6 Project EAC Applications. Under the CHC, equity employment opportunities are to be directed to First Nations members, women in non-traditional job classifications, visible minorities, disabled, or other groups identified. Equity employment targets are identified at the project level. For the Revelstoke Unit 5 and Mica Units 5 and 6 projects, an ongoing equity employment target of 16 per cent was in place for the duration of each construction period. The distribution by target group of the equity hiring is presented in Table 5-4.

The Revelstoke Unit 5 project did not meet the equity hiring target, while the Mica Units 5 and 6 project did meet these targets. For the Mica Units 5 and 6 projects, an increased number of First Nations and women in non-traditional job classifications supported reaching the equity employment targets.

Table 5-4: Equity Employment for Revelstoke Unit 5 and Mica Units 5 and 6 Projects, Average Weekly Employment

Project	Total equity employees (#)	First Nations (#)	Women in Non-Traditional Work (#)	Visible Minorities (#)	Disabled (#)	Equity Employment as percentage of Total Employment
Revelstoke 5[13]	90	4	3	2	1	11 per cent
Mica 5/6[14]	134	8	8	5	1	16 per cent

Source: BC Hydro 2016e
Note: Equity employment information is tracked by the CHC. Employees completed a questionnaire on their first day on-site where they can choose to self-identify their applicable equity hiring categories.

First Nations workers were hired for the following positions in support of Revelstoke Unit 5 project construction:

- Boilermakers;
- Iron workers;
- Labourers;
- Operators;
- Teamsters;
- Pipefitter;
- Carpenters; and
- Cement Masons.

For the Revelstoke Unit 5 project, local hiring was defined as workers from communities within a 100 km radius of the project site, which includes Revelstoke, Sicamous, Salmon Arm, Golden and Nakusp. In the Revelstoke Unit 5 EAC Application, two local hiring scenarios were projected for planning purposes, one assuming a higher level of local employment and the second assuming a lower level. These scenarios were used to estimate potential local revenues associated with the Project, as well as potential in-migration of temporary workers to the Revelstoke area during project construction. Under Scenario A, 50 per cent of journeyman and 75 per cent of apprentices would be hired locally, while under Scenario B, 33 per cent of journeymen and 40 per cent of apprentices would be hired locally.[15] Workforce statistics gathered for the construction of the Revelstoke Unit 5 project showed that, on average, 33 per cent of its construction

[13] Weekly on site employment data from November 26, 2007 to January 10, 2011.
[14] Weekly on site employment data from September 8, 2009 to February 26, 2016.
[15] While the terms apprentice and journeymen were used in the scenarios, the number of person years reflected in the estimates capture all trades positions on the project, including non-ticketed unionized labour positions such as labourers and operators.

workforce on a weekly average basis was comprised of local residents, which is less than either planning scenario that appeared in the EAC application.

For the Mica Units 5 and 6 project, there was no applicable "local hire zone" as no communities are located within a 100 km radius of the Mica Generating Station. For the purpose of tracking local hires under the CHC Collective Agreement, "local" was defined as workers living within the Columbia River watershed.[16]

The Mica Units 5 and 6 project EAC Application incorporated two construction workforce planning scenarios, a 20 per cent local workforce and another with a 45 per cent local workforce. On a weekly average basis, between March 7, 2011 and December 14, 2015, approximately 35 per cent of the Mica Units 5 and 6 project workforce was considered "local" as per the above-mentioned definition.[17] A comparison of the planning scenarios versus the actual local hiring for Revelstoke Unit 5 and the Mica Units 5 and 6 projects are presented in Table 5-5.

Table 5-5: Estimated Target vs Actual Local Employment, Revelstoke Unit 5 and Mica Units 5 and 6 Projects

Project	Scenario Planning Local Employment Share	Average Actual Weekly Local Employment Share
Revelstoke Unit 5	33 – 75 per cent	33 per cent
Mica Units 5 and 6	20 – 45 per cent	35 per cent

Source BC Hydro 2016d

Local employment did not substantially increase for the more recent Mica Units 5 and 6 projects compared to the earlier Revelstoke Unit 5 Project, despite investment in local training programs. However, this result is likely due to the greater distance of the Mica Units 5 and 6 project from LSA communities. Daily commuting was not feasible for the Mica Units 5 and 6 project and its workforce was housed at a construction camp, whereas daily commuting was feasible from a few LSA communities for the Revelstoke Unit 5 project.

[16] Communities in the Columbia River Watershed include Valemount, Golden, Revelstoke, Nakusp, New Denver, Kaslo, Silverton, Slocan, Nelson, Castlegar, Salmo, Trail, Warfield, Rossland, Salmo, Fruitvale, Montrose, Creston, Lower Kootenay Band, Radium Hot Springs, Invermere, Shuswap Band, Columbia Lake Band, Canel Flats, Elkford, Sparwood, Fernie, Kinberly St. Mary's Band, Cranbrook, and Tobacco Plains Band.

[17] Columbia River Watershed weekly hire statistics were not gathered until March 7, 2011. Some weeks when work was conducted, workforce statistics were not reported. Weeks without workforce reporting were not included in the overall local employment average for the Mica Units 5 and 6 projects.

5.3.2.3 Labour Market

5.3.2.3.1 General Population

Labour Force Overview, Participation Rate and Unemployment Rate

Table 5-6 provides a statistical snapshot of the labour market in the Generation LSA (CSRD) as of the most recent Census of Canada and NHS. In 2011, the LSA labour force participation rate stood at 58.6 per cent and the LSA had an unemployment rate of 11.6 per cent; the latter was almost 3 percentage points higher than the BC rate unemployment rate of 7.8 per cent and the former was six percentage points below the provincial rate of 64.6 per cent. Approximately 2,700 workers (11.1 per cent of the labour force) in the Columbia Regional District self-identify as being part of the construction industry, which is a much larger share than in the province (7.7 per cent), and is due in part to the major hydroelectricity construction projects that occurred in the region.

Table 5-6: Labour Force Activity in the Generation LSA, 2011

Community	Population Age 15 and Over	Labour Force	Employed	Unemployed[a]	Construction Labour Force	Participa-tion Rate [per cent]	Unemployment Rate [per cent]
CSRD	42,490	24,890	21,995	2,895	2,755	58.6	11.6
Revelstoke	5,960	4,120	3,455	665	475	69.1	16.1
Electoral Area B	480	285	280	0	25	59.4	0
Salmon Arm	14,295	8,395	7,760	635	650	58.7	7.6
Sicamous	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Golden	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Province of BC	3,646,840	2,354,245	2,171,465	182,775	181,510	64.6	7.8

[a] Due to rounding in Statistics Canada calculations of unemployment, some rates may appear lower than actual.
Source: Statistics Canada 2013

At 16.8 per cent, the Revelstoke unemployment rate in 2011 was well above the rates of the CSRD and the province. This estimate of unemployment was undertaken soon after the completion of the Revelstoke Unit 5 project and before the commencement of the Mica Units 5 and 6 project, which is likely one explanatory factor for this high rate. Almost 500 workers in Revelstoke self-identified as being part of the local construction labour force in 2011, which comprised 11.5 per cent of the total Revelstoke labour force.

For unemployment planning purposes, Revelstoke and CSRD are within the Southern Interior Employment Insurance Economic Region. The unemployment rate is currently identified as 7.7 per cent for this region, well

above the 2011 unemployment rates of the CSRD and Revelstoke.[18] Revelstoke and CSRD are within the Thompson-Okanagan Economic Region but are located adjacent to the Kootenay Economic Region. Annual estimates of unemployment are issued for these areas through Statistics Canada's Labour Force Survey. Over the 2011-2015 period, the unemployment rate has trended downwards in both economic regions; in the Thompson-Okanagan Economic Region from 7.8 per cent to 6.4 per cent and from 8.0 per cent to 7.4 per cent in the Kootenay Economic Region.[19] Based on an interpretation of the results of the *Revelstoke Labour Market Survey 2015*, the chairperson of the city's economic development committee observed that there is currently a labour shortage in Revelstoke (Brothers 2015).

At 69.1 per cent, the Revelstoke labour force participation rate in 2011 was relatively high. The 2011 participation rate in the Thompson-Okanagan Economic Region was several points lower at 63.3 per cent. The 2015 participation rate in this region dipped to 61.9 per cent. The high participation rate in Revelstoke is due to its relatively young workforce; the *Revelstoke Labour Market Survey* reported that 9.6 per cent of the city's workforce is aged 55 to 64, and over 50 per cent is between the ages of 25 to 44 (GRP Educational Services & JL Insights, 2015). This result is in contrast to the older demographic seen in the Sicamous and Salmon Arm labour forces.

Labour Force by Occupation and Industry

Table 5-7 summarizes the statistics describing employment by occupation in 2011 for the CSRD and City of Revelstoke. In Revelstoke, as shown in Table 5-7, 965 out of a total workforce of 4,120 (23 per cent) are either tradespersons, or transport and equipment operators or in related occupations, all of which are the basis of construction industry employment. The share of workers in these occupations is slightly higher in Revelstoke than overall in the CSRD, and both are well above the BC-wide 15.3 per cent share this occupational grouping held (in 2011). The relatively high proportion of workers in this occupational grouping in Revelstoke and the CSRD is due in part to the major dam construction projects on the Columbia River and the presence of forest industry operations in the communities of Revelstoke and Golden.

[18] See http://srv129.services.gc.ca/ei_regions/eng/soutinbc.aspx?rates=1&period=321

[19] See http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2820123&&pattern=&stByVal=1&p1=1&p2=37&tabMode=dataTable&csid=

Table 5-7: Labour Force by Occupation for the CSRD and Revelstoke, 2011

Occupation	Labour Force			
	CSRD[20] (#s)	CSRD (per cent)	Revelstoke[21] (#s)	Revelstoke (per cent)
Total labour force population aged 15 years and over by occupation	22,000	100.0	4,120	100.0
Occupations not applicable	-	-	40	1.0
All occupations	22,000	100.0	4,080	99.0
Management occupations	2,760	12.5	410	10.0
Business, finance and administration occupations	2,785	12.7	460	11.2
Natural and applied sciences and related occupations	995	4.5	240	5.8
Health occupations	1,350	6.1	275	6.7
Occupations in education, law and social, community and government services	2,260	10.3	425	10.3
Occupations in art, culture, recreation and sport	500	2.3	80	1.9
Sales and service occupations	5,150	23.4	930	22.6
Trades, transport and equipment operators and related occupations	4,350	19.8	965	23.4
Natural resources, agriculture and related production occupations	1,135	5.2	210	5.1
Occupations in manufacturing and utilities	715	3.2	90	2.2

Source: Statistics Canada, 2013

In the LSA, the higher-paying trades, transport and equipment operator occupations are dominated by men. For example, in Revelstoke, only 25 workers are female out of 965 workers in this category. There has been a concerted effort by the BC Government and the Industry Training Authority to recruit women into the trades in recent years. In contrast, the lower paying sales and service occupations had almost the same number of workers at 930 but more than two-thirds (665) were women.

The industry structures of the Shuswap and Columbia portions of the CSRD are markedly different. The main communities of the Columbia area are Revelstoke and Golden and they have economies focused on four sectors: transportation, forestry, tourism and public services. Sicamous and Salmon Arm are the main communities in the Shuswap portion of this regional district. Agri-food businesses are important in both of these communities and their surrounding areas, along with tourism. Retail and professional services comprise a large employment sector in Salmon Arm. Public services are also a large employer in Salmon Arm as it is the regional service centre of the CSRD.

[20] Employed labour force.
[21] Total labour force.

Historically, CPR has been the largest and most stable source of employment in Revelstoke. In 2011, the Revelstoke transportation sector accounted for 340 workers, mainly CPR crew workers for freight trains and track maintenance workers. Revelstoke has three sawmills, one cedar shake and shingle mill, one pole yard, and several value added wood manufacturing plants. In 2011, the Revelstoke forestry sector accounted for an estimated 385 workers. From the 2011 Census data, 425 persons were employed in accommodation and food services in Revelstoke, but many of these jobs are part-time and/or seasonal. Almost 700 workers in Revelstoke were in the health and education services sectors in 2011. Table 5-8 summarizes the 2011 statistics describing employment by industry in the CSRD and the City of Revelstoke.

Table 5-8: Labour Force by Industry for the CSRD and Revelstoke, 2011

Industry	Labour Force by Industry			
	CSRD (#s)	CSRD (per cent)	Revelstoke (#s)	Revelstoke (per cent)
Total labour force population aged 15 years & over by industry	24,890	100	4,120	100
Industry not applicable	580	2.3	40	1.0
All Industries NHS data	24,310	100	4,080	100
Agriculture, forestry, fishing and hunting	1,500	6.2	125	3.1
Mining, quarrying, and oil and gas extraction	470	1.9	60	1.5
Utilities	185	0.8	100	2.5
Construction	2,755	11.3	475	11.6
Manufacturing	1,545	6.4	260	6.4
Wholesale trade	445	1.8	55	1.3
Retail trade	2,625	10.8	415	10.2
Transportation and warehousing	1,610	6.6	340	8.3
Information and cultural industries	355	1.5	50	1.2
Finance and insurance	590	2.4	70	1.7
Real estate and rental and leasing	565	2.3	80	2.0
Professional, scientific and technical services	1,100	4.5	155	3.8
Administrative and support, waste management and remediation services	25	0.1	75	0.0
Educational services	770	3.2	180	1.8
Health care and social assistance	1,460	6.0	510	4.4
Arts, entertainment and recreation	2,630	10.8	305	12.5
Accommodation and food services	1,060	4.4	425	7.5
Other services (except public administration)	2,230	9.2	175	10.4
Public administration	1,195	4.9	220	4.3

Source: Statistics Canada 2013e

The 2011 Census provides a snapshot of the local economies that has become somewhat dated, especially in the case of Revelstoke, where the RMR has become a much more important piece of the local economy over the past five years. The *Revelstoke Labour Market Survey: Report of Findings, Strategies and Recommendations 2015*, completed for the Revelstoke Labour Market Network Committee and funded by City of Revelstoke and the Employment Program of British Columbia, however provides a current profile of the Revelstoke labour market, current and projected labour market needs, current retention and attraction strategies, and an educational profile of local workers (GRP Educational Services & JL Insights 2015).

When positions in the Revelstoke tourism, food and beverage, and accommodation industries are combined they made up 30.5 per cent of all positions in 2015, and accounted for the largest share of local employment. This share demonstrates the relative importance of RMR in the local economy. Forestry and Public Services were the second and third largest sectors by workforce size representing 19.2 per cent and 13.1 per cent of total employment in surveyed operations.

The *Revelstoke Labour Market Survey 2015* indicated that large shares of employment in the tourism sector had average wages below $20 per hour; food and beverage – 95.2 per cent, accommodation – 88.4 per cent, retail – 70.9 per cent, and tourism services – 64.4 per cent. Winter seasonal workers have grown to 15 per cent of the economy, and all seasonal workers account for 26 per cent of the workforce (GRP Educational Services & JL Insights 2015). The seasonal work force has grown substantially over the past few years, with the biggest need in winter (an estimated 546 additional people) and in summer (an estimated 197 workers). The seasonal workforce is predominantly under the age of 44.

Over half of surveyed companies reported challenges in hiring and retaining workers. The survey observed that 37 occupations had high turnover rates, 70 per cent in the Sales and Service occupations that are important for the local tourism sector and 19 per cent in the Trades, Transport and Equipment Operators and Related occupations that are integral to the construction industry. Employers were having difficulty finding many qualified employees, particularly those relevant to the Project, specifically, tradespersons (electricians and carpenters). The trades still in greatest demand and shortest supply were auto mechanics, heavy duty mechanics, plumbers, truck drivers, heating and refrigeration labour, metal or duct workers, and flooring installers. According to the *Revelstoke Labour Market Survey*, the forestry sector was also experiencing difficulty finding truck drivers, processors, yarder and skidder operators, fallers, and machine operators.

A similar survey conducted in 2011 noted difficulty filling many of the same positions, but the authors of the 2015 survey concluded that there is less stability in the City of Revelstoke's workforce now than there was four years ago (GRP Educational Services & JL Insights 2015).

In the *Revelstoke Labour Market Survey*, business owners were asked if they expected to expand their businesses in the next two to five years. Almost half the businesses (49 per cent) thought that their staffing levels would remain the same, while 43 per cent expected to expand the number of positions, and only 7 per cent foresaw contraction in their operations (GRP Educational Services & JL Insights 2015).

Income

The median employment income level in the CSRD stood at $45,052 in 2010, 8.3 per cent below the BC level of $49,143. However, the median employment income in Revelstoke ($51,264) was higher than in the province and almost 13.8 per cent higher than in the overall CSRD (Table 5-9).

Median incomes from all sources in the CSRD ($24,970) were lower in 2010 than those for BC as a whole ($28,765), and lower throughout the 2000-2010 period. Revelstoke had a higher median overall income from all sources than either the CSRD or the province in 2010, and its median income rose by a greater amount than that of the province over the 2000-2010 period, at 39.7 per cent versus 30.2 per cent.

Employment earnings in 2010 comprised a similar percentage of total income in Revelstoke in comparison to the province as a whole; however, the share of earnings in the CSRD was much lower than the provincial average reflecting the high number of retirees residing in the Shuswap portion of the CSRD. Trend data show that employment earnings (as a proportion of total income) have declined in the CSRD since 2000.

The lower percentage difference between average and median income levels in Revelstoke and the CSRD indicates more homogeneous communities in terms of income levels than for the province, where there is a wider gap in income levels (as reflected in the larger gap between BC's average income and median income levels). The gaps are similar between average and median incomes in Revelstoke and the CSRD. Key income characteristics for the LSA are summarised in Table 5-9.

Table 5-9: Income in the CSRD, Revelstoke and BC, 2000, 2005 and 2010

Income Indicator	CSRD	Revelstoke	B.C.
2000			
Median income ($)	19,160	20,793	22,095
Earnings as a percentage of total income (per cent)	68.0	76.5	75.8
2005			
Median income ($)	22,957	24,965	24,867
Earnings as a percentage of total income (per cent)	67.6	76.3	75.1

Table 5-9 Cont'd): Income in the CSRD, Revelstoke and BC, 2000, 2005 and 2010

Income Indicator	CSRD	Revelstoke	B.C.
2010			
Average income ($)	32,780	36,962	39,415
Median income ($)	24,970	29,053	28,765
Employment income as a percentage of total income (per cent)	62.5	74.2	73.7
Median employment income ($)	45,052	51,264	49,143
Average employment income ($)	47,533	52,757	58,016

Source: (Statistics Canada 2002a, 2007a, 2013e)

Training

In Revelstoke and the CSRD, a higher percentage of the working age population have college, apprenticeship, or trades training than the BC average, but with more than a 10 percentage point difference in the number of people with a university degree when compared to the BC average. This is a reflection of an economy with relatively large forestry, transportation, and tourism sectors as compared to the higher population centres in the Lower Mainland and the Okanagan. Table 5-10 summarizes the 2011 statistics describing educational qualifications of 25-64 year olds (typical working age labour force) for the City of Revelstoke, CSRD and BC.

Table 5-10: Educational Attainment of Labour Force in the CSRD, Revelstoke and BC, 2011

Educational Attainment	CSRD	Revelstoke	BC
Percentage of Population 25-64 years old with Post-Secondary Qualifications (per cent)	58.7	62.7	64.8
Percentage of Population 25-64 years old with College, Apprenticeship or Trades Certificate or Diploma (per cent)	44.2	46.6	37.6
Percentage of Population 25-64 years old with University degree and above (per cent)	14.5	16.2	27.3

Source: Statistics Canada 2013e

Okanagan College operates a satellite centre in Revelstoke and a satellite campus in Salmon Arm. At Revelstoke, continuing education focused courses are offered such as first aid training, leadership essentials, project management, and small business computer applications training. Foundational trades training is offered intermittently. Since 2011 there have been more electrical and construction trades foundation courses offered in the City of Revelstoke, both trades that will be in demand for the Project workforce. BC Hydro in combination with Okanagan College have supported students taking a foundation course for electrical trades.

The Salmon Arm campus offers a wider range of courses, including university transfer courses, and has a trades training facility, where training in carpentry apprenticeship, electrician and plumbing pre-apprentice and welding is available.

5.3.2.3.2 Aboriginal People

Labour Force Overview, Participation Rate and Unemployment Rate

Table 5-11 summarizes the available labour force characteristics of the Aboriginal people with potential interest in the Project. This summary includes information on First Nations communities that lie outside of the boundaries of the LSA (CSRD) but are communities connected to First Nations that have asserted traditional territories overlapping the LSA.

In 2011, 5.8 per cent (2,485) of the CSRD total population and 5.1 per cent (305 persons) of the Revelstoke population self-identified as an Aboriginal person. In 2011, the unemployment rate for Aboriginal people in the LSA was 20.9 per cent, well above the rate for the CSRD as a whole (11.6 per cent). The unemployment rate for Aboriginal people in Revelstoke (31.4 per cent) was similarly much above the (already high) unemployment rate for the total population of Revelstoke (16.1 per cent). The unemployment rates for First Nations communities were also high, including for ones in the LSA, such as Adams Lake Indian Band (25.0 per cent) and Little Shuswap Lake Indian Band (19.0 per cent).

In terms of the difference in unemployment rates between the Aboriginal and non-Aboriginal labour forces, educational attainment is an important explanatory factor. And although researchers have found that insufficient educational qualifications are the main barrier for Aboriginal persons when accessing employment opportunities (MNP 2012; Sharpe et al. 2009), they are not the only barriers. Sharpe et al. (2009) found that Aboriginal persons with the same level of educational qualifications as a non-Aboriginal person are likely to be unemployed, pointing to other barriers at play. In a survey-based study for Industry Training Authority, MNP (2012) cited these other barriers including:

- Lack of readiness and awareness, e.g., at community level, relative to life skills;
- Geographic barriers, e.g., access to transportation, ability to relocate;
- Funding, e.g., for individuals, for programs;
- Difficulty in securing employer sponsorship; and
- Lack of Aboriginal awareness within workplaces.

Table 5-11: Labour Force Activity of the Aboriginal Population in the Generation LSA, 2011

Community	Population Age 15 and Over	Labour Force	Employed	Unemployed[a]	Construction Labour Force	Participation Rate [per cent]	Unemployment Rate [per cent]
Columbia Shuswap Regional District (CSRD)	2,485	1,505	1,195	315	230	60.6	20.9
Revelstoke	305	255	175	80	0	83.6	31.4
Electoral Area B	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ʔAkisqʼnuk	120	n/a	n/a	n/a	n/a	62.5	13.3
ʔaqam	80	n/a	n/a	n/a	n/a	81.2	30.8
yaqan nuykiy	80	n/a	n/a	n/a	n/a	50	25
ʔakinkum‡asnuq‡iʔit	50	n/a	n/a	n/a	n/a	70	28.6
Total Ktunaxa communities	330	n/a	n/a	n/a	n/a	n/a	n/a
Adams Lake Indian Band	285	140	110	35	10	49.1	25
Neskonlith Indian Band	215	135	95	40	10	62.8	29.6
Indian Band	240	n/a	n/a	n/a	n/a	68.8	62.5
Simpcw First Nation	205	n/a	n/a	n/a	n/a	63.4	48.8
Splatsʼin	230	120	80	40	10	52.2	33.3
Little Shuswap Lake Indian Band	185	105	85	20	0	56.8	19
Total Secwepemc	1,360	n/a	n/a	n/a	n/a	n/a	n/a
Okanagan Indian Band	595	365	270	95	40	61.3	26
Westbank First Nation	690	385	345	40	40	55.8	10.4
Total Okanagan Nations	1,285	750	615	135	80	58.6	18.2
Province of BC	171,610	107,040	89,530	17,505	9,275	62.4	16.4

[(a)] Due to rounding

g in Statistics Canada calculations of unemployment, some rates may appear lower than actual.
Source: Statistics Canada 2013f

In 2011, Aboriginal persons in the LSA were more likely to be employed as trades, transport and equipment operators, and in sales and service occupations, as well as occupations unique to the primary industries, than were non-Aboriginal persons. By comparison, non-Aboriginal residents in the LSA were more represented in management and natural and applied sciences occupations than Aboriginal residents (Statistics Canada 2013e; INAC 2011).

Most First Nations communities in the LSA experience higher unemployment rates and lower participation rates than the Aboriginal population living off-reserve in the LSA. The higher unemployment rates in most First Nations communities compared to the Aboriginal population residing in non-Aboriginal communities are likely due to the limited wage-based economic activity in the First Nations communities and the longer

commuting distances to the centres with job opportunities. This difference in unemployment between Aboriginal people living on Indian Reserves and Aboriginal people living off Indian Reserves is typical across the province; for example, the employment rate for First Nations members living off-reserve in 2011 was much higher (61.3 per cent) than that of First Nations members living on-reserve (47.6 per cent) (Statistics Canada 2016).

Income

Over the 2000-2010 periods, median incomes of Aboriginal people residing within the boundaries of the CSRD increased appreciably, and their 2010 median income was at a similar level to the median income for the Aboriginal population in the province. Moreover, the 2010 median income of Aboriginal persons residing in Revelstoke exceeded those for Aboriginal persons in the province. Earnings have generally represented a higher percentage of total income for local and regional Aboriginal people than for the non-Aboriginal population.

Despite a gradual rise over the 2000-2010 periods in median incomes of the LSA's Aboriginal population, their median incomes were well below those of non-Aboriginal people residing in the CSRD and Revelstoke. The trend results for median incomes suggest high levels of income inequality between Aboriginal and non-Aboriginal residents of the LSA.

The lower difference between the average and median incomes of Aboriginal people in the CSRD and Revelstoke expressed as a percentage indicates more homogeneous income levels compared to the population as a whole in either the CSRD or the province. Key income characteristics for Aboriginal people in the LSA are summarised in Table 5-12.

Table 5-12: Income of Aboriginal People in the CSRD, Revelstoke and BC, 2000, 2005 and 2010

	CSRD	Revelstoke	BC
2000			
Average income ($)	-	-	-
Median income ($)	14,633	-	13,242
Earnings as a percentage of total income (per cent)	71.2	-	74.9
2010			
Average income ($)	24,257	35,136	28,001
Median income ($)	19,715	34,207	19,264
Earnings as a percentage of total income (per cent)	68.1	86.7	75.3

Source: (Statistics Canada 2002b, 2007b, 2013f)

- Data not available

5.3.2.4 Economic Development

5.3.2.4.1 General Population

Business Goods and Services Supply

A diverse range of businesses in the CSRD supply goods and services to industrial, commercial and construction operations and projects in the region but the aforementioned proximity of Kelowna to the main CSRD communities means that businesses in this much larger community are important suppliers to major projects and operations in the CSRD. Although each of Salmon Arm and Revelstoke have small local airports, the Kelowna International Airport is the main supplier of air services to communities and major projects in the CSRD. Several business supply operations are present in Salmon Arm but they focus on the ongoing opportunities connected to regional residents and commercial operations rather than on major construction projects. Materials, goods and services offered by Salmon Arm suppliers include:

- Metal fabrication;
- Ready mix concrete;
- Aggregates;
- Construction and excavation;
- Timber harvesting and silviculture services;
- Electrical, gas and plumbing companies;
- Land survey;
- Office supplies;
- Computing services;
- Cardlock and bulk fuel (based in Canoe);
- Building supplies, and
- Truck transport.

In Revelstoke, the major Revelstoke Unit 5 and Mica Units 5 and 6 projects, along with development of RMR, have presented business supply opportunities for local enterprises. Business materials, goods and services offered by Revelstoke suppliers include:

- Ready mix concrete;
- Aggregates;

- Paving services;
- Local trucking including daily interline transfer of goods in Revelstoke and area and general freight and cargo transportation;
- Electrical, gas and plumbing companies;
- Several equipment rental companies;
- Building supplies;
- Excavation and construction companies;
- Timber harvesting and silviculture services;
- Stationery supplies; and
- Gas and diesel fuel delivery.

Numerous accommodation and food and beverage establishments in the Revelstoke area provide ongoing services to the local tourism sector, and also have provided temporary accommodation and food services for workers connected to the area's major construction projects.

Economic Development Planning

Several economic development agencies serve either local or sub-regional areas in the LSA (CSRD): Revelstoke and Electoral Area B; Golden; Salmon Arm; and Sicamous and its surrounding CSRD Electoral Areas.

Revelstoke and Area

The Revelstoke Economic Development Commission focuses on the City and Revelstoke and Electoral Area B, and is governed by a board of directors appointed by the CSRD Board upon recommendations from the City of Revelstoke and Electoral Area B Director. The city's economic development division supervises the activities of the Revelstoke Economic Development Commission, and the Director of Economic Development is a city employee who also oversees implementation of the city's tourism infrastructure strategy and Revelstoke's Integrated Community Sustainability Plan. As well, the Revelstoke Business and Visitor Information Centre in downtown Revelstoke houses under one roof the services of the economic development commission's Community Economic Development Office, Communities Futures Revelstoke, and Revelstoke Chamber of Commerce. In operation for more than 25 years, Communities Futures Revelstoke focuses on facilitating development and nurturing of entrepreneurial enterprises in the Revelstoke area. The Revelstoke

Chamber of Commerce focuses on advocacy, small business policy development and networking services for its membership of mainly local businesses.

Published in 2013, Revelstoke's Integrated Community Sustainability Plan was the product of a wide ranging research and community survey process led by a city appointed steering committee and a team of consultants. Focused on the City of Revelstoke, the plan also takes into consideration the interests of the 700 plus residents of Electoral Area B and visitors to the Revelstoke area. The plan identified 10 strategic priorities and broad strategies underneath each. The "our local economy" priority listed "locally diverse economy", "global connections", and "adequate, skilled workforce" as the broad strategic areas of focus (Mountain Labyrinths et al 2013).

In 2008, the BC Government designated Revelstoke as a BC Resort Municipality and the city receives annual funding from the provincial government for development of the community's tourism infrastructure. The Resort Development Strategy identified several specific objectives and outlined projects to achieve them over the plan's 5-year term (City of Revelstoke 2011). For example, monies from the city's Resort Municipalities Initiative funding were allocated in 2015 to the Revelstoke Snowmobile Club to assist with the development of a Welcoming Centre and equipment storage facility on Westside Road.

In addition to the Resort Development Strategy and the Integrated Community Sustainability Plan, the City and the community of Revelstoke have implemented several economic development initiatives since 1986, including the following:

- Downtown Revitalization: The downtown area restoration project was undertaken to enhance tourism development opportunities.
- Community Futures: Revelstoke was designated a Community Futures community in 1987 to bolster the economy with a small business loan fund and community development initiatives.
- Revelstoke Railway Museum: The Museum was constructed in 1991 to preserve and interpret Revelstoke's railway history and is a successful area tourism attraction.
- Revelstoke Community Forest Corporation: The Revelstoke Community Forest Corporation was created by the City of Revelstoke to purchase and manage Tree Farm License 56, repatriate cutting rights to the local forest industry, and create jobs for local forest workers.

- Revelstoke Community Energy Corporation: Wood waste from Downie Sawmill is combusted in a biomass boiler and heat is recovered in the form of low pressure steam for use in Downie Timber's dry kilns. Hot water is then piped through a community energy system that serves institutional and commercial buildings in Revelstoke's downtown core.
- Mount MacKenzie Ski Area Development: The City is committed to the RMR development as part of its tourism diversification strategy.
- Invest Kootenay: The City of Revelstoke is a partner in the Invest Kootenay initiative focussed on attracting, retaining, and expanding investment in the region through the promotion of lifestyle advantages.

Salmon Arm

The Salmon Arm Economic Development Society (SAEDS) is governed by a board of directors representing Salmon Arm businesses. Non-voting board members include two city representatives, a chamber of commerce representative, a regional district representative and representatives from each of Adams Lake Indian Band and Neskonlith Indian Band. The organization is staffed by a manager and a business support coordinator. In 2012, SAEDS completed a 5-Year Economic Development Action Plan, and the highest priority has been business retention and attraction (SAEDS 2102).

Golden Area

Golden Area Initiatives serves the Town of Golden and Electoral Area A of CSRD A (collectively branded as Kicking Horse Country for economic development purposes). This economic development organization published a community economic development strategy in 2012, which features three themes: retain and attract small and medium businesses; retain, train and attract people; and regional coordination for research and information gathering (Miller Dickenson Blais 2012).

Sicamous Area

Shuswap Economic Development operated by the CSRD has an economic development officer and represents the interests the District of Sicamous and Electoral Areas C (South Shuswap), D (Deep Creek/Falkland), E (Malakwa/Eagle Valley) and F (North Shuswap) of the CSRD, and also manages Shuswap Tourism and the Columbia Shuswap Film Commission. Shuswap Lake is the focus of a longstanding regional tourism sector, with over 300 tourism businesses operate in the Shuswap study area, half of which are accommodation properties. In 2010, Shuswap Tourism, which acts on behalf of the in Salmon Arm, Chase and Sicamous and surrounding unincorporated areas sponsored the preparation of a tourism development plan (Lions Gate

Consulting 2010). In 2015, the CSRD sponsored the development of an agriculture sector development strategy for the Shuswap area which was defined as the municipalities of Salmon Arm and Sicamous, and Electoral Areas C, D, E and F of the CSRD (Sustainability Solutions Group 2014).

The District of Sicamous is currently examining the option of establishing an economic development commission similar to the ones in place in Revelstoke, Salmon Arm and Golden (Eagle Valley News 2015).

5.3.2.4.2 Aboriginal People

Business Goods and Services Supply and Economic Development Planning

The Aboriginal business sector, although a segment of the overall business sector in the LSA and in BC's Southern Interior has its own distinct attributes, including company size, access to capital, educational attainment of business owners, historical development, importance of band owned enterprises and social circumstances for owners and employees.[22]

Partnerships – Secwepemc Bands

To capitalize on new business opportunities, Adams Lake Indian Band along with Neskonlith Indian Band, and Splats'in established the "Sexqeltkemc Limited Partnership" with Sexqeltkemc Enterprises Inc. (SEI) acting as the general partner handling the day-to-day business operations. SEI, a privately held corporation, has engaged in a variety of projects, primarily large-scale resource development. For example, SEI partnered with Horizon North to provide worker accommodation camps, catering, security, and a number of additional services for large-scale resource industries (e.g., hydro, mining). SEI is currently providing camps and catering services at the Mica generating station (SEI 2016).

SEI is also involved in energy initiatives (i.e., striving to be a provider of renewable energy primarily focused on run-of-river hydro projects) and provides a wide range of environmental services (e.g., archaeological monitoring, heritage assessment, social and economic research) through its Environmental Services division (SEI 2016).

The Secwepemc provided the following statement regarding the Economy VC:

Secwepemc economy is deeply grounded cultural and natural resource management practices. The Eastern Secwepemc economy is based on the resources harvested and traded as part of the seasonal round. Primary resources include Salmon and resident fish, big game, roots, and berries. In addition, oral history and

[22] Information on the Aboriginal rights based economy is presented in Section C of this environmental assessment.

archaeology show a utilization of several minerals, some precious (Gold and Jade) and others of industrial nature (Basalt and Chert). All resources were harvested sustainably to ensure future generations were able to maintain a living.

Adams Lake (Sexqeltqín) Indian Band

Adams Lake Development Corporation (ALDCO), established in 1998, is the economic arm of the Adams Lake Indian Band. ALDCO, based in Chase, primarily oversees two businesses:

- ALDCO Homes – West Harbour Village is an adult community development located in Salmon Arm on waterfront lands along Shuswap Lake.
- ALDCO Woods – is a 10,000 square foot covered mill in Chase developed to meet the Band's objectives for self-sufficiency with forest resource and product management (Adams Lake Indian Band Undated).

All of Adams Lake Indian Band's reserves have leased land from which the Band receives rental and tax revenues. Other Adams Lake Indian Band economic initiatives include commercial leasing, a health club, campsite, a game centre (a collaboration between Adams Lake Indian Band and Berezan Management), a Laundromat, and Woodlot 315 (Adams Lake Indian Band Undated, HCMC 2015, Wickett 2015).

Little Shuswap Lake (Skw'lax) Indian Band

Little Shuswap Lake *(Skw'lax)* Indian Band describes itself as an economic development driven community, aiming to be leaders in Aboriginal tourism and economic development. Among the businesses owned by the Little Shuswap Lake Indian Band are: Quaaout Lodge; Le7ke Spa; and Talking Rock Golf Course in Chase. These three initiatives serve to promote Secwepemc culture and simultaneously offer a high level of commercial accommodation and leisure facilities (Little Shuswap Lake Indian Band Undated, Secwepemc News. 2015, Trade and Invest BC [TIBC] Undated). In addition, Skw'lax Centre, which includes a combination of social housing and commercial space, provides an opportunity for interested band members to engage in entrepreneurship (Little Shuswap Lake Indian Band Undated).

Neskonlith Indian Band

In addition to the Sexqeltkemc Limited Partnership, Neskonlith Indian Band economic development initiatives include:

- Neskonlith Eco-Homes is a Band owned company that constructs homes with innovative structural insulated panels that are eco-friendly, mold-free, and energy efficient.

- A 40-acre demonstration farm and silviculture program (HCMC 2015; Neskonlith Indian Band 2010) (HCMC 2015; Neskonlith Indian Band 2010).
- Sk'atsin Resources LLP provides a range of services, including preliminary field reconnaissance, cultural monitoring, labourers, referral tracking, and project management. In addition, Sk'atsin Resources LLP assists Neskonlith members and negotiates employment opportunities with government and industry.

Neskonlith Indian Band is also working on the development of a rustic resort on Neskonlith Lake on IR 3 (HCMC 2015; Neskonlith Indian Band 2010).

Shuswap (Kenpesq't) Indian Band

The Shuswap Indian Band has focused on commercial, residential, and land development. Shuswap Indian Band business development is supported by the Kinbasket Development Corporation (KDC) in Invermere, a wholly owned corporate extension of the Shuswap Indian Band (KDC Undated).

KDC has a number of commercial projects, including:

- Black Forest Heights which is a 64-unit residential development of semi-detached homes on reserve land, east of Invermere.
- Kinbasket Commercial Centre which encompasses Timber Rock Village (retail boutiques) and a highway commercial strip, with hotels and travelling facilities (e.g., Super 8 Hotels, Tim Horton's, Home Hardware).
- Eagle Ranch Golf Resort which includes a pro shop, restaurant, bar, spa facilities, luxury condo suites, and private meeting rooms (KDC Undated).

In addition, Kinbasket Water and Sewer Company Ltd. (KWSC), a business venture undertaken by KDC, provides water and sewer services to its own community economic development initiatives, community members, as well as a large client base in Regional District of East Kootenay. KWSC and Corix Utilities signed a Utility Operations and Maintenance Service Agreement for KWSC and other Band related water and sewer utility services (Corix 2015).

Simpcw First Nation

The Simpcw First Nation is involved in a wide range of business ventures and projects including partnerships related to forestry, mineral exploration and mining, hydro, forest fire fighting, tourism development, and construction. Simpcw Resources Limited Liability Partnership (SRLLP) is the primary economic development company owned by Simpcw First Nation. SRLLP has formed the following partnerships:

- Estsek' Environmental Services LLP (Estsek') based in Barriere is a partnership with Triton and Simpcw SRLLP, which provides environmental service within Simpcw First Nation traditional territory.
- TKnémentem Energy Solutions (TES) is a joint Limited Liability Partnership between SRLLP and Highland Powerlines Ltd., which undertakes overhead and underground power construction, line maintenance, road construction, and maintenance in transmission and distribution voltage (Simpcw Resources Group [SRG] 2016) TSE is based in Barriere.

In addition, Simpcw First Nation's Sustainable Resource Department manages the Dunn Lake Hatchery in partnership with DFO, where they raise salmon to support local waterways. Simpcw First Nation has a joint venture with Trans Alta Corporation on the Bone Creek run-of-the-river hydroelectric project near Blue River (HCMC 2015). In 2014, Simpcw First Nation signed a Relationship Agreement with ATCO Energy Solutions to develop opportunities from energy projects for Simpcw First Nation members (HCMC 2015, Simpcw First Nation 2016).

Splatsin (Tsm7aksaltn)

Enderby-based Splatsin Development Corporation (SDC), an arm's length economic development corporation, is the business and economic development arm of the Splatsin. SDC seeks opportunities in various sectors, including mining, agriculture, independent power production, forestry, energy, environmental services, construction, and tourism. SDC's current enterprises include (Splatsin 2014):

- Yucwmenlúcwu (Caretakers of the Land) LLP – a forest management company.
- Splatsin Construction and Environmental Service LLP (SCES) – a newly formed arm of the Splatsin Development Corporation, which undertakes work on forestry, construction, and natural resource and construction projects.
- Quilakwa Investments – a hybrid business comprised of a full service gas bar, convenience store, and an Aboriginal art gallery (Quilakwa Art Gallery).
- Quilakwa RV Park – located on the banks of the Shuswap River.

Okanagan Indian Band

The Okanagan Indian Band and its members are active in the local economy and strive to promote knowledge of Okanagan language, history and culture (Okanagan Nation Alliance Business Development [ONABD] Undated). Okanagan Indian Band members operate a variety of businesses primarily in tourism, service, forestry and agricultural industries (ONABD Undated). Okanagan Indian Band businesses include, in part:

- Eagle Rock Aggregates;
- Nehoot Grocery and Camp Ground;
- Little Kingdom Grocery (Service Station);
- Race Trac Gas; and
- Creek Side Restaurant (Okanagan Nation Alliance Undated(c), Okanagan Training and Development Council [OTDC] Undated).

Westbank First Nation

The Westbank First Nation, through the Westbank First Nation Economic Development Commission, the first Aboriginal economic development corporation in Canada, manages a number of operations, including:

- Ntityix Resources LP (formerly Heartland Economics Ltd.) is the forest management division of Westbank First Nation, responsible for managing the forest resources held by Westbank First Nation. Over 90 per cent of the forestry activities undertaken by Ntityix Resources LP are contracted to Westbank First Nation members or to other First Nations.
- Trading Post offers food and Aboriginal arts, crafts, and gift items.
- Pine Acres Home, established in 1983, is an intermediate care facility that provides quality care for community elders, both native and non-native (Aboriginal Business and Investment Council [ABIC] Undated; First Nations Economic Development Database [FNEDD 2015], Westbank First Nation Undated).

In addition, a number of businesses (member & non-member owned) are based on Westbank First Nation lands and provide manufacturing and construction services (e.g., Steelwood Engineered Systems Inc., OK Builders Supplies Ltd. (Westbank First Nation Undated). Westbank First Nation's corporate partners include Okanagan Lake Shopping Centre and Snyatan Shopping Centre (Westbank First Nation Undated).

As part of Westbank First Nation's self-government agreement, this First Nation has jurisdiction in relation to landlord and tenant matters with respect to Westbank Lands and premises on Westbank Lands. The Westbank First Nation has the largest on-reserve commercial development on its lands in Canada; tenants on Westbank First Nation Reserve Lands include over 400 businesses. Among the anchor tenants located on Westbank First Nation reserves are: Walmart, Superstore, Xtreme Landmark 8 Cinema, Home Depot and several major fast-food outlets (ABIC Undated; Westbank First Nation Undated).

Okanagan Nation Alliance

Okanagan Nation Alliance operates the Okanagan Nation Development Corporation (ONDC). ONDC deals with business related issues and opportunities concerning the entire Nation and those that occur within its asserted territory. Collectively owned by the membership, the ONDC acts as a holding company for the member Bands (i.e., Upper Nicola Band, Okanagan Indian Band, Penticton Indian Band, Westbank First Nation, Upper Similkameen Indian Band Lower Similkameen Indian Band, Osoyoos Indian Band, and Colville Confederated Tribes). ONDC is involved in a number of joint-ventures and is interested in business partnerships and opportunities that lead to increased prosperity for the membership of the Nation.

Economic development elements delivered by the ONDC include capacity building, investment attraction, and business and partnership development (Okanagan Nation Alliance Undated (a, b), ONABD Undated).

Challenges to Economic Development

Although interest and activity is growing, barriers and challenges for Aboriginal persons in Canada to start and grow businesses have been noted in several reports and studies (Federal–Provincial Ministers Working Group on Aboriginal Participation in the Economy 2001). It summarized the major documented barriers and challenges, including:

- Inadequate connections and linkages between Aboriginal communities and traditional economies with the mainstream economy.
- Systemic barriers, misconceptions, and stereotypes about Aboriginal people.
- Many Aboriginal businesses and communities lack business expertise in marketing, bookkeeping, manufacturing, and management skills.
- Aboriginal businesses often lack equity and have difficulty acquiring adequate business financing.
- Access to loan guarantees, and equity and debt financing are issues for both business and community development.

More recent reports that surveyed Aboriginal business owners and representatives of First Nations economic development corporations noted similar barriers and challenges (Canadian Council of Aboriginal Business [CCAB 2015]; CCAB 2011; CCAB and Environics Research Group 2011).

Ktunaxa Nation Council

The Ktunaxa Nation Council provided the following statement regarding Labour Market, Local Government Finance, and Economic Development sub-components:

Sustainability and economic growth are key goals for the Ktunaxa Nation, and issues related to balancing economy and sustainability have been raised by many participants in interviews. Economic measures should recognize that there are formal and informal economies. Existing and preferred Ktunaxa rights based economic activity includes important employment and trading networks that form the underpinning of the economy and are not captured in mainstream economic metrics.

See Part C, Section C3 for further discussion of related Ktunaxa traditional knowledge and use.

Secwepemc economy is deeply grounded cultural and natural resource management practices. The Eastern Secwepemc economy is based on the resources harvested and traded as part of the seasonal round. Primary resources include Salmon and resident fish, big game, roots, and berries. In addition, oral history and archaeology show a utilization of several minerals, some precious (Gold and Jade) and others of industrial nature (Basalt and Chert). All resources were harvested sustainably to ensure future generations were able to maintain a living.

5.3.2.5 Local Government Finances

City of Revelstoke

The Generation component site is within the boundaries of the City of Revelstoke and is close to the boundary between Electoral Area B of the CSRD and City of Revelstoke. Revelstoke Reservoir lies within Electoral Area B.

For the fiscal year ending December 31, 2014, the City of Revelstoke's total revenues were $23 million, an increase of approximately 18 per cent since 2010. Total revenue in the City of Revelstoke decreased in 2011 and 2012, before increasing in 2013 (5.9 per cent) and 2014 (16.2 per cent). The main revenue sources in 2014 were property taxation and grants in-lieu-of taxes ($12 million), conditional and unconditional government grants ($5 million including a Resort Municipality grant), user fees and service charges ($4 million) and revenues from other miscellaneous investments and funds (City of Revelstoke 2014). This grants in-lieu-of-taxes total includes payments totally approximately $2.8 million from BC Hydro, about 11 per cent of the city's total 2014 revenues.

The city's expenditures totalled just over $18 million in 2014, comprised of expenditures on general government ($1.8 million), fire and police services ($3.7 million), transportation ($4 million), environmental and health ($0.6 million), economic development ($1.7 million), recreation and cultural ($3.1 million), planning and development ($0.5 million), and sewer and water services ($1.6 million).

Both City of Revelstoke and CSRD receive monies via Grants in-lieu-of taxes from BC Hydro for its Revelstoke Dam and Revelstoke Reservoir and Mica Dam and Kinbasket Reservoir and via contributions from CBT.

BC Hydro Grants in-lieu-of Taxes

The Hydro and Power Authority Act exempts BC Hydro from all property taxes other than those levied in respect of provincial school taxes. The Hydro and Power Authority Act authorizes BC Hydro to pay grants-in-lieu of general municipal, regional district and local improvement taxes. Order-In-Council 266/16 and Order- In-Council 268/11 set out the formula used to calculate the grant payments.[23] Annual grants paid include the following items:

- general grants equivalent to general, regional district and local improvement taxes on the assessed value of all fee-owned land of BC Hydro and on the assessed value of improvements such as office buildings, garages, warehouses, line stores and substation control buildings. Assessed values of generating plants, substation equipment, transmission lines and distribution lines are excluded from this calculation.
- revenue grants equal to one per cent of gross revenue from sales of electricity within the Province, excluding revenue from power sold to other distribution systems for resale.
- special grants-in-lieu of general taxes (GILT) on dams, reservoirs and powerhouses. These grants are based on installed generating capacity and rates set by the BC Government.

School taxes are based on the assessed value of taxable assets and school tax rates established by the Province. School taxes are paid on all assessable property with the exception of facilities related to the generation of power on the Columbia, Peace, Pend-d'Oreille, and Columbia Rivers. Revelstoke Generating Station is a tax-exempt facility.

[23] BC Hydro makes a Grant in-lieu-of Taxes to municipalities and regional districts in respect of its electricity generating facilities located within a municipality's or electoral area's boundaries. The framework for BC Hydro's GILT was introduced in 1989, and the payment amounts are established by order-in-council on a periodic basis under the authority of the *Hydro and Power Authority Act* (BC Ministry of Community, Sport, and Cultural Development 2010).

The grants for generating facilities are allocated to the host community first, and then to any other communities that are impacted by the facility as determined by the Province. The City of Revelstoke receives a significantly large portion of the grant paid by BCH for Revelstoke Generating Station as the facility is located within the City's municipal boundaries. The CSRD is also impacted by Revelstoke Generating Station and receives a small grant payment.

BC Hydro paid out a total of approximately $5.1 million in grants in-lieu-of taxes to local government entities within the CSRD in 2016. The City of Revelstoke received $3.0 million of which most was for the grant for Revelstoke Generating Station. The CSRD received $1.7 million of which the large majority was for the grant for Mica Generating Station along with smaller amounts for Revelstoke Generating Station, Spillimacheen Generating Station and Walter Hardman Generating Station. The municipalities of Salmon Arm, Golden and Sicamous also received grants from BC Hydro but not in respect of any generating facilities. Table 5-13 show the 2016 total GILT and other payments from BC Hydro and their recipients in the CSRD.

Table 5-13: BC Hydro Grants in-lieu-of Taxes to CSRD, Revelstoke, Salmon Arm and Sicamous, 2014

Municipality/Regional District	GILT – Generating Facilities ($)	GILT – Land & Buildings ($)	GILT – 1% of Revenues ($)	GILT - Total Payments ($)
City of Revelstoke	2,653,201	238,306	122,397	3,013,904
CSRD	1,728,916	nil	nil-	1,728,916
City of Salmon Arm	nil	46,889	154,838	201,727
Town of Golden	nil	49,431	72,749	122,180
District Municipality of Sicamous	nil	4,144	41,750	45,894
Total	4,382,117	338,770	391,734	5,112,621

Only a small portion of the GILT monies paid to CSRD are directed to services in Electoral Area B. BC Hydro GILT payments to CSRD for dams, reservoirs, and powerhouses are divided into the following three components, as provided for in a BC Government policy directive (Ministry of Community, Sport, and Cultural Development 2010):

- An apportionment to the following functions:
  - 20 per cent General Government;
  - 10 per cent Electoral Government;
  - 4 per cent Area B Recreation;
  - 4 per cent Golden and District Arena;
  - 3 per cent Area B Fire Protection;
  - 3 per cent Area A Community Parks;

- 3 per cent Sicamous Recreation Centre; and
- 2 per cent Area E Community Parks.

- An apportionment payable directly for the following:
  - 1 per cent Revelstoke Community Centre.
- Balance of GILT (minimum 50 per cent) is apportioned to those members deemed to be the Impact Area as follows:
  - 20 per cent Golden and Electoral Area 'A' Economic Opportunity Fund;
  - 20 per cent Revelstoke and Electoral Area 'B' Economic Opportunity Fund; and
  - 10 per cent Sicamous and Electoral Area 'E' Economic Opportunity Fund.

The Impact Area component is for the purpose of directing monies to an Economic Opportunity Fund. GILT monies are directed into and paid out of an Economic Opportunity Fund for projects that promote economic development, such as airport improvements and an economic development commission. The Economic Opportunity Fund mechanism was created as a means of compensating for the loss of economic opportunities on those lands affected by BC Hydro dams and reservoirs and the resultant economic effects to the affected communities.[24]

Columbia Basin Trust

In the early 1990s, local residents, Ktunaxa Nation Council and five Regional Districts approached the Province of BC to acquire a portion of the economic benefits derived from electricity production and water storage on the Columbia River system. As an outcome, the BC Government formed the CBT through the *Columbia Basin Trust Act* (1995), with the Province of BC as the shareholder of the CBT. The set-up of the CBT included the following payments that would be the financial base for allocations by the regional CBT Board of Directors:

- $276 million over ten years to finance power project construction in partnership with Columbia Power Corporation (CPC);
- $45 million of up-front payments, which CBT used as an endowment; and
- $2 million per year from 1995 to 2010 for operations (Penfold, 2012).

[24] According to the policy, “the EOF [Economic Opportunity Fund] are to provide funding assistance for projects deemed by the participating members and ratified by the Corporate Board to be worthy of support in an effort to stimulate economic development within the impact areas.” The EOF are to stimulate enduring economic benefits such as transportation or infrastructure to the affected communities.

CPC has since constructed several facilities in the Columbia Basin, and current assets include:

- Brilliant Dam (145 MW) purchased from Teck Cominco in 1996;
- Brilliant Expansion (120 MW);
- Arrow Lakes Generating Station (185 MW); and
- Waneta Expansion (335 MW) partnered with Fortis BC.

Initial and ongoing investments have delivered increasing revenues to the affected communities. Benefits realized under the CBT increased from about $4.7 million to $18.2 million over the 2002-2012 period (Penfold 2012).

Under the CBT, the Province also distributes funds and benefits to municipalities and regional districts through several programs, including the Community Initiatives Program (CIP) and the Affected Areas Program (AAP). The CIP and AAP support priority projects within CBT communities. CIP funds are allocated, on a per capita funding formula, to the Regional Districts of East Kootenay, Central Kootenay and Kootenay Boundary, City of Revelstoke, Town of Golden/Electoral Area A of Columbia-Shuswap Regional District, Village of Valemount and Ktunaxa Nation Council. Communities identified as the most affected by dam construction also receive AAP funding. The allocation of CIP benefits over the 2011-2015 period are summarized in Table 5-14. The City of Revelstoke received approximately $1.7 million from this source.

Table 5-14: CIP Benefits, 2011-2015

Local Government Delivery Partner 2011 – 2015	Allocation (*CIP Only)
Ktunaxa Nation Council	$ 769,538*
Regional District of Kootenay Boundary	$ 1,543,360*
Village of Valemount	$ 1,138,915
Town of Golden	$ 1,415,485
City of Revelstoke	$ 1,757,691
Regional District of Central Kootenay	$ 6,461,795
Regional District of East Kootenay	$ 5,206,655
Total	**$18,293,439**

Source: Laurie 2013

The AAP funding is allocated through a formula that takes into account a base amount, a population consideration, and distance from the reservoirs. Payments over the 5-year 2011-2015 period are shown in (Table 5-15). City of Revelstoke and CSRD (Electoral Area B) received about $160,000 and $100,000, respectively.

Table 5-15: AAP Funding, 2011 to 2015

AAP Recipient	Annual AAP payments from 2011- 2015
Revelstoke	$ 159,777
CSRD Electoral Area B	$ 103,383
CSRD Electoral Area A	$ 77,667
Golden	$ 106,115
Nakusp	$ 94,121

Source: BC Hydro

5.3.2.6 Description of Existing Conditions – Transmission Component

Penticton

With a population of approximately 34,000 in 2014, Penticton is the commercial, business services, and retail centre of the southern Okanagan region. Located between Okanagan Lake and Skaha Lake on Highway 97, Penticton's economy has historically been linked to the tree fruit industry and summer tourism, but has expanded to incorporate small high technology businesses, many retail and commercial service businesses, government offices (such as Canada Revenue Agency) and various winemaking enterprises.

Summerland

With a 2014 population of approximately 11,500, Summerland is located along Highway 97, approximately 15 minutes from Penticton and 40 minutes from Kelowna. Historically, Summerland's economy has historically focused on fruit growing, but has expanded to include wine production, small scale manufacturing, commercial retail, tourism, wineries and government services. Summerland has a large retiree population that is an important factor in the local economy.

Regional District of Okanagan-Similkameen

The RDOS is comprised of City of Penticton, the District of Summerland, the Town of Osoyoos, the Town of Oliver, the Town of Princeton, the Village of Keremeos and eight electoral areas. The Transmission component is located in Area F of the RDOS. Area F lies to the west of Summerland and to the north of Penticton, and its populated, unincorporated settlement areas include Red Wing Resorts, and the West Bench, Westwood Properties, Husula Highlands, Sage Mesa, Faulder, and North Beach neighbourhoods.

5.3.2.7 Labour Market

5.3.2.7.1 General Population

Labour Force Overview, Participation Rate and Unemployment Rate

Table 5-16 provides a statistical snapshot of the labour market in the Transmission LSA. As of 2011, Penticton had a total labour force of almost 16,000. The manufacturing and innovation sector accounted for the largest share (29 per cent) of the community's employment followed by public services (26 per cent), retail and wholesale trading (20 per cent) and tourism (14 per cent) (City of Penticton 2011). Penticton's manufacturing sector produces precision equipment, commercial truck trailers, recreational vehicles, modular homes, vitamins, food items and wood products (City of Penticton 2015). As a regional centre of BC's southern Interior, the community has a wide range of retail, professional and health services, and its relatively large construction sector had almost 1,500 workers as of 2011. Penticton is the third largest retirement centre in BC on an income per capita basis, and attracts retirees from others parts of BC and Canada because of its dry, warm climate, large base of outdoor recreation activities and the wide range of health services in the Okanagan region (City of Penticton 2015).

In 2011, Penticton's labour force participation rate stood at 57.3 per cent and the community had an unemployment rate of 9.2 per cent, slightly higher than the BC rate unemployment rate of 7.8 per cent. The local labour force participation rate was seven percentage points below the provincial rate of 64.6 per cent, which reflects the older age structure of the Penticton population.

Another BC retirement centre, Summerland ranks second in the province on BC Stats' Overall Regional Socio-Economic Index behind only West Vancouver (BC Stats 2013).[25] A high proportion of this community's population is currently in the 64 years and up cohort, and this cohort is expected to grow such that by 2036 this cohort in Summerland is expected to have similar numbers to the community's 25-54 years working age cohort (Vann Struth Consulting Group 2010). As of 2011, the community had a relatively diversified economy with employment spread through its agri-food, accommodation, food services, and construction sectors but public and health services accounted for the largest share, about 35 per cent of local employment (Statistics Canada 2013e).

[25] BC Stats Overall Regional Socio-Economic Index is a composite index based on six criteria or dimensions (human economic hardship, crime, health problems, education concerns, children at risk and youth at risk), which uses a few statistical indicators to track each criteria.

In 2011, Summerland's labour force participation rate stood at 55.1 per cent and the community had an unemployment rate of 8.9 per cent, a percentage point higher than the BC rate unemployment rate of 7.8 per cent. This community's participation rate was ten percentage points below the provincial rate of 64.6 per cent, which reflects the older age structure of the Summerland population.

Penticton, Summerland and Electoral Area F lie within the boundaries of the Thompson-Okanagan Economic Region, which had a 2015 unemployment rate of 6.4 per cent, which presents a reasonable proxy for the 2015 unemployment rate in the Transmission LSA.[26]

Table 5-16: Labour Force Activity in the Transmission LSA, 2011

Community	Population Age 15 and Over	Labour Force	Employed	Unemployed[a]	Construction Labour Force	Participation Rate [per cent]	Unemployment Rate [per cent]
Summerland	9,425	5,190	4,725	460	655	55.1	8.9
Penticton	27,545	15,795	14,340	1,455	1,460	57.3	9.2
Electoral Area F	1,870	1,210	1,145	70	135	64.7	5.8
Total	38,840	22,195	20,210	1,985	2,250	57.1	8.9
Province of BC	3,646,840	2,354,245	2,171,465	182,775	181,510	64.6	7.8

(a) Due to rounding in Statistics Canada calculations of unemployment, some rates may appear lower than actual.
Source: Statistics Canada 2013e

Income

The median employment income level in Summerland stood at $44,232 in 2010, 9.9 per cent below the BC level of $49,143. The median employment income in Penticton was lower yet at $42,523. The results reflect economic structures of these south Okanagan communities, which have large employment segments in the lower paying accommodation, food services, retail and agri-food sectors.

Employment earnings comprised a much smaller percentage of total income in Summerland and Penticton compared to the province in 2010, which is due to the high number of retirees residing in both communities. The median income from all sources of Penticton rose by a similar percentage increase over the 2000-2010 period as the provincial median income from all sources but the increase in Summerland's median income was smaller, which is due to this community's aging population structure over this period.

[26] See http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2820123&&pattern=&stByVal=1&p1=1&p2=37&tabMode=dataTable&csid=

The slightly lower percentage difference between average and median income levels in Summerland and Penticton indicates more homogeneous communities in terms of income levels than for the province, where there is a wider gap in income levels (as reflected in the larger gap between BC's average income and median income levels). Key income characteristics for the LSA are summarised in Table 5-17.

Table 5-17: Income in Penticton, Summerland and BC, 2000, 2005 and 2010

	Penticton	Summerland	BC
2000			
Median income ($)	18,576	21,658	22,095
Earnings as a percentage of total income (per cent)	60.6	62.1	75.8
2005			
Median income ($)	22,763	22,688	24,867
Earnings as a percentage of total income (per cent)	63.9	59.5	75.1
2010			
Average income ($)	32,703	36,782	39,415
Median income ($)	24,628	28,317	28,765
Employment income as a percentage of total income (per cent)	62.9	62.2	73.7
Median employment income ($)	42,523	44,232	49,143
Average employment income ($)	48,970	52,446	58,016

Source: (Statistics Canada 2002a, 2007a, 2013e)

5.3.2.7.2 Aboriginal People

Labour Force Overview, Participation Rate and Unemployment Rate

Table 5-18 summarizes the available labour force characteristics of the Aboriginal people with interests in the Transmission component of the Project. This summary includes information on First Nations communities that lie outside of the boundaries of the LSA but are communities connected to First Nations that have asserted traditional territories overlapping the Project site.

In 2011, 2.6 per cent (245) of the Summerland total population and 4.8 per cent (1,335) of the Penticton total population self-identified as an Aboriginal person. The Penticton Indian Band community is situated within the LSA boundaries and had a population of 420. In 2011, the unemployment rate for Aboriginal workers residing in Summerland was 13.6 per cent and was 17.3 per cent for Aboriginal workers residing in Penticton, and both were well above the rates for the total labour forces of these communities. The unemployment rate in the Penticton Indian Band community was higher yet at 30.6 per cent.

Table 5-18: Labour Force Activity of the Aboriginal Population in the Transmission LSA, 2011

Community	Population Age 15 and Over (#)	Labour Force (#)	Employed (#)	Unemployed[a] (#)	Construction Labour Force (#)	Participation Rate [per cent]	Unemployment Rate [per cent]
Summerland	245	220	190	30	20	89.8	13.6
Penticton	1,335	840	695	145	45	62.9	17.3
Electoral Area F	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Penticton Indian Band	420	245	175	75	15	58.3	30.6
Westbank First Nation	690	385	345	40	40	55.8	10.4
Total First Nation communities	1,110	630	520	115	55	56.8	18.2
Province of BC	171,610	107,040	89,530	17,505	9,275	62.4	16.4

(a) Due to rounding in Statistics Canada calculations of unemployment, some rates may appear lower than actual.
Source: Statistics Canada 2013f

In 2011, the proportion of construction sector employment of the Aboriginal labour forces in Penticton and Summerland and the on reserve labour force of the Penticton Indian Band and Westbank First Nation communities[27] was similar to the proportion in the total labour force of the LSA.

In their Part C submission the Okanagan Indian Band indicate that the trades certificates and diplomas listed in Table 5-19 are held by community members. For more baseline information about the Okanagan Indian Band, refer to Part C.

Table 5-19: Number and Types of Trade or Professional Designations held by Okanagan Indian Band Survey Respondents

Description of types of certificate or designation (n=14)	Journeyman or Red Seal status (n=4)	Professional designation (n=10)
Auto body mechanics (1) Pipefitter (1) Electrician (2) Culinary (2) Class One Driver (1) Carpentry (1) Esthetician (1) RISC Archaeology (1) Military ordinances (1) Practical Nursing (1) Early Childhood educator (2)	Electrician Carpenter Culinary Pipe fitter	Care-aid (1) Long Term Care Manager (1) Early childhood educator (2) Registered Social Worker (2) Administrator (1) Teacher (2) Artist (1) BC

[27] Which includes non-Aboriginal workers who live within the boundaries of these two communities.

Income

Over the 2000-2010 period, median incomes of Aboriginal people residing in Penticton increased by a similar amount compared to the increase in the median income for the Aboriginal population in the province. Although median incomes of Penticton Aboriginal persons rose by a greater amount than did those of all Penticton residents, 43 per cent vs 33 per cent, the 2010 median income of Aboriginal persons residing in Penticton was much less than the median income for all Penticton residents, $19,672 versus $24,628. A similar situation held for the Kelowna area and the province as a whole; i.e., median incomes of Aboriginal persons were about 25 per cent less than those for the total population.

Earnings have generally represented a higher percentage of total income for local and regional Aboriginal people than for the non-Aboriginal population.

The difference between the average and median incomes of Aboriginal people in Penticton was similar in 2010 to the difference between the average and median incomes of all residents of this community. There was however a greater disparity in income inequality for Aboriginal persons living in the Kelowna area, as compared to Aboriginal persons in the whole province and to all residents of the Kelowna area. Income characteristics for Aboriginal people in the LSA are summarised in Table 5-20.

Table 5-20: Income of Aboriginal People in Penticton, Kelowna CMA and BC, 2000, 2005 and 2010

	Penticton	Kelowna CMA	BC
2000			
Average Income ($)	-	-	-
Median income ($)	13,751	n/a	13,242
Earnings as a percentage of total income (per cent)	74.0	n/a	74.9
2005			
Average income ($)	-	-	-
Median income ($)	16,981	15,960	15,836
Earnings as a percentage of total income (per cent)	76.2	79.2	77.0
2010			
Average income ($)	25,943	29,535	28,001
Median income ($)	19,672	19,339	19,264
Earnings as a percentage of total income (per cent)	68.5	74.2	75.3

Source: (Statistics Canada 2002b, 2007b, 2013f)

5.3.2.8 Economic Development

5.3.2.8.1 General Population

Business Goods and Services Supply

Within the Transmission LSA, there is considerable local contracting capacity that may be able to provide supplies and services for construction and operation of the Project's Capacitor Station. Business contracting capacity in the regional population centres (in particular Penticton which is only 16 km away from the proposed Capacitor Station site) includes dozens of businesses that may be able to take on many of the smaller construction-related project contracts. Business materials, goods and services supplied in either or both Penticton and Summerland include: (Penticton Chamber of Commerce Undated; Summerland Chamber of Commerce Undated):

- Ready mix concrete;
- Aggregates;
- Paving services;
- Computer and telecommunications equipment and services;
- Electrical contracting and plumbing services;
- Construction and excavation services;
- Engineering and environmental consulting services;
- Timber harvesting and silviculture services;
- Surveying services;
- Welding and steel fabrication;
- Gas and diesel bulk fuel;
- Equipment rental;
- Building supplies;
- Industrial supplies and services;
- Lodging;
- Truck dealers and repairs;

- Trucking; and
- Air transport, both plane and helicopter.

Economic Development Planning

The City of Penticton has an economic development office and an economic development officer supporting local economic and business development. The city council initiated an Economic Development and Prosperity Task Force to assist the Mayor and Council and the Penticton business community in creating a healthy, sustainable, dynamic economy (City of Penticton Undated). The task force is made up of six voting members appointed by Penticton City Council with members representing a cross-section of local economic sectors and the Penticton Indian Band.

The task force commissioned a labour market study in 2015 (not yet completed) and is responsible for identifying five key strategic priorities for driving economic growth (City of Penticton Undated).

The District of Summerland and the Summerland Chamber of Commerce jointly support an economic development function for this community. The district's director of corporate services and the chamber's executive director together handle the economic development responsibilities. The Summerland Economic Development Action Plan identifies 11 strategies for attracting people and investment and retaining and expanding businesses (Vann Struth Consulting Group 2010). Strategies include developing branding and entrepreneurial marketing campaigns, as well as programs and policies to support retention, expansion, and competitiveness of the local economy.

5.3.2.8.2 Aboriginal People

Business Goods and Services Supply and Economic Development Planning

Penticton Indian Band

The Penticton Indian Band, through the Penticton Indian Band Development Corporation (PIBDC), owns and operates a number of businesses. The PIBDC was established to plan, finance, and develop economic ventures both on and off-reserve. In 2015, PIBDC was the winner of the Aboriginal Economic Development Corporation of the Year Award (Penticton Indian Band Undated, PIBDC Undated). Business ventures supported by the PIBDC include:

- Westhill Aggregates specializes in construction sand and gravel services. In addition to trucking and delivering construction products for customers, Westhill Aggregates also employs excavation equipment that allows for small and large construction projects.
- Coyote Cruises Limited Partnership provides tube rentals and transportation along Penticton's River Channel.
- Sn'pink'tn Forestry LP manages the Penticton Indian Band's forest resource on IR#1, IR#2 and IR#3A (Penticton Indian Band Undated, PIBDC Undated).

Penticton Indian Band member ventures supported by the PIBDC include:

- Silver Eagle Construction which provides carpentry services.
- Iron Indian Steelworks, which undertakes art projects.
- Of the Land Productions Inc., an independent Aboriginal production company that produces documentaries with a reputation of delivering international award winning stories (Penticton Indian Band Undated, PIBDC Undated).

Penticton Indian Band proposed ventures supported by the PIBDC include:

- Skaha Hills, a planned residential golfing community situated on a 550 acre site set in the south Okanagan. The community is accessed off Highway 97 and includes 99 year term leases registered with Government of Canada (PIBDC Undated). Phase 1 of this housing development is sold out.
- Satikw Crossing is an economic infrastructure endeavor, connected to Highway 97. Its value lies in development for commercial and employment related purposes. This undertaking links the economies of Penticton Indian Band with the City of Penticton, and by association, with those of the greater South Okanagan (PIBDC Undated).

Westbank First Nation

The Westbank First Nation, through the Westbank First Nation Economic Development Commission, the first Aboriginal economic development corporation in Canada, manages a number of operations, including:

- Ntityix Resources LP (formerly Heartland Economics Ltd.) is the forest management division of Westbank First Nation, responsible for managing the forest resources held by Westbank First Nation. Over 90 per cent of the forestry activities undertaken by Ntityix Resources LP are contracted to Westbank First Nation members or to other First Nations.

- Trading Post offers food and Aboriginal arts, crafts, and gift items.
- Pine Acres Home, established in 1983, is an intermediate care facility that provides quality care for community elders, both native and non-native (ABIC Undated; FNEDD 2015, Westbank First Nation Undated).

In addition, there are also a number of businesses (Member & non-Member) based on Westbank First Nation lands that provide manufacturing and construction services (e.g., Steelwood Engineered Systems Inc., OK Builders Supplies Ltd. (Westbank First Nation Undated). Westbank First Nation's corporate partners include Okanagan Lake Shopping Centre and Snyatan Shopping Centre (Westbank First Nation Undated).

As part of its self-government agreement, Westbank First Nation has jurisdiction in relation to landlord and tenant matters with respect to Westbank Lands and premises on Westbank Lands. The Westbank First Nation has the largest on-reserve commercial development on its lands in Canada; tenants on Westbank First Nation Reserve Lands include over 400 businesses. Among the anchor tenants located on Westbank First Nation reserves are: Walmart, Superstore, Xtreme Landmark 8 Cinema, Home Depot and several major fast-food outlets (ABIC Undated; Westbank First Nation Undated).

Okanagan Nation Alliance

Okanagan Nation Alliance operates the ONDC. ONDC deals with business related issues and opportunities concerning the entire Nation and those that occur within its asserted territory. Collectively owned by the membership, the ONDC acts as a holding company for the member Bands (i.e., Upper Nicola Band, Okanagan Indian Band, Westbank First Nation, Penticton Indian Band, Upper Similkameen Indian Band Lower Similkameen Indian Band, Osoyoos Indian Band, and Colville Confederated Tribes). ONDC is involved in a number of joint-ventures and is interested in business partnerships and opportunities that lead to increased prosperity for the membership of the Nation.

Economic development elements delivered by the ONDC include capacity building, investment attraction, and business and partnership development (Okanagan Nation Alliance Undated (a, b), ONABD Undated).

Ktunaxa Nation Council

Sustainability and economic growth are key goals for the Ktunaxa Nation, and issues related to balancing economy and sustainability have been raised by many participants in interviews. Economic measures should recognize that there are formal and informal economies. Existing and preferred Ktunaxa rights based economic activity includes important employment and trading networks that form the underpinning of the economy and are not captured in mainstream economic metrics.

See section C5 (Social Sector) for further discussion of related Ktunaxa traditional knowledge and use.

5.3.2.9 Local Government Finances

The Transmission component site is within the boundaries of Electoral Area F of the Regional District of Okanagan-Similkameen. For the fiscal year ending December 31, 2014, the RDOShad revenues of $36.4 million and the main sources of revenue were Electoral Area and Local Government requisitions ($14.1 million), sale of services ($10.4 million), member municipality Municipal Financial Authority debt payment ($5.9 million), transfers from federal government ($3.3 million), and investment income ($1.0 million) (Ministry of Community, Sport, and Cultural Development 2015b). Expenditures totalled approximately $30.6 million, including general government ($9.1 million), debt payments for member municipality ($9.1 million), solid waste management and recycling ($4.8 million), parks, recreation and culture, ($4.0 million), sewer and water services ($2.7 million), amortization ($2.0 million), protective services ($1.8 million), other services and adjustments ($200,000) and transportation and transit ($100,000) (Ministry of Community, Sport, and Cultural Development 2015a).

5.4 Assessment of Potential Project Related Effects

5.4.1 Potential Interactions of the Project

This section considers the interactions and potential Project-related economic effects in relation to the sub-components of labour market, economic development and local government finances. Potential effects were identified through:

- Review of Project design and environmental management plans (EMP's);
- Information on Project sourcing of materials, goods and services, delivery schedule, and workforce requirements;
- Input-output economic impact modelling;
- Interviews with municipal representatives and local service providers; and
- Review of the Revelstoke Unit 5 Project Socioeconomic Management and Reporting Final Report and Environmental Management Final Report.

The potential interactions and their effect causes, type, nature, and direction are summarized in Table 5-21.

Table 5-21: Identification of Potential Project Interactions with Economy VC

Project Component	Project Activities	Level of Interaction	Nature of Interaction and Effect	Potential Residual Adverse Effect (Y/N
Generation				
Construction Phase				
Generation	Employment of personnel Procurement of materials, goods and services	Carried forward for assessment	**Labour Market** Change in employment due to Project hiring for construction activities that would generate direct employment, Project spending on materials, goods and services that would support indirect employment and spending of direct and indirect employment incomes that would support induced employment. Change in employment income due to Project associated hiring. Change in labour market balance reflected in labour supply shortages and increased labour costs due to Project labour demand. Change in labour force skills due to Project support of training.	**Y**
	Procurement of materials, goods and services	Carried forward for assessment	**Economic Development** Change in business opportunities and revenues for supplier businesses due to Project spending on materials, goods and services. Change in business opportunities and revenues for businesses due to household spending of Project associated direct and indirect employment income.	**Y**
	Employment of personnel Procurement of materials, goods and services Payment of GILT and of taxes	Carried forward for assessment	**Local Government Finances** Change in property tax revenues for local governments due to Project associated employment and new Project associated business facilities. Change in local government expenditures due to Project use of local infrastructure (Westside Road) for construction activities.	**Y**

Table 5-21 (Cont'd): Identification of Potential Project Interactions with Economy VC

Project Component	Project Activities	Level of Interaction	Nature of Interaction and Effect	Potential Residual Adverse Effect (Y/N)
Operation Phase				
Generation	Employment of personnel Procurement of materials, goods and services	No interaction	**Labour Market** No expected change in employment at the Revelstoke Generating Station during the operation phase with start-up of the 6th generating unit.	**N**
	Procurement of materials, goods and services	Minor interaction	**Economic Development** Minor change in revenues of business suppliers due to Project spending on goods and services at the Revelstoke Generation Station during the operation phase with start-up of the 6th generating unit.	**N**
	Employment of personnel Procurement of materials, goods and services Payment of GILT and of taxes	Carried forward for assessment	**Local Government Finances** Change in revenues for local governments due to Project associated GILT payments with the start-up of the 6th generating unit. Non-detectable change in local government expenditures associated with Project use of Westside Road.	**Y**

Table 5-21 (Cont'd): Identification of Potential Project Interactions with Economy VC

Project Component	Project Activities	Level of Interaction	Nature of Interaction and Effect	Potential Residual Adverse Effect (Y/N)
Transmission				
Construction Phase				
Transmission	Employment of personnel Procurement of materials, goods and services	Minor interaction	**Labour Market** Change in employment due to Project hiring for construction activities that would generate direct employment, Project spending on materials, goods and services that would support indirect employment and spending of direct and indirect employment incomes that would support induced employment. Change in labour market balance reflected in labour supply shortages and increased labour costs due to Project labour demand.	**N**
	Procurement of materials, goods and services	Minor interaction	**Economic Development** Change in business opportunities and revenues for supplier businesses due to Project spending on materials, goods and services. Change in business opportunities and revenues for businesses due to household spending of Project associated direct and indirect employment income.	**N**
	Employment of personnel Procurement of materials, goods and services Payment of GILT and of taxes	No interaction	**Local Government Finances** No detectable changes in either the award of grants in-lieu-of taxes or property tax revenues for local governments due to the Project. As indicated in Section 6.2.3.1.2.1 Road Transportation, during construction, Project related deliveries of goods and materials as well as the Project commuting workforce would increase traffic on Isintok-McNulty FSR and connecting road networks, including Bathville Road. Both are maintained by the BC Government. As the Isintok-McNulty Road is an FSR, BC Hydro will seek a maintenance agreement with the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO).	**N**

Table 5-21 (Cont'd): Identification of Potential Project Interactions with Economy VC

Project Component	Project Activities	Level of Interaction	Nature of Interaction and Effect	Potential Residual Adverse Effect (Y/N)
Operation Phase				
Transmission	Employment of personnel Procurement of materials, goods and services	Minor interaction	**Labour Market** Minor change in employment during the operation phase in association with the start-up of the Capacitor Station.	**N**
	Procurement of materials, goods and services	Minor interaction	**Economic Development** Minor change in revenues of business suppliers due to Project spending on goods and services during the operation phase with start-up of the Capacitor Station.	**N**
	Employment of personnel Procurement of materials, goods and services Payment of GILT and of taxes	Carried forward for assessment	**Local Government Finances** Change in revenues for local governments due to Project associated GILT payments with the start-up of the Capacitor Station. Non-detectable effect on local government expenditures due to Project associated use of local infrastructure and services.	**Y**

5.4.1.1 Generation Component

The following sections summarize the potential effects of the Project on labour market, economic development, local government finances in the Generation LSA.[28]

5.4.1.1.1 Construction Phase

5.4.1.1.1.1 Labour Market - Change in Employment due to Project Labour Demand

The change in labour demand due to the Project would come from three sources: (1) direct employment – workers required to build and operate the Project; (2) indirect employment – workers associated with production of materials, goods and services consumed in Project construction and with the upstream production of inputs used in the production of goods and services; and (3) induced employment – workers associated with the consumer or household spending of the wages and incomes earned in Project associated direct and indirect employment.

Project demand for labour would commence at the start of construction and continue throughout the construction phase. BC Hydro is expected to contract a firm (or firms) to fulfill the role of prime contractor, and this entity would use its own employees, hire additional ones and use sub-contractors and their employees to construct the generating unit. This pool of employees would account for most of the Project's construction phase direct employment, and their work would be based at the Project site near Revelstoke. In addition, BC Hydro would have a small group of employees working directly on the Project to manage and administer

[28] BC Hydro provided estimates of planned direct expenditures on labour, materials, goods and services and of direct employment for the construction phase of the Generation component were used to estimate the Project's direct employment and direct goods and services expenditures. Indirect and induced employment associated with Project construction of the Generation component were estimated using the BC Input-Output Model (BCIOM). A December 2013 estimate of direct expenditures by goods and services categories for constructing the capacitor station was supplied by BC Hydro. The estimated total economic cost of the project is approximately $340.5 million. This estimate includes direct construction costs and indirect construction costs for project management and engineering. All construction of the new generating unit will occur in BC but some major pieces of equipment and services will be sourced from other provinces and internationally. During the recent Mica Units 5 and 6 Projects, the only international labour used was construction and assembly of the turbine and generator units, which were sourced internationally. Similarly, international labour for the Revelstoke Unit 6 Project would be anticipated to be limited to construction of industrial components obtained from international manufacturers and incidental individuals. This figure includes expenditures on major equipment items that are manufactured outside of BC and transported to the Revelstoke site. The estimate does not include costs of capital overhead, inflation, HST and interest during construction. The economic impact analysis was undertaken using an input-output (I-O) impact modelling methodology. The BC Input-Output Model (BCIOM), which is maintained by BC Stats, was used to estimate the Project's potential effects on indirect, induced and total employment, labour income, economic output, GDP and tax revenue and on direct GDP, output and tax revenue. BC Stats is the central statistics agency of the BC Government. It undertakes economic analyses for internal BC Government purposes and provides fee for service access to the BCIOM. The BCIOM has been used to assist with estimating the economic impact of several projects that have been reviewed by the BC Environmental Assessment Office. A description of the economic effects estimation methodology is outlined in Section 5.1.1.2. The modelling results are reported in 2013 Canadian dollars. These impact estimates are current as of late 2013 but are subject to change as the Project design is refined in response to various internal and external to BC Hydro processes.

the construction work. The broad segments of the Project's direct workforce in the construction phase would include BC Hydro project management, BC Hydro engineering, BC Hydro construction management and BC Hydro facilities staff, as well as contractor management and contractor construction workers (hired under the auspices of the CHC Collective Agreement), which includes tradespersons and operators. The group of BC Hydro construction management and BC Hydro facilities staff and contractor management and contractor construction workers would largely reside temporarily in the LSA and its non-local segment would commute to and from their permanent residences as much as practical on their off days.

Over the course of the 40 month construction period, direct employment of contractor management and construction workers would total 338 PYs, or an annual average of 101.5 PYs.[29]

One of the key assumptions for this assessment is that the pattern of labour sourcing for the Project is expected to be similar to the experience of the Revelstoke Unit 5 Project. The estimated local share of construction workers hired under the CHC Collective Agreement for the Revelstoke Unit 5 project was 33 per cent, and the Project is expected to have a similar local hiring share. Local workers would comprise 111.5 PYs (or an annual average of 33.5 PYs) and non-local workers would comprise 226.5 PYs (or an annual average of 67.5 PYs) of contractor management and construction workers.

In addition, an estimated 80% of the construction workforce would be residents of BC (270 PYs), so workers resident in the LSA would account for an estimated 40% of the construction workforce that are BC residents. The remaining 20% of the construction workforce (68 PYs) is foreseen as being comprised of Alberta residents, and these workers would reside temporarily in the LSA when working on the Project (as would the non-LSA BC resident workers).[30]

BC Hydro construction management for the Project would be largely non-local and would temporarily reside in the LSA and commute where feasible on their off days to their permanent residences. Over the course of the 40 month construction period, direct employment of BC Hydro construction management workers would total

[29] Employment effects are reported in Person-Year (PY) job units. The employment unit of Person-Year (PY) takes into account the number of hours worked in one year by full-time, part-time and temporary employees and self-employed persons. The PY job unit transforms the different employment categories into one unit based on overall averages of full-time hours worked in one year in the business and government sectors. The full-time equivalent (FTE) is an alternative term. The PY unit is used herein because many industries are represented in the modelling and they have an array of full-time, part-time and temporary employment attachment structures. The use of the annual PY job unit provides a consistent approach across industries to portraying employment activity. It should be noted that a PY represents a typical employment period in terms of hours worked for one year, and, in and of itself, a PY should not be interpreted as a permanent or long-term, sustaining job unit of measurement. Within an operation phase situation, an estimate of PY jobs can be used to help determine an estimate of the number of 'permanent' or 'long-term' jobs of a project or program. The short-term structure of construction employment precludes assigning an estimate of 'permanent' or 'long-term' jobs to a project or program.

[30] The 80:20 split between BC and Alberta workers is an estimate and the actual split would depend in part on the number, size and location of other major construction projects underway in each jurisdiction at the time of construction of the Project.

47 PYs, or an annual average of 14 PYs. The local/non-local split for these BC Hydro construction management positions is expected to be about 1/3:2/3 as well.

The Project's direct construction employment consisting of contractor and BC Hydro workers in the LSA is anticipated to total 385 PYs (or an annual average of 115.5 PYs), with 127 PYs (annual average of 38 PYs) drawn from permanent residents of the LSA.

In general, the Project's contractor(s) would utilise experienced and skilled employees to the maximum practical extent because of construction schedule deadlines and BC Hydro's safety and construction quality expectations. These requirements lead to a demand for workers with suitable, large scale construction project skills and experiences. A large portion of the occupational skills required for on-site construction, approximately 95%, would fall into the tradesperson and equipment operator category. Table 5-22 shows the distribution of demand for construction workers and management staff by broad unionized occupation and management entity. Electrical trades occupations under the umbrella of the International Brotherhood of Electrical Workers and boilermaker trades (18 per cent) account for the largest share (23 per cent) of the direct construction workforce, which will be primarily based in the LSA.

Table 5-22: Construction Occupation Demand

Occupation	PYs	Percentage Distribution (%)
Labourers	19	5
International Brotherhood of Electrical Workers	88	23
Carpenters	19	5
Operating Engineers	15	4
Machinists	6	2
Boilermakers	70	18
Iron Workers	9	2
Pipe Fitters	8	2
Cement Masons	2	-
Painters	4	1
Teamsters	25	7
Miscellaneous Trades	10	3
Contractor's Staff	63	16
BC Hydro Staff	47	12
Total	385	100

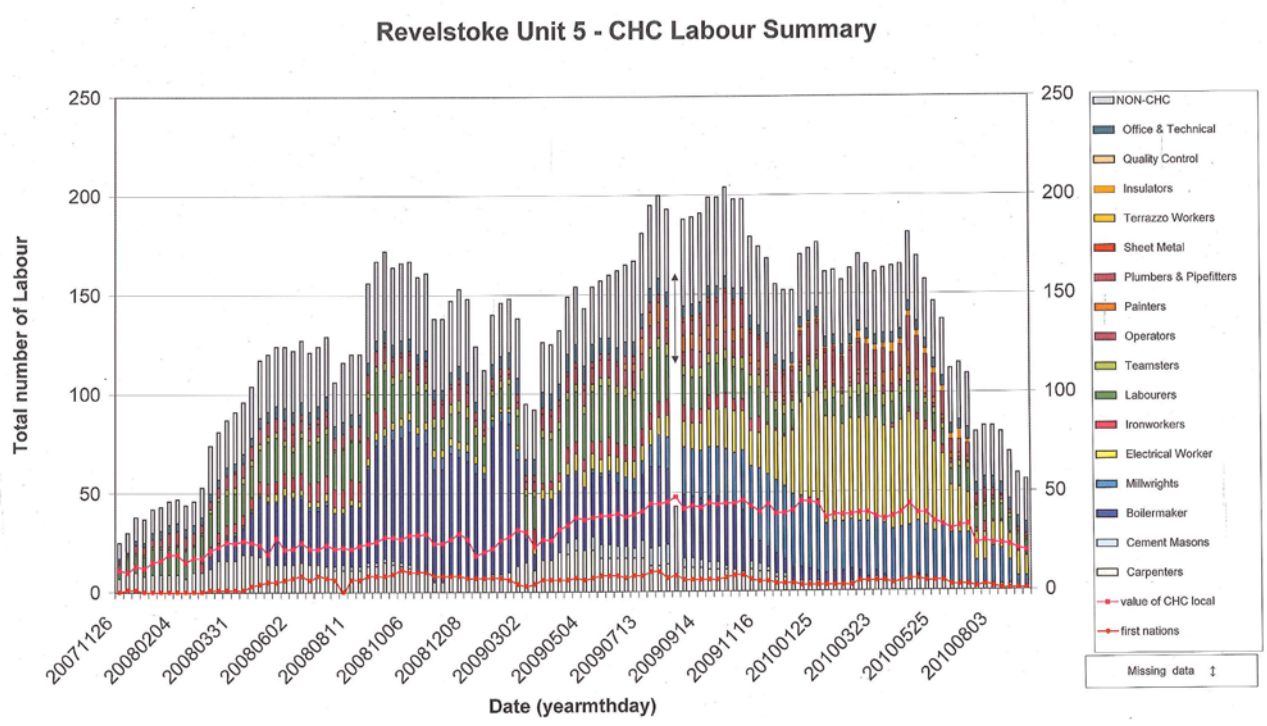
Source: BC Hydro 2014b

BC Hydro project management and engineering would work out of BC Hydro's Vancouver and Burnaby offices for the most part, with these workers travelling to Revelstoke on an as required basis. Therefore, they are not classified as temporary residents of the LSA but they would use temporary accommodation and other services in the LSA for their short stay site trips. The direct workforce of BC Hydro project management and engineering staff is expected to total 51 PYs (or an annual average of 15.3 PYs).

The Project's direct employment consisting of contractor management and construction workers and BC Hydro project management, engineering, construction management and facilities staff is anticipated to total 436 PYs (or an annual average of 131 PYs).

Although total and annual average estimates of employment are referenced above, construction employment would peak over an almost two-year period in the middle of the expected 40 month (3 1/3 years) time frame. In practice, many of the Project's construction workers would work for periods shorter than a year (and not the full 40 month construction phase) and construction activity levels would vary over a year based on sequencing of construction tasks. There would be a rise in employment over the initial months of construction at the Project site, and based on the Revelstoke Unit 5 project experience, the number of on-site workers construction workers and construction management would peak at approximately 200 during the second year of construction.[31] This increment is equivalent to 2.8% of the 2015 population of the City of Revelstoke. A steady decline in employment through the last year of construction is anticipated. Figure 5-3 shows the monthly and quarterly trend in employment for the Revelstoke Unit 5, and the trend for the Project is anticipated to be similar.

[31] This peak employment estimate excludes the aforementioned BC Hydro project management and engineering staff who would be based in the Vancouver or Burnaby offices, and travel to the Project site as required.



Source: BC Hydro 2011a

Figure 5-3: Monthly and Quarterly Direct Construction Employment for the Revelstoke Unit 5 Project, December 2007-August 2010.

The Project will hire construction tradespersons, operators, labourers, technicians, administration staff and supervisors under the provisions of the CHC Collective Agreement, which has provisions requiring the establishment of equity hiring targets for First Nations peoples and for the disabled, women in non-traditional occupations and visible minorities (CDC and Allied Hydro Council of British Columbia 2013). The targets and experience with them for both the REV5 and Mica Unit 5 and 6 projects are presented in Section 5.2.2.2. The Allied Trades Council and the employer will jointly investigate and consult to establish these targets for the REV6 Project.

In addition to direct employment, the Project would also support indirect and induced employment in the LSA and in the rest of the province. Effectively this employment support is also temporary as it is supported by Project expenditures on goods and services in the indirect employment case and by the employment incomes of Project direct and indirect employment in the case of induced employment. New spending on major

accommodation and other service facilities, and its associated hiring, in response to the Project, is not anticipated due to the short-term time frame of the Project's construction period.

Only BC based employment that is associated with the manufacture and integration of machinery and equipment and the supply of goods and services is included in the economic impact assessment. The Project's purchased materials goods and services would include concrete, gravel, fuel, food supplies, reinforcing steel, structural steel, piping, general building supplies, and engineering and transport services for example but the largest expenditures would be for the generator, turbine, other major electrical equipment and steel penstock parts. BC Hydro would order these major expenditure items from specialised manufacturers that are based outside of BC.

In the LSA, the Project is anticipated to create incremental demand on temporary accommodation and food services through the Project's spending on engineering consultants and major equipment as staff from these entities would make short visits to Revelstoke on an as needed basis. As well, some additional hiring would occur in the LSA in response to the Project's steady buying of certain services and goods from LSA suppliers, such as IT services, security services, waste disposal, building supplies, equipment rental, concrete and aggregates. The estimated indirect employment effect in the LSA due to the construction of the Generation component would be 181 person-years in direct supply businesses and 1.5 person-years in upstream supply businesses (annual averages of 54 PYs and 0.5 PYs, respectively). In the retail, personal and social service businesses and organizations of the LSA, the induced employment effect due to Project operations would be an estimated 109 person-years (annual average of 33 PYs).

The spending by Project direct and indirect employment on temporary accommodation and food has been categorized as an indirect effect of the Project. Under the CHC Collective Agreement, construction workers living outside a 100 km radius are compensated with a daily living allowance to pay for accommodation and food. Non-local BC Hydro staff and consultants would be reimbursed for their living expenses for their stays in the LSA. Additional hiring would occur at LSA temporary accommodation facilities, restaurants and food retailers to service the incremental and steady demand for these local suppliers created by the Project over most of the 40 month construction period. The relative steadiness of this incremental demand (in excess of business as usual) for local accommodation and food services over this approximate 3 year period is an important driving factor that would contribute to inducing new hiring at some local accommodation suppliers, restaurants/cafes and grocery stores.

Hiring from outside the local area to fill new positions supported by Project spending on goods and services is not expected at this juncture. This Project associated spending would support a portion of the current employment at LSA suppliers and some new hiring is expected in response to the Project demand for certain local goods and services. However, the expectation is that this hiring would be filled through either local unemployed workers or local residents drawn into the local labour force. Neither temporary nor permanent in-migration is anticipated in response to filling indirect employment supported by Project spending in the LSA.

Adverse effects would occur if members of the Aboriginal labour force were unable to access, fairly and equitably, Project employment opportunities.

On an annual basis, the Project would support total employment in the LSA of an estimated 418.5 PYs of LSA resident workers, an annual average of 125.5 PYs. In the LSA, Project spending would support total employment of an estimated 676.5 LSA based workers (this total includes workers who are residents of the LSA plus workers who would temporarily reside in the LSA while working on the Project). Total employment in BC resulting from Project construction would be an estimated 1,189 PYs over the 40 months of construction, an annual average of 357 PYs. Approximately a third of the Project's BC based employment is expected to be filled by LSA residents. The estimated direct, indirect and induced employment effects for the Generation component's construction stage in the LSA and BC are presented in Table 5-23.

Table 5-23: Estimated Direct, Indirect, and Induced Employment, Generation Component, Construction Stage

	Direct Employment (PYs)	Direct Project Supply Industry Employment (PYs)	Upstream Project Supply Industry Employment (PYs)	Induced (Household Supply) Employment (PYs)	Total Employment (PYs)
LSA (resident)[32]	127 (38)	181 (54)	1.5 (0.5)	109 (33)	418.5 (125.5)
LSA (based)[33]	385 (116)	181 (54)	1.5 (0.5)	109 (33)	676.5 (203.5)
BC (based) [34]	436 (131)	354 (106)	144 (43)	255 (77)	1,189 (357)

Source: Golder and BC Stats 2016
Note: Figures in brackets are annual average estimates. Totals may not sum exactly as presented due to rounding.
BC = British Columbia; PYs = person-years.

[32] The resident employment refers to workers who are permanent residents of the LSA and whose employment is supported by Project associated spending. Based on the experience with the REV 5 project, an estimated one third of the construction workforce would be filled by LSA residents. An estimated 10% of the project management workforce would be filled by LSA residents.

[33] The LSA based employment includes both permanent and temporary workers who are working in the LSA and whose employment is supported by Project associated spending.

[34] The shown figure is for the Project direct workers residing both permanently and temporarily in BC. Permanent residents of BC would fill an estimated 368 PYs of the Project direct workforce. This estimate is based on an estimated 80% of the construction workforce PYs being filled by permanent BC residents, and 20% being filled by permanent Alberta residents. The workers from Alberta would be temporary residents of BC during the periods when they work on the Project.

These Project-associated labour demand changes are predicted to generate a beneficial effect on employment in the LSA during the construction phase, and are carried forward to the benefits enhancement section.

5.4.1.1.1.2 Labour Market - Change in Employment Income due to Project Labour Demand

The Project is expected to sustain an estimated $14.8 million in direct employment income in the LSA over the 40-month construction phase, or an annual average of $4.4 million. The annual average income of the Project's direct employment during construction would be approximately $117,000 per PY.

In addition, about $11.0 million in employment income of the employees of direct suppliers would be supported by Project expenditures at the local level on materials, goods and services, an annual average of $3.3 million. The spending of Project direct and indirect employment is expected to support employment income of workers in the induced (household supply) sector of an estimated $5.1 million (an annual average of $1.5 million).

The Project would support total employment income in the LSA of an estimated $30.9 million (an annual average of $9.2 million). In the province as a whole, the expected incremental total employment income due the Project is estimated as a total of $82.8 million (an annual average of $24.9 million). Project associated LSA employment income would account for approximately 37 per cent of the provincial total. The estimated direct, indirect and induced employment income effects for the construction stage in the LSA and BC are presented in Table 5-24.

Table 5-24: Estimated Direct, Indirect, and Induced Employment Income, Generation Component, Construction Stage

	Direct Employment Income ($Millions)	Direct Project Supply Industry Employment Income ($Millions)	Upstream Project Supply Industry Employment Income ($Millions)	Induced (Household Supply) Employment Income ($Millions)	Total Employment Income ($Millions)
LSA	14.8 (4.4)	10.9 (3.3)	0.1 (.03)	5.1 (.1.5)	30.9 (9.2)
BC	40.9 (12.3)	21.5 (6.5)	8.5 (2.6)	11.9 (3.6)	82.8 (25.0)

Source: Golder and BC Stats 2016
Note: Figures in brackets are annual average estimates. Totals may not sum exactly as presented due to rounding.
BC = British Columbia; $ = 2013 dollars.

Annual labour income levels for constructing the facility would be consistent with compensation on a PY basis for other major industrial construction projects in the province, in the range of $117,000 per year. Annual compensation for indirect and induced workers would be in the typical range for these types of positions in the LSA and the province, between approximately $45,000 and $60,000.

Direct, indirect and induced employment associated with construction of the Project would temporarily boost average wage and salary levels and total community employment income noticeably in the case of Revelstoke over the more than three years of construction because it is a smaller community. As such, a beneficial effect on employment income in the LSA communities is predicted during the Construction Phase.

5.4.1.1.1.3 Labour Market - Change in Labour Market Balance due to Project Labour Demand

The Project's effects on the local labour markets would depend on the capacity of the local labour force to meet local labour demand while the overall local labour market stays in balance. The local capacity is defined as the number of qualified unemployed persons in each of the LSA and the City of Revelstoke in excess of a 5% natural rate of unemployment.[35] For example, if the baseline unemployment rate in the LSA is 7% for the occupations required by Project associated direct, indirect and induced employers and these employers hire persons having suitable qualifications from the local population then the labour market would remain in balance up to the point that its number of unemployed results in an unemployment rate that is equal to approximately 5%.

The definition of labour market capacity does not include persons who are employed. However, labour force capacity is dynamic in that some employed members of the local labour force would leave their jobs to take a Project associated position and, in turn, these vacancies would either be filled by local persons or eventually by in-migrating workers who relieve the local labour scarcity. This process is a fixture of the labour market and typically the quit rate is actually higher than the layoff rate in a large economy (Shimer 2005). There is a job-to-job transition in labour markets where unemployed workers search for jobs and employed workers search for better jobs. In the case of job quits, this process creates vacancies that job seekers can step into. It also

[35] The natural rate of unemployment is the level of unemployment in an economy that is operating at full capacity and its wage increases are gradual and not inflationary. There is unemployment in this scenario because of the time required to find a job, some job seekers will hold out for a higher wage or a certain job and some persons are unwilling to move to accept new employment for a variety of reasons. The Conference Board of Canada (2007) estimated the natural rate of unemployment in Ontario as 5.2%. The Alberta Government has put forth an unemployment rate of 5% as indicating a "balanced labour market" (Labour Force Planning Committee 2001). The local hiring in excess of approximately 5% unemployment would give rise to adverse labour market effects such as persistent labour shortages, reduction in service levels, and delay in completing work. If the unemployment rate is below the natural rate of unemployment, there would be no capacity in the local labour supply to help meet the Project labour demand and, at the same time, sustain a balanced labour market.

helps to drive migration as vacancies are created in local economies with limited labour supply capacity so mobility between local labour markets is an important factor in sustaining balanced labour markets.[36]

Another factor on the demand side would be the differential between the compensation packages for the Project's construction workforce and the wages and benefits for these occupations paid out by existing local employers. This differential is expected to induce some movement of qualified workers from existing local employers to the Project workforce.

In addition to Project wage levels, employment arrangements could include provisions for worker travel, accommodation and shift rotations. The planned worker travel, accommodation and shift arrangements during the construction phase are as follows:

- **Worker travel** – Construction workers will likely be responsible for their own transportation from their permanent or temporary place of residence in the LSA. BC Hydro does not plan to provide a fly in-fly out air service (FIFO) for non-local BC or other Canadian workers. Travel allowances will be provided under the terms of the CHC Collective Agreement to eligible workers;
- **Worker accommodation** – BC Hydro expects all workers to have or arrange their own accommodation or do so through their employer and will not be providing temporary accommodation, such as an on-site camp (See Section 6.2.2.2 for more information); and
- **Shift rotations** – Subject to the CHC Collective Agreement, discussions with labour representatives and further Project planning, BC Hydro and its primary contractors would implement a daily 10-hour shift for the construction phase and utilise shift rotations that are typically seen in the construction of major industrial facilities in Western Canada.

The local unemployment rate during the construction phase would depend on the then current state of the regional economy. The baseline information (presented in Section 5.1.2.3.1) shows local unemployment rates in the 7% range. This figure is in excess of the natural rate of unemployment of 5%. On this basis, the capacity in the local labour force to stay in a balanced state in the CSRD as a whole is approximately 500 workers and in Revelstoke, the capacity would be approximately 85 workers. Only a portion of these local job seekers are anticipated to be qualified for direct construction employment but there would be Project-associated indirect and induced employment positions requiring lower qualifications. The Project associated total demand for workers in the LSA is expected to be approximately 125 PYs on an average

[36] This characterization of the local labour force capacity as the pool of unemployed persons also has limitations as an area's participation rate also influences this capacity. Some persons may have withdrawn from a labour force because of poor employment prospects or for other reasons and the potential of attractive employment opportunities may draw them back into the local labour force. The pool of unemployed persons seeking work would likely expand with the advent of a major project generating a range of direct, indirect and induced employment opportunities.

annual basis, with almost 90 PYs of this demand coming from suppliers of goods and services. The demand however will vary over the 40-month construction period. The trend in demand for construction workers is likely to be similar to the trend shown in Figure 5-3 for the REV5 project. On-site employment would build up to a peak in the latter of the 2nd year, when 175 to 200 construction workers would be working at the Revelstoke site and then taper off. As well, there would be demand for other categories of workers in addition to the construction related tradespersons, operators, labourers and supervisors. This total labour demand is expected to exceed the anticipated local capacity from a balanced labour market perspective in Revelstoke, and likely in the overall CSRD too.

The situation of the Project demand factor on labour market balance in the LSA is mitigated in part through the short-term character of the Project, the size of the overall CSRD labour market and the recruiting by Project construction management of suitably qualified workers who reside outside the LSA to fill construction, construction management and engineering positions. In the event that constraints in sourcing labour from the LSA become evident, then BC Hydro and its primary contractors are expected to augment the local labour supply through additional recruitment from labour pools outside of the LSA. The current estimate is that approximately two-thirds of the direct labour needs in the construction phase would be filled by workers from outside of the LSA. Large construction projects in BC in the past decade have consistently demonstrated the efficiencies of the labour market by using mobile workers to supplement what is available locally.

However, commuting costs to Revelstoke for the lower paid indirect and induced jobs and the specific qualifications required for the direct Project hires and a portion of the indirect demand created by the Project are expected to be challenges for securing workers from other CSRD communities. Therefore, the labour market imbalance in the LSA due to the Project would be temporary, likely limited to the two years of most intense construction activity, and most acute in the City of Revelstoke due to the proximity of the Project site, and the expected demand in this community for supply to the Project of indirect and induced materials, goods and services.

As outlined in the baseline, the structure of the Revelstoke economy has changed substantially since the start of construction of the Revelstoke Unit 5 project, with goods producing industries accounting for a much smaller portion of the community's employment. The RMR and the resort municipality have become important and driving features of the local economy since the conclusion of the Revelstoke Unit 5 project, including generating a substantial demand for seasonal workers.

Although effects on Project associated labour demand in the LSA would result in a beneficial effect on employment and employment income in the LSA, the Project is anticipated to adversely affect the labour market balance in the LSA. The adverse effect would be limited to the construction phase, and therefore would be temporary. Taking into account these lines of evidence, the potential adverse effects of a change in labour market balance in the LSA due to the Project is carried forward for mitigation and residual effects assessment.

5.4.1.1.1.4 Labour Market - Change in Labour Force Skill due to Project Training

Project-related training initiatives are expected to be initiated prior to the construction phase, but be relatively limited due to the 40 month construction time period, the short work stints expected for many construction workers and the financial importance of completing starting production within the projected time frame.

BC Hydro will have a formal and comprehensive training plan and is committed to recruiting and training that maximizes employment opportunities available to local residents. BC Hydro's training efforts would include an apprenticeship support program developed in accord with the operational requirements of its business and the *Industry Training Authority Act.*

The CHC Collective Agreement has provisions requiring the establishment of equity hiring targets for First Nations peoples and for the disabled, women in non-traditional occupations and visible minorities. As well this agreement states that the Council and Employer will establish bridging and outreach programs to facilitate the training of these target groups to assist them to qualify for employment on the Project (CDC and Allied Hydro Council of British Columbia 2013).

A positive effect on training in the LSA is predicted during the construction phase. This is based on the experience with training in connection with the Revelstoke Unit 5 project (outlined in Section 5.1.2.2), the mitigation providing for skills development and upgrading that would be obtained in association with construction phase employment or in anticipation of employment with the Project, and which would be incremental to existing conditions. The scope of this improvement cannot be estimated at this juncture but BC Hydro's expressed commitments in this area point to concrete improvements in training within the LSA, especially in Revelstoke, during the construction phase. These Project-associated training opportunities are predicted to generate beneficial effects in the LSA during the construction phase.

5.4.1.1.1.5 Economic Development - Change in Supplier Revenues due to Project Spending on Materials, Goods and Services

Economic development effects in the LSA communities would primarily be the result of the interaction of Project-associated procurement opportunities and the capacity of LSA suppliers to provide needed materials, goods and services. This interaction is expected to result in incremental revenues for LSA suppliers selling materials, goods and services to the Project.

The Proponent's procurement practices and general economic conditions in the LSA, the province and the rest of Canada would affect the level of interest expressed by supplier enterprises and, consequently, the extent to which the economies of the three main LSA population centres (Revelstoke, Salmon Arm and Sicamous) can maximise their shares of Project-related business benefits. Local companies could expand in size and/or increase their service/product offerings to become more competitive and new businesses could be created because of Project demand. LSA enterprises could further benefit from the expanded capacity, new skills and innovations developed as a result of the Project by increasing their share of the expenditures made in the LSA communities (i.e., by displacing goods and services brought in from outside the LSA) or by exporting.

The Project-related expenditures flowing to businesses located in the LSA communities would be influenced by their capacity for meeting Project materials, goods and services supply requirements. Capacity limitations within local supplier industries could include limited contractor experience, expertise, or credentials for meeting Project bid or performance standards. However, the LSA and its businesses have an atypically high level of experience with major dam construction projects through the Revelstoke Unit 5 project and recently completed Mica Units 5 and 6 project.

Adverse effects could occur if local and regional businesses and contractors were unable to participate fairly in the Project's procurement and supply opportunities. BC Hydro and its contractors are expected to use competitive bidding practices and abide by various trade agreements (such as North American Free Trade Agreement and World Trade Organisation agreements) to which Canada is a signatory. Adverse effects to local and regional businesses and contractors are not anticipated from the perspective of LSA businesses being allowed by BC Hydro and its contractors to participate fairly in the Project's procurement and supply opportunities.

Due to their proximity to the Project site, Revelstoke area businesses would have a locational advantage in terms of supplying to the Project certain types of basic goods and services, such as fuels and excavating services. A material factor for the Revelstoke community would be the Project's decision to rely upon existing accommodation and food service providers in the LSA to house the non-local segment of the Project direct workforce over an approximate three year period. In addition, the Project will rely on existing accommodation

and food service providers in the LSA to accommodate BC Hydro and consulting project management and engineering personnel and major equipment supplier personnel who visit the site area on an as required basis. Because Revelstoke is only a few kilometers from the Project site, this community has a distinct locational advantage in the supply of these services over the other CSRD communities.

In addition to various accommodation, restaurant, and grocery store services, the following types of goods and services could be supplied to the Project, at least in part, by LSA and Aboriginal owned and operated enterprises based on the experience of the Revelstoke 5 project and Mica Units 5 and 6 project:

- Snow removal
- Aggregates
- Busing, trucking, and other transportation
- Avalanche monitoring and risk reduction
- Paving and asphalt repairs
- First aid
- Waste water removal
- Crane inspection and testing
- Vegetation removal
- Concrete
- Catering services
- Miscellaneous equipment rentals
- Miscellaneous electrical services
- Surveying services
- Ground penetrating radar (GPR) scanning
- Excavation services
- Security services
- Safety equipment and consulting
- Miscellaneous building supplies
- Miscellaneous plumbing services
- Water treatment services
- Construction management and engineering

The proportion of these revenues that would accrue to companies located in the LSA communities, and in other BC communities would be based on their capacity, expertise, and willingness to participate in Project construction. This estimate of direct supplier industry goods and services revenues (output) in BC is tied to estimates of planned Project direct expenditures on goods and services that are produced in BC. This estimate does not include Project expenditures on goods and services produced outside of BC. It is expected that certain pieces of major equipment for the Project, such as the turbine and generator, will be produced or manufactured outside of BC and transported to BC but installed on site.

In the economic modelling, an assumption was made that 100% of the Project direct spending on accommodation and restaurant services and retail grocery spending would occur in the CSRD. Assumptions were also incorporated into the input-output impact modelling for other industries based on local supplier experience with the Revelstoke Unit 5 project and the relative strength of the service and retail and wholesale industries in the CSRD. On this basis, businesses in the LSA are expected to realise $34.3 million in direct and indirect goods and services business revenues due to the Project over the 40-month construction phase, or an annual average of $10.3 million.

Due to Project spending to build the new generating unit, the gross revenues (output) for industries supplying goods and services produced in BC is estimated to be approximately $58.2 million over the three plus years of construction, an annual average of $17.5 million.[37]

There is anticipated to be an additional $30.3 million in goods and services revenues for BC businesses due to expenditures on production inputs to make or provide the direct goods and services (an annual average of $9.1 million).[38] An example of a potential upstream supplier would be a cement manufacturer that supplies the cement to a concrete products manufacturer. Further upstream of the cement maker are enterprises that supply inputs into the cement making process, such as limestone. There is anticipated to be an estimated total of $88.5 million of incremental goods and services contracting revenues in BC via the Project's construction phase, or an annual average of $26.6 million. Table 5-25 summarizes the estimated revenues for the LSA and BC businesses from supplying materials, goods and services to the Project over the construction phase.

Table 5-25: Materials, Goods and Services Business Revenues, Generation Component, Construction Phase

	Direct Project Supply Industries ($Millions)	Upstream Project Supply Industries ($Millions)	Total ($Millions)
LSA	34.0 (10.2)	0.3 (0.1)	34.3 (10.3)
BC	58.2 (17.5)	30.3 (9.1)	88.5 (26.6)

Source: Golder and BC Stats 2016
Note: Figures in brackets are annual average revenues. Totals may not sum exactly as presented due to rounding.
BC = British Columbia; $ = 2013 dollars.

[37] The estimate of BC direct supplier industry revenues (output) is based on goods and services expenditure estimates for the Project provided by BC Hydro, expected geographic sourcing of capital equipment and the estimated level of imports by the engineering construction industry in BC. It is possible that LSA and BC businesses would capture a larger share of the Project's direct expenditures on goods and services than the shares reported in this assessment. This estimate of direct supplier industry goods and services revenues is based on data and information that is current as of December 2013, and is subject to change as planning and permitting for the Project progresses.

[38] The estimate of Project associated goods and services revenues (output) for indirect suppliers was calculated with BC Hydro supplied estimates of the Project's planned expenditures on direct materials, goods and services and use of BC Stats' BC Input-Output Model.

These changes in business supplier opportunities and revenues due to the Project are predicted to generate beneficial effects in the LSA during the construction phase, and are carried forward to the benefits enhancement section.

5.4.1.1.1.6 Economic Development - Change in Business Revenues due to Spending of Project Direct and Indirect Employment Income

Business revenues of household suppliers are another indicator of the scale and breadth of the business opportunity offered by a Project either through its construction or operation. They are based on the revenues earned by businesses and institutions that service the household requirements of Project associated direct and indirect employees and this spending is supported by Project direct and indirect employment income.

There is anticipated to be a wide range of enterprises that would earn revenues via the spending of Project associated employment income, including retail outlets, especially the grocery store industry, clothing stores, food establishments and entertainment venues. Individual households would make their own decisions as to the businesses that they would patronize. As a Project activity, BC Hydro and contractor procurement practices would have no effect on household spending of Project associated direct and indirect employment.

In the LSA, this spending is due mainly to the direct and indirect workers who are resident in the LSA. About a third of the direct construction workers would be LSA permanent residents and a small portion of direct project management and engineering would fall into this category. In addition, the LSA communities are expected to experience induced spending effects during the construction phase because non-resident workers constructing project facilities would spend a portion of their compensation in the communities where they temporarily reside during their work on the Project. Business revenues in the province from this source would also be affected by the sourcing of direct construction workers from outside province, assumed in this analysis to be about 20% for direct construction workers, and would also be affected by Project purchasing of major equipment outside of the province as this affects the amount of indirect employment (and employment income) staying in the province.

The Project-related expenditures flowing to businesses located in the LSA communities would be influenced by their capacity for meeting project goods and services supply requirements and meeting consumer spending objectives of direct employees and supplier industry (indirect) employees.

Business revenues due to Project associated household spending in the LSA is expected to be an estimated $10.3 million or an annual average of $3.1 million.

In the province as a whole, business revenues from this source are expected to total an estimated total of $24.0 million over the 40-month construction phase rooted in household spending of Project associated direct and indirect employment and labour incomes. The industries that are likely to account for most of the induced output are: Finance, Insurance and Real Estate; Retail Trade; Accommodation and Food Services; Manufacturing; and Information and Cultural Industries.

Table 5-26 summarizes the estimated revenues for the LSA and BC businesses supplying households supported by Project direct and indirect employment incomes (the induced effect) and for the businesses supplying materials, goods and services purchased through Project procurement over the construction phase (the indirect effect). Total supplier revenues in the LSA due to Project associated spending are estimated as $44.6 million and $112.5 million in the province.

Table 5-26: Business Revenues, Generation Component, Construction Phase

	Direct Project Supply Industries ($Millions)	Upstream Project Supply Industries ($Millions)	Induced (Household Supply) Industries ($Millions)	Total ($Millions)
LSA	34.0 (10.2)	0.3 (0.1)	10.3 (3.1)	44.6 (13.4)
BC	58.2 (17.5)	30.3 (9.1)	24.0 (7.3)	112.5 (33.9)

Source: Golder and BC Stats 2016

Note: Figures in brackets are annual average revenues. Totals may not sum exactly as presented due to rounding.

BC = British Columbia; $ = 2013 dollars.

Effects on business opportunities in the LSA resulting from the household spending of Project associated direct and indirect employment will be beneficial during the construction phase.

5.4.1.1.1.7 Local Government Finances - Change in Local Government Revenues

Payment of grants in-lieu-of taxes by BC Hydro to City of Revelstoke and CSRD based on current capacity of the Revelstoke and Mica dams would not change during the construction phase.

Revenues earned by local businesses through the supply of materials, goods and services to the Project would support their payment of property taxes. A non-detectable increase in property tax revenues is expected in association with Project contractor(s) establishing facilities in Revelstoke to facilitate their Project work.

A contribution from BC Hydro in association with the Revelstoke Unit 5 project supported the construction of one duplex in Revelstoke. A non-detectable number of new workers are expected to permanently move to Revelstoke in response to Project associated work opportunities. As a consequence, the amount of new residential construction in connection with the Project is not known at this time but is anticipated to be

relatively modest. At this time, no new commercial accommodation is expected to be constructed in Revelstoke in connection with the Project. As a result of these anticipated factors, an increase in local government revenues due to the Project will be minor and beneficial during the construction phase.

5.4.1.1.1.8 Local Government Finances - Change in Local Government Expenditures

As indicated in Section 6.2.3.1.1.3 Road Transportation, during the construction phase, Project related deliveries of goods and materials as well as the Project commuting workforce would increase traffic on Westside Road. An estimated 1,622 one-way construction vehicle trips would be required for the construction of the 6th unit, which is similar to the number of one way trips estimated for the Revelstoke Unit 5 project. In addition, incremental traffic would result from daily construction workforce commuting to and from the Project site. As Westside Road is a municipal road under the jurisdiction of the City of Revelstoke, maintenance is the responsibility of the City of Revelstoke. Increased industrial traffic on Westside Road could result in increased wear and tear on the road which would result in incremental and/or advanced maintenance costs to the City of Revelstoke.

Increased wear and tear on Westside Road was brought forward as a concern during the Revelstoke Unit 5 project. Subsequent to monitoring of Westside Road wear and tear during the construction phase of the Revelstoke Unit 5 project, and upon completion of Revelstoke Unit 5 project construction, BC Hydro provided the City of Revelstoke with a lump sum payment to assist with repairs to this road.

The potential adverse effect on local government finance due to increase maintenance requirements on Westside Road during generation construction is carried forward for assessment.

5.4.1.1.1.9 Input from First Nations

Potential economic effects due to the Project were identified by the Secwepemc Bands in their Part C submission. Section 12.2.2 of the Secwepemc Part C chapter observes that economic baseline information about Secwepemc Bands is not sufficient to address the project's potential economic adverse effects and benefits to Secwepemc communities.

5.4.1.1.2 Operation Phase

5.4.1.1.2.1 Economic Development - Change in Supplier Revenues due to Project Spending on Goods and Services

The Revelstoke Generating Station would require a minor amount of additional spending by BC Hydro on goods and service for its operation due to the Project. The spending on goods and services due to the

additional generating unit that would occur at LSA business suppliers would be mainly for general maintenance purposes. Purchase of equipment replacement parts would be primarily from out-of-province suppliers. Specialized engineering and technical services sourced by BC Hydro during the operation phase would be acquired from Lower Mainland based or out of province suppliers. Business supplier revenues in the LSA associated with incremental spending on goods and services at Revelstoke Generating Station due to the Project will be minor and beneficial.

5.4.1.1.2.2 Local Government Finances - Change in Local Government Revenues

The Hydro and Power Authority Act authorizes BC Hydro to pay grants in-lieu-of general municipal, regional district and local improvement taxes. For generating facilities, the formula for calculating the GILT is based on installed capacity. The current installed capacity of Revelstoke Generating Station is 2,480 MW and the Project will add 500 MW of additional capacity, a 20.2 per cent increase. In 2016, BC Hydro paid a GILT (based on Revelstoke Generating Station capacity) of $2,653,201 to the City of Revelstoke for Revelstoke Generating Station. The GILT awarded to the city by BC Hydro increased by approximately $346,000 in 2011 due to the coming on stream of the additional capacity created through the Revelstoke Unit 5 project, a 21 per cent increase over the 2010 grant. As well, CSRD receives a GILT in association with the Revelstoke Generating Station. This grant also increased by about 21 per cent to approximately $11,000 with the commissioning of Unit 5 at Revelstoke Generating Station.

When the additional 500-MW of installed capacity for the Project's Unit 6 comes on stream in 2022, the estimated increase in BC Hydro grant payments to City of Revelstoke is approximately $400,000. This estimate is based on current grant rates and anticipated increases to the annual indexing formula from 2016 to the completion of the Project in 2022. The GILT payment to the CSRD will increase by a similar percentage amount in 2022 due to the Project, which would amount to about $13,000. The increases are anticipated to rise on an annual basis at approximately 2 per cent thereafter. As a result of these anticipated factors, an increase in local government revenues due to the Project will be beneficial during the operation phase.

5.4.1.2 Transmission Component

The following sections summarize the potential effects of the Project on labour market, economic development, local government finances in the Transmission LSA.

5.4.1.2.1 Construction Phase

5.4.1.2.1.1 Labour Market - Change in Employment

Table 5-27 displays the estimated employment effects of the Transmission component's construction phase.[39] All of the Project's direct employment for project management, engineering and construction is expected to occur in BC. Direct employment for construction of the Capacitor Station is expected to require an estimated 22 PYs, and Project expenditures for project management, engineering and other technical support services is expected to support direct employment of a further 14 PYs. Project expenditures for construction of the Capacitor Station is anticipated to support total direct employment of 36 person-years.

A large portion of the direct construction employment is anticipated to be filled through local hires, an estimated 16 PYs. The direct employment would be supported by project expenditures over an 18-month period. The types of jobs in construction fieldwork would include (but not be limited to) welders and welder helpers, labourers, equipment operators, and electricians. Most of the direct employment associated with project engineering, management and technical services for the Capacitor Station is expected to be based in the Lower Mainland.

Through direct Project expenditures on materials, goods and services produced in BC, indirect employment would be supported in the province and locally. This is employment connected to the BC production of materials, goods and services that are purchased by the prime contractor(s) and BC Hydro for engineering design, managing and constructing the Capacitor Station. The indirect employment within BC during the Project's construction phase that is supported by Project expenditures on goods and services is anticipated to be an estimated 91 person-years. The LSA portion of the indirect employment is expected to be an estimated 35 PYs, almost 40% of the supported indirect employment.

[39] Industry multipliers from Statistics Canada's Inter-Provincial Input-Output Model (IPIO Model or IPIOM) were used to help calculate the Transmission component's economic effects. Economic multipliers capture the impact of shocks to the economy on output, labour income, employment and GDP. They enable users to do impact analysis without getting into the detailed analysis associated with the I-O models. An April 2013 estimate of direct expenditures by goods and services categories for constructing the capacitor station was supplied by BC Hydro. The estimated total economic cost of the Transmission component is approximately $31.6 million. This estimate includes direct construction costs and indirect construction costs for project management and engineering. The estimate does not include costs of capital overhead, inflation, HST and interest during construction. All construction of the capacitor station will occur in BC but some major pieces of equipment and services will be sourced from other provinces and internationally. The economic effects are estimated by assuming that Project expenditures are an output "shock" on BC's electric power engineering construction industry (input-output industry code BS23C300). An industry output shock is typically used to estimate the economic effects associated with a new capital infrastructure endeavor. This Project instigated change in industry output is incremental and hence a 'shock' to the local and provincial economies. The industry production functions in the IPIOM incorporate averaged data supply requirements based on interprovincial and international imports so the modelling results incorporate only effects associated with Project consumed goods and services that are produced within Canada and BC. The modelling results are reported in 2013 Canadian dollars. These impact estimates are current as of mid-2013 but are subject to change as the Project design is refined in response to various internal and external to BC Hydro processes.

The construction phase induced employment impact is anticipated to be largely taking place in BC because the bulk of the Project's direct and indirect employment is seen as occurring here. The Project's induced employment effect is estimated as 44 person-years within BC, and 18 person-years would be based in the LSA.

Table 5-27: Estimated Direct, Indirect, and Induced Employment, Transmission Component, Construction Stage

	Direct Employment (PYs)	Indirect (Supply Industry) Employment (PYs)	Induced (Household Supply) Employment (PYs)	Total Employment (PYs)
LSA	18 (12)	35 (23)	18 (12)	71 (47)
BC	36 (24)	91 (61)	44 (29)	171 (114)

Source: Golder 2016
Note: Figures in brackets are annual average estimates. Totals may not sum exactly as presented due to rounding.
BC = British Columbia; PYs = person-years

The total size of the labour force in the LSA is approximately 22,000 workers. Within the context of an approximate 7 per cent unemployment rate, there is ample capacity for this labour force to remain in balance and absorb the Project's relatively modest direct employment requirements and the Project's support of indirect and induced employment. As a result of these anticipated factors, the Project-associated labour demand changes for the Transmission component's construction phase are anticipated to be minor and beneficial.

5.4.1.2.1.2 Economic Development - Change in Supplier Revenues due to Project Spending on Goods and Services

Table 5-28 summarizes the estimated revenues for the LSA and BC businesses supplying materials, goods and services purchased through Project procurement over the construction phase (the indirect effect) and for the LSA and BC businesses supplying households supported by Project direct and indirect employment incomes (the induced effect). Due to Project direct spending to build the new Capacitor Station, the gross revenues for industries supplying goods and services produced in the LSA is estimated to be approximately $5.3 million over the 18 months of the construction phase, and $13.2 million in the province.[40] There is anticipated to be an additional $6.6 million in goods and services revenues for BC businesses due to expenditures on production inputs to make or provide the direct goods and services. Business revenues due to Project associated household spending in the LSA is expected to be an estimated $3.1 million and

[40] The estimate of BC direct supplier industry revenues (output) is based on goods and services expenditure estimates for the Project provided by BC Hydro, expected geographic sourcing of capital equipment and the estimated level of imports by the electric power engineering construction industry in BC. This estimate of direct supplier industry goods and services revenues is based on data and information that is current as of April 2013, and is subject to change as planning and permitting for the Project progresses.

$7.3 million in the province as a whole. Total supplier revenues in the LSA due to Project associated spending are estimated as $8.7 million and $27.1 million in the province.

Table 5-28: Business Revenues, Transmission Component, Construction Phase

	Direct Project Supply Industries ($Millions)	Upstream Project Supply Industries ($Millions)	Induced (Household Supply) Industries ($Millions)	Total ($Millions)
LSA	5.3 (3.5)	0.3 (0.2)	3.1 (2.1)	8.7 (5.8)
BC	13.2 (8.8)	6.6 (4.4)	7.3 (4.9)	27.1 (18.1)

Source: Golder 2016
Note: Figures in brackets are annual average revenues. Totals may not sum exactly as presented due to rounding.
BC = British Columbia; $ = 2013 dollars.

Effects on business opportunities in the LSA resulting from Project spending on materials, goods and services and household spending of Project associated direct and indirect employment income are expected to be minor and beneficial during the Transmission component's construction phase.

5.4.1.2.2 Operation Phase

5.4.1.2.2.1 Labour Market - Change in Employment and Employment Income

The Capacitor Station would require a minimal amount of additional BC Hydro staff time for its operation, and mainly for general maintenance tasks. Incremental employment due to the Project will be minor and beneficial during the Transmission component's operation phase.

5.4.1.2.2.2 Economic Development - Change in Supplier Revenues due to Project Spending on Goods and Services

The Capacitor Station would require a minimal amount of additional spending by BC Hydro on goods and service for its operation, and mainly for general maintenance purposes such as vegetation clearing. Incremental business revenues in the LSA due to Project spending on goods and services for the Capacitor Station operation will be minor and beneficial.

5.4.1.2.2.3 Local Government Finances - Change in Local Government Revenues

The new station is located in a rural area (not within municipal boundaries) and falls under the taxing jurisdiction of the provincial Surveyor of Taxes. BC Hydro already owns the site upon which the facility will be built and, therefore, is already paying a grant and school taxes to the Province for the land. There will be incremental school taxes paid to the Province for the new capacitor station facility and equipment. In addition,

BC Hydro will pay a grant to the Province in lieu of general rural, regional district and local improvement taxes for any buildings (but not station equipment or lines) associated with the Project. Incremental local government tax/grant revenues due to the Project will be minor.

5.4.2 Mitigation Measures

Mitigation measures are proposed to avoid, minimise, control, restore on-site conditions or offset potential adverse effects. Mitigation measures are any practical means taken to manage potential adverse effects. Mitigation measures can be used alone or in combination with other measures. These measures are described in the following sections and summarised in Table 5-29. As well, benefits enhancement measures are put forward that are focused on expanding and deepening the positive or beneficial effects of the Project. Some mitigation and benefit enhancement measures have been incorporated directly into Project design. These Project design measures are mainly tied to the provisions in the CHC Collective Agreement, and include the definition for a local hire, and a requirement for establishing equity hiring targets for First Nations peoples and for the disabled, women in non-traditional occupations and visible minorities, and for establishing bridging and outreach programs to facilitate the training of these target groups to assist them to qualify for employment on the Project (CDC and Allied Hydro Council of British Columbia 2013).

For ease of reference, each of the mitigation and benefit enhancement measures described has a unique identification number (unless the measure is being incorporated into the project design or outlined in another section of this EA, in which case it is described in that section).

As a general observation, mitigation measures are proposed for the Economy VC to address an identified adverse effect on labour market balance in the LSA due to the Project during its construction phase. However, this adverse effect is driven on the demand side by Project associated labour demand and resultant employment opportunities, both directly in the Project's construction workforce and indirectly by new labour needs at suppliers of business goods and services and at suppliers of household goods and services. Therefore Project associated labour demand creates positive employment opportunities and increased employment income but, in parallel, due to the Project, an already tight local labour market would come under additional pressure, and current local employers may experience challenges in retaining existing workers and finding new ones for certain occupations. In part, this situation arises because the LSA labour market is relatively small, and smaller yet in Revelstoke, which would be the focus for providing much of the local supply of goods and services, including accommodation and food services.

The labour force in the LSA has many of the skills and the experience that suit the Project's direct workforce needs, but other employers in the LSA also utilize these trades and skills. Without mitigation, this circumstance could result in effects to businesses in the LSA who lose workers to the Project, or who face increased competition for hiring or retaining workers. Labour shortages could also slow construction activity. Therefore mitigation is set forth herein to address the adverse labour market balance but this mitigation can also be characterized as having important beneficial aspects for the LSA economy and its workers.

The positive change in demand for labour stemming from the Project's construction phase opens up potential new employment and business opportunities for Aboriginal persons, but targeted measures are needed to help provide a fair and equitable pathway to accessing these opportunities. A benefits enhancement section is presented to address this situation.

5.4.2.1 Labour Market Balance and Local Government Finances

Mitigation Measure #5.2.1: Engage in collaborative planning through local and regional workforce training and planning initiatives to support alignment of recruitment and training initiatives.

BC Hydro will engage in established collaborative planning initiatives and spearhead new ones as necessary with other major local employers, educational institutions and economic development agencies to support alignment of worker recruitment and training initiatives with the need for skilled workers to meet the needs of the Project and other major employers and small businesses in the region. Strategies could include increasing the labour force in the LSA by channelling new entrants (i.e., persons not presently in the LSA labour force and young person's just entering the labour force) to occupations expected to be in short supply in the direct Project workforce and in the LSA's indirect and induced sectoral businesses, and by upgrading skills for underemployed and unemployed persons.

The Community Impact Monitoring Committee (mitigation measure #6.2.7 cited in Section 6.2.2.2.1.4) is expected to contribute to the dialogue on, and planning for, how local and regional workforce training resources can help address the labour demands of the Project and what those training resources may need to assist local workers and students who are interested in securing employment in connection with the Project.

Mitigation Measure #5.2.2: Enhance local and Aboriginal worker training and hiring

With current forecasts of employment levels in the LAA continuing at or near the natural rate of unemployment, mitigation measures would focus on augmenting labour supply by recruitment, including accessing labour pools outside of the region, and attracting and training new entrants to the local labour force, including specific initiatives focused on Aboriginal persons. The measures focused on enhancing local labour and Aboriginal market participation rates and skill level of local and Aboriginal workers are outlined in the benefits enhancement measures presented in Section 5.4.2.

Mitigation Measure #5.2.3: Monitoring and Addressing Road Conditions

As per commitments included in the Revelstoke 5 Project EA Certificate, BC Hydro monitored the condition of Westside Road, including retaining a contracting and engineering firm to inspect the condition of the road which resulted in BC Hydro contributing over $140,000 to the City of Revelstoke for road repairs on Westside Road (BC Hydro, 2010). Similarly, BC Hydro proposes to monitor Westside Road conditions during the Project's construction and will work with the City of Revelstoke to determine whether funding for repair or maintenance is needed as a result of Project road use. The City of Revelstoke submitted a request for mitigation for wear and tear on Westside Road, and in a September 20, 2016 response, BC Hydro supported in principle the requested mitigation and committed to continue discussions with the City of Revelstoke to refine the proposed mitigation as needed to best address impacts.

Table 5-29 summarizes proposed mitigation measures. With the implementation of proposed mitigation measures, residual effects on labour market balance are anticipated. With the implementation of the proposed mitigation measures, residual effects on local government finances due to road transportation are not anticipated.

Table 5-29: Summary of Economy Mitigation Measures

#	Potential Adverse Effect	Mitigation Measure	Project Phase	Responsible Agency
5.2.1	**Change in labour market balance**	Engage in collaborative planning through local and regional workforce training and planning initiatives to support alignment of recruitment and training initiatives between the LSA's major employers, educational institutions and economic development agencies in order to meet the labour needs of the Project and other major employers in the LSA	**C**	BC Hydro

Table 5-29 (Cont'd): Summary of Economy Mitigation Measures

#	Potential Adverse Effect	Mitigation Measure	Project Phase	Responsible Agency
5.2.2	**Change in labour market balance**	Enhance local and Aboriginal worker training and hiring	**C**	BC Hydro
5.2.3	**Change in local government finances**	Monitoring and addressing Westside Road conditions	**C**	BC Hydro

5.4.2.2 Benefits Enhancement Measures

Benefit enhancement measures including any standard operating practices as well as management practices or measures developed to specifically avoid or reduce the potential adverse effects of the Project.

Selection of benefit enhancement measures was informed by: a review of measures and follow up programs undertaken for past developments in the LSA; regulator, public and input from named member bands and organizations of the Ktunaxa Nation, Secwepemc Bands and Okanagan Nation; review of measures adopted in EA's for major BC industrial and infrastructure projects; consideration of best practices in Aboriginal and non-Aboriginal economic development; and internal consideration of technical and economic feasibility. Benefits enhancement measures are summarized in Table 5-30.

5.4.2.3 Employment, Employment Income and Training

Benefits Enhancement Measure #5.2.1: Enhance training and hiring of local workers

Taking into consideration the objectives and operating parameters of the CHC Collective Agreement, BC Hydro will draft and implement a local training and hiring strategy to facilitate local employment in connection with all aspects of the Project and enhance the educational and skill levels of local persons working on the Project. Measures that will be incorporated into a Project local training and hiring strategy include BC Hydro:

- in collaboration with its and its prime contractor(s), actively identifying, recruiting, employing, and retaining available and qualified local residents;
- communicating employment requirements to local residents to assist them in accessing Project employment opportunities;
- providing funding to Okanagan College for trades and skills training programs delivered in the City of Revelstoke to support the development of skilled workers in the CSRD;

- continuing to support regional and local residents through summer student programs and local college apprenticeship programs; and
- identifying barriers to local employee inclusion and implementing measures to support local employee inclusion.

Benefits Enhancement Measure #5.2.2: Monitoring of local training and hiring

BC Hydro will collect data and annually report on local related employment information including Project hiring of local workers, employee search efforts (job fairs, etc.), and training investments and participation.

Benefits Enhancement Measure #5.2.3: Enhance training and hiring of Aboriginal workers

BC Hydro will work with local Aboriginal communities to draft and implement a relevant training & employment strategy to facilitate skills development and inclusion in all aspects of the Project. The strategy will identify Project-specific initiatives to address barriers to employment particularly where Aboriginal workers have limited skills and/or experience with major project construction. This includes barriers to educational attainment, certifications and work experience. This strategy will be guided by company-wide Aboriginal inclusion principles and the Aboriginal employment objectives for the Project with a focus on attracting qualified, safe and efficient workforce. The strategy will incorporate:

- timely and easily accessible information on workforce requirements and education and training opportunities;
- job descriptions, qualifications and performance criteria;
- support for application, selection and hiring procedures;
- financial support for technical and trades training; and
- agreements/partnerships with contractors to indenture apprentices.

Benefits Enhancement Measure #5.2.4: Monitoring of Aboriginal training and hiring

BC Hydro will collect data and annually report on local related employment information including Project hiring of local workers, recruitment efforts (job fairs, etc.), and training investments and participation.

5.4.2.4 Supply of Goods and Services

Mitigation Measure #5.2.5: Enhance procurement of materials, goods and services supplied by local suppliers

BC Hydro will develop and implement a Local and Regional Business Participation Strategy to institute procurement practices to increase the involvement of local businesses in economic opportunities associated with the Project. The capture of financial benefits for local and regional economic development is linked to: local and regional goods and services supplier's access to information on Project associated bid procedures and contracting opportunities; and the existence of channels through which local and regional suppliers can communicate with BC Hydro and its contractor(s) about their capacity and capabilities.

Mitigation Measure #5.2.6: Monitor procurement of materials, goods and services supplied by local suppliers

BC Hydro will collect data and annually report on Project procurement of materials, goods and services supplied by local suppliers.

Mitigation Measure #5.2.7: Enhance procurement of materials, goods and services supplied by Aboriginal owned and operated suppliers

BC Hydro will develop and implement an Aboriginal Business Participation Strategy to institute procurement practices to increase the involvement of Aboriginal/First Nations businesses in economic opportunities associated with the Project. Policies and practices to support local, First Nations and regional procurement will include the following:

- policy to purchase from local vendors whenever possible, practical and economical;
- master commercial agreements in place for majority of local and regional suppliers;
- monthly BC Hydro review of First Nation procurement opportunities;
- tender documents include First Nation content language;
- vendor database continually maintained that includes local and regional suppliers; and
- centralized procurement enhances communication between all suppliers, First Nations, BC Hydro Operations/offices and the procurement group.

Mitigation Measure #5.2.8: Monitor procurement of materials, goods and services supplied by Aboriginal owned and operated suppliers

BC Hydro will collect data and annually report to First Nations on Project procurement of materials, goods and services supplied by Aboriginal owned and operated suppliers.

5.4.2.5 Mitigation Measures Proposed by First Nations

Mitigation measures to address potential Project effects on Aboriginal Interests related to this VC as identified by First Nations are described in Sections C (Ktunaxa Nation Sections C11, Okanagan Nation Section 7.5, and Secwepemc Bands Section 12.2.2 and Section H).

Table 5-30: Summary of Economy Benefits Enhancement Measures

#	Potential Beneficial Effect	Benefits Enhancement Measure	Project Phase	Responsible Agency
5.2.1	**Change in employment, employment income and training**	Enhance training and hiring of local workers	**C**	BC Hydro
5.2.2	**Change in employment, employment income and training**	Monitoring of local training and hiring	**C**	BC Hydro
5.2.3	**Change in employment, employment income and training**	Enhance training and hiring of Aboriginal workers	**C**	BC Hydro
5.2.4	**Change in employment, employment income and training**	Monitoring of Aboriginal training and hiring	**C**	BC Hydro
5.2.5	**Change in materials, goods and services contracting revenues**	Enhance procurement of materials, goods and services from local businesses	**C**	BC Hydro
5.2.6	**Change in materials, goods and services contracting revenues**	Monitor procurement from local businesses	**C**	BC Hydro
5.2.7	**Change in materials, goods and services contracting revenues**	Enhance procurement of materials, goods and services from Aboriginal owned and operated businesses	**C**	BC Hydro
5.2.8	**Change in materials, goods and services contracting revenues**	Monitor procurement from Aboriginal owned and operated businesses	**C**	BC Hydro

5.4.3 Characterization of Residual Effects and their Significance

The potential residual effects of the Project expected to persist after the implementation of mitigation measures were assessed using the methodology outlined in Section 3.0 of this Application. Descriptions of residual effects characteristics and significance for residual economy effects are identified in the following sections.

5.4.3.1 *Characterization of Residual Effects*

Changes to economy VCs were predicted, and possible interactions between economy VCs and the Project were identified and assessed to determine the potential residual effects of the Project. Project details were evaluated qualitatively and quantitatively for potential residual effects using the criteria definitions in Table 5-31. Additional context regarding the definitions applied to effect criteria are presented below.

- **Magnitude** refers to the amount of change in a measurement indicator relative to baseline conditions. Magnitude may be low, moderate, or high. Economy effects were assigned magnitude qualitatively based on levels of concern, analysis of the existing economic environment, and projected future changes as they affect economic sustainability.
- **Extent** refers to the area affected and is categorized into three scales: local, regional, and beyond regional. Local effects are those confined to the communities in the LSA. Regional effects include the LSA but do not extend beyond the RSA. Beyond regional refers to effects that extend throughout the province of BC or even farther.
- **Duration** refers to the amount of time from the beginning of an effect to when the effect has ended or dissipated to the point of not being detectable. Duration is expressed relative to the Project's stages.
- **Frequency** refers to how often an effect is expected to occur over a given period. Many economy effects are experienced continuously over the affected Project phase.
- **Reversibility** refers to whether a residual adverse effect can be reversed once the Project activity causing the effect ceases. Some economy effects are irreversible since they are part of an interdependent economic and social change extending into the future, which in some cases cannot be reversed or returned to pre-Project conditions, or in fact it may not be desirable to do so. The reversibility criterion is applied where there is an adverse residual effect which can be considered to be reversible.
- **Context** is defined as the capacity of the LSA communities to accept change relative to base case or baseline variation typically experienced.

Table 5-31: Criteria for Characterization of Residual Effects for Economy

Criteria	Description	Definitions
Magnitude	*Expected size or severity of the residual effect*	**Low:** A small but detectable change from baseline conditions, but within the historical economic market capacity to respond. **Moderate:** A demonstrable change from baseline conditions that is within historical economic market capacity for response. **High:** The change from baseline conditions that is beyond historical norms or economic market capacity for effective response.
Extent	*Spatial scale over which the residual effect is expected to occur*	**Site-specific:** The residual effect is confined to the Project footprint. **Local:** Residual effects from a change to a measurement indicator are confined to the LSA. **Regional:** Residual effects affect the RSA and LSA (where changes are more widespread but still detectable). **Beyond Regional:** Residual effects extend beyond the RSA.
Frequency	*How often the residual effect is expected to occur*	**Periodic:** The residual effect occurs intermittently, and may repeat over the identified duration period. **Continuous:** Occurs on an ongoing, continuous basis.
Reversibility	*Whether or not the residual effect can be reversed once the physical work of activity causing the effect ceases*	**Reversible:** The residual effect is reversible. **Partially reversible:** The residual effect can be reversed partially. **Irreversible:** The residual effect is irreversible.
Context	*The capacity of the LSA community to effectively respond to change relative to base case or baseline variation typically experienced.*	**Resilient:** The area and its economy are generally resilient to change because they can respond appropriately to imposed stresses or because agreements, policies, infrastructure and/or regional opportunities can overcome adverse changes. **Not resilient:** The area and its economy have little resilience to change because they would poorly accommodate imposed stresses or because agreements, policies, infrastructure and/or regional opportunities cannot overcome adverse changes.

5.4.3.1.1 Generation Component

5.4.3.1.1.1 Project Residual Effects on Labour Market

The Project's effects on the local labour markets would depend on the capacity of the local labour force to meet local labour demand while the overall labour market in the LSA stays in balance. Change in labour market balance is reflected in labour supply shortages and increased labour costs due to Project labour demand. Over the course of the 40-month construction phase, the Project is anticipated to create a total labour demand in the LSA of an estimated 676.5 PYs (385 PYs of direct employment, 182.5 PYs of indirect employment and 109 PYs of induced employment)[41].

[41] The LSA based employment includes both permanent and temporary workers who are working in the LSA and whose employment is supported by Project associated spending.

In the case of the construction phase, workers with suitable, large scale construction project skills and experiences would be in demand. A large portion of the occupational skills required for Project on-site construction, approximately 95%, would fall into the tradesperson and equipment operator category.

One of the key assumptions for this assessment is that the pattern of labour sourcing for the Project is expected to be similar to the experience of the Revelstoke Unit 5 Project. Approximately a third of the Project's direct construction phase workforce is anticipated to be sourced from the LSA. All of the indirect and induced employment based in the LSA that is supported by Project related spending is expected to be filled by LSA residents.

Although total and annual average estimates of employment are referenced above, construction employment would peak over an almost two-year period in the middle of the expected 40 month (3 1/3 years) time frame. In practice, many of the Project's construction workers would work for periods shorter than a year (and not the full 40 month construction phase) and construction activity levels would vary over a year based on sequencing of construction tasks.

Other factors that are expected to influence the geographic composition of the Project's direct construction workforce is the absence of either a FIFO service or Project provided temporary accommodation; their absences are anticipated to limit the number of non-local workers who seek construction phase employment.

Effects on Project associated labour demand in the LSA would result in a beneficial effect on employment and employment income in the LSA and BC Hydro's planned mitigation measures of participating in and contributing to local and regional labour planning initiatives and developing and implementing local and Aboriginal hiring and training policies are anticipated to help partially ameliorate potential labour market shortages stemming from Project demand. However, these mitigation measures are likely to be insufficient to fully ameliorate local labour constraints. The Project is expected to put pressure on the limited local labour supply because of the scale of labour demand that the Project is expected to generate in the LSA at direct, indirect and induced employment levels. The adverse effect would be limited to the construction phase, and therefore would be temporary.

The residual effect will be low as Project direct labour requirements would be sourced in part through non-local recruiting, and by enhancing local skills profiles and labour participation rates in the LSA through the labour supply planning initiatives and enhancement of local and Aboriginal worker training and hiring cited in Mitigation Measure #5.2.1 and #5.2.2, respectively, and BC Hydro and its primary contractors are anticipated to maximize their sourcing of labour in the LSA for the Project while attempting to avoid contributing to putting the labour market in the LAA out of balance. The residual effect on labour market balance in the LSA due to Project construction is expected to be low in magnitude.

Residual adverse effects would be local in geographical extent, occurring within the LSA (and mainly within Revelstoke) and would be short term in duration, ceasing at end of construction. The effect would be periodic in frequency, and felt most acutely during the latter half of the 2nd year of the construction phase. The adverse effect on labour market balance would be reversible with completion of construction and cessation of construction workforce requirements (Table 5-32).

The context is resilient as the labour market in the LSA, and in Revelstoke itself, has experienced effects of large development projects and labour demand from them that exceed the capacity of the local labour market. Through this experience, and ongoing institutional planning at Okanagan College, in local economic development agencies and within regional human resource initiatives, planning mechanisms are present to address adverse residual effects on labour market balance.

Table 5-32: Summary of Residual Effects related to Labour Market Balance

Criteria	Rating	Rationale
Magnitude	**Low**	The residual effect will be low, as BC Hydro plans to contribute to labour supply planning and job training endeavours at the local level in advance of the Project, and, during the construction phase, BC Hydro and its primary contractors can ramp up outside recruitment efforts in the event that the local labour market is showing signs of an imbalance.
Extent	**Local**	The residual effect will be confined to the LSA.
Duration	**Short-term**	The residual effect will occur during the construction phase.
Frequency	**Periodic**	The residual effect will be periodic, and felt most acutely during the latter half of the 2nd construction year.
Reversibility	**Reversible**	Residual effect will be reversible at end of construction.
Context	**Resilient**	Residual effect can be appropriately addressed through planning mechanisms.

5.4.3.2 Definition of Significance of Residual Adverse Effects

The classification of primary pathways and the associated predicted changes in measurement indicators provide the foundation for determining the significance of incremental and cumulative effects from the Project and other present, approved, and reasonably foreseeable developments on the assessment endpoints for economy VCs. Assessment criteria of magnitude, duration, and geographic extent are discussed in the context of the changes to the economic measurement indicators from the addition of the Project and the reasonably foreseeable developments to the existing environment. Although the positive and neutral residual effects associated with the Project are reported, they are not assessed for significance.

For economy VCs, an adverse residual effect was considered significant if it was predicted to have an effect of high magnitude at the local, regional or provincial extent over a long-term duration (Table 5-33). A high

magnitude adverse effect was considered significant if the effect was predicted to result in the capacity of the local economy, such as labour supply, to be exceeded on an ongoing and consistent basis, with the affected element of the economy unlikely to be able to respond in a timely manner. For example, demand for labour associated with a project may result in a local labour supply constraint in the near term. To avoid longer-term challenges arising from a local shortage of available and qualified workers, various parties in the local area would need to undertake efforts to spur temporary and/or permanent in-migration of suitably qualified workers to bolster the local labour supply.

In cases where an effect was not deemed significant but there is a low level of confidence in the proposed significance rating due to limitations in data or an incomplete understanding of cause-effect relationships, follow-up monitoring may be recommended to confirm assumptions and verify predicted effects.

EAO guidance recommends a risk analysis in situations where there is a potential significant residual effect supported by some uncertainty (e.g. data gaps) and in the absence of adequate monitoring or other follow-up programs. In the event that a residual effect is considered significant and level of confidence is low, a more detailed risk analysis would be completed.

Table 5-33: Criteria for Significance Rating for Economy

Rating	Definition
Not Significant	A measurable adverse effect that does not meet the criteria of significance.
Significant	A significant effect on the economy VC is an adverse effect predicted to be high in magnitude and occurring over the long term at any geographic extent. A significant effect would cause the capacity of a key aspect of the economy to be exceeded on an ongoing and consistent basis, with the economy being unlikely to be able to respond in a timely manner.

Likelihood characterisation was based on professional judgement considering the available qualitative and quantitative data for the residual effect on economy, with unlikely effects defined as those having a low probability of occurring and likely effects having a higher probability.

The level of confidence for each predicted residual effect is discussed to characterise the level of uncertainty associated with both the significance and likelihood determinations. Level of confidence is typically based on expert judgement and is characterised as follows:

- **Low** – judgement hampered by incomplete understanding of cause-effect relationships or lack of data;
- **Moderate** – reasonable understanding of cause-effect relationships and sufficient data is available; or
- **High** – good understanding of cause-effect relationships and ample data is available.

Primary factors affecting the determination of confidence in the predictions made in the economy assessment include:

- availability of baseline data, including labour supply conditions; and
- understanding of Project labour requirements.

5.4.3.2.1.1 Labour Market

The potential residual effect on labour market balance was rated low in magnitude, local in geographic extent and short term in duration. Given this rating of effect criteria, the potential adverse residual effect is determined to be not significant. Based on available information on Project associated labour demand and skill and experience requirements in the LSA, and on available labour supply in the LSA, the residual effect is considered likely. With respect to the level of confidence, projections for direct labour demand by the Project carry a high degree of confidence because they were prepared with detailed knowledge of the direct labour demand of the REV5 project. A moderate degree of confidence is connected to the projections of indirect and induced labour demand and labour supply side parameters, including unemployment and labour force participation conditions. This rating is based on the use of a model to project indirect and induced labour demand and the challenge of anticipating local labour market conditions several years into the future. Based on these factors, the level of confidence in effects predictions is rated as moderate (Table 5-34).

EAO guidance recommends a risk analysis in situations where there is a potential significant residual effect supported by some uncertainty (e.g. data gaps) and in the absence of adequate monitoring or other follow-up programs, as the identified potential residual effects to change in labour market balance are rated as not significant and confidence is identified as moderate, no risk analysis was conducted.

Table 5-34: Summary of Labour Market Significance Determinations

Residual Effect	Significance (Significant, Not Significant)	Likelihood of Residual Effect (likely, unlikely)	Level of Confidence (low, moderate, high)
Change in labour market balance	Not Significant	Likely	Moderate

5.4.4 Cumulative Effects and Their Significance

The assessment of potential adverse cumulative effects were characterized for the economy VC. Potential cumulative effects result from the interactions between Project-related residual effects and incremental effects of all past, present and reasonably foreseeable future projects and activities. Cumulative effects assessment methods are discussed in Section 3.8.

5.4.4.1 Boundaries

As described in Section 5.2.4.1, the spatial boundary of the cumulative effects assessment is based on the regional context for the labour market VC sub-component, which is the same spatial boundary as for the LSA, the Columbia-Shuswap Regional District.

The temporal boundary of the cumulative effects assessment of the labour market VC sub-component considers effects that occur during the construction and operations phases. As the Project is considered permanent, a closure and decommissioning phase will not be assessed.

Other projects and activities that overlap these spatial and temporal boundaries were considered for potential interactions with residual impacts of the Project in the assessment of cumulative effects with the labour market VC sub-component. These other projects and activities are listed in Table 5-35.

5.4.4.2 Potential Interactions and Effects of Other Projects

Other projects and activities have been considered that are likely to have a cumulative interaction with the Project's residual effects. Potential cumulative interactions and effects were identified through:

- Review of Project residual effects assessment (Section 5.4.3.3);
- Review of the inclusion list of other projects and activities that are certain and reasonably foreseeable to be considered (Section 3.8.1);
- Review of documents and information describing other projects and activities; and
- Professional judgement considering the available information of other projects and activities and their likely effects.

Criteria used to indicate the level of cumulative effects from the interactions of other project and activities and the economy VC sub-components are the same as that applied for residual Project effects assessment and are provided in Section 5.4.3.3.

The past, present, and reasonably foreseeable future projects and activities considered in the cumulative effects assessment are presented in Table 5-35. Other projects and activities with potential effects that could interact with a Project-related residual effect on economy sub-components for the generation component are described provided below. The effects of other projects and activities that have been carried out (past and present projects) are considered as part of the existing conditions, as described in Section 5.2.2, and the cumulative effect of these projects in combination with the effects of the Project are described and assessed

in the residual effects assessment (Section 5.4.3.3). Consequently, past and present projects have not been considered for further assessment of cumulative effects.

Revelstoke Mountain Resort

RMR is a four season resort and village development located at Mount Mackenzie in Revelstoke. The RMR is developing under a Mountain Master Plan approved in December 2004. Specific Master plans have been developed for the Resort and Village components of the RMR. Construction of the initial phase of the RMR coincided with the construction of the Revelstoke 5th Unit Project. Further development at the resort is ongoing, however, timing and scale of the build-out is based on a variety of factors, including market demand (RMR Undated).

While the timeline for future development at the RMR is not confirmed, if further development goes forward, both construction and operational demand associated with new developments at the RMR could overlap with the Project construction period, which may result in a cumulative effect on labour market balance.

Shelter Bay Development Lands

Shelter Bay Development Lands are a residential development proposed along Highway 23 north of the Shelter Bay ferry landing. Development plans include 750 units to be developed on a 5,200 acre property and will also include a variety of commercial and recreational amenities including a lodge, general store, marina, outfitter's lodge, children's camp, and temporary staff housing (Revelstoke Current 2012, Shelter Bay 2016). The proposed development will be built over a 20 to 25 year timeline with an estimated occupancy of 1,500 people during peak season (Revelstoke Current 2012).

Construction of the Shelter Bay Development Lands is estimated to occur over a 20-25 year period. .If a portion of this construction period is scheduled to overlap with the Project construction period, and if the Shelter Bay construction activity involves hiring of workers local to the Revelstoke area, there is potential for cumulative Project effects on labour market balance.

Mackenzie Village

The recently approved Mackenzie Village development is a mixed use development with approximately 1,200 housing units including studio, 1 to 4 bedroom apartments, row houses, duplexes, and single family dwellings. The project has 12 proposed development phases over a 10 year period. The development will house an estimated 2,302 people at total buildout (City of Revelstoke 2016). The developer has indicated their intention to hire local construction contractors and workers to build the Project (City of Revelstoke 2016).

As the ten-year timeline for construction of the Mackenzie Village development overlaps with the potential construction period of the Project, demand for construction labour could result in a cumulative Project effect on labour market balance. The development itself will also provide additional housing options to the community once it is constructed.

Specific construction timelines of the three named reasonably foreseeable projects are not known with certainty. If portions of construction activities associated with these projects coincide with the Project's construction phase then there would be an associated incremental demand on construction labour and management in the LSA/RSA (CSRD). This demand, in combination with demand generated from Project construction, would result in a cumulative and adverse interaction on labour market balance.

As indicated in Section 5.4.3.3.2.1, the Project is determined to have a short term adverse residual effect of low magnitude on labour market balance during the Project construction phase. Cumulatively, these projects combined with the Project could temporarily increase demand for construction labour and management through hiring from the local workforce to fill their tradesperson, operator, labourer and technician resource requirements. This cumulative increase in demand would further contribute to tight labour market conditions in an expected to be tight labour market in the LSA/RSA, and lead to occupational shortages and wage inflation. The incremental increased cumulative demand for labour would be limited to the CSRD and cumulative effects would be limited to periods of overlapping construction schedules and local workforce hiring.

Table 5-35: Summary of Potential Interaction and Effects of Other Projects

Other Project or Activity	Related Activity	Level of Interaction	Nature of Interaction
Labour Market			
Mica Dam and Generating Station, units 1-6	n/a	n/a	n/a
Revelstoke Generating Station, units 1-5	n/a	n/a	n/a
Mica 5 Transmission Reinforcement	n/a	n/a	n/a
Shelter Bay Development lands	Labour demand	Carried forward to assessment	Incremental effects on the local economy due to project associated demand for labour, and project-associated labour demand would result in potential labour supply constraints.
Timber harvesting	n/a	n/a	n/a
Begbie Creek	n/a	n/a	n/a

Table 5-35 (Cont'd): Summary of Potential Interaction and Effects of Other Projects

Other Project or Activity	Related Activity	Level of Interaction	Nature of Interaction
Labour Market			
Designated recreational areas – numerous	n/a	n/a	n/a
Downie RV Resort	n/a	n/a	n/a
Hunting and Trapping	n/a	n/a	n/a
Revelstoke Mountain Resort	Labour demand	Carried forward to assessment	Incremental effects on the local economy due to project associated demand for labour, and project-associated labour demand would result in potential labour supply constraints.
Agur Lake Camp	n/a	n/a	n/a
Waste Discharge – City of Revelstoke	n/a	n/a	n/a
Hugh Keeleyside Dam and its effect on Arrow Reservoir	n/a	n/a	n/a
Mackenzie Village	Labour demand	Carried forward to assessment	Incremental effects on the local economy due to project associated demand for labour, and project-associated labour demand would result in potential labour supply constraints.

5.4.4.3 Mitigation of Cumulative Effects

BC Hydro will engage in established collaborative planning initiatives and spearhead new ones as necessary with other major local employers, educational institutions and economic development agencies to support alignment of worker recruitment and training initiatives with the need for skilled workers to meet the needs of the Project and other major employers and small businesses in the region.

These planning initiatives are expected to take into account demand from other major reasonably foreseeable construction projects, and ongoing labour demand within operations of businesses and institutions. If the development timelines of other major reasonably foreseeable construction projects are determined to overlap with the Project, BC Hydro will consider inviting representatives of the other projects to participate in the labour planning initiatives if they are already not doing so. If pinch points are identified due to potential cumulative effects, BC Hydro will work through the existing planning initiatives to adapt mitigation measures.

5.4.4.4 Residual Cumulative Effects and Significance

The labour training and planning processes are expected to consider labour demands from other sources in the CSRD. The previously identified Project-related adverse effects apply. This cumulative effect of change on labour market balance during the construction phase is predicted to be low in magnitude, local in extent as would be limited to the CSRD, short-term in duration because the potential overlap with the named reasonably foreseeable projects is anticipated to be limited to the Project's 40-month construction phase, periodic due to the bell curved shape of labour requirements over the Project construction phase, reversible because the overlap in labour demand from the Project and the named reasonably foreseeable projects would be limited to the construction phase, and resilient (Table 5-36). Given this rating of effects criteria, potential residual cumulative effects are determined to be not significant (Table 5-37).

Although the prediction of the suitably qualified labour requirement for the direct construction workforce is understood with a high degree of confidence, the level of confidence in this cumulative effects prediction is low because confidence in the prediction for labour force needs of the named reasonably foreseeable projects is low, and the forecast of Project indirect and induced labour demand was carried out with a model and anticipating local labour market conditions several years into the future is subject to several assumptions. In particular, the precise timing of the labour demand from the named reasonably foreseeable projects is not known at this juncture, so the overlap in timing of labour demand between the Project and that of the named reasonably foreseeable projects, which is the key aspect of potential cumulative effect of labour market balance in the LSA/RSA, can be predicted with neither a high nor a moderate level of confidence.

The residual cumulative effect is considered likely as labour demand associated with the named reasonably foreseeable projects would combine with the labour demand for the Project to create a temporary situation during the construction phase of labour market imbalance in the CSRD (the RSA/LSA).

Table 5-36: Summary of Residual Cumulative Effect related to Labour Market

Criteria	Rating	Rationale
Magnitude	**Low**	The residual effect will be low, as BC Hydro plans to contribute to labour supply planning and job training endeavours at the local level in advance of the Project, and, during the construction phase, BC Hydro and its primary contractors can ramp up outside recruitment efforts in the event that the local labour market is showing signs of an imbalance.
Extent	**Local**	The residual effect will be confined to the LSA/RSA.
Duration	**Short-term**	The residual effect will occur during the construction phase.
Frequency	**Periodic**	The residual effect will be periodic, and felt most acutely during the latter half of the 2nd construction year.
Reversibility	**Reversible**	Residual effect will be reversible at end of construction.
Context	**Not sensitive**	Residual effect can be appropriately addressed through planning mechanisms.

Table 5-37: Summary of Labour Market Significance Determinations

Residual Effect	Significance (Significant, Not Significant)	Likelihood of Residual Effect (likely, unlikely)	Level of Confidence (low, moderate, high)
Change in labour market balance	Not Significant	Likely	Low

5.4.5 Follow-up Strategy

The *Canadian Environmental Assessment Act* (*CEAA* 2012) defines a "follow-up program" as a program for:

(a) verifying the accuracy of the EA of a designated project; and
(b) determining the effectiveness of any mitigation measures.

Two planned benefits enhancement measures are focused on monitoring of hiring and job training and they will contribute to understanding the Potential effects of the Project on local labour market conditions. The two measures are as follows.

Benefits Enhancement Measure #5.2.2: Monitoring of local training and hiring

BC Hydro will collect data and annually report on local related employment information including Project hiring of local workers, employee search efforts (job fairs, etc.), and training investments and participation.

Benefits Enhancement Measure #5.2.4: Monitoring of Aboriginal training and hiring

BC Hydro will collect data and annually report on local related employment information including Project hiring of local workers, recruitment efforts (job fairs, etc.), and training investments and participation.

5.5 Summary of Assessment of Economic Effects

Table 5-38: Summary of Potential Economy Effects

Valued Components	Potential Effects	Key Mitigation Measures	Significance of Residual Effects
Economy	Change in labour market balance	• Engage in collaborative planning through local and regional workforce training and planning initiatives to support alignment of recruitment and training initiatives between the LSA's major employers, educational institutions and economic development agencies in order to meet the labour needs of the Project and other major employers in the LSA. • Enhance local and Aboriginal worker training and hiring.	Not Significant.
Economy	Change in local government finances	Monitoring and addressing Westside Road conditions.	With the implementation of the proposed mitigation measures, residual effects on local government finances due to road transportation are not anticipated.