

14 ECONOMIC ENVIRONMENT

14.1 Introduction

Economic environment is selected as a valued component (VC) to address the inter-related economic effects that may result from project construction, operations, and decommissioning. Project employment and purchases of goods and services from regional businesses will provide new employment opportunities and sources of income for regional residents and businesses, and these effects can be enhanced through the provision of training programs and the adoption of policies that support local procurement and hiring. The creation of new industrial jobs will also help diversify and grow the regional economy, leading to increased economic stability. Furthermore, the Project will create revenues for regional governments.

These positive effects could have some negative consequences. New employment might create local labour shortages that could result in wage inflation, forcing up costs for local businesses, especially if there are other projects that are underway at the same time and may be competing for the same labour (cumulative effects). If the demand for labour exceeds the available local supply, the importation of workers might place additional demands on community infrastructure and services and could affect the overall structure of local communities. While additional wages can improve quality of life for workers and their families, there can be negative effects if these wages are inappropriately spent. Municipal governments may be faced with costs to accommodate any incoming population associated with the Project or to upgrade any public infrastructure that may be affected by project-related activities, but these may be offset by increased revenues from the Project and its employees.

Given the recent decline of the economy in the regional assessment area (RAA), there is considerable local interest from Aboriginal people and local community in potential employment and income opportunities associated with the Project. However, there is also concern that, given the potential size of the workforce during construction and other possible projects that may be under construction at the same time, the local communities may be inundated by non-local workers. The analysis presented for this VC examines: 1) the supply of local and regional labour in the context of project and cumulative demands to determine local and regional capacity; 2) opportunities for enhancing benefits through training and other commitments; and 3) strategies for managing potential adverse economic effects.

In general, the Project will provide important benefits for the regional economy. By working with the local communities and Aboriginal people, opportunities to enhance these benefits will be explored and strategies for reducing potential adverse consequences can be identified.

14.2 Scope of Assessment

14.2.1 Regulatory and Policy Setting

Regional economic effects are required to be assessed under the British Columbia (BC) *Environmental Assessment Act* if they have been identified as important to the public, Aboriginal groups, scientists and other technical specialists, and government agencies.

Environmentally-linked economic effects are also required to be assessed under the *Canadian Environmental Assessment Act*.

14.2.2 Influence of Consultation on the Assessment

Consultation to date has identified a number of issues related to the economic environment. These issues are:

- Potential jobs and economic benefits
- Interest by local businesses in how they can get involved
- Interest in types of long-term and construction jobs and obtaining appropriate training.

See Section 3 for a detailed description of consultation activities.

14.2.3 Selection of Potential Effects

Based on comments received to date through the consultation process and the range of issues associated with other proposed major projects in the North Coast region of BC, the following potential effects are assessed:

- Change in regional labour supply and demand
- Change in cost of living and economic activity
- Change in municipal government finances.

14.2.4 Selection of Measurable Parameters

Table 14-1 summarizes the parameters used to measure potential effects. These are standard parameters used to gauge the health of regional economies, and changes in these parameters are reported annually by government agencies.

Table 14-1: Measurable Parameters for Economic Environment

Effect	Measurable Parameter(s) and Units of Measurement	Rationale for Selection of the Measurable Parameter
Changes in regional labour supply and demand	Changes in labour force participation rates Changes in unemployment rates	Project will encourage people who would be otherwise unemployed or not in workforce to work on the project. Data are available.
	Changes in skill levels (educational attainment)	Participation in work-related training will increase educational attainment by adults. Data are available.
Changes in cost of living and economic activity	Changes in median/average earnings	Project wages are substantially higher than median earnings in community. Data are available.
	Changes in living costs, including housing	Increases in the labour force and higher incomes may increase demands for goods and services leading to higher costs of living.
	Changes in employment in other economic sectors	Project and consumer spending will have effects on other economic sectors. These indirect and induced employment effects are considered in terms of changes in labour supply and demand.
Change in municipal government finances	Changes in municipal government revenues and costs	Municipal or regional governments may be called upon to provide services to support the Project or its employees, and some or all of these costs may be offset by the payment of property taxes. Data are available.

14.2.5 Boundaries

14.2.5.1 Temporal Boundaries

Based on the project schedule, the temporal boundaries for each project phase are:

- **Construction:** Q1 2015 – Q4 2018
- **Operations:** Q1 2019 – 2048+
- **Decommissioning:** 2048+

14.2.5.2 Spatial Boundaries

The local assessment area (LAA) for the Economic Environment assessment consists of the communities within the mainland portion of the Skeena Queen Charlotte Regional District (SCRD). These communities include:

- City of Prince Rupert
- District Municipality of Port Edward
- Skeena-Queen Charlotte Regional District Electoral Areas (RDEAs) A and C
- S1/2 Tsimpsean Indian Reserve (IR) 2 (Metlakatla First Nation)
- Lax Kw'alaams IR 1 (Lax Kw'alaams First Nation)
- Dolphin Island 1 (Gitxaala Nation).

These areas are home to the individuals and businesses that would most likely be called upon to provide the labour, goods, and services required by the Project.

The regional assessment area (RAA), which is used to assess potential cumulative effects, coincides with the LAA. Since the analysis of potential project effects on the economic environment was conducted in the context of the potential economic effects of other major projects, the RAA has been used as the basis for describing baseline conditions and project effects. The RAA is also appropriate for describing potential project effects because, for some indicators, it is not possible to distinguish effects among individual communities within the LAA.

Two other First Nations have claimed an interest in the lands and resources that could be affected by the Project. These include Kitselas First Nation and Kitsumkalum First Nation. While each First Nation has one or more populated reserves in and around Terrace (Kitsumkaylum 1 IR, Kitselas 1 IR, and Kulspai 6 IR), some members of these First Nations currently live in the RAA. The assessment of project effects on the economy of these First Nations focuses on the opportunities for their members living in the RAA to be employed on the Project.

Figure 14-10 illustrates the spatial boundaries for this VC.

14.2.5.3 Administrative and Technical Boundaries

The spatial boundaries are consistent with administrative and technical boundaries. The individual communities within the RAA are consistent with the reporting units (census subdivisions [CSDs]) used by Statistics Canada to collect and report socio-economic information. BC Stats also reports information for these CSDs. The boundary of the RAA also generally coincides with the Prince Rupert Local Health Authority (LHA).

There are a number of technical boundaries related to the analysis. One technical boundary relates to the lack of census data for some of the communities in the RAA. Further information on the use and limitation of the census data are provided in Section 14.3.1. Another boundary relates to the accuracy of the project cost information, which is a Class 5 estimate and considered accurate to within +30%/-20%. A third technical boundary is that the regional multipliers used to estimate regional indirect and induced employment effects, are based on 2006 census data; updated multipliers based on the results of the 2011 National Household Survey (NHS) are not yet available.

14.2.6 Residual Effects Description Criteria

The criteria in Table 14-2 are used to describe the residual effects of the Project on the economic environment. Socio-economic systems are constantly in a state of flux and, in order to prepare for such changes, various agencies, including local, regional, and provincial governments, prepare short and long-term plans. Thus, residual effects on the economic environment must be assessed with the context of these plans and the various economic growth assumptions upon which these plans are based. This approach is inherently a cumulative effects assessment because residual effects are assessed in the context of other anticipated projects that are included in or form the basis for plans.

Table 14-2: Characterization of Residual Effects for the Economic Environment

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Characterization of Residual Effects		
Context	Refers primarily to the current and future sensitivity and resilience of the VC to change caused by the Project. Consideration of context draws heavily on the description of existing conditions of the VC, which reflect cumulative effects of other projects and activities that have been carried out, and especially information about the impact of natural and human-caused trends in the condition of the VC. (i.e., low, medium or high resilience)	<p>L = Low resilience: occurs in a fragile economy that has limited diversity, has been declining in size, and has limited capacity to accommodate an economic shock</p> <p>M = Moderate resilience: occurs in a stable economy that has moderate diversity, is slowly increasing or decreasing in size, and can accommodate moderate economic shocks</p> <p>H = High resilience: occurs in a diverse, dynamic, and rapidly growing economy that can accommodate major shocks</p>
Magnitude	Refers to the expected size or severity of the residual effect. When evaluating magnitude of residual effects, considers the proportion of the VC affected within the spatial boundaries and the relative effect (i.e., negligible, low, moderate, high)	<p>Negligible—no detectable effects</p> <p>Low—might or might not be detectable but is within the normal range of variability</p> <p>Moderate—measurable change but unlikely to pose a serious risk or benefit to the VC or to represent a management challenge</p> <p>High—measurable change that is likely to pose a serious risk or benefit to the selected VC and, if negative, represents a management challenge</p>
Extent	Refers to the spatial scale over which the residual effect is expected to occur (i.e., within the PDA, LAA, or RAA)	RAA —effects extend into the RAA

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Duration	The period of time the residual effect will persist.	Short-term —Effect restricted to construction phase Long-term —Effect extends through project operations
Reversibility	Pertains to whether or not the residual effect on the VC can be reversed once the physical work or activity causing the disturbance ceases (i.e., reversible or irreversible)	Reversible —effect is reversible Irreversible —permanent effect
Frequency	Refers to how often the residual effect occurs and is usually closely related to the frequency of the physical work or activity causing the residual effect (i.e., single event, multiple irregular events, multiple regular events, continuous)	Single event —occurs once Continuous —effect occurs continuously
Likelihood of Residual Effects		
Likelihood	Refers to whether or not a residual effect is likely to occur	Low —well understood and there is a low likelihood of effect on the VC as predicted High —well understood and there is a high likelihood of effect on the VC as predicted

14.2.7 Significance Thresholds for Residual Effects

There are no defined thresholds for assessing the significance of residual effects on the economic environment. The context for assessing residual effects relates to whether or not project-related changes are consistent with anticipated changes in economic conditions and, if not, the extent to which the changes will cause municipal, regional, or provincial governments to develop project-specific management or mitigation responses to the changes. Thus, the following general threshold criteria will be used to assess significance.

A significant adverse residual effect on the economic environment is defined as highly distinguishable and is usually long term in duration. Such effects would exceed the capacity of existing or planned programs, services, or infrastructure, or would cause major changes in their cost, delivery, or quality.

Adverse effects that are not significant are distinguishable but are within the normal range of variability. These are usually limited to the short term, are geographically restricted, and require no management or mitigation response.

14.3 Baseline Conditions

This section describes existing regional economic conditions, identifies data gaps that might affect conclusions in the effects assessment, provides a brief summary of field surveys undertaken, and concludes with an integrated statement on existing conditions of the regional economic conditions, based on past data and data collected for the Project.

14.3.1 Baseline Methods and Data Sources

Information on the economic health of communities that might be affected by the Project is available from various sources, including the 2006 and 2011 censuses and the 2011 NHS (this replaced the long-form survey that was used in previous censuses). Although this information is the most current and comprehensive, it is not complete. In some cases, communities did not participate in the census process, so there is no information available other than population counts; for this reason, there is no information on the population of the Lax Kw'alaams IR 1 for either 2006 or 2011, or for the Kitselas 1 IR in 2006. In other cases, the information was not published because of very small population size and concerns about confidentiality; data for Skeena-Queen Charlotte RDEA A are not available for 2011 and data for RDEA C are not available for 2006. In other cases, data were not published because of concerns about accuracy due to a low response rate; for example, NHS data for 2011 are not available for Port Edward, the S1/2 Tsimpsean 2 IR, Skeena-Queen Charlotte RDEAs A or C, or the Kitsumkaylum 1 IR. Where possible, some of the problems posed by missing information were addressed in a qualitative manner through interviews with key informants for the relevant communities.

Socio-economic information for Aboriginal populations living off-reserve in large communities and rural areas is available for both 2006 and 2011. This information is available for the City of Prince Rupert and the Prince Rupert Census Agglomeration (CA), which includes Port Edward and is used in this assessment to highlight the different characteristics of Aboriginal and non-Aboriginal populations in Prince Rupert and the Prince Rupert CA.

Additional baseline information was collected from a review of recent community and regional reports from government agencies, community profiles produced by municipalities, community and regional websites, and various economic and social profiles of communities. Interviews with key informants also provided some additional and more recent baseline information.

Information on municipal government finances was drawn from the most recent data available from the BC Ministry of Community, Sport and Cultural Development (BC MCSPD).

14.3.2 Overview of Baseline Conditions

14.3.2.1 Population and Demographics in the RAA

Population

Between 2006 and 2011, the population of the LAA decreased by 2%, from 14,695 to 14,397 (Table 14-3). The vast majority of the population (87%) lives in the City of Prince Rupert with another 4% living in Port Edward. Eight percent of the RAA population resides on reserves associated with three First Nations: S1/2 Tsimpsean IR 2 (Metlakatla First Nation), Lax Kw'alaams IR 1 (Lax Kw'alaams First Nation), and Dolphin Island 1 (Gitxaala Nation). Small numbers of people (1%) live in rural areas outside Prince Rupert and Port Edward in RDEAs A and C.

Table 14-3: Population of British Columbia and the Regional Assessment Area, 2006 and 2011

Population	2006	2011	Male	Female	Percent Change 2006–2011
British Columbia	4,113,487	4,400,055	2,156,600	2,243,455	7.0
Prince Rupert	12,815	12,510	6,245	6,260	-2.4
Port Edward	577	545	295	255	-5.7
Lax Kw'alaams IR 1	679	678	NA	NA	-0.1
S1/2 Tsimpsean IR 2	118	83	40	45	-29.7
Dolphin Island IR 1	417	405	215	190	-2.9
Skeena-Queen Charlotte RDEA A	52	29	NA	NA	-44.2
Skeena-Queen Charlotte RDEA C	37	147	72	70	297.3
Regional Assessment Area	14,695	14,397			-2.0

Source: Statistics Canada (2012)

NOTES:

NA – Data are not available.

In 2011, male residents of those parts of the RAA for which data were available comprised slightly more than 50% of the RAA population (Statistics Canada 2012). In Port Edward and the Dolphin Island 1 IR, males accounted for about 53% of the population, while females accounted for 53% of the population on S1/2 Tsimpsean IR 2. In Prince Rupert, the number of females and males was nearly equal.

Aboriginal Population

Although data on the Aboriginal component of the population in the RAA are not complete, it is estimated that 41% of the total population identified themselves as being Aboriginal, up from 37% in 2006. The data (see Table 14-4) indicate that Aboriginal people accounted for 38% of the population of Prince Rupert in 2011 and this represents a 6.0% increase from 2006. There also appears to have been a large increase in the number of Aboriginal people living in Port Edward, although NHS data specifically for this community are not published.

Table 14-4: Aboriginal Component of the RAA Population, 2006 and 2011

Population	2006	2011	Percent Change 2006–2011	Percent of Total Population	
				2006	2011
Prince Rupert	4,475	4,745	6.0	35	38
Port Edward	185	275 ^a	-5.7	35	51
Lax Kw'alaams IR 1 ^b	679	678	-0.1	100	100
S1/2 Tsimpsean IR 2	118	83	-29.7	100	100 ^c
Dolphin Island IR 1	410	485 ^d	18.3	98	99
Skeena-Queen Charlotte RDEA A	NA	NA	NA	NA	NA
Skeena-Queen Charlotte RDEA C	NA	NA	NA	NA	NA
Regional Assessment Area	14,695	14,397	-2.0		

Source: Statistics Canada (2007a, 2007b, 2013)

NOTES:

NA – Data are not available. ^a Estimated using NHS information for the Prince Rupert CMA and the City of Prince Rupert. ^b No data are available but assumed to be 100%. ^c Not available for 2011 but assumed to be 100% as per the 2006 Census. ^d For 2011 the NHS count was higher than the census count

As of July 2013, the three First Nations with reserves in the RAA had a combined registered population of 6,378 people, of whom 1,168 lived on those reserves (see Table 14-5). Thus, the on-reserve population represents 18% of the registered population of the three First Nations, although this percentage ranged from 9% of members of the Metlakatla First Nation to 22% of the members of the Gitxaala Nation. The balance of the registered population for the three First Nations reside off reserves, with large numbers in Prince Rupert and various other communities in BC.

Table 14-5: Population of First Nations with Reserves in the RAA, July 2013

Population	Own Reserve	Other Reserves	Crown Land	Off Reserve	Total
Metlakatla First Nation	76	9	0	775	860
Lax Kw'alaams First Nation	671	68	2	2,883	3,624
Gitxaala Nation	421	45	0	1,428	1,894
Total	1,168	122	2	5,086	6,378

Source: Aboriginal Affairs and Northern Development Canada (2013)

The two other First Nations whose claimed territories overlap the project site include Kitselas First Nation and Kitsumkalum First Nation. As of July 2013, these two First Nations had a registered population of 1,319 people (see Table 14-6). For the Kitselas First Nation, 45% of the registered population lived on one of their reserves, the most important of which are the Kitselas 1 reserve east of Terrace and the Kulspai 6 reserve located in Terrace. A third reserve, Kshish 4 located just east of Terrace was populated in 2006 but had no reported population in 2011. For the Kitsumkalum First Nation, 32% of the registered population lived on their own reserve, primarily the Kitsumkaylum 1 IR just west of Terrace.

Table 14-6: Population of First Nations with Interests in the RAA, July 2013

Population	Own Reserve	Other Reserves	Crown Land	Off Reserve	Total
Kitselas First Nation	270	12	0	320	602
Kitsumkalum First Nation	229	12	0	476	717
Total	499	24	0	796	1,319

Source: Aboriginal Affairs and Northern Development Canada (2013)

While members of these First Nations currently reside in the RAA, no additional information on the on-reserve populations are provided in this description of baseline conditions.

Age Characteristics

Information on the age distribution of people living in the RAA in 2011 is available for 95% of the population of the area. This information shows that age distribution for the RAA is quite different from that of BC (see Figure 14-1). The RAA has a higher proportion of people under 19 years of age but a lower proportion of people aged 25 to 34 years. The RAA has slightly a higher proportion of people aged 50 to 54 years and a lower proportion of people aged 60 years and older.

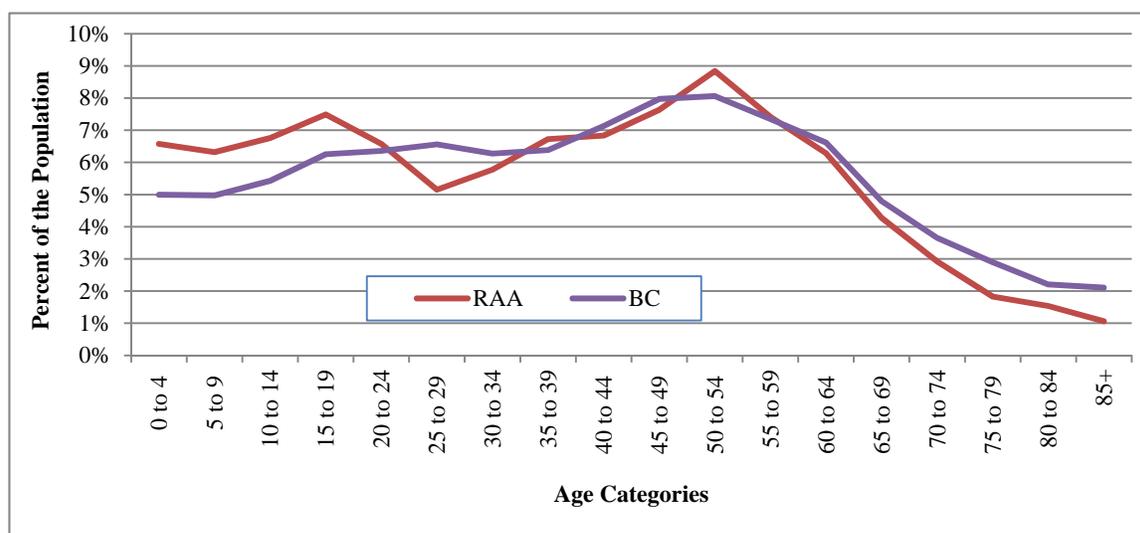


Figure 14-1: Age Distribution of the RAA and BC, 2011

Source: Statistics Canada (2012)

The Aboriginal population within the RAA is younger than the non-Aboriginal population. Figure 14-3 shows that a very high proportion of the Aboriginal population living in the CA (49.7%) consisted of people under the age of 30 years compared to only 31.6% of the non-Aboriginal population. Compared to the overall Prince Rupert CA average, there were lower percentages of Aboriginal people aged 30 to 39 (10.8%) than non-Aboriginal residents (13.4%). While people over the age of 39 years accounted for 55.1% of the non-Aboriginal population, they accounted for 39.6% of the Aboriginal population. Figure 14-2 also shows the age distribution for two of the three reserves (no data are available for Lax Kw'alaams IR 1) and it is also distinctly different. The on-reserve

populations have the highest percentages of young children (under 15 years) as well as people aged 30 to 34 years). There are relatively low percentages of on-reserve Aboriginal people between the ages of 35 and 60 years.

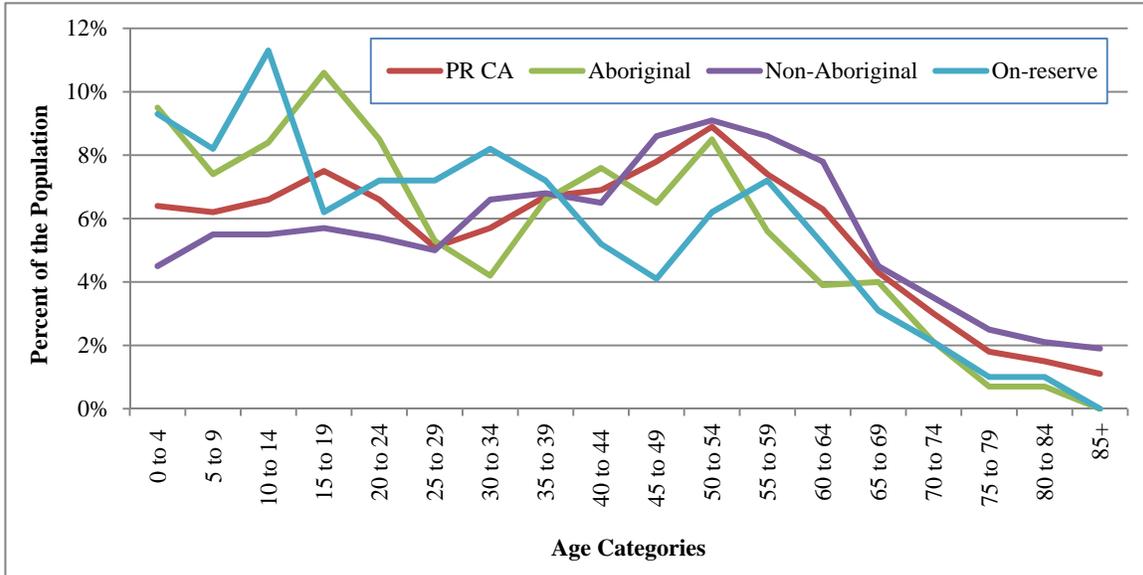


Figure 14-2: Age Distribution of Aboriginal and Non-Aboriginal people in RAA, 2006

Source: Statistics Canada (2013a, 2013b)

The age characteristics of the RAA suggest that young Aboriginal people, both on and off reserves, represent the largest potential workforce in the RAA and that the non-Aboriginal portion of the labour force is relatively old.

Future Population Growth

Census data indicate that the RAA has generally experienced net migration outflows and an overall loss of population over the last 10 years, with the population decreasing by 13.3% between 2001 and 2011. However, this trend is expected to reverse at least marginally in the long term. The District of Port Edward predicts that, as a result of the major economic interest in the region, it is probable that Port Edward and Prince Rupert will see a dramatic increase in population over the next five years and then stabilize to a relatively constant growth rate (DOP OCP 2008, DOP OCP 2013). This growth is tied to the construction of two LNG facilities: one in Port Edward and one in Prince Rupert. BC Stats projects that the Prince Rupert School District (52), which includes Prince Rupert, the District of Port Edward, Kitkatla, and Hartley Bay, will have approximately 20,419 residents by 2031, an increase of 3,193 residents or an average population increase of 5% per year over the next 25 years. The District of Port Edward predicts that that the population could increase at an annual growth rate of 5%, to as many as 1,591 people by 2033 (DOP OCP 2013).

14.3.2.2 Regional Economy

The main economic activities in the Skeena-Queen Charlotte Regional District include fishing, forestry, energy, transportation, and tourism (BC Stats 2013a). Traditionally, the economy of the region was sustained by fishing and forestry; however, with the closure of the Skeena Cellulose Pulp Mill and the decline in fisheries and fish canning industries there has been an increasing reliance on a broader range of economic activities (District of Port Edward 2008). The Port of Prince Rupert has been an important economic driver since 2007, with port expansion planned to increase capacity.

As the closest port to Asia on the west coast of North America, Prince Rupert is a key component in Canada's strategy to expand Asian trade. In 2010, it was estimated that the Port of Prince Rupert supported 2,300 direct person years of employment, contributing \$80 million in direct wages (PRPA 2012). Direct contributions in gross domestic product (GDP) from the port were estimated to be \$150 million, while port-generated government revenue was estimated at \$35 million. Substantial investment to the port and related transportation infrastructure has been planned for 2012 to 2020 as part of BC's Pacific Gateway Transportation Strategy (BCMOTI, no date).

Increased transport of goods and resources between North America and Asia supported the development of the Prince Rupert Fairview Container Terminal in 2007 (PRPEEDC, no date [a]). Continued economic expansion related to the port is expected to drive an expansion of the terminal to quadruple capacity. Other important elements of the transportation sector include commodity terminals for grain and coal, and efficient connections to North American markets by rail and road (PRPEEDC, no date [a]).

Tourism is a key industry in the RAA. In 2007, an estimated 190,000 people visited Prince Rupert during the peak summer months. Related expenditures in the Prince Rupert region were estimated at \$52.2 million (PRPEEDC, no date (b)). In Port Edward, there has been an increased interest in eco-tourism and sports fishing opportunities however there are limited accommodations and services to support and or attract visitors (DOPE OCP 2013). Tourism room revenue in Prince Rupert increased from \$7.7 million to \$8.7 million between 2010 and 2012, marking a 13.0% increase after the global economic downturn of 2008-2009, which affected tourism in the region and the province. Tourism revenue for BC increased by 4.1% between 2010 and 2012 (BC Stats 2013b).

With seafood processing being a major industry in Prince Rupert, the Canadian Fishing Company and JS McMillan are among the largest private employers. The largest public employers include School District 52, the Northern Health Authority, and the City of Prince Rupert. Other large employers are industries related to the port and commodity terminals, services, and utilities (PRPEEDC, no date (c)).

Labour Force Participation

Table 14-7 summarizes available information on the characteristics on the labour force in the RAA for 2006 and 2011. While complete data are available for Prince Rupert, the Dolphin Island 1 IR, and the Price Rupert Census Agglomeration (CA) which includes Port Edward, only partial information is available for one rural area in the RAA (Skeena-Queen Charlotte RDEA A) and one reserve (S1/2 Tsimpsean 2 IR). There is no information for one reserve (Lax Kw'alaams 1 IR) and one rural area (Skeena-Queen Charlotte RDEA C). Thus, available information is known to be incomplete, but is available for the majority of the population within the RAA.

In 2011, there were 6,980 people aged 15 years and older in the labour force and, of these, 65.5% were employed or actively seeking work (the labour force participation rate) and 15.0% were unemployed. Between 2006 and 2011, the number of people in the labour force decreased by 5.0% (based on those communities in the RAA for which there was 2006 and 2011 data), the number of employed workers decreased by 6.2%, and the rate of unemployment increased by 1.0 percentage points. Available information indicates there were about 1,045 unemployed workers in the RAA in 2011.

Table 14-7: Labour Force Characteristics in the RAA, 2006 and 2011

Community	Labour Force		Participation Rate (%)	
	2006	2011	2006	2011
Prince Rupert	6,950	6,520	68.3	65.5
Port Edward	280	340	64.4	75.6
Lax Kw'alaams 1 IR	NA	NA	NA	NA
S1/2 Tsimpsean 2 IR	55	NA	52.4	NA
Dolphin Island IR 1	120	120	44.4	35.8
Skeena-Queen Charlotte RDEA A	35	NA	70.0	NA
Skeena-Queen Charlotte RDEA C	NA	NA	NA	NA
Regional Assessment Area	7,440	6,980	67.7	65.5

Source: Statistics Canada (2007a, 2013a)

NOTES:

NA – Data are not available

The 5.0% decline (370 people) in the labour force from 2006 to 2011 is larger than the decline in population, and this suggests that unemployed workers are leaving the region to seek work elsewhere. In addition, there has also been a decline in the labour force participation rate: from 67.7% in 2006 to 65.5% in 2011. This is consistent with the observation that the existing workforce is relatively old and workers are retiring, and that chronic levels of unemployment may have resulted in some people having chosen not to participate in the labour force and are no longer looking for work. It should be noted that the available data do not include any information for the Lax Kw'alaams 1 IR, which has a population that is larger than that of Port Edward and thus could increase the size of the overall RAA labour force by another 300 to 400 workers.

Table 14-7 also shows that labour force participation rates for people living on the reserves in the RAA tend to be much lower than for major communities. In 2006, labour force participation rate for two of the three reserves was 52.4% or less, compared to 68.3% in Prince Rupert, and in 2011 the rate had dropped to 35.8% on the Dolphin Island 1 IR.

Unemployment

Available information from the NHS indicates that there were about 1,045 unemployed workers in the RAA in 2011 and this represents an overall unemployment rate of 15.0% (see Table 14-8). However, unemployment data are not available for the two largest reserves in the RAA. Most of the unemployed workers resided in Prince Rupert, which saw its unemployment rate increase from 12.9% in 2006 to 14.6% in 2011, even though the labour force diminished in size. Although Prince Rupert had 430 fewer people in the labour force in 2011, it also had 55 more unemployed workers

than in 2006. Unemployment rates on the reserves, especially Dolphin Island 1 IR, were considerably higher than in Port Edward or Prince Rupert.

Table 14-8: Unemployed Labour Force in the RAA, 2006 and 2011

Unemployed Labour	2006	2011	Percent change 2006-2011	Unemployment Rate (%)	
				2006	2011
Prince Rupert	895	950	6.1	12.9	14.6
Port Edward	60	50	-16.7	21.4	14.7
Lax Kw'alaams IR 1**	NA	NA	NA	NA	NA
S1/2 Tsimpsean IR 2	25	NA	NA	28.6	NA
Dolphin Island IR 1	75	45	-40.0	62.5	37.5
Skeena-Queen Charlotte RDEA A	10	NA	NA	NA	NA
Skeena-Queen Charlotte RDEA C	NA	NA	NA	NA	NA
Regional Assessment Area	1,065	1,045	1.5	14.0	15.0

Source: Statistics Canada (2007a, 2013a)

NOTES:

NA – Data are not available

There are no data on changes in unemployment since 2011 for the RAA. However, unemployment rates are reported for the North Coast/Nechako Development Region (NCNDR) in which the RAA is situated. The unemployment rates in the NCNDR are shown in Table 14-8 for the period from 2006 to July 2013. The data indicate that, with the exception of June and July of 2013, unemployment rates in the NCNDR were higher than the provincial rates, and that unemployment rates in NCNDR have been declining since 2012. Figure 14-3 also shows there has been a steady decline in the number of employed workers in the NCNDR since 2008, with lowest number (39,200 workers) occurring in April 2013. However, there has been an increase in regional employment since then, indicating that increased economic activity in the region has been creating jobs and reducing unemployment rates.

The trend for the RAA is less clear. The rates of unemployment in the RAA have been much higher than for the NCNDR. In 2011, the unemployment rate of 15% in the RAA was nearly twice the unemployment rate in the DR (8.6%). Similarly, the unemployment rate in the RAA in 2006 (14.0%) was double the rate in the NCNDR (6.8%). It is not known how much of the recent decline in unemployment in the NCNDR has occurred in the RAA.

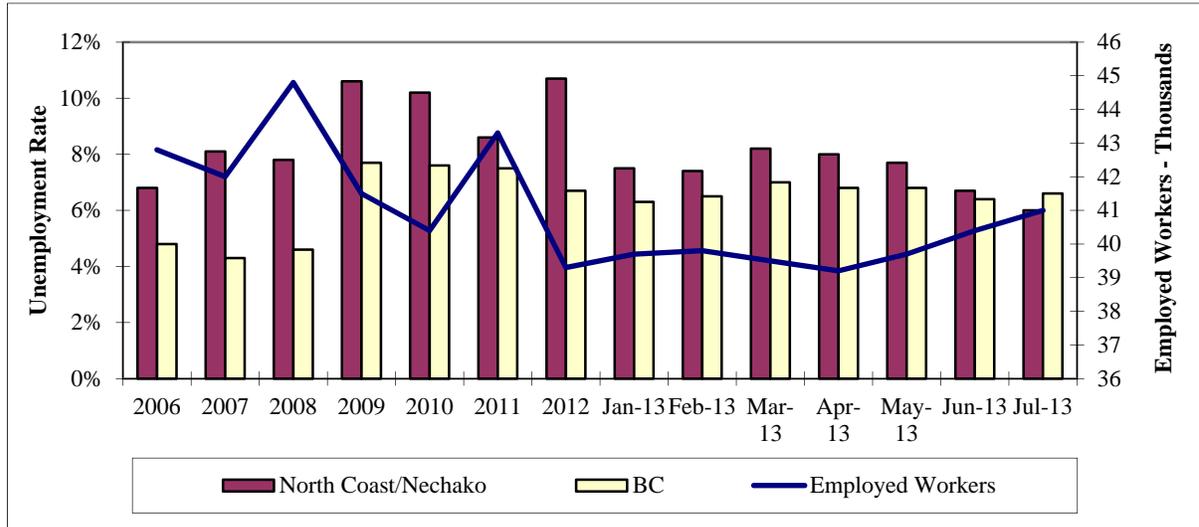


Figure 14-3: Unemployment Rates, North Coast/Nechako Development Region, 2006 to July 2013

Source: BC Stats, 2013c

Labour Force by Industry

Table 14-9 summarizes information on the industry of employment for the labour force in the Prince Rupert CA for 2006 and 2011. The results indicate there were 5.05 jobs in service industries (retail and wholesale trade, financial services, health care, education and business services) for every job in goods producing industries (agriculture and resource-based industries, construction and manufacturing) in the Prince Rupert CA.

Table 14-9: Labour Force by Industry in the Prince Rupert CA, 2006 and 2011

Industry	2006	2011	Change 2006 to 2011
Agriculture and other resource-based industries	715	525	-190
Construction	315	310	-5
Manufacturing	730	270	-460
Wholesale trade	150	120	30
Retail trade	770	875	105
Finance and real estate	265	330	65
Health care and social services	605	685	80
Educational services	530	550	20
Business services	1,290	1,525	235
Other services	1,650	1,500	-150
Total	7,020	6,690	-330

Source: Statistics Canada (2007a, 2013a)

This ratio of service jobs to goods-producing jobs is very high. For comparison, there were 3.92 service jobs per goods producing job in the Skeena-Queen Charlotte RD and 4.36 service jobs per goods producing job in BC. For the Dolphin Island 1 IR, there were 2.67 service jobs per goods producing job. The high ratio of service jobs to jobs in goods-producing industries in 2011 attests to the importance of the Prince Rupert CA as the regional services and retail centre

Table 14-9 shows that, when the labour force in the Prince Rupert CA shrank between 2006 and 2011, there was also a change in the employment by industry. During this period there was a major loss of employment in the manufacturing industry (a loss of 460 jobs) but part of this loss was partially offset by increased employment in the business services (235 jobs), retail trade (105 jobs), and health care and social service industries (80 jobs). Thus, there has been a major loss of employment in goods producing industries and large increase in service sector jobs since 2006.

Despite the economic downturn that has occurred in the RAA since 2006, the regional economy is still considered to be moderately resilient. Although the labour force has declined as a result of job losses in goods-producing industries, these losses have at least partially been offset by some increased employment in service industries. There are a relatively large number of unemployed workers who, with appropriate training, are available to accommodate the labour demands of small to moderate size new projects. Many of these are Aboriginal people living off-reserve in the Prince Rupert CA.

Aboriginal Labour Force Characteristics

Within the RAA, there are important differences between the Aboriginal and non-Aboriginal components of the labour force. Table 14-10 shows labour force characteristics for the Aboriginal and non-Aboriginal populations for 2011. The table shows that lower percentages of the Aboriginal adult population were active in the labour force: about 56.7% of Aboriginal people were working or seeking work compared to 70.0% of the non-Aboriginal population. However, in Port Edward, the labour force participation rate of Aboriginal residents was higher than for non-Aboriginal residents.

Similarly, the unemployment rate for the Aboriginal population (24.6%) was much higher than for the non-Aboriginal population (10.2%). Rates of unemployment on the Dolphin Island 1 reserve were 14 percentage points higher than for Aboriginal people living in Prince Rupert. These statistics suggest that the greatest untapped potential future employment relates to Aboriginal population, which has a relatively low labour force participation and very high unemployment.

Table 14-10: Aboriginal and Non-Aboriginal Labour Force Characteristics in the RAA, 2011

Labour Force	Participation Rate (%)			Unemployment Rate (%)		
	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal
Prince Rupert	65.5	57.5	69.9	14.6	24.4	10.1
Port Edward	75.6	81.1	71.7	14.7	16.7	13.2
Dolphin Island IR 1	35.8	34.8	100.0	37.5	39.1	0.0
Regional Assessment Area	65.0	56.7	70.0	15.0	24.6	10.2

Source: Statistics Canada (2013a, 2013b)

Table 14-10 describes the Aboriginal and non-Aboriginal workforce in the RAA based on industry of employment. It shows that a large number of the off-reserve Aboriginal labour force was employed in agriculture and other resources-based industries, which include fishing and logging. This industry accounted for 13.0% of employment of the on-reserve Aboriginal labour force compared to 5.6% of the non-Aboriginal population. Compared to the non-Aboriginal labour force, smaller percentages of the on-reserve Aboriginal labour force were employed in construction, finance and real estate, and educational services. Higher percentages of the off-reserve population were employed in manufacturing (which includes fish processing), health care and social services, and business services. For the on-reserve population on the Dolphin Island 1 reserve, other services, which include public administration, accounted for more than half of total employment (54.5%), while 18.2% were employed in construction.

Table 14-11: Aboriginal and Non-Aboriginal Labour Force by Industry in the RAA 2011

Industry	Non-Aboriginal	Off-Reserve Aboriginal	On-Reserve Aboriginal	Total
Agriculture and other resource-based industries	260	265	10	535
Construction	255	55	20	330
Manufacturing	180	90	0	270
Wholesale trade	120	0	0	120
Retail trade	585	280	0	875
Finance and real estate	305	25	0	330
Health care and social services	450	235	10	695
Educational services	455	105	10	560
Business services	1,010	515	0	1,525
Other services	1,025	475	60	1,560
Total	4,645	2,045	110	6,800

Source: Statistics Canada (2013a, 2013b)

Table 14-11 shows the changes in employment by industry that occurred for Aboriginal and non-Aboriginal residents of the Prince Rupert CA between 2006 and 2011. As noted in Table 14-9, there was a major decrease in employment in manufacturing between 2006 and 2011, but Table 14-12 shows 60% of these losses (275) were experienced by the Aboriginal portion of the labour force. It also shows that, for the Aboriginal portion of the Prince Rupert CA labour force, there were net losses in employment in construction (30 jobs), finance and real estate (30 jobs), and wholesale trade (35 jobs) but these were more than offset by increased employment in retail trade (90 jobs), health care and social services (100 jobs), and agriculture and other resources based industries (60 jobs). Overall, there was a net increase in employment for Aboriginal workers (130 jobs) between 2006 and 2011, with increased employment in service sector jobs offsetting the loss of manufacturing jobs.

For the non-Aboriginal portion of the labour force, the economic changes between 2006 and 2011 resulted in a net loss of 460 jobs. There were major jobs losses in agriculture and other resource-based industries (250 jobs), manufacturing (185 jobs), and other services (155 jobs). While there were minor increases in employment in finance and real estate (95 jobs), educational services

(35 jobs) and construction (25 jobs), these increases only offset 26% of the jobs losses. Thus, the change in the size of the labour force shown in Table 14-7 for Prince Rupert and Port Edward (a net reduction of 370 people both employed and unemployed) consists of two components: a major reduction in the number of non-Aboriginal workers (460 jobs) that was partially offset by increased employment of Aboriginal workers.

Table 14-12: Changes in Aboriginal Employment by Industry in the Prince Rupert CA, 2006 and 2011

Industry	Aboriginal			Non-Aboriginal		
	2006	2011	Change 2006 to 2011	2006	2011	Change 2006 to 2011
Agriculture and other resource-based industries	205	265	60	510	260	-250
Construction	85	55	-30	230	255	25
Manufacturing	365	90	-275	365	180	-185
Wholesale trade	35	0	-35	115	120	5
Retail trade	190	280	90	580	585	5
Finance and real estate	55	25	-30	210	305	95
Health care and social services	135	235	100	470	450	-20
Educational services	110	105	-5	420	455	35
Business services	265	515	250	1,025	1,010	-15
Other services	470	475	5	1,180	1,025	-155
TOTAL	1,915	2,045	130	5,105	4,645	-460

Source: Statistics Canada (2007a, 2007b; 2013a; 2013b)

There are also some important differences in the age structure of Aboriginal and non-Aboriginal residents most likely to be in the labour force (people between the age of 15 and 64 years of age). Figure 14-4 shows the number of Aboriginal and non-Aboriginal residents in the Prince Rupert CA in 2011. It shows that the non-Aboriginal population is relatively older; 12% of the Non-Aboriginal population is within five years of retirement at 65 years compared to 7% of the Aboriginal population.

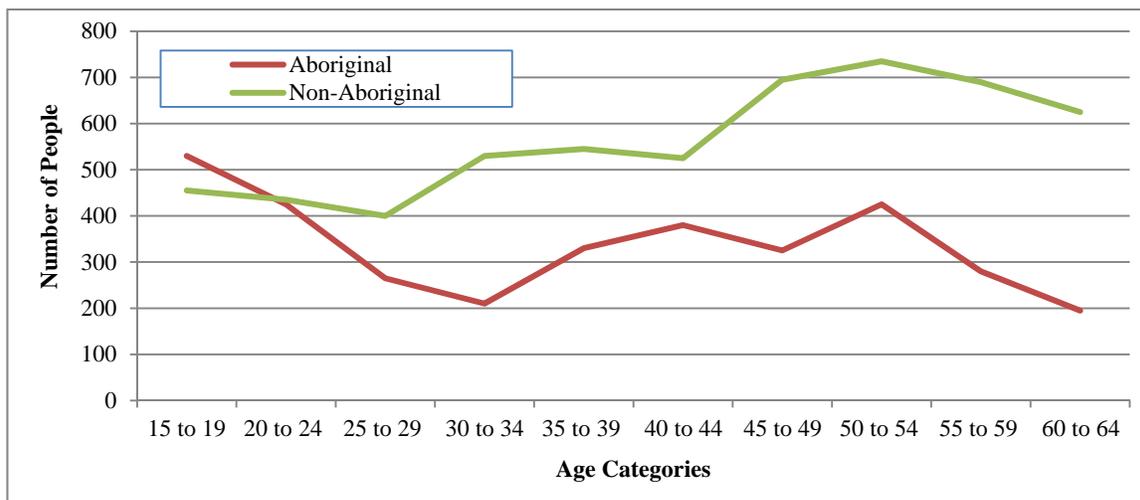


Figure 14-4: Age Composition of the Aboriginal and Non-Aboriginal Labour Force in the Prince Rupert CA, 2011

Source: Statistics Canada (2013a; 2013b)

The information in Figure 14-4 also indicates that 53% of the working age non-Aboriginal population is over the age of 45 years, compared to 43% of the non-Aboriginal population. There are relatively few people in the 25 to 34 year age range (18% of people of working age) for both Aboriginal and non-Aboriginal residents. While there are a growing number of people in the potential future labour force (people aged 15 to 19, many of whom are still in school), more than half the current population (54%) are Aboriginal.

14.3.2.3 Educational Attainment

Residents of the RAA tend to have lower levels of educational attainment than did residents of BC. Table 14-13 indicates that, as of 2011, 30.0% of adults in Prince Rupert (people aged 15 years and older) had not completed high school and another 27.0% had completed high school but had no post-secondary training.

Table 14-13: Educational Attainment of Adults in the RAA and British Columbia, 2011

Highest Level of Educational Attainment	Percentage of the Adults Aged 15 Years and Older (%)				
	Prince Rupert	Port Edward	Dolphin Island 1	Skeena- Queen Charlotte CD	British Columbia
No certificate; diploma or degree	30.0	8.9	70.1	31.6	16.7
High school certificate or equivalent	27.0	45.6	20.9	26.1	27.7
Apprenticeship or trades certificate or diploma	11.7	30.0	3.0	12.0	10.6
College or other non-university certificate or diploma	14.2	8.9	4.5	13.2	17.2
University certificate or diploma below the bachelor level	4.4	2.2	0.0	4.4	5.7
University certificate; diploma or degree	12.8	5.6	0.0	12.7	22.1

Source: Statistics Canada 2013a

In BC, 16.7% of adults had not completed high school and another 27.7% had only completed high school. However, the lowest levels of educational attainment were found on the Dolphin Island 1 IR, where 70.1% of adults had not completed high school. Port Edward had a much higher percentage of people with an apprenticeship or trades certificate or diploma (30.0%) than did Prince Rupert (11.7%), or BC (10.6%).

According to the Mayor of Prince Rupert, people now in their 50s and 60s did not need a high school diploma to go salmon or halibut fishing or work at the saw or pulp mill when they were younger (Mussallem 2013). Today, many people find themselves unemployable because they lack specific skills training and education (Mussallem 2013).

There were major differences in levels of educational attainment for Aboriginal and non-Aboriginal residents of the RAA. In 2011, 45.9% of Aboriginal adults (people aged 15 and older) in the Prince Rupert CA had not completed high school, compared to 19.7% of non-Aboriginal adults (Table 14-14), although part of the difference is because of the higher number of Aboriginal people aged 15 to 19 who may still be in school. Similarly, 16.1% of non-Aboriginal adults had a university certificate, degree or diploma, compared to 6.0% of Aboriginal adults. The percentage of the adult population who had an apprenticeship or trades certificate or diploma was 9.7% for the Aboriginal population and 14.0% for the non-Aboriginal population.

Table 14-14: Levels of Educational Attainment for Aboriginal and Non-Aboriginal People in the Prince Rupert CA, 2011

Highest Level of Educational Attainment	Percentage of the Adults Aged 15 Years and Older (%)		
	Prince Rupert CA	Aboriginal	Non-Aboriginal
No certificate; diploma or degree	29.1	45.9	19.7
High school certificate or equivalent	27.8	24.3	29.7
Apprenticeship or trades certificate or diploma	12.5	9.7	14.0
College or other non-university certificate or diploma	13.9	11.2	15.5
University certificate or diploma below the bachelor level	4.3	2.8	5.2
University certificate; diploma or degree	12.4	6.0	16.1

Source: Statistics Canada (2013a; 2013b)

A lack of education, money, and access to skills training in Prince Rupert and Port Edward were cited as major obstacles to finding good employment (PC 2013). Respondents between the ages 29 to 39 (non-visible minorities and non-Aboriginal) felt that even if they had the money they would be unable to upgrade their education and skills because programs are held in the day time, or, they are only available in Terrace and Prince George (PC 2013). It is difficult for them to take the time off without putting themselves at risk of losing their current jobs.

14.3.2.4 Earnings and Income

Income and earnings data for communities within the RAA, as reported for 2010, are shown in Table 14-15. The average earnings for adult residents of the Prince Rupert CA (\$36,291) were 8% lower than for BC (\$39,415) but were 6% higher than for the Skeena-Queen Charlotte RD (\$34,256).

Table 14-15: Income and Earnings in the RAA, 2011

	Income in 2010 (\$)		Earnings from Full-Time Employment (\$)	
	Median	Average	Median	Average
Prince Rupert	28,432	36,347	49,425	55,220
Prince Rupert CA	28,256	36,291	49,623	55,043
Aboriginal	19,574	26,190	41,559	45,238
Non-Aboriginal		41,739		59,083
Port Edward		35,087		50,034
Dolphin Island 1 IR	10,241	13,327	24,208	29,441
Skeena-Queen Charlotte RD	25,971	34,256	48,567	53,018
British Columbia	28,765	39,415	49,143	58,016

Source: Statistics Canada (2013a, 2013b)

Within the Prince Rupert CA, non-Aboriginal residents reported average incomes (\$41,739) that were 59% higher than for Aboriginal residents. Residents of Prince Rupert had average earnings that were 4% higher than for residents of Port Edward. Residents of the Dolphin Island 1 reserve had average incomes (\$13,327) that were 63% less than for the Prince Rupert CA. A similar pattern was observed for average earnings from people who reported full time.

Average incomes reported by males in the Prince Rupert CA were 35% greater than for females; this difference was higher than in the RD (where the difference was 27%) but lower than in BC (where the difference was 50%). Within the Prince Rupert CA, Non-Aboriginal males reported average incomes that were 37% higher than for females, but Aboriginal males had average incomes that were only 21% higher than for females.

The composition of incomes varied from community to community. Figure 14-5 shows that, for BC, 73.7% of income came from earnings, 11.7% came from government transfers, and 14.7% came from other sources. A similar pattern existed for the Skeena-Queen Charlotte RD, although there was more reliance on government transfers (16.0% of income) and less reliance on other sources. For residents of the Prince Rupert CA, 75.4% of income came from earnings, 15.3% from government transfers and 9.3% came from other sources. Within the CA, earnings accounted for 76.7% of incomes reported by Non-Aboriginal residents, compared to 71.5% for Aboriginal residents. Aboriginal residents obtained 24.0% of their incomes from government transfers compared to 12.4% of incomes for non-Aboriginal residents. However, residents of the Dolphin Island 1 reserve obtained 41% of their incomes from government transfers and 55.6% from earnings.

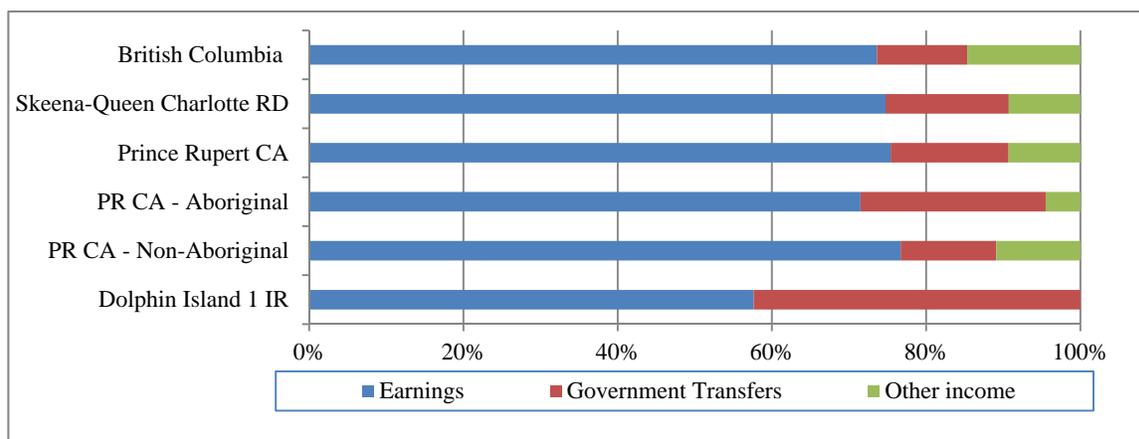


Figure 14-5: Composition of Total Income, 2011

Source: Statistics Canada 2013a, 2013b

14.3.2.5 Cost of Living

The costs of living can be estimated for various communities in BC using a cost of living calculator provided by Welcome BC (2013). The calculator estimates living costs based on family income, family size (number of adults and children), house size and ownership (owned or rented), the method of transportation to work (transit or private vehicle) and travel distance, and other known family expenses. Table 14-16 show the estimated cost of living for a family of three (two adults and one dependent) that owns an average 2,000 square foot house and travels to work by car about 6 km per day, for both Prince Rupert and Vancouver for various levels of family income.

Table 14-16: Estimated Cost of Living for a Family with One Dependent, by Annual Income

Community:	Prince Rupert			Vancouver		
Annual Income:	\$75,000	\$100,000	\$125,000	\$75,000	\$100,000	\$125,000
Expenses	57,374	71,951	87,684	88,565	101,936	116,523
Consumables	24,577	29,127	33,677	20,218	23,851	27,483
Transportation	2,039	2,765	3,491	1,335	1,780	2,286
Health Care	1,718	1,819	1,919	1,752	1,845	1,937
Housing	17,253	17,253	17,253	53,473	53,473	53,473
Taxation	11,787	20,987	31,344	11,787	20,987	31,344

Source: Welcome BC (2013)

It shows that the income taxes paid by those households are the same, but the other costs vary considerably. Housing accounts for 24% of expenses for a family in Prince Rupert earning \$75,000 but 52% of expenses for a similar family in Vancouver. The other costs (consumables, transportation and health care) are about 22% higher for families in Prince Rupert than for a similar family in Vancouver.

14.3.2.6 Municipal Government Finances

For the fiscal year 2011, the City of Prince Rupert reported total revenues of \$33.9 million and total expenses of \$29.4 million (MCSPD 2013). About 50% of revenues came from taxes and grants in lieu of taxes, 34% came from sales of services, and 11% came from transfers from the BC Government. The assessed value of property, as a source of municipal tax revenues, totaled \$991 million. Of this, residential property accounted for 72%, business properties accounted for 16%, major industrial properties accounted for 9% and light industrial properties accounted for 2%. Protective services accounted for 25% of the city's total expenditures in 2011, followed by solid waste management and recycling (6%) and amortization of debt (6%). The City's 2013 financial plan was prepared under the assumption that it would provide approximately the same level of services as it did in 2012, with costs and revenues adjusted to reflect factors such as wage and utility fee increases. However, due to rising costs of water and sewer remediation, and paving projects, the operating fund is forecast to be in deficit. Several options to address the deficit, including reducing services or increasing taxes, have been proposed by the City for the 2013 financial plan (COPR 2013).

For the same period (2011), the District of Port Edward reported total income of \$2.0 million and expenditures of \$2.4 million (MCSPD 2013). Revenues from taxes and grants in lieu of taxes represented 36% of total income, while sales of services and transfers from regional and other governments each accounted for 28%. Transfers from the federal government and the provincial government provided 8% and 21% of total income, respectively. Properties in the District had an assessed value of \$44.4 million, of which residential properties accounted for 68%. Utilities contributed 11% of the assessed values while business properties accounted for 11% and light industrial properties accounted for 1%. While general government costs accounted for 22% of total spending in 2011, debt amortization accounted for 28%. Other cost items included parks, recreation and culture (9%), transportation and transit (8%), water services (8%) and other services (15%). Port Edward's financial plan projects a budgeted surplus for each year between 2012 and 2016 (DPE 2012).

In 2011, the Skeena-Queen Charlotte RD had total revenues of \$5.3 million and expenses of \$4.2 million (MCSPD 2013). While 30% of revenues come from the sales of services, 23% comes from requisitions from other local governments, 17% comes from the provincial government and 27% comes from debt payments paid by member municipalities. The same debt payments account for 33% of the RD's costs. Other important cost items include solid waste management and recycling (31%), general government (19%) and parks, recreation and culture (9%). Total tax revenue for Skeena-Queen Charlotte Regional District was expected to be \$1.22 million in 2012, representing an increase of 1.9% over 2011 (SQCRD 2012). The 2012 budget for the region was balanced, with no anticipated deficit or surplus.

14.3.2.7 Future Regional Development

The RAA is potentially poised for a major economic expansion. For Prince Rupert, three port and harbour projects are currently under construction (see Table 14-17).

Table 14-17: Projects Currently Under Construction in the RAA

Project	Proponent	Cost (million)	Description	Start	Completion
Prince Rupert Port Expansion	Prince Rupert Port Authority	820	Expansion of the existing port. Phase 1 completed in late 2007 at a cost of \$170 million. Phase 2 (\$650 million) includes a \$90 million Road Rail Utility Corridor which commenced construction in Mar 2013.	2006	2014
Westview Pellet Terminal	Pinnacle Renewable Energy Group	42	Proposed wood pellet export facility located at the Westview Terminal	2012	2013
Ridley Terminals Expansion	Ridley Terminals Inc.	200	Expansion to increase shipping capacity from 12 to 24 million tonnes per year will take place in 4 phases.	2012	2015

Source: BC MJTST (2013)

The BC Major Projects Inventory identifies nine future projects in the RAA with a combined value of \$24 billion. These are listed in Table 14-18. Two of these, valued at \$11.0 billion combined, consist of natural gas pipelines, including the Prince Rupert Gas Transmission Project. A third project, Prince Rupert LNG proposed by the BC Group, is estimated to cost \$10.0 billion. These LNG projects are being proposed in support of the provincial government's economic strategy. Introduced by the Ministry of Energy and Mines in 2011, the BC Jobs Plan set targets for the development of LNG operations. These targets include seeing one LNG facility operational by 2015 and a total of three facilities operating by 2020 (BCMEMP, no date).

The other six projects are two wind energy projects collectively valued \$2.4 billion and four small transportation, commercial, and industrial development projects in Prince Rupert. Another two projects are currently on hold. These include the North Coast Wind Power Project and the Mount Hays Wind Farm and would have a combined cost of \$950 million. Both projects were developed in response to calls for clean power generation by BC Hydro, but potential start and completion dates are not known.

In terms of future employment in the RAA, conservative estimates suggest that Northwest BC may gain up to 6,000 jobs between 2010 and 2020 (NWRWT 2012). Optimistic estimates that include additional investments in mining and LNG export facilities and pipelines estimate up to 13,000 jobs during the same period (NWRWT 2012). A labour supply shortfall (trades, labourers, semi-skilled workers, truck and equipment operators, managers and supervisors, and technologists and technicians) is predicted to occur as early as 2013 (NWRWT 2012). A recent Prince Rupert Business Retention and Expansion Survey (2012) indicates that there is already a skilled labour shortage where two out of five businesses could hire if there were skilled resources available (CF 2012). Prince Rupert businesses have recommended that increased investment in skills training (along with increased opportunities for training with industry onsite) will help identify labour pool gaps and attract potential workers wanting to complete specific training courses (CF 2012).

Table 14-18: Proposed Projects within RAA identified in the Major Projects Inventory

Project	Proponent	Cost (million)	Description	Start	Completion
Mount McDonald Wind Power Project	Rupert Peace Power Corporation	1,000	Proposed 250 MW wind farm with 100 to 150 wind turbine generators, will include new infrastructure and roads.	Unknown	Unknown
Natural Gas Pipeline	Spectra Energy/BG Group	6,000	850 km natural gas pipeline would move up to 4.2 billion cu ft/d of gas from fields in northeast BC to a potential terminal in Prince Rupert.	2015	2019
Tsimshian Peninsula Project/Tuck Inlet Road	Prince Rupert City	181	A proposal, now consisting of a system of road works and ferries, and a bridge that would connect the City of Prince Rupert with the airport and several native villages is under review.	Unknown	Unknown
Prince Rupert Potash Terminal Expansion	Canpotex Terminals Ltd.	400	Proposed potash terminal expansion including a marine wharf all weather ship loading facility, railcar conveyor system, a 180,000 DWT potash storage building, and maintenance and personnel buildings.	Start: Spring 2013	Finish: 2016
Banks Island North Wind Energy Project	Katabatic Power Corp.	1,400	Proposed 700 MW wind energy project consisting of 234 wind turbines and transmission line that would link to the BC Hydro grid.	Unknown	Unknown
Atlin Uplands Development	City of Prince Rupert	15	Proposed waterfront mixed-use development on three lots, with a total of 58,000 sq ft, for hotel and retail/residential projects.	Unknown	Unknown
Prince Rupert LNG Facility	BG Group	10,000	Proposed LNG export facility on Ridley Island with a capacity of 21 million tonnes/y. The first phase consists of 2 production trains and a ship loading berth with a third train and a second berth to be constructed as part of the second phase.	2016	2020
Prince Rupert Gas Transmission Project	TransCanada Corp.	5,000	Construct a 750 km natural gas pipeline from Fort St. John to Pacific NorthWest LNG export facility at Port Edward, near Prince Rupert.	2015	Late 2018
Watson Island Industrial Site Redevelopment	Colonial Coal International Corp./Coast Tsimshian Nation	15	Redevelopment of the Watson Island site for transloading facilities, cold storage and warehousing.	Spring 2013	2015

Source: BC MJTST 2013

In Prince Rupert, population decline and an eroding customer base was cited as the single most important concern facing businesses (CF 2012). Businesses that service industry (e.g., printing services, repair services and warehouses) are present in Prince Rupert (COPR OCP 2007). However, the number of businesses that are winning contracts with industries with strict bidding polices is small. While efforts are being made by the City of Prince Rupert in collaboration with Northern Development Initiative Trust to create awareness about what is required to win contracts with large scale industry, participation rates are still low. In Port Edward citizens have expressed a strong desire for increased commercial activity as retail sales and hospitality services are currently limited (DOPE OCP 2013).

14.4 Project Interactions with the Economic Environment

Table 6-4 presents the ranking of effects that could result from interactions between the economic environment and project activities. For effects on the economic environment, it is impossible to distinguish the potential effects for individual project activities. For example, the activities listed for construction, including surveying, clearing and grubbing, topsoil salvage, site preparation and grading, and facility installation will each create some employment and income effects, but it is not feasible or practical to differentiate the potential effects associated with each activity. As a result, project interactions with the economic environment are considered in the overall context of the three phases of the Project: construction, operations, and decommissioning (i.e., all interactions are ranked as 2).

Table 14-19: Potential Effects on the Economic Environment

Project Activities and Physical Works	Potential Effects		
	Change in Regional Labour Supply and Demand	Change in Cost of Living and Economic Activity	Change in Municipal Government Finances
Construction	2	2	2
Operations	2	2	2
Decommissioning	2	2	2

KEY:

0 = No interaction.

1 = Potential adverse effect requiring mitigation, but further consideration determines that any residual adverse effects will be eliminated or reduced to negligible levels by existing codified practices, proven effective mitigation measures, or best management practices.

2 = Interaction may occur and resulting effect may exceed acceptable levels without implementation of project-specific mitigation. Further assessment is warranted.

14.4.1 Justification of Interaction Rankings

Potential interactions between the Project and the economic environment were assigned a rank of 2 because the interaction will occur and, in the absence of understanding potential effects in terms of other changes that are occurring in the RAA at the same time, it is possible that effects may exceed acceptable levels without implementation of special mitigation. In this case, “exceed acceptable levels” refers to the potential for effects to exceed the capacity of existing or planned programs, services, or infrastructure or to cause major changes in their cost, delivery, or quality. Further assessment is warranted to determine what these cumulative effects in the RAA might be and to

identify appropriate mitigation measures (to reduce adverse effects) and enhancement strategies (to reinforce positive effects)

14.5 Effects Assessment

14.5.1 Analytical Methods

14.5.1.1 Analytical Assessment Techniques

The assessment of potential effects examines the Project's requirements for labour, goods, and services in the context of what the surrounding region is able to provide. This demand–supply matching approach is used to estimate the number of residents of the RAA who could be directly employed on project construction and operations and the requirements for imported workers from outside the RAA. This approach is also used to estimate the potential value of purchases from businesses in the RAA that may be capable of supplying some of the goods and services needed to support construction and operation of the Project and imported workers. Information related to the Project's capital and operation costs and employment were received from Pacific NorthWest LNG Limited Partnership (PNW LNG).

For estimating the potential regional indirect and induced employment and income effects during the construction phase, the analysis relies on the results of the Statistics Canada Interprovincial Input/Output Model (SCIPIOM) that was used to estimate provincial level effects (See Section 29), estimates of the regional labour market, PNW LNG's information related to project labour requirements, and a 2009 BC Stats publication that provides employment ratios for Prince Rupert local area (Horne 2009). The employment ratios are calculated from the BC Input/Output Model and rely on 2008 data. Horne (2009) indicates that, for every direct construction job created in the Prince Rupert area, there were 0.26 indirect jobs and between 0.06 and 0.17 induced jobs, with the higher end of the range assuming that there was no or little unemployment; so, additional spending would result in more new employment. These ratios are used in the analysis to predict economic changes from the Project.

There is no corresponding information with which to assess the potential indirect and induced effects during the operations phase because there is no equivalent type of industrial development in the region. For project operations, the results of the SCIPIOM indicate that would be 0.3 indirect jobs in BC for every direct job created by the Project, and it is expected that most of these would be in the RAA. Consequently, it is assumed that there will be 0.2 indirect jobs per direct job in the RAA. However, there are expected to be larger induced effects (0.2 to 0.4 induced jobs per direct and indirect job) because the average wages and salaries that would be paid will be large relative to the RAA average. These assumptions are based on the historical patterns of economic development in the RAA combined with professional experience with other major industrial projects in BC.

For estimating potential effects on living costs in the RAA, the approach involved examining current costs of living, using available data from Welcome BC (2013) as summarized in Table 14-16. This information was used to identify which types of costs most affected the overall cost of living and was compared to data for other nearby communities to identify which cost components varied the most among communities. Potential project effects were assessed by identifying cost items where a combination of increased spending and supply constraints could result in process increases.

Estimating changes in municipal revenues involved comparing estimates of municipal tax revenues against the potential costs on infrastructure and services as described in Section 16.

14.5.1.2 Assumptions and the Conservative Approach

The magnitude and significance of residual effects on economic environment will largely depend on what other projects are under construction and operation at the same time and what demands they will be placing on the regional economy. These projects were previously identified in Table 14-17 and Table 14-18. The available labour supply is relatively small in comparison to potential demands from all the projects that have been proposed for the RAA. The conservative approach, in this case, is to assume that all other projects would be constructed at the same time as this Project, and to consider residual effects in terms of the cumulative demands for labour, goods and services during this period. With many projects competing for a relatively small labour pool in the RAA, this approach may result in relatively small numbers of regional residents being available to work on this Project. As a consequence, construction of this Project, in combination with other projects, will result in high numbers of workers being imported from other parts of BC, Canada and even outside Canada. The presence of large numbers of non-local workers in the region could result in larger potential adverse effects in the RAA. The potential implications of having large numbers of imported workers on community services and infrastructure is addressed in Section 16 and Section 18. While the regional benefits of the Project on employment and income opportunities may be small (due to lack of capacity), there will be opportunities for the Project to enhance these regional benefits through commitments to training, hiring and procurement that could increase its use of regional labour and business services.

14.5.2 Change in Regional Labour Supply and Demand

The economy of the RAA has been in decline since 2006, with a shrinking workforce and increasing unemployment. In the absence of new development in the region, this trend is expected to continue. With no new job opportunities in their home communities, it is expected that the growing number of young people, half of whom are Aboriginal, will be forced to move elsewhere in search of employment or continue to live in the community and rely on income support. As of 2012, the Prince Rupert LHA had the highest percentage of youth (ages 15 to 24) on income assistance (BC Stats 2013a) of all 78 LHAs in BC.

14.5.2.1 Potential Effects

Construction

Construction of the Project is estimated to cost US\$11 billion, which, based on a Canada/US exchange rate of CDN\$1.04/US\$1, would be equivalent to CDN\$11.4 billion. This estimate is based on a Class 5 estimate and is considered accurate to within $\pm 40\%$. Key components of the cost estimate are provided in Figure 14-6. It shows that the majority of costs are related to retaining contractors to construct the facility. About 60% of the cost relates to the material, equipment and labour required by the prime contractor to assemble the LNG plant. Another 20% of costs related to subcontracts for site preparation and constructing the marine facilities (jetty and bridge), storage tanks, and buildings.

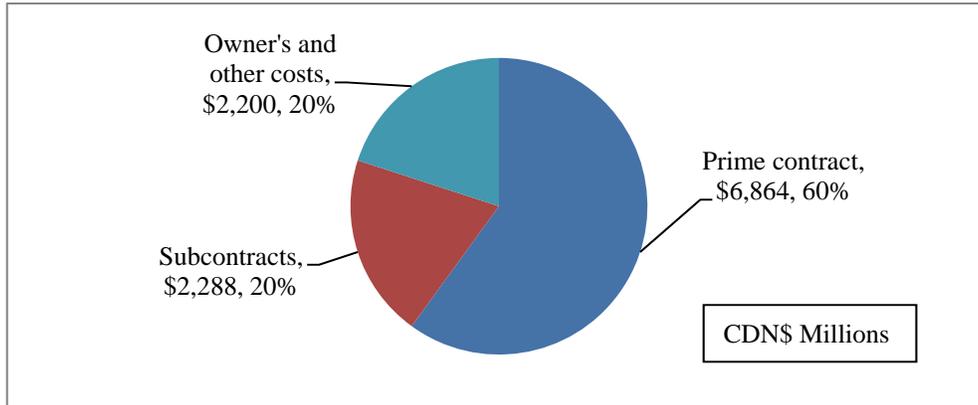


Figure 14-6: Major Components of the Project Capital Cost

Because of the specialized nature of the LNG facility, it is expected that much of the materials and labour for the Project will be imported. Overall, it is estimated that 32% of the labour, goods and services required for engineering, procurement, construction and commissioning (EPCC) will be procured from Canadian sources. When the Canadian portion of owner's and other costs are included, total expenditures in Canada are estimated to be \$3.4 billion. Components of project construction with a high Canadian content include subcontracts for site preparation, constructing the bridge and buildings, and operating the construction camp.

Project construction is to occur over five years, from 2015 through 2019, with nearly 4,000 workers employed during the peak construction season. Project construction will require about 13,000 PYs of direct labour, of which 95% will consist of onsite construction labour and the other 5% will consist of the project management team. Figure 14-7 provides estimates of the number of people who will be employed each year.

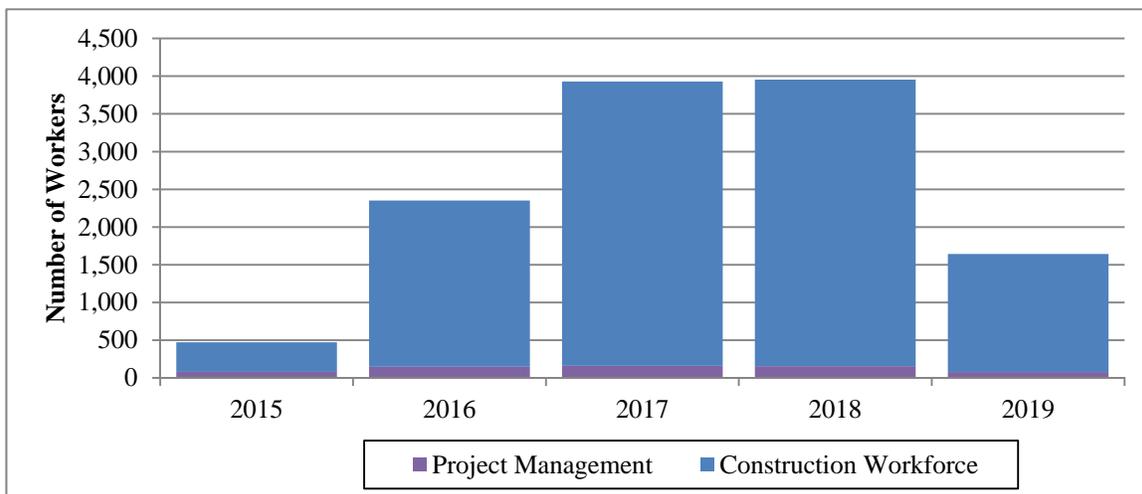


Figure 14-7: Construction Labour Force Requirements by Year

It is estimated that 57% of the peak workforce involved in constructing an LNG facility will consist of trades people, 25% will be trades helpers and labourers, 3% will be heavy equipment operators, 2% will be truck drivers and operators, 1% will be engineers, 1% will be managers, supervisors and foremen, and the balance (11%) will consist of a variety of other occupations (BC Natural Gas Workforce Strategy Committee 2013). According to PNW LNG, Canadian workers will account for 70% of the onsite workforce for the first three years of construction. Due to competition for labour from other projects, Canadian workers may account for 30% of the onsite workforce for the remaining two years of construction. Overall, Canadian workers will account for 62% of the onsite workforce and this represents about 8,000 PYs of construction work. At peak, there will be about 2,450 Canadian workers on the construction site.

The number of RAA residents who will participate in project construction will depend on the availability of workers with the appropriate skill sets and the competing demands of other projects. Available data suggest that the RAA has a very small labour force that has experience in construction. In 2011 there were about 330 workers in the RAA who had experience in the construction industry and 75 of these were Aboriginal people, 73% of whom were living in the Prince Rupert CA (Table 14-11). The existing labour force is also relatively old, with 50% of the population being between the ages of 45 and 64. However, in 2011 there were 1,000 unemployed workers in the Prince Rupert and Port Edward (Table 14-8) and, of these 52% were Aboriginal. There is also a large number of people aged 15 to 19 in the RAA, of whom 53% are Aboriginal, who have either just started working or will be seeking work within the next five years.

Figure 14-8 represents an estimate of the expected demand for construction workers over the period through 2019, based on major projects that are currently under construction or have been proposed for the region (BC MJTST 2013).

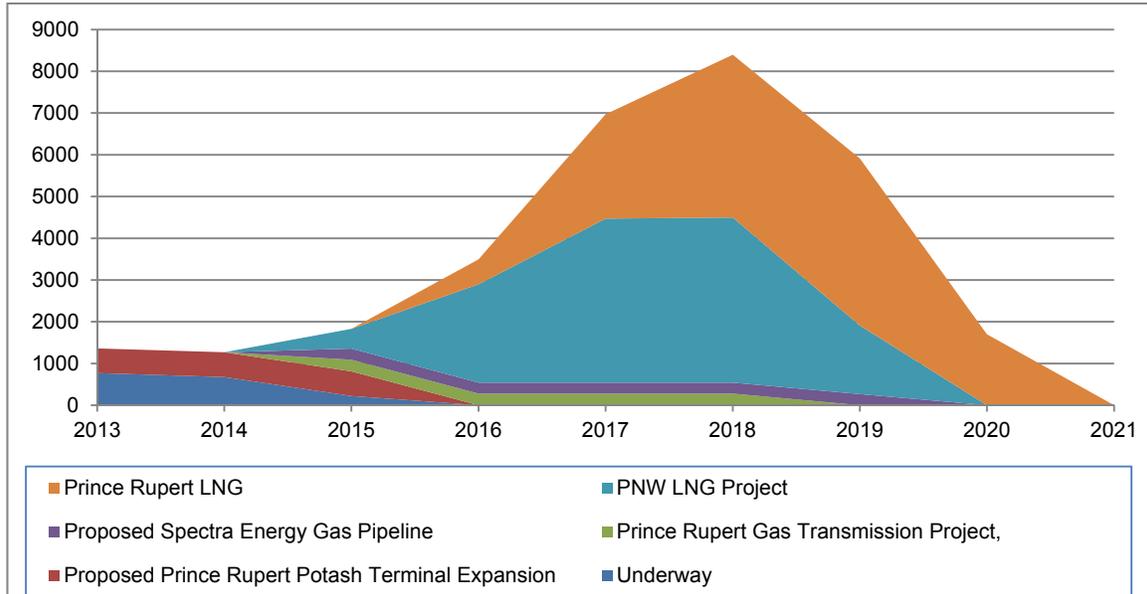


Figure 14-8: Labour Force Demands for Current, Proposed, and Reasonably Foreseeable Major Projects in the RAA

Figure 14-8 shows that the port expansion projects currently underway are employing about 700 construction workers, which means that there is already considerably more demand for construction workers than the RAA can provide. Work on projects that are currently under construction is expected to start to decline in 2015 (to about 250 workers) and be completed by 2016. This means that some RAA residents employed on these projects will then become available to work on other construction projects. On the assumption that about half of the current supply of construction labour in the RAA is currently employed on major projects that are underway, as many as 150 residents could become available for work on new projects by 2016.

There could be many new construction jobs for these workers, however. If the Canpotex Potash Export Terminal proceeds as planned, there would be opportunities for local residents, especially those with experience in constructing port facilities. However, this project could be completed by 2016. There could also be some employment opportunities associated with construction of the Prince Rupert Gas Transmission Project, which would supply the natural gas for the PNW LNG Project, as well as the proposed Westcoast Connector Gas Transmission Project. In combination, projects might require as many as 550 workers over the period from 2015 to 2018. Construction of the Prince Rupert LNG Facility Project is anticipated to commence in 2016 and employ about the same number of construction workers with the same skills as would be required for the PNW LNG Project. Thus, available information indicates that project demands for construction workers, in combination with the demands of other major projects that are currently underway or reasonably foreseeable, will vastly exceed the available construction labour force in the RAA. In addition, the estimates in Figure 14-9 do not include the labour required to construct some wind power generation projects (380 workers per year between 2015 and 2018) because there is some uncertainty as to whether these projects will proceed.

Figure 14-8 shows that by 2016, the labour requirements of the PNW LNG Project will exceed the demands for labour from all other proposed projects combined. However, with construction of the Prince Rupert LNG Facility starting in 2017, there will be considerable competition for the available RAA labour force. Consequently, it is reasonable to conclude that residents of the RAA will account for a small portion of the project labour force.

It is expected that the existing construction labour force from the RAA will be hired to construct those parts of the projects where they have experience (constructing the jetty, preparing the site, and constructing the bridge and buildings) as well as constructing and operating the construction camp. These items account for about 14% of the project construction cost and their labour requirements (1,825 PYs of work or the equivalent of 365 people working full-time over five years) would exceed the capacity of the RAA labour force. Given the potential demands of other projects, it is reasonable to assume that the Project could employ 50 existing construction workers from the RAA over the five years of construction. This represents 250 PYs of labour or 2% of total project labour force requirements.

However, this number could be increased by providing training to people who are currently unemployed or to youth who will soon be entering the job market. In 2011, 1,045 people aged 15 and older in the RAA were unemployed. According to the BC Natural Gas Workforce Strategy Committee (2013), construction and operation of an LNG facility will require a highly specialized workforce. And, while residents of the RAA may be at a disadvantage in terms of competing for the highly skilled positions, 25% of the project labour force will consist of trades helpers and labourers; this represents 3,225 PYs of work or the equivalent of 645 people per year over the five-year construction period. With appropriate training in the trades or as labourers, a relatively large number of young local residents could be able to participate in project construction.

The Northwest Regional Workforce Table (2013) has identified 34 construction and operational occupations that will be in particularly high demand in northwest BC over the next decade. It found that training programs for 21 of these occupations are currently available in the region. It also noted that targeted training is required for lower skilled people currently in the workforce, and that programs should be developed to attract the large numbers of Aboriginal youth who will be entering the labor force in the next decade. Assuming that these training programs are developed and implemented and that residents of the RAA participate in these programs, it is reasonable to conclude that another 150 regional residents could be qualified to help construct the Project. Based on the number of people currently aged 15 to 24, it is expected that more than half of RAA residents who participate in these training programs would be Aboriginal residents.

In total, it is estimated that through local training and hiring an average of 200 existing RAA residents per year could be directly employed on project construction, although during peak construction periods, the number could be higher. Over five years, this represents 1,000 PYs, or 12% of the Canadian component of project labour or 8% of the total labour requirements. The balance of the project labour force would consist of workers from other parts of BC or Canada (7,000 PYs) with imported specialty workers accounting for another 5,000 PYs.

Direct project employment will not likely affect the regional labour force participation rate for non-Aboriginal people (70.0%); this rate is already higher than the BC average (64.6%). However, it

would likely increase the labour force participation rate for Aboriginal people, which is currently low (58.7%).

If unemployed RAA residents participate in training activities that lead to project employment, the regional rate of unemployment could decrease. Between 2006 and 2011, the rate of unemployment in the RAA increased from 14.0% to 15.0% even though there was a net 5% reduction in the overall size of the workforce (370 people) because people either retired or moved out of the region. If the Project directly employs 150 RAA residents who would otherwise have been unemployed, the RAA unemployment rate would decrease by 2.2 percentage points (to about 12.4%). With the addition of 150 residents to the construction labour force, this industry would account for 6.9% of the labour force in the CA, up from the current 4.6%. However, other major projects would be competing for the available labour and, given the relatively large number of unemployed workers available in the RAA, it is anticipated that the Project, in combination with the demands of these other projects will cause a major reduction in the regional rate of unemployment.

Project employment and support for training can potentially have adverse consequences. There is the possibility that project employment will influence young people to quit high school prior to graduating in order to seek training. As of 2012, the Prince Rupert LHA was 71st of all LHAs in BC in terms of the percentage of 18 year olds who did not graduate (BC Stats 2013a). There is also the possibility that, after having obtained highly specialized training in LNG construction, local workers may have to seek work outside their home region to find equivalent employment once construction of the PNW LNG Project has been completed.

Another concern related to project employment is that, by competing with other construction projects that may be underway at the same time for the available regional construction labour force, the Project may add to the strain on regional labour markets and indirectly cause wage rates to increase. This is an issue, given the number and size of other projects that are planned for various parts of the RAA (see Figure 14-9). PNW LNG is aware of this concern and has adopted conservative assumptions about regional participation to ensure that its role in future regional labour shortages is minimal.

Project construction may also create some indirect employment in the RAA in those businesses that supply goods and services to the contractors that are directly hired to construct the Project. Figure 14-9 shows the number of indirect jobs that were predicted by SCIPIOM to occur in BC, based on the various industries that would be called upon to supply goods and services needed for construction. It shows that the majority of these indirect jobs would be in mining, quarrying, and oil and gas extraction industries (69%) and in professional and scientific services industries (9%).

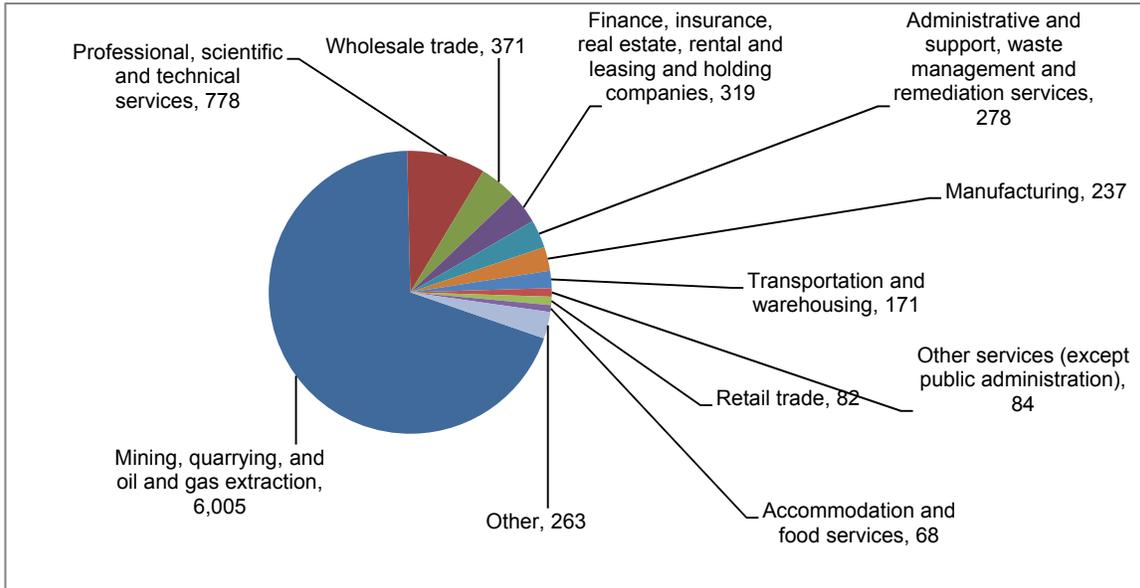


Figure 14-9: Number of Indirect Jobs Resulting from Purchases of Goods and Services from British Columbia Sources during Project Construction

When these indirect labour estimates are compared to the numbers of workers employed in the various industries in the RAA (Table 14-9), it is apparent that most of the indirect jobs created by the Project will occur outside the RAA. As noted in Section 14.5.1.1, there were 0.26 indirect jobs for every construction job in the Prince Rupert local area in 2006 (Horne 2009). With the Project expected to directly employ 200 RAA residents over the five-year construction period (1,000 PYs), use of this employment ratio suggests that there would be 52 indirect jobs (260 PYs) of employment in the RAA. However, with construction lasting five years, it is possible that some companies will choose to set up small fabrication operations within the RAA. As a result, it is expected that 100 RAA residents (500 PYs) could be indirectly employed by the Project. However, the potential for indirect employment could be enhanced by implementing regional business procurement strategies.

Project construction could also create some induced employment. This consists of jobs in businesses that supply consumer goods and services to workers who would be directly employed on the Project or have indirect employment attributable to the Project. The results of SCIPOM indicate that, in BC, there would be 5,995 PYs of induced employment, with 23% of this being in retail trade (1,372 PYs), 11% in accommodation and food services (664 PYs), 10% in other services (excluding public administration) (587 PYs), 9% in finance, insurance and real estate (568 PYs), and 6% in health care and social assistance (354 PYs). According to the induced employment ratios for 2006 (Horne 2009), there could be between 14 and 40 new induced jobs created because of spending on consumer items by local construction workers. This represents between 70 and 200 PYs of employment over the five-year construction period. While the lower number may be more likely because the RAA economy currently has an extensive retail and service sector that could accommodate additional spending without need for more staffing, the higher number would include the effects of consumer spending by non-local workers who are housed in the construction camp and make consumer purchases in Prince Rupert and Port Edward.

Based on these assumptions, it is expected that the Project will create 1,700 PYs of employment for residents of the RAA over the five-year construction period (see Table 14-20), with direct project employment accounting for about 60% of project effects.

Table 14-20: Summary of Potential Project Construction Employment Effects in the RAA

Employment	Employment Effects in the RAA		Employment Effects in BC (PYs)
	Annual Jobs	Person-Years	
Direct	200	1,000	8,000
Indirect	100	500	8,655
Induced	40	200	5,995
Total	340	1,700	22,650

Operations

Annual operating costs over the life of the Project will be about \$2.8 billion (CDN). The natural gas needed for project construction, including the cost of transporting the natural gas to the LNG facility, will account for 54% of costs. Various provincial and federal taxes, direct labour, and maintenance costs will account for another 46% of costs. It is expected that 87% of the labour, goods and services needed to operate the facility will come from Canadian sources. This represents average annual spending in Canada of \$2.5 billion.

Project operation is assumed to directly employ 464 people over the 30-year (minimum) operating life. Of these, 130 will be operations staff based in Vancouver, and the other 334 will be located in the RAA. The onsite staff will include 29 managers (9% of the total), 147 (44%) will be employed on a daily basis for maintenance and technical services jobs, 109 (33%) will be employed as shift workers doing operations and security, and 49 (15%) will be working in administrative positions. Additional direct employment will be created through contracted maintenance and repair activities. It is estimated that, with annual spending of \$65.4 million on contracted labour, goods and services from Canadian sources, the Project will create another 135 jobs in BC. Thus, project operations will create 600 jobs in BC.

When project operations commence, there may be limited employment opportunities for RAA residents. The BC Natural Gas Workforce Strategy Committee (2013) observed:

LNG export facilities or plants will require a highly technical workforce. Initially, these workers may not be available provincially or even nationally given that the LNG plants planned for BC are the first of their kind in Canada. (p. 8)

For this reason, at the outset of operations, RAA residents will be directly employed in positions where their skills are directly transferable to LNG operations (such as administrative positions or as part of the fire brigade) or where skills learned during project construction can be applied to operations (such as trades, operations and maintenance). It is estimated that, for the first years of project operations, 130 RAA residents will be employed, with 70 employed as shift workers, 47 and maintenance and technical workers, 10 in administrative positions and three as managers. The other 204 workers will consist of workers imported from outside the RAA, mostly from other parts of BC or Canada, some of whom are expected to relocate to the RAA.

Over time, and with appropriate training, it is predicted that additional RAA residents will be employed on project operations. After five years of operations, it is predicted that the number of RAA residents employed for project operations will double, and will account for 78% of the project workforce (260 positions). This could include 100 shift workers, 100 maintenance and technical workers, 40 administrative positions and 20 managers. The other 74 workers will consist of people living outside the RAA and who choose to relocate to the RAA for the duration of their employment.

As for contracted employment in operations and maintenance, it is predicted that, within five years, most of these positions would be filled by RAA residents. Examples of contracted employment would include jobs in marine operations (tug crews and support), metal fabrication, welders and pipe fitters, scaffolding, electrical services, instrumentation fitters, janitorial and housekeeping, and canteen operators. It is estimated that RAA residents would account for 75% of these positions (140 jobs) and the balance (46 jobs) would be people from outside the RAA who would likely relocate to the RAA.

In summary, project operations are predicted to employ 400 current residents of the RAA and result in another 120 workers relocating to the RAA. Compared to the current labour force, direct project employment during operations would account for 7.4% of total employment in the RAA. Existing RAA residents will account for 62% of direct project employment, including contract positions, during operations.

There will be some indirect employment in the RAA during project operations. For BC, the SCIPOM predicted that there would be 155 indirect jobs in BC associated with project operations. According to SCIPOM, the largest amounts of indirect employment created by project operations will be jobs in administration and support (29%), other services (except public administration) (19%), retail trade (16%), wholesale trade (14%) and manufacturing (11%). Although, some of these jobs will initially be located outside the RAA, it is expected that by the fifth year of operation 75% of indirect employment will occur in the RAA. This represents about 120 jobs.

Induced employment will occur in the RAA as a result of expenditures on consumer items by workers who are directly or indirectly employed by the Project. For the BC, SCIPOM predicted that there would be 395 induced jobs, or 0.49 induced jobs for every direct and indirect job. Induced employment in BC would include jobs in retail trade (25%), accommodation and food services (11%), finance, insurance, real estate and rentals (10%), other services (excluding public administration) (9%) and health care and social services (6%). In the RAA, the employment ratio is expected to be smaller because local businesses cannot supply the full range of goods and services requested by consumers. It is assumed that there would be new 0.25 induced jobs for each new direct and indirect job. This ratio is low because there is currently a high ratio of service jobs to goods producing jobs in the RAA (see Table 14-9), suggesting that there is some capacity for the existing service sector labour force to accommodate additional consumer spending without having to add workers. Based on 640 new direct and indirect operations jobs in the RAA, there would be about 160 induced jobs.

Table 14-21 summarizes the effects of project operations on employment in the RAA. It is expected that the Project will employ 680 existing residents of the RAA and will result in 120 workers relocating to the community. Overall, two-thirds of the operational employment expected in BC will occur in the RAA.

Table 14-21: Summary of Potential Project Operations Employment Effects in the RAA

Employment	Employment in the RAA (Jobs)			Employment Effects in BC (Jobs)
	Existing Residents	New Residents	Total	
Direct	260	74	520	650
Direct - Contract	140	46		
Indirect	120		120	155
Induced	160		160	395
Total	680	120	800	1,200

If project effects are compared to the labour force in the RAA as of 2011, project operations would directly or indirectly account for 11.5% of employment in the RAA.

Decommissioning

The activities associated with decommissioning will provide some short-term employment opportunities for RAA residents, but the cessation of operations could result in a net loss of the 520 direct operations jobs as well as some or all of the indirect and induced jobs, associated with the Project.

14.5.2.2 Mitigation

Many of the project effects on regional employment will be positive and no mitigation will be required for these. However, there will be opportunities for enhancing potential project benefits for residents of the RAA. To be involved in project construction and operations, residents in the RAA may need to upgrade their skills. PNW LNG has already provided funding to initiate the development of appropriate skills upgrading programs. It provided \$75,000 to the Coastal Pathways Partnership, which was established by Northwest Community College, Ridley Terminals Inc., and School District #52 to deliver skills training specifically targeted at the employment needs of the region. In addition, PNW LNG will undertake the following measures to enhance employment opportunities for RAA residents:

- Work with training and educational facilities so that programs necessary to prepare regional residents for work on the Project are available.
- Require that all of workers complete grade 12 or have an appropriate equivalency in order to prevent young people from leaving school prematurely.
- Develop career pathways that would allow local construction workers with the skills necessary to transition into operational employment so that project employment opportunities can extend beyond the construction period.
- Facilitate hiring and employment opportunities for RAA residents by posting qualifications and skill requirements in advance of construction and operation.
- Work with EPCC contractors to remove barriers to employment for RAA residents, including literacy and Grade 12 training, childcare, occupational training and support for Aboriginal workers from local First Nations.

- Identify work packages that would be consistent with the capabilities of local and regional businesses to maximize local procurement opportunities.
- Work with First Nations to identify partnership or other arrangements that would increase the opportunities for their participation.

These actions are consistent with the benefits enhancement programs being developed by proponents in the mining industry to enhance employment and procurement opportunities for local and regional residents. The probability of success in implementing these measures will depend on PNW LNG working with local residents and businesses to encourage them to take advantage of the opportunities being offered. As noted by the Northwest Regional Workforce Table (2013):

Communities, families and individuals, as well as government and industry, work together to increase employment participation rates under a shared responsibility model. Young individuals require encouragement and support from their families and the community to meet minimum educational standards and achieve high school graduation. (Executive summary, p3)

While PNW LNG is committed to providing regional residents and businesses with the opportunity to participate in project construction, it is aware that it will be competing with other construction projects that may be underway at the same time for the available regional construction labour force, possibly adding to the strain on regional labour markets. To ensure that such effects are minimized, PNW LNG will not set and work to achieve quotas or targets that may lead to competition with other employers. This approach will allow regional residents and businesses to decide for themselves which of the various projects represents the best potential for employment and sales of goods and services. If for some reason, PNW LNG is unable to procure 8% of its construction labour and 62% of its operations labour from within the RAA, it will rely on labour brought in from other parts of British Columbia or from outside the province.

At project decommissioning, there are mechanisms by which the adverse effects of jobs losses on individuals can be mitigated. Planning for project closure will be done in a manner that will allow PNW LNG to help its employees: 1) find alternate sources of employment in advance of closure; 2) identify training opportunities that so they can transition to new jobs; and 3) provide retirement planning for older workers.

14.5.2.3 Characterization of Residual Effects

Construction

The effect of project construction (see Table 14-20) would be to create 1,700 PYs of employment for RAA residents, with 1,000 PYs (59%) being related to direct project employment and the balance (700 PYs) being indirect and induced employment. This translates into an average of 340 jobs per year of construction and would be equivalent to about 5% of the existing labour force in the Prince Rupert CA. Project training and hiring of RAA residents and purchases of goods and services will result in competition for available RAA resources with other projects that are underway at the same time, and this could potentially result in adverse effects on regional labour supply and demand. However, it is believed that any potential adverse effects can be effectively addressed by adopting the various mitigation strategies identified above. Thus, the residual effects of project construction on

regional employment can be characterized as low in magnitude, occurring in a moderately resilient economy, occurring within the RAA, short term, reversible and continuous. Given the potential employment opportunities offered by the Project and low adverse effects, the overall effect of the Project on regional labor supply and demand is expected to be positive.

Operations

Project operations (see Table 14-21) could result in 800 new direct, indirect and induced jobs in the RAA. This includes 680 direct, indirect and induced jobs for existing residents of the RAA plus another direct 120 jobs that could be taken by workers who move into the RAA. Based on the size of the labour force in 2011, project operations would directly or indirectly account for 11.5% of employment in the RAA. While project effects on regional labour supply and demand during operations will largely be positive, the potential adverse effects that might result if the Project actively competes with other projects for the available labour force can effectively be negated by the mitigation strategies identified in Section 14.5.2.2. Thus, the residual effects of project operations can be characterized as low in magnitude, occurring in a moderately resilient economy, occurring within the RAA, and as long term, reversible and continuous.

Decommissioning

While the short-term employment required for decommissioning would partially offset the loss of 520 direct operations jobs as well as some or all of the indirect and induced jobs, advance planning for closure will help address some of the long-term, adverse consequences of ceasing operations. Even with mitigation, the residual effects of decommissioning on regional employment can be characterized as adverse, occurring in a moderately resilient economy, moderate in magnitude, will occur within the RAA, long term, reversible and continuous.

14.5.2.4 Likelihood

The likelihood of an adverse residual effect on regional labour supply and demand occurring is low. While the labour demands of the Project and the demands of other proposed projects, as shown in Figure 14-9, vastly exceed the size of the available workforce in the RAA, the provincial government is working to develop labour force strategies, including training programs that will help minimize effects on the region. Although these strategies are still being developed, the effects pathways are well understood so there is a low likelihood that there will be adverse changes in regional labour supply and demand.

14.5.2.5 Determination of Significance of Residual Effects

Residual project effects on regional employment, in terms of the potential for adversely affecting labour supply and demand will be negative for all three phases of the Project. With mitigation, adverse effects are expected to low during construction and operations and moderate during decommissioning when operations cease.

The significance of these adverse residual effects depends on whether the anticipated changes are clearly distinguishable and whether they can be managed or mitigated using current programs, services or infrastructure.

The potential negative (and positive) effects of LNG development on the regional labour force are reasonably well understood. While British Columbia's Liquefied Natural Gas Strategy (BC Ministry of Energy, Mines and Natural Gas 2013) is committed to having three LNG facilities in operation by 2020 and create thousands of jobs in the province, it also recognizes the need to develop the labour force and skills needed to support this development:

Preparing British Columbians for the new opportunities ahead is essential – to make sure they have the expertise to secure new, long-term jobs. As part of our commitment to LNG, the Province is undertaking a Labour Market Partnership project to assess the future needs of BC's natural gas sector. (p. 7)

Following the labour analysis, we will lead the development of a comprehensive workforce strategy and action plan, with the continued support of industry and training authorities. Within the next year, we will release this action plan so British Columbians are trained in time with the skills necessary to fill the future labour demand. (p. 9)

To date, the labour force studies have been undertaken by the province (the BC Natural Gas Workforce Strategy Committee 2013) and the region (The Northwest Regional Workforce Table 2013). Both studies have assessed the potential labour requirements of LNG projects in the context of regional labour supplies to identify possible constraints and appropriate strategies for expanding the size and skill levels in the region and are developing training strategies and programs to meet these requirements. As a consequence, any residual adverse effects of the Project on regional labour supply and demand employment are anticipated to be not significant.

14.5.2.6 Confidence and Risk

There is a moderate degree of confidence in predicting the potential adverse changes in regional labour supply and demand because there is always uncertainty about future economic conditions in the region. The extent to which residents of the RAA will choose to be involved in project construction and operations will depend on job opportunities for other projects (see Table 14-18), some of which may not be developed according to plan, as well as whether they choose to respond to offers of training and employment. As the Government of BC is aware of current and future labour force requirements in the region and is developing strategies to address the imbalance, there is minimal risk of unanticipated effects. Since the confidence in this prediction is not low, no additional risk analysis has been conducted.

14.5.3 Change in Cost of Living and Economic Activity

Residents of the RAA have incomes that are lower than the provincial average, but face costs of living (other than housing) that are about 22% higher than in Vancouver. Information from the 2011 NHS (Table 14-15) shows that people in the RAA had average incomes that were below the BC average. In 2010, the average income for people aged 15 years and older in the Prince Rupert CA was \$36,291, which was 8% lower than the provincial average (\$39,415). Aboriginal people living within communities or on reserves had incomes and earnings that were much less than for the overall RAA. For 2011, the average income for Aboriginal residents of the Prince Rupert CA (\$26,190) was 28% lower than for the overall CA). The average income for residents of the Dolphin Island 1 reserve (\$13,327) was 63% lower than the CA average.

Family incomes in the RAA were also lower than for BC. For 2010, the average family income in the Prince Rupert CA was \$81,051, which was 12% lower than the BC average (SC 2013).

Living expenses for a Prince Rupert family with one child and earning \$100,000 per year were estimated to total \$71,950 (Welcome BC 2013). As shown in Table 14-16, income taxes accounted for 29% of expenses, housing accounted for 24%, transportation accounted for 4%, health care accounted for 3% and the balance (40%) consisted of consumables (food, clothing, etc.). The cost of consumables was 22% higher than in Vancouver, but was comparable to the costs of consumables in other communities in central BC. Housing costs in Prince Rupert were 68% lower than in BC, while housing costs in Vancouver were 210% higher than in Prince Rupert.

14.5.3.1 Potential Effects

Construction

On average, it is estimated that workers directly employed on project construction would earn \$115,100 per year. Based on the results of the SCIPOM, workers who would be indirectly employed during project construction would receive annual compensation of \$62,425 and the compensation for workers who benefit from induced employment would be \$45,496. These amounts are considerably larger than typical earnings in the RAA. Recent tax filer information from 2009 (BC Stats 2013d) shows median employment incomes ranging from \$26,981 in Prince Rupert to \$5,745 for Lax Kw'alaams First Nation, and that only 4% of tax filers reported total incomes in excess of \$100,000. In 2010, 9% of adults reported annual incomes of \$100,000 or greater and 2% had incomes in excess of \$125,000 (SC 2013).

There would be a major income advantage for those RAA residents who are able to be employed during the construction phase. This income advantage should provide a major incentive for people to participate in training programs that would make them eligible for employment on the Project. The higher incomes will have a variety of benefits for regional workers, such as being able to purchase more goods and services, reducing debt, and enjoying a higher standard of living. Similarly, higher incomes can provide Aboriginal residents with the financial ability to better participate in traditional resources harvesting activities.

However, the large incomes that would be earned by project workers can have negative aspects within a community by causing greater differences between the “haves and have-nots.” This can result in project workers being resented by people who are not employed by the Project. Higher incomes can lead to increased spending on alcohol, drugs and gambling and this can result in a wide range of social problems that can lead to increased demands on law enforcement and social programs. Section 18, Community Health and Well-being, describes potential project effects on relative deprivation amongst income groups, crime rates and physical and mental health conditions.

The higher incomes for project workers will result in some increased spending on consumer products. It is estimated that total annual expenses (including housing) for a family of three in Prince Rupert is \$57,374 for a family that earns \$75,000 per year, \$71,951 for a family that earns \$100,000 per year, \$87,684 for a family that earns \$125,000, and \$103,972 for a family that earns \$150,000 per year (Welcome BC 2013). Thus, as incomes increase, there is increased spending on various consumer items. As noted in Table 14-20, this increased consumer spending will result in 40 new induced jobs (200 PYs) in the RAA during project construction.

However, the higher incomes being earned by RAA residents employed on the Project are not expected to cause inflationary pressure that would cause an increase in the cost of living. It is estimated that 50 existing construction workers in the RAA would be employed during project construction, and that an additional 150 unemployed residents would be trained and employed. The incremental income earned by these additional 150 workers would be equivalent to 4.9% of the \$355 million in total income reported by all adults in the Prince Rupert CA (SC 2013). Thus, the increased earnings will be beneficial for the RAA residents who are hired to work on the Project but will be relatively small in the context of the RAA economy.

There is also concern that consumer spending by non-local workers housed in the construction camps could also lead to price inflation. During peak construction, there could be 3,500 -4,500 workers residing in the construction camp on Lelu Island. The extent to which they would leave the camp when off-shift is unknown, as is the amount that they would be spending to purchase items from local businesses. However, price inflation is not likely to occur because the types of goods and services they would purchase from local businesses can be supplied by existing businesses bringing in additional amounts of supplies or hiring additional workers to meet the incremental demands of the non-resident workforce. As there are no supply constraints for consumer goods and services, it is unlikely that businesses would have to increase their prices, so price inflation is not expected.

Operations

Employment during project operations would also result in higher incomes for project workers. People directly employed on LNG projects are estimated to have average incomes of \$127,200 (Grant Thornton 2013). The results of the SCIPOM predict average incomes of \$67,750 for people with indirect employment associated with LNG projects, and \$45,470 for workers who benefit from induced employment.

These project-related earnings would also be much higher than the median incomes currently being reported by residents of the communities in the RAA. Project operations are expected to result in employment of 400 existing RAA residents and for an additional 120 workers who would move to the region. The total incomes earned by all 520 would amount to \$66 million per year, and this would be equivalent to 29.2% of all total income reported for 2010 by adults aged 15 and older (SC 2013). It is expected that a large portion of their incomes would be spent to purchase retail and goods and services from suppliers in the RAA, and this would result in 160 induced jobs.

The higher incomes and spending by project operations workers are unlikely to cause inflationary pressures that would affect most items that reflect the overall cost of living. Household spending on consumable items, much of which involves retail sales of items like food, clothing and household items, amounts to \$24,577 for a family of three earning \$75,000, and this increases to \$29,127 when the annual incomes increase to \$100,000 and \$32,677 when the annual income is \$125,000 (Welcome BC, 2013). As there are no supply constraints for the businesses that sell these types of goods, it is expected that increased sales could be accommodated without having to increase prices.

The greatest potential for inflation and cost-of-living increases relates to housing, where additional demand and supply constraints could result in higher prices. Housing accounts for 24% of living costs for a family of three that earns \$100,000 per year (Welcome BC, 2013). With 120 workers and their families moving into the RAA, there would be increased demand for housing and existing RAA residents earning more money may decide to upgrade their housing. Baseline housing conditions and potential project effects on housing are described in Section 16.5.3. At the present time, there is

limited rental housing in Prince Rupert and Port Edward, but there is capacity for additional private dwellings to be constructed on existing, undeveloped, residentially zoned land. With only 2% of occupied private dwellings in the Prince Rupert CA have been constructed since 2000 (SC 2013), it is likely that the incoming labour force and residents who want to upgrade their housing will choose to live in newly-constructed housing rather than compete for existing housing. The demand for new residential construction will provide additional employment and income opportunities for RAA residents.

Decommissioning

While decommissioning would result in some income for workers involved in those activities, closure of the facility would result in a loss of 520 operational jobs and the associated incomes. The effects of closure are difficult to anticipate given that conditions in the RAA may be considerably different in 30 years. However, there is the possibility that, if many project workers choose to leave the RAA, there could be surplus housing that could result in lower housing prices. This could benefit people who would like to move into more modern housing, but could hurt people who are living off the equity in their homes.

14.5.3.2 Mitigation

Project effects on economic activity were described in terms of the induced employment that would result when project workers spend their incomes on consumer products and services. The increased economic activity associated with these purchases is generally considered to be positive, so no mitigation is required.

With respect to potential project effects on the cost of living in the community, such effects are very difficult to identify for most items because there is no easy mechanism for differentiating project-related effects from inflation, exchange rates, or other factors that can affect product prices in local stores and businesses. The greatest potential for changes in the cost of living relates to potential project effects on housing and rental accommodation prices. Strategies for mitigating project effects on housing are addressed in Section 16.5.3.2.

While closure of the Project will ultimately have a negative effect on incomes for project workers, early implementation of a closure strategy should help reduce these effects.

14.5.3.3 Characterization of Residual Effects

Construction

The net residual effects of project construction on economic activity, as described in terms of new induced employment in the RAA will be positive. With respect to potential adverse effects on the costs of living in the community, such effects would be small and difficult to identify during the construction phase because there are no supply constraints on the types of consumer goods that would be purchased by workers housed in the construction camp and by the 200 RAA residents who would have higher incomes to spend. These adverse effects can be characterized as low in magnitude, occurring in a moderately resilient economy, occurring within the RAA, short term, reversible, and continuous.

Operations

The net residual effects of project operations on economic activity, as described in terms of new induced employment in the RAA will also be positive. Potential project effects on the costs of living for consumer items (other than for housing, which is assessed in Section 16.5.3.5) are also expected to be small because there are no supply constraints on the types of consumer goods that would be purchased by operational workers. The net residual effects of project operations on the cost-of living in the RAA can be characterized as low in magnitude, occurring in a moderately resilient economy, occurring within the RAA, long term, reversible, and continuous

Decommissioning

While decommissioning would result in some income for workers involved in those activities, closure of the facility would result in a loss of 520 direct operational jobs and the associated incomes. Following decommissioning, the net residual effects on economic activity, as a result of any losses of induced jobs due to decreased consumer spending, will be moderate in magnitude, occurring in a moderately resilient economy, occurring within the RAA, long term, reversible and continuous. There are expected to be no project effects on the cost of living.

14.5.3.4 Likelihood

The likelihood of an adverse residual effect on economic activity occurring is low, because spending of project-related income on consumer items will lead to some induced employment which is considered beneficial. The likelihood of an adverse residual effect on cost of living is also low. Although there is no way of fully understanding how local businesses may respond to increased consumer spending on goods and services, market mechanisms in a competitive market will work to limit the extent to which businesses may choose to deliberately increase prices in order to increase their profits.

14.5.3.5 Determination of Significance of Residual Effects

The significance of possible adverse residual effects related to cost of living and economic activity depends on whether the effects are clearly distinguishable and whether they can be managed or mitigated using current programs, services or infrastructure. Project effects on economic activity will only be adverse during decommissioning and, although these effects can indirectly be partially addressed by implementation of a project closure strategy, there is no direct way of determining whether losses of employment in the retail or other service sectors are due to the Project or other regional economic factors. Similarly, it will not be possible to isolate project-related effects on cost-of living from the effects of other factors like inflation or exchange rates that may also affect the cost of living. Consequently, any residual adverse effects of the Project on cost of living and economic activity are anticipated to be not significant.

14.5.3.6 Confidence and Risk

While there is a high degree of confidence in predicting changes in economic activity, there is only a moderate degree of confidence in predicting project effects on changes in the cost of living. The cost of living in any community can change over time based on numerous factors, including inflation, US/Canadian exchange rates, and business practices, so it would be very difficult to isolate the

effects of project-related changes from these other factors. Since the confidence in this prediction is not low, no additional risk analysis has been conducted.

14.5.4 Change in Municipal Government Finances

14.5.4.1 Potential Effects

The Project will be located on Lelu Island which is situated within the jurisdiction of the Prince Rupert Port Authority. Port Edward recently updated its Official Community Plan in anticipation of the potential population and economic effects of the Project and it is expecting that temporary construction camps or lodgings required for the Project will be offered to be used for community enhancement once they are no longer needed for the Project (DPE 2013).

Construction

With the majority of the construction workforce residing in a work camp on Lelu Island, the potential demands on and costs to municipal governments are expected to be minimal. Potential project effects on municipal infrastructure are assessed in Section 16, Infrastructure and Services. The assessment concluded that, with mitigation:

- Project effects on transportation infrastructure would not be significant (Section 16.5.2.5).
- Project effects on infrastructure and community services would not be significant (Section 16.5.4.5).

While there may be some additional demands on municipal services as local businesses expand their operations to provide goods and services needed for the construction phase (indirect and induced economic effects), these increases are expected to be small and beneficial to local governments because such development will increase the municipal tax base.

Operation

The addition of 120 workers and their families to the regional population will place additional demands on municipal governments, although the extent of these demands will depend on the current capacity of municipal infrastructure and services and the thresholds that will trigger the need for new capital investment or additional staffing. It is anticipated that the demands of these workers and their families can largely be accommodated by the existing infrastructure, which was developed for a larger population (see Section 16). And, while a growing population may create additional demands for services, these growth expectations are understood by the local government planning agencies, and their budgets can increase where there are per-capita based funding agreements.

The exact arrangements for PNW LNG contributions to local government revenues are still under negotiation. Ultimately, PNW LNG will pay taxes and / or payments in lieu of taxes directly to local governments.

Project operation is expected to result in 120 workers and their families moving into the RAA, resulting in increased demands for infrastructure and services that may result in higher costs for the City of Prince Rupert, the District of Port Edward and the Skeena-Queen Charlotte Regional District.

Whether or not PNW LNG directly contributes to municipal government revenues, their employees will. According to InterVISTAS (2012), employers and their 2,330 employees operating within the PRPA generated about \$3.7 million in municipal tax revenues in 2011. This represents an average of about \$1,600 per employee. With a direct operating workforce of 334 people, the potential municipal tax revenues payable by PNW LNG employees could amount to about \$534,400 per year. Assuming all the employees would reside within the City of Prince Rupert; this amount would be equivalent to a 1% increase in annual City revenues (MCSPD 2013).

Decommissioning

Closure of the facility would result in a loss of direct municipal revenue associated with the Project, as well as the loss of municipal revenue from those workers and their families who choose to leave the RAA. To the extent that ex-project workers stay in the RAA, and find jobs with other employers, municipal tax revenue associated with those households would be unaffected. However, municipal tax revenues would decline to the extent that people leave the RAA, although there would also be an attendant decrease in the demands for infrastructure and services.

14.5.4.2 Mitigation

Net effects on municipal government finances could be positive or negative, depending on any incremental demands that the project labour force will have on municipal infrastructure and services and the negotiated taxes and / or payments in lieu of taxes that PNW LNG will pay directly to local governments.

PNW LNG (2013) has also committed to developing a community investment program that will support social, environmental, and community projects. Some details of PNW LNG's contributions to community development are described in Section 29.2.8.

14.5.4.3 Characterization of Residual Effects

Construction

During construction, project demands on and costs to municipal governments are expected to be minimal and will likely be more than offset by the increased revenues from taxes resulting from the Project and associated spin-off economic activity. Consequently, the residual adverse effects of project construction on regional government finances can be characterized as negligible in magnitude, occurring in a moderately resilient economy, occurring within the RAA, short term, reversible, and continuous.

Operation

During operations, the overall effects of the Project will likely be positive because it expected that the Project, its employees and associated spin-off activities that will result in tax revenues or payments in lieu of taxes that will more than offset any costs to municipal governments. Furthermore, any municipal cost issues that arise can be addressed through PNW LNG's community investment program that will support social, environmental and community projects. Thus, the residual adverse effects of project operations are considered negligible in magnitude, occurring in a moderately resilient economy, occurring within the RAA, long term, reversible, and continuous.

Decommissioning

Project closure will result in a loss of revenues for municipal governments, although there may be an attendant reduction in demands for infrastructure and services if project workers and their families leave the region. Overall, the residual adverse effects of project decommissioning are considered low in magnitude, occurring in a moderately resilient economy, occurring within the RAA, long term, reversible, and continuous.

14.5.4.4 Likelihood

The likelihood of an adverse residual effect on municipal government revenues occurring is low. Municipal governments have the ability to negotiate revenue agreements and set taxes to ensure that their revenues exceed costs.

14.5.4.5 Determination of Significance of Residual Effects

With mitigation as described in Section 14.5.4.2, the residual adverse effects on municipal government finances will be negligible during construction and operations, and low during decommissioning. The significance of these adverse residual effects depends on whether these effects are clearly distinguishable and whether they can be managed or mitigated using current programs, services or infrastructure. While positive project-related effects on municipal government finances (tax revenues or payments in lieu of taxes) can be readily distinguished, it is unlikely that increased demands for municipal government goods and services associated with the Project and its employees can be differentiated from the demands associated with population growth and other factors that may affect the demand for regional goods and services. As to whether these project-related effects can be managed, municipal governments have the power to modify tax rates and user fees to order to achieve a balanced budget. For these reasons, any residual adverse effects of the Project on municipal government finances are anticipated to be not significant.

14.5.4.6 Confidence and Risk

There is a high degree of confidence in predicting potential adverse residual effects on municipal government finances. Mechanisms are available for municipal governments to adjust their revenues, through agreements and taxation, to offset any cost increases that may occur. Since the confidence in this prediction is not low, no additional risk analysis has been conducted.

14.5.5 Summary of Residual Effects

Table 14-22 summarizes the residual effects on the economic environment.

Table 14-22: Summary of Residual Effects on the Economic Environment

Project Phase	Mitigation/Compensation Measures	Residual Effects Characterization						Likelihood	Significance	Confidence	Follow-up and Monitoring
		Context	Magnitude	Extent	Duration	Reversibility	Frequency				
Changes in Regional Labour Supply and Demand											
Construction	<ul style="list-style-type: none"> ▪ Work with training and educational facilities so that programs necessary to prepare regional residents for work on the Project are available. ▪ Require that all of workers complete grade 12 or have an appropriate equivalency. ▪ Develop career pathways that would allow local construction workers to transition into operational employment. 	M	L	R	S	R	C	L	N	M	None
Operations		M	L	R	L	R	C				
Decommissioning		M	M	R	L	R	C				

Project Phase	Mitigation/Compensation Measures	Residual Effects Characterization						Likelihood	Significance	Confidence	Follow-up and Monitoring
		Context	Magnitude	Extent	Duration	Reversibility	Frequency				
Residual effects of all phases	<ul style="list-style-type: none"> ▪ Facilitate hiring and employment opportunities for RAA residents. ▪ Work with EPCC contractors to remove barriers to employment for RAA residents. ▪ Identify work packages that would be consistent with the capabilities of local and regional businesses to maximize local procurement opportunities. ▪ Work with First Nations to identify partnership or other arrangements that would increase the opportunities for their participation. 	M	M	R	L	R	C				

Project Phase	Mitigation/Compensation Measures	Residual Effects Characterization						Likelihood	Significance	Confidence	Follow-up and Monitoring
		Context	Magnitude	Extent	Duration	Reversibility	Frequency				
Changes in Cost of Living and Economic Activity											
Construction	<ul style="list-style-type: none"> Develop a project closure strategy that would reduce the adverse effects that project closure would have upon regional workers 	M	L	R	S	R	C	L	N	H	None
Operations		M	L	R	L	R	C				
Decommissioning		M	M	R	L	R	C				
Residual effects of all phases		M	M	R	L	R	C				
Change in Municipal Government Finances											
Construction	<ul style="list-style-type: none"> Consultations with municipal governments will continue to monitor whether the Project is creating issues, in terms of effects on municipal finances or demands for infrastructure or services. A community investment program will be developed. 	M	N	R	S	R	C	L	N	H	None
Operations		M	N	R	L	R	C				
Decommissioning		M	L	R	L	R	C				
Residual effects of all phases		M	L	R	L	R	C				

Pacific NorthWest LNG

Environmental Impact Statement and Environmental Assessment Certificate Application

Section 14: Economic Environment

<p>KEY</p> <p>CONTEXT:</p> <p>L= Low resilience: occurs in a fragile economy that has limited diversity, has been declining in size and has limited capacity to accommodate an economic shock</p> <p>M = Moderate resilience: occurs in a stable economy that has moderate diversity, is slowly increasing or decreasing in size and can accommodate moderate economic shocks</p> <p>H = High resilience: occurs in a diverse, dynamic and rapidly growing economy that can accommodate major shocks</p>	<p>MAGNITUDE:</p> <p>Negligible—no detectable effects</p> <p>Low—might or might not be detectable, but is within the normal range of variability</p> <p>Moderate— measurable change but unlikely to pose a serious risk or benefit to the VC or to represent a management challenge</p> <p>High—measurable change that is likely to pose a serious risk or benefit to the selected VC and, if negative, represents a management challenge</p> <p>EXTENT:</p> <p>R – Regional assessment area</p>	<p>DURATION:</p> <p>S – Short term - Effect restricted to construction phase</p> <p>L – Long term - Effect extends through project operation</p> <p>FREQUENCY:</p> <p>S- Single event</p> <p>C- Continuous</p> <p>REVERSIBILITY:</p> <p>R = Reversible</p> <p>I = Irreversible</p>	<p>LIKELIHOOD OF RESIDUAL EFFECT:</p> <p>Based on professional judgment</p> <p>L = Low probability of occurrence</p> <p>M = Medium probability of occurrence</p> <p>H = High probability of occurrence</p> <p>CONFIDENCE:</p> <p>Based on scientific information and statistical analysis, professional judgment and effectiveness of mitigation, and assumptions made.</p> <p>L = Low level of confidence</p> <p>M = Moderate level of confidence</p> <p>H = High level of confidence</p>
---	--	---	--

14.6 Cumulative Effects

14.6.1 Context for Cumulative Effects

The magnitude and timing of residual effects is considered in the context of major projects that are planned or in development for the North Coast Economic Region. For Prince Rupert, three port and harbour projects with a total value of \$1.06 billion are currently under construction (Table 14-17): the Fairview Container Terminal projects (Phase I and II), the Pinnacle Pellet Inc. terminal, and the Ridley Terminals Inc. expansion. All of these projects are scheduled to be completed prior to 2016.

Another nine major projects with a combined cost of \$24.0 billion have been proposed for the RAA (Table 14-18). Wind power projects, including the Mount McDonald Wind Power Project, have a combined value of \$2.4 billion but have been on the BC major projects list for a considerable time and have no identified start or completion dates (BC MJTST 2013). These projects are not considered in this assessment.

Two projects are natural gas pipelines. One of these is the Prince Rupert Gas Transmission Project, which would supply the natural gas needed for the PNW LNG Project, and would cost \$5.0 billion. The other pipeline, costing an estimated \$6.0 billion, is the Westcoast Connector Gas Transmission Project proposal to build a pipeline to another proposed Prince Rupert LNG facility being proposed by BG Group. Prince Rupert LNG is estimated to cost \$10.0 billion. All three projects are scheduled to be constructed during the same time period as the PNW LNG Project.

Two other projects have costing and scheduling information available. Expansion of the Canpotex Potash Export Terminal would cost \$400 million and is scheduled for completion in 2016; and the WatCo Pulp Mill site redevelopment would cost \$15 million and is scheduled for completion in 2015.

The other projects—including the Atlin Terminal—appear on the BC major projects list but have no proposed start or completion dates.

14.6.2 Cumulative Effects Assessment

The cumulative effects assessment proceeds on an effect by effect basis, with a two-step process to determine the potential for cumulative effects on the Economic Environment. In conducting the cumulative effects assessment, the residual effects arising from interactions ranked as 1 or 2 in Table 14-19 are considered. The first step consists of two questions:

- Is there a project residual effect?
- Does the project residual effect overlap spatially and temporally with those of other past, present, or reasonably foreseeable future projects?

Where the answers to both of these two questions are affirmative, a check mark in Table 14-23 indicates that there is potential for the Project to contribute to cumulative effects on the Economic Environment. The other projects listed in Table 14-23 are the same as those listed in Table 14-17 and Table 14-18. The potential contribution of these project effects to cumulative effects is assessed below.

Project construction and operations could occur at the same time that other major projects listed in Table 14-23 are being constructed in the RAA. Plans for economic development in the RAA indicate that there

will be a substantial increase in labour demands. The Project is likely to act cumulatively with these projects because they will employ large workforces from the heavy engineering construction industry.

The second step consists of one question:

- Is there a reasonable expectation that the contribution (i.e., addition) of the Project’s residual effects would cause a change in cumulative effects that could affect the quality or sustainability of the VC?

Where the answer to this question is affirmative, additional assessment of the potential cumulative effects is described below.

Table 14-23: Potential Cumulative Effects on the Economic Environment

Other Projects and Activities with Potential for Cumulative Effects	Potential Cumulative Effects		
	Change in Regional Labour Supply and Demand	Change in Cost of Living and Economic Activity	Change in Municipal Government Finances
Atlin Terminal			
Canpotex Potash Export Terminal	✓	✓	✓
CN Rail Line			
Douglas Channel LNG			
Enbridge Northern Gateway Project			
Fairview Container Terminal Phase I			
Fairview Container Terminal Phase II			
Kitimat LNG Terminal Project			
LNG Canada Project			
Mount McDonald Wind Power Project			
NaiKun Wind Energy Project			
Northland Cruise Terminal			
Odin Seafood			
Pinnacle Pellet Inc.			
Prince Rupert LNG Facility	✓	✓	✓
Prince Rupert Gas Transmission Project	✓	✓	✓
Prince Rupert Ferry Terminal			
Prince Rupert Industrial Park			
Prince Rupert Grain Limited			
Ridley Island Log Sort			
Ridley Terminals Inc.	✓	✓	✓
Rio Tinto Alcan Aluminium Smelter and Modernization Project			

Other Projects and Activities with Potential for Cumulative Effects	Potential Cumulative Effects		
	Change in Regional Labour Supply and Demand	Change in Cost of Living and Economic Activity	Change in Municipal Government Finances
WatCo Pulp Mill	✓	✓	✓
Westcoast Connector Gas Transmission Project	✓	✓	✓

NOTES:

✓ = Those 'other projects and activities' whose effects are likely to interact cumulatively with the Project's residual effects.

14.6.2.1 Change in Regional Labour Supply and Demand

The cumulative labour requirements of all the major projects listed in Table 14-23 are shown in Figure 14-8 for the period from 2013 to 2021. It shows that, collectively, the labour force requirements for these projects will vastly exceed the capacity of the RAA construction labour force. Thus, there are anticipated to be major construction labour shortages in the RAA and labour will have to be brought in from other parts of BC, Canada and other countries.

The competing demands of these other projects and the size of the existing RAA construction labour force were considered in estimating the extent to which residents of the RAA would be employed on the Project. Thus, residual project effects on employment were considered in terms of the cumulative demands for labour, goods, and services during this period. Based on the timing of the various projects, it was concluded that residents of the RAA will account for a small portion of the project construction labour force and that they would be hired to construct those parts of the projects where they have experience. Consequently it was estimated that the Project could employ 50 existing construction workers from the RAA over the five years of construction as well as another 150 regional residents who would participate in appropriate job training programs. In total, it is estimated that through local training and hiring an average of 200 existing RAA residents per year could be directly employed on project construction, and this represents 1,000 PYs of the five year, or 12% of the Canadian component of project labour. These numbers are relatively small, and therefore project construction is not anticipated to adversely affect the viability and sustainability of the labour force within the RAA. The cumulative effects on labour availability are not significant. No further assessment is required.

The operational employment requirements of the other projects listed in Table 14-23 are unknown but are expected to be relatively small for the two pipeline projects (less than 50 jobs each with workers being located in various communities along the pipeline route). The labour force requirements of the Prince Rupert LNG Project are expected to be quite large—about the same as for the PNW LNG Project. Thus, once project operations commence, there could be competing demands on the RAA labour force from other projects. However, because of its labour procurement strategy, project operations are not anticipated to adversely affect the viability and sustainability of the labour force within the RAA. This strategy consists of providing training to RAA residents during the construction phase with skills that will be transferable to LNG operations and then continuing to provide ongoing training such that the percentage of RAA residents employed during operations will gradually increase over time. While workers from other parts of BC, Canada and elsewhere are expected to account for 60% of the operating workforce during the initial stages of operation, this percentage is expected to drop to 22% after five years. Project operations are expected to ultimately provide direct employment for 260 existing RAA residents with contracted activities employing another 140 residents. Considering that the RAA currently

has a large number of unemployed workers (1,045 in 2011 with a 15.0% unemployment rate), the Project will benefit the sustainability of the RAA economy by providing local residents with the opportunity to find work in their home communities, rather than have to seek work in other parts of BC. Thus, while the Project will contribute to cumulative adverse effects on regional labour supply and demand, these effects are not significant.

14.6.2.2 Change in Cost of Living and Economic Activity

During the period of project construction, it is expected that purchases of goods and services by PNW LNG and all other projects underway at the same time will result in increased economic activity as a result of procurement from businesses in the RAA (indirect economic effects) and through consumer spending of labour income by RAA residents employed on these projects as well as by non-RAA residents housed in camps or communities (induced effects). Without knowing the procurement policies of other projects that may be underway at the same time and without knowing the number of non-RAA workers who may be accommodated in camps or in the communities, it is not possible to estimate the extent of cumulative impacts on economic activity in the RAA. However, the indirect and induced employment effects of the Project by itself are predicted to be relatively small (the equivalent of 140 full-time jobs per year during the five-year construction period – see Table 14-20). Based on the size total size of the RAA economy, the very high ratio of service jobs to good-producing jobs (see Table 14-9) and the large number of unemployed workers (see Table 14-8), it is expected that project effects on economic activity in the RAA would be beneficial as a result of increased employment and the expansion of RAA businesses to accommodate project demands. The cumulative effects of other projects on economic activity in the RAA are also expected to be beneficial. Although the combination of effects could exceed the capacity of RAA businesses, resulting in supply constraints that might result in increased prices for goods and services required directly by the projects, these effects would be buffered by corporate procurement practices that would see companies deciding to switch to non-local suppliers if the same goods and services can be supplied at lower cost. Thus, while the Project may contribute to adverse cumulative effects on economic activity during construction, these effects will be not significant so no further assessment is required.

During project operations, it is expected that that ongoing purchases of goods and supplies needed by PNW LNG and all other projects will result in a cumulative increase in economic activity in the RAA. The extent of these cumulative increases will depend on the size of the operational workforces of all the various operations, their requirements for goods and services, and their procurement policies. This information is not currently available. However, the indirect and induced employment effects of project operations are predicted to be moderate (the equivalent of 280 full-time jobs per year – see Table 14-21). And, given the size total size of the RAA economy, the very high ratio of service jobs to goods-producing jobs (see Table 14-9) and the large number of unemployed workers (see Table 14-8), it is expected that project operations would further increase economic activity in the RAA after construction has ceased and these effects would be beneficial. Similar effects would be expected as a result of indirect and induced employment generated by other projects, and the cumulative effects would generally be seen as long-term regional economic growth. As project contributions to cumulative effects are considered beneficial, no further assessment of these effects is required.

Purchases made by the project workforce, as well as the workforces associated with other major projects, will result in increased purchases of consumer goods and services. This has the potential to affect the cost of living in the RAA. During the construction period, the main pressures on the cost of living will be associated with purchases of goods and services other than housing because the majority of the labour forces will be housed in construction camps such that the amount spent on consumers items from local

businesses will be relatively small. As there is currently a high ratio of service jobs to good-producing jobs in the RAA and increased demands for non-housing goods and services can be accommodated by businesses ordering more product (i.e., no supply constraints), it is unlikely that the cost of consumer items will increase as a result of the cumulative consumer purchases of workers from all projects. As the contribution of the Project to cumulative effects on cost of living are expected to be neutral during construction, no further assessment of these effects is required.

14.6.2.3 Change in Municipal Government Finances

During the period of project construction and operations, it is expected that PNW LNG and all other projects underway at the same time will result in some increased demands on and costs for municipal governments, but will also represent a source of additional revenues for those same governments. Municipal governments have various mechanisms for ensuring that the cumulative revenues from major projects are equal to or greater than any costs that may arise. As noted earlier, the exact arrangements for PNW LNG contributions to local government revenues are still under negotiation, and it is expected that the tax or revenue arrangements for other major projects will also be negotiated with municipal governments. Similarly, municipal governments have the ability to modify tax rates and user fees to order to achieve a balanced budget. As project contributions to cumulative effects on municipal government finances are expected to be neutral, no further assessment of these effects is required.

14.6.2.4 Summary of Cumulative Effects

While the RAA has suffered from job losses and economic decline over the period from 2001 to 2011, proposals for ten new major projects, including PNW LNG, with a combined value of \$35 billion suggests there could be substantial economic expansion in the RAA through 2020. The demands of all these projects will vastly exceed the capabilities of the labour force and businesses in the RAA during construction. While the collective demands of these projects represent important opportunities for RAA residents to benefit, especially those who choose to upgrade their skills so that they can participate in construction activities, there may also be some adverse effects. There are concerns that development of all proposed projects could adversely affect labour force supply and demand, the cost of living and economic activity, and municipal government finances. The potential for these effects is understood by both Government of BC and municipal governments and efforts are underway to enhance the potential benefits for regional residents through various workforce and training initiatives and to supplement local resources with labour from other parts of BC and Canada, as required. Considering project related residual effects with mitigation and the effects of reasonably foreseeable future project effects, the cumulative adverse effects on the economic environment within the RAA are expected to be not significant.

14.7 Follow-up and Monitoring

No follow-up and monitoring is recommended.

14.8 Conclusion

Construction and operations of the PNW LNG Project will be largely beneficial for the economy of the RAA. It is anticipated that project construction will involve as many as 50 workers from the RAA who have experience in the construction industry and, with participation in appropriate training programs, another 150 residents from the RAA who would be otherwise unemployed or are entering the job market could be directly employed on the Project. During operations, about 260 of the 334 people directly employed to operate the Project (78%) are expected to be residents in the RAA as will be 140 of the 186 workers working under contract. The other 74 workers and 46 contract workers are expected to relocate to the RAA and will contribute to regional economic and population growth. Incomes and earnings are expected to rise, levels of educational attainment would increase, and there would some growth and increased diversity of the regional economy.

There could also be some adverse effects. By training and hiring residents from the RAA and purchasing goods and services, the Project could be competing with other major projects for available workers from the RAA, and this could lead to local labour shortages and wage inflation. Spending of project wages on consumer items could result in increased economic activity (induced employment) and increases in the cost of living. The projects and their employees could have increased demands on municipal infrastructure and services that could lead to increases in costs for municipal governments.

All of these potential adverse effects (project-specific and cumulative) on the economic environment are considered to be not significant, however. Issues related to labour demand and supply are understood and being addressed through various provincial and regional training initiatives, there are no supply constraints for consumer goods that would lead to price increases, and municipal governments have the ability to manage their revenues through taxation and user-fees to offset any additional costs.

14.9 References

- Aboriginal Affairs and Northern Development Canada. 2013. First Nation Profiles. Available at: <http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/index.aspx?lang=eng>
- BC Ministry of Community, Sport and Cultural Development (MCSPD). 2013). Local Government Statistics. Available at: http://www.cscd.gov.bc.ca/lgd/infra/statistics_index.htm
- BC Ministry of Energy, Mines and Natural Gas. 2013. British Columbia's Liquefied Natural Gas Strategy One Year Update. Available at: www.gov.bc.ca/com/.../LNGreport_update2013_web130207.pdf
- BC Ministry of Finance 2012. 2012 British Columbia Financial and Economic Review. 72nd Edition. April 2011- March 2012. Available at: <http://www.fin.gov.bc.ca/tbs/F&Ereview12.pdf>. Accessed: September, 2013.
- BC Ministry of Finance. 2013 British Columbia Financial and Economic Review, 73rd Edition (August 2013). Available at: <http://www.fin.gov.bc.ca/pubs.htm>
- BC Ministry of Finance. 2013. Budget and Fiscal Plan 2013/14—2015/16. Available at: http://www.bcbudget.gov.bc.ca/2013/bfp/2013_Budget_Fiscal_Plan.pdf. Accessed: April 2013.
- BC Ministry of Forests, Lands and Natural Resource (BC MFLNRO). 2013.
- BC Ministry of Jobs, Tourism and Skills Training (MJTST). 2013. BC Major Projects Inventory. March 2013. Available at: http://www.jtst.gov.bc.ca/ministry/major_projects_inventory/index.htm

- BC Natural Gas Workforce Strategy Committee. 2013. BC Natural Gas Workforce Strategy and Action Plan. Available at: www.rtobc.com/Resources/Reports.htm
- BC Stats 2013a. Socio-Economic Indices for Local Health Authorities. Available at: <http://www.bcstats.gov.bc.ca/StatisticsBySubject/SocialStatistics/SocioEconomicProfilesIndices/SocioEconomicIndices/LHARports.aspx>
- BC Stats. 2013b. Tourism: Tourism Indicators 2012 and Room Revenues and Property Counts. Available at: <http://www.bcstats.gov.bc.ca/StatisticsBySubject/BusinessIndustry/Tourism.aspx>
- BC Stats. 2013c. Labour Force Statistics. July 2013 Data Table. Available at: <http://www.bcstats.gov.bc.ca/StatisticsBySubject/LabourIncome/EmploymentUnemployment.aspx>
- BC Stats 2013d. Income and Taxation. BC Taxation Statistics 2006, 2007, 2008, 2009. Available at: <http://www.bcstats.gov.bc.ca/StatisticsBySubject/LabourIncome/OtherData/IncomeTaxation.aspx>
2
- BC Stats. 2014. Monthly Tracking of Wages by Province and Industry. Earnings and Employment Trends. Available at: <http://www.bcstats.gov.bc.ca/StatisticsBySubject/LabourIncome/Earnings.aspx>.
- City of Prince Rupert (COPR). 2013. Available at: <http://www.princerupert.ca/index.php?hp=99>
- District of Port Edward (DPE). 2012. Available at: <http://www.portedward.ca/>
- District of Port Edward (DPE). 2013. District of Port Edward Official Community Plan. Bylaw No. 539, 2013. Available at: <http://www.portedward.ca/node/19>
- Grant Thornton. 2013. LNG Employment Impact Review: Available at: [Grant_Thornton_LNG_Employment_Impacts.pdf](#)
- Horne, G. 2009. British Columbia Local Area Economic Dependencies: 2006. Available at: <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Economy/BCInputOutputModel.aspx>
- InterVISTAS Consulting. 2012. Port of Prince Rupert Economic Impact Study Update, Final Report. Available at: <http://www.rupertport.com/trade/impact>
- Mussallem, Jack. 2013. Mayor of Prince Rupert. Personal communications.
- PNW LNG. 2013. Community Benefits. Newsletter: Pacific NorthWest LNG Community Update Spring 2013. Available at <http://pacificnorthwestlng.com/community-benefits/>
- Prince Rupert Port Authority. 2013a. Prince Rupert Port Authority. Financial Statements. Available at: <http://www.rupertport.com/portauthority/financials>
- Prince Rupert Port Authority. 2013b. Community Investment Fund. Available at: <http://www.rupertport.com/community/investment>.
- Prince Rupert Port Edward Economic Development Corporation (PRPEEDC).2009. Investment – Ready Community Profile 2013. Available at: <http://www.princerupert.ca/images/editor/File/Publications/PrinceRupertProfile2010.pdf>
- Skeena – Queen Charlotte Regional District (SQCRD). 2010. Available at: <http://www.sqcrd.bc.ca/>

Statistics Canada (SC). 2007a. 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13 2007. Available at: <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E>

Statistics Canada (SC). 2007b. 2006 Aboriginal Population Profile. 2006 Census. Statistics Canada Catalogue no. 92-594-XWE. Ottawa. Released January 15 2008. Available at: <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-594/index.cfm?Lang=E>

Statistics Canada (SC). 2012. Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released June 27 2012. Available at: <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>

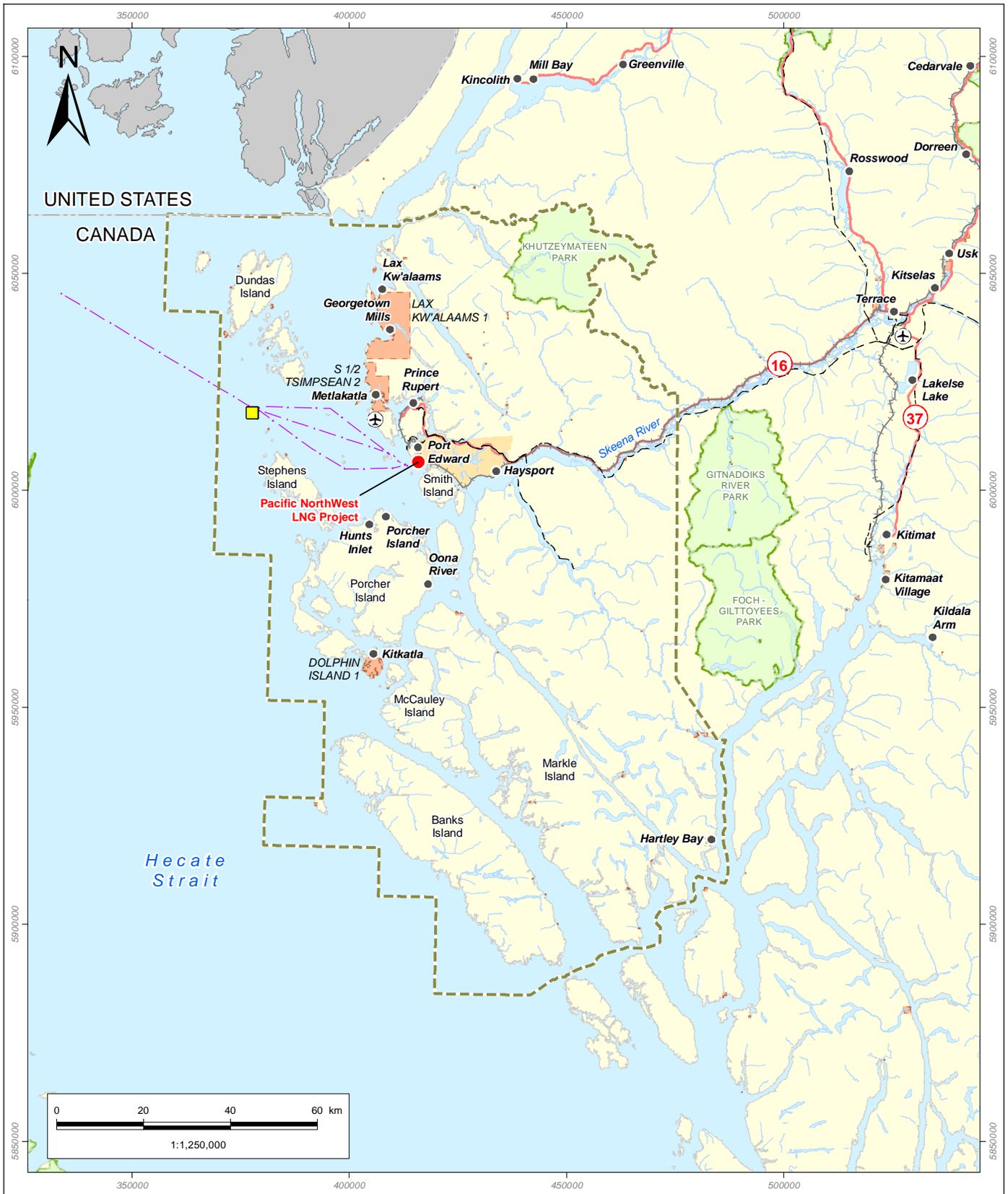
Statistics Canada (SC). 2013a. National Household Survey Profile. 2011 National Household Survey. Statistics Canada Catalogue no. 99-004-XWE. Ottawa. Released June 26 2013. Available at: <http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/index.cfm?Lang=E>

Statistics Canada (SC). 2013b. National Household Survey Aboriginal Population Profile. 2011 National Household Survey. Statistics Canada Catalogue no. 99-011-X2011007. Ottawa. Available at: <http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/aprof/index.cfm?Lang=E>The Northwest Regional Workforce Table. 2013. Regional skills training plan 2013 — 2018.

Welcome BC. 2013. Cost of Living Calculator. Available at: <http://www.costofliving.welcomebc.ca/>

14.10 Figures

Please see the following pages.



<ul style="list-style-type: none"> Regional Assessment Area ● Project Location - - - Potential Shipping Route Airport ● City or Town Pilotage Station 	<ul style="list-style-type: none"> Electrical Power Transmission Line - - - Ferry Route - - - Highway International Boundary Railway - - - Shipping Route - - - Watercourse 	<ul style="list-style-type: none"> Indian Reserve Municipal Boundary Protected Area United States of America Waterbody 	<p>Pacific North West LNG</p> <p>Regional Assessment Area for Economic Environment</p> <p><small>Sources: Government of British Columbia; Prince Rupert Port Authority; Government of Canada, Natural Resources Canada, Centre for Topographic Information; Progress Energy Canada Ltd.</small></p> <p><small>Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.</small></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DATE: 19-FEB-14</td> <td style="width: 50%;">PROJECTION: UTM - ZONE 9</td> </tr> <tr> <td>FIGURE ID: 123110537-424</td> <td>DATUM: NAD 83</td> </tr> <tr> <td>DRAWN BY: K. POLL</td> <td>CHECKED BY: S. ROBERTS</td> </tr> </table>	DATE: 19-FEB-14	PROJECTION: UTM - ZONE 9	FIGURE ID: 123110537-424	DATUM: NAD 83	DRAWN BY: K. POLL	CHECKED BY: S. ROBERTS	<p>PREPARED BY:</p> <p style="text-align: center;"> Stantec</p> <p>PREPARED FOR:</p> <p style="text-align: center;"> Pacific North West LNG</p> <p>FIGURE NO:</p> <p style="text-align: center; font-size: 1.5em;">14-10</p>
DATE: 19-FEB-14	PROJECTION: UTM - ZONE 9									
FIGURE ID: 123110537-424	DATUM: NAD 83									
DRAWN BY: K. POLL	CHECKED BY: S. ROBERTS									