



ASIA PACIFIC GATEWAY
S K I L L S T A B L E

APGC LMI Background and Methodology

June 2016

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The opinions and interpretations in this publication are those of the author and do not necessarily reflect those of the Government of Canada.

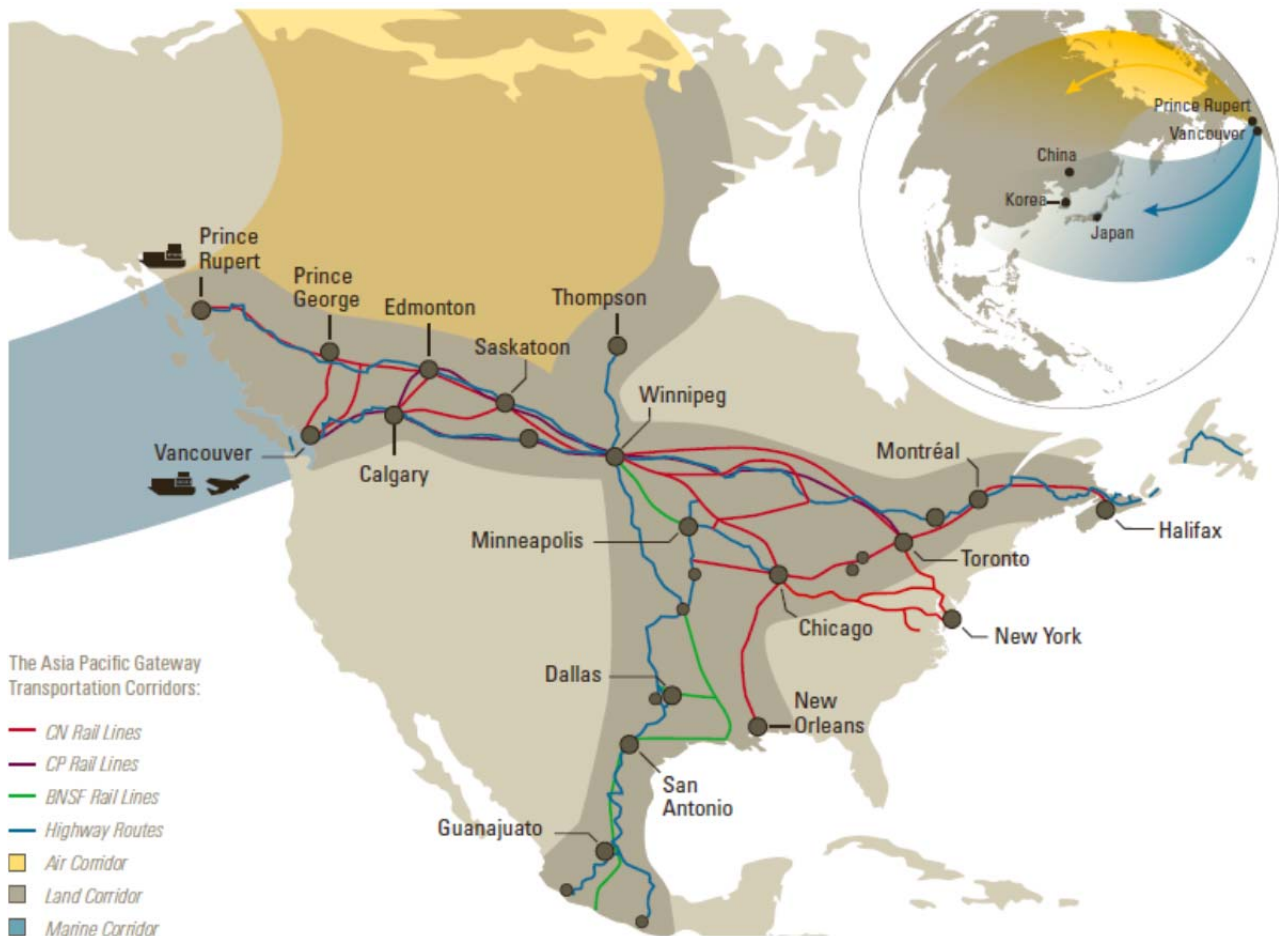
Additional 2016 APGC LMI Products

Occupational Snapshots
Regional Outlooks
Sector Outlooks
APGST LMI Forecast Backgrounder

More information can be found at www.lmionline.ca or contact the Skills Table at info@apgst.ca or 604.684.1471.

The Asia Pacific Gateway: Background

The Asia Pacific Gateway (APG, or the Gateway) is a world-class transportation network designed to make Canada the most competitive entry and exit point in North America for Asian and Canadian goods and services. It is an integrated supply chain that includes airports, seaports, railways, roadways and border crossings, connecting Canada and the North American market to Asia and the world.



Each of the provinces in the Gateway has vastly different labour, recruitment, and retention challenges. The location of BC's ports means the sailing time to markets in Asia is two days less than it is from other ports in the Western hemisphere. This adds intensity to British Columbia's potential liquefied natural gas (LNG) industry and its rich natural resource base; together with the impact of changing oil projects in Alberta, and changes in metals mining in Saskatchewan and Manitoba, there is substantial variability in the economy across the four provinces. If the developments in the Moderate or High Economic Scenarios come to pass in the next decade, then competition for labour will increase dramatically in what is already a very tight labour market for skilled and experienced occupations. If the conditions in the Low Scenario dominate the decade, then the challenge across the provinces will be the replacement of experienced workers, who will retire in large numbers.

The support and maintenance of the APGC and its labour force is considered central to supporting expansion in the Canadian economy; a robust and flexible transportation sector will be required to truly capture the Corridor region's full potential. A skilled, mobile labour force will also be essential. The APG Corridor Labour Market Information (LMI) Project provides insight into the labour conditions for APGC businesses. By doing so, it supports the strong function of this central element of Canada's economy

Labour Market Information

A properly functioning labour market is vital to a modern economy. It permits the economy to adjust to economic changes and helps match workers' skills with job requirements. For a labour market to work efficiently, participants need easy access to accurate, current and reliable Labour Market Information (LMI). LMI can include data related to vacancies; expectations of the impact of economic changes; wages; skills required for an occupation; number of individuals who possess the required skills; types of training available; certifications granted; retirements expected; demographic changes; current jobs filled; mobility of workers in and out of the region; and many other aspects. The LMI work of the Asia Pacific Gateway Skills Table (the Skills Table) helps industry, government and educators set priorities for activities and support growth throughout the Gateway.

Users of detailed labour market forecasts traditionally include:

- **Employers**—for the development of in-house training programs for occupations expected to be in short supply, as well as for decisions related to compensation and business planning;
- **Government policy-makers**—for decisions related to the allocation of resources for education and training, and to immigration;
- **Post-secondary institutions**—for decisions related to program allocation; and
- **Individual Canadians**—for decisions related to career paths and relocation.

An accurate, current and reliable LMI system facilitates the matching of people and jobs, which is especially important in times of labour shortages and or in periods of high unemployment. Reliable LMI is necessary to inform policy decisions to improve the economy's performance and reduce joblessness. Alternatively, in an "under-supplied" or "tight" labour market, accurate information about labour trends can identify occupations with shortages and help channel new labour market entrants into high-demand occupations.

The APGST – A Unique Regional Partnership

In 2007, Human Resources and Skills Development Canada and the British Columbia Ministry of Economic Development prepared a research report entitled *Situational Analysis of Projected Asia-Pacific Gateway Investments in the Western Provinces with a Focus on Human Resources*. The report indicated that the Lower Mainland and Prince Rupert/Kitimat regions would be most directly affected by the planned \$21 billion in investments in APGC infrastructure projects. The study also said that labour and skills pressures would be felt in a wide range of occupations in several sectors in the APGC.

The Skills Table was incorporated in March 2008 to address the recommendations contained in this report. Today, the Skills Table is a non-profit, regional partnership between labour, business and education/training institutions. Our mandate is to coordinate decision-making and action to address overall concerns regarding

labour shortages and skills gaps in the Gateway, and build appropriate capacity in labour resources in innovative ways.

We achieve our mandate by:

- Targeting pressing skills issues related specifically to the Gateway;
- Implementing stakeholder-driven projects and overseeing their successful completion;
- Leveraging investments in existing skills and human resource development projects in APGST sectors;
- Brokering and supporting partnerships among industry stakeholders; and
- Advancing the solutions and strategies we adopt for the benefit of other sectors provincially and nationally.

The sectors included in the mandate are: Logistics, Marine, Rail, Security, Trucking, Warehousing and Transshipment, Aviation, Oil and Gas, and Construction. In addition to anticipating and responding to skills and labour market issues affecting various Gateway sectors, the Skills Table offers a platform for stakeholders to share ideas, concerns and perspectives.

Our vision is a competitive, reliable and efficient transportation gateway system facilitating global supply chains between North America and Asia.

Our mission is to ensure the Asia Pacific Gateway has enough people with the right skills and training to meet its needs.

The APG Corridor LMI Project

The Labour Market Information (LMI) program for the Asia Pacific Gateway (APG) is aimed at providing industry, business and oversight organizations with reliable and valid information about labour availability. It is funded by Employment and Social Development Canada (ESDC). The *APG Corridor LMI Project* was approved with intention of leveraging the existing, successful LMI model developed by the Asia Pacific Gateway Skills Table (Skills Table) beyond that Gateway and into the Corridor.

The project examines key¹ occupations across the four² western provinces that are central to the efficient function of the Gateway and its key sectors³ (Air, Logistics, Rail and Trucking). It also provides industry, business, governments and oversight organizations with reliable and valid information about labour availability that will help to ensure Canada has a robust and growing Asia Pacific Gateway.

This project uses three different economic scenarios, generated in late January 2016. The *Low* Investment, or conservative, scenario includes projects that are underway or certain, while the *Moderate* Investment, or expected, scenario adds projects that are planned and likely to proceed. The *High* Investment, or optimistic, scenario adds projects that have been announced, but with more distant start dates or more regulatory approvals needed to proceed. The scenarios also include expectations for key economic indicators, such as GDP growth in Canada and select Asian economies, and key natural resource prices. The analyses in the LMI reports use the *Moderate* Scenario as their base and make comparisons to the conditions in the other two scenarios. Additional information on the scenarios can be found in the **Methodology** and **Economic Scenarios** sections of this document.

¹ Based on Statistics Canada's National Occupation Classification at the 4 digits or individual occupation level.

² British Columbia, Alberta, Saskatchewan, Manitoba.

³ While construction is a key sector of the APGC, it is not included in the scope of this study due to the quality of construction LMI information available. Marine sector has also not been included due to the limited activities outside of BC.

It is important to note that actual conditions may differ from the forecasts. These forecasts represent expert expectations as of spring 2016. As economic conditions change, conditions in the labour market will also change. The underlying economic growth assumptions used in the *Moderate Investment Scenario* for these labour market forecasts anticipates a strong economy in BC and Alberta but forecasts much slower growth in Saskatchewan and Manitoba. The scenario reflects continuing expectations of growth in the natural resource sectors, particularly in Northern British Columbia, including the building and operation of one liquid natural gas (LNG) facility and associated pipeline. It anticipates a recovery in Alberta starting in 2017 and more growth in Manitoba and Saskatchewan in the early years than later in the forecast. Under these growth assumptions, employers will face some challenges from 2017 onward, mostly driven by high rates of retirement (Replacement) over the whole forecast period, and in the middle years supply growth not keeping pace with job openings. The loss of workers to other provinces in both Saskatchewan and Manitoba also contributes to the challenges that employers will face in hiring workers in the 34 occupations in the APGC between 2016 and 2025.

This project focuses on the transportation and supply-chain or logistics aspects of the Gateway. It encompasses activities that begin with freight entering Canada (e.g., goods being loaded onto railways or trucks from ships at West Coast ports) through to the arrival of freight at its ultimate destination and/or transfer to another freight infrastructure (e.g., on to Winnipeg's central hub system). Its scope includes freight arriving at West Coast terminals via rail, air or road. In order to focus on the trade aspects of the Gateway, passenger travel and resource extraction activities have been deliberately excluded.

You can download any of the reports and occupation snapshots at: www.lmionline.ca.

Advantages of the APGST Labour Market Information Model

The Skills Table has the flexibility to use information from a variety of sources, which allows us to develop and corroborate a wide range of information. The APGST Labour Market Information (LMI) model:

- Focuses on the key occupations of the Gateway in the Transportation, Logistics and Infrastructure sectors;
- Was developed for and by industry through focus group sessions, with information validated by a wide range of stakeholders in the APGC;
- Explores economic scenarios that enable an analysis of the impact of varying levels of investment and growth in the economy;
- Provides occupational analysis at the four-digit National Occupation Classification (NOC) level, which has value from an employer and education delivery perspective at both tactical and strategic levels;
- Analyzes key supply metrics, such as attrition, worker mobility, new entrants, and immigration;
- Presents labour market information analysis in documents that provide all aspects of the analysis in one place; and
- Is built on an underlying model developed by C4SE, which ensures consistency across many other forecasts—both provincial and sectoral—while enabling greater flexibility in the degree and extent of analysis for any occupation.

The Skills Table's status as a standalone, non-profit organization led by a board of directors made up of industry, labour and government executives allows our work to stand the tests of independence and

accuracy, and to be validated and recognized by a wide range of stakeholders throughout the APGC. With our partners, the Centre for Spatial Economics (C4SE) and LevelHeaded Thinking Inc., we have developed a nationally recognized occupational econometric model and analytical framework that is now utilized by industry sectors, provincial governments, federal government agencies, and individual employers.

Our labour market reports are actively used in workforce planning and corporate strategy development by employers, for curriculum development by educational and training institutions, and for labour market analysis and insight by both provincial and federal governments. Skills Table clients have used the LMI studies to stay ahead of the curve in managing and maintaining a well-trained and productive workforce, while others have used them to make immediate changes to workplace practices and address specific human resources management issues.

The Occupations Included in This Project

	NOC	Occupation Title	Sector
1.	0016	Senior Managers – Construction, Transportation, Production and Utilities	Air, Rail, Trucking
2.	0113	Purchasing Managers	Logistics
3.	0714	Facility Operation and Maintenance Managers	Air, Rail
4.	0731	Managers in Transportation	Air, Logistics, Rail, Trucking
5.	1215	Supervisors, Supply Chain, Tracking and Scheduling Co-ordination Occupations	Logistics
6.	1225	Purchasing Agents and Officers	Logistics
7.	1315	Customs, Ship and Other Brokers	Logistics
8.	1521	Shippers and Receivers	Logistics
9.	1523	Production Logistics Coordinators	Logistics
10.	1524	Purchasing and Inventory Control Workers	Logistics
11.	1525	Dispatchers	Air, Rail, Trucking
12.	1526	Transportation Route and Crew Schedulers	Air, Rail, Trucking
13.	2131	Civil Engineers	Air, Rail
14.	2231	Civil Engineering Technologists and Technicians	Rail
15.	2241	Electrical and Electronics Engineering Technologists and Technicians	Air, Rail, Trucking
16.	2243	Industrial Instrument Technicians and Mechanics	Air, Rail, Trucking
17.	2261	Non-Destructive Testers and Inspection Technicians	Air, Rail
18.	2262	Engineering Inspectors and Regulatory Officers	Air, Logistics, Rail, Trucking
19.	2263	inspectors in Public and Environmental Health and Occupational Health and Safety	Air, Logistics, Rail, Trucking
20.	2271	Air Pilots, Flight Engineers and Flying Instructors	Air
21.	6222	Retail and Wholesale Buyers	Logistics
22.	7231	Machinists and Machining and Tooling Inspectors	Air
23.	7242	Industrial Electricians	Rail, Trucking
24.	7304	Supervisors, Railway Transport Operations	Rail
25.	7305	Supervisors, Motor Transport and Other Ground Transit Operators	Trucking
26.	7311	Construction Millwrights and Industrial Mechanics	Air, Rail
27.	7314	Railway Carmen/women	Rail
28.	7315	Aircraft Mechanics and Aircraft Inspectors	Air

	NOC	Occupation Title	Sector
29.	7321	Automotive Service Technicians, Truck and Bus Mechanics and Mechanical Repairers	Trucking
30.	7361	Railway and Yard Locomotive Engineers	Rail
31.	7362	Railway Conductors and Brakemen/women	Rail
32.	7452	Material Handlers	Logistics
33.	7511	Transport Truck Drivers	Trucking
34.	7531	Railway Track Maintenance Workers	Rail

The Four Asia Pacific Gateway Sectors Included in This Project

Four industry sectors— *Air*, *Logistics*, *Rail* and *Trucking* are critical to the functioning of the Asia Pacific Gateway and are included in the APGC and each provincial report.

Air

Air transport using cargo aircraft is a vital component of many international logistics networks. Air cargo comprises mostly perishables and low-weight, high-value consumer goods. While the volume *by weight* of air cargo is substantially smaller than in any other mode, the value *in dollars* is equivalent to that moved by rail. Developing and expanding various aspects of the air cargo business is a strategic focus inside the APGC.

Logistics

Logistics refers to the formal processes by which businesses ensure supplies are procured from appropriate sources, transported to where they are most needed, and arrive at the right time. When used with reference to business, the term logistics often occurs in conjunction with the term supply chain, or supply chain management. Supply chain and logistics refer to the science of ensuring that the movements to and from each segment of the chain are carried out as efficiently and economically as possible. In the Gateway, logistics aspects deal with the movement of goods from source to destination using air, marine, rail and trucking resources.

Rail

The Rail Sector manages the operations of railways and railway yards to move large quantities of bulk and other forms of cargo across the country. A freight train is a group of freight cars hauled by one or more locomotives on a railway, ultimately transporting cargo between two points as part of the logistics chain. Trains can be as long as four kilometres or more, operated by a crew of two. Trains may haul bulk material, intermodal containers, general freight or specialized freight in purpose-designed cars. When considered in terms of tonne-kilometres hauled per unit of consumed energy, rail transport is more efficient than other means of transportation. Additional economies are often realized with bulk commodities (e.g., coal), especially when hauled over long distances.

Trucking

Trucking firms provide an essential service by transporting finished goods and raw materials over land, typically to and from manufacturing plants, retail facilities and distribution centres. The Trucking Sector also supports the Gateway's drayage functions. Drayage truckers bring goods to and from the ports from warehouse and transhippers. As well, they move empty containers from warehouse to storage, to terminals for return to exporters, and to warehouse for further shipping. About 23,000 registered trucking

companies operate in British Columbia. In 2012, trucks transported 64 million shipments, carrying 650 million tons of cargo. Between 2004 and 2013, growth was 27%, an average rate of about 2.9% per year. Truck transportation represents 0.93 per cent of British Columbia's gross domestic product (GDP). It is estimated that trucking of goods is cost-competitive to rail for distances up to 800 kilometres.

Methodology

Since its inception, the Skills Table has been producing Labour Market Information (LMI) for key occupations that support the Asia Pacific Gateway. This LMI has been actively used in workforce planning and corporate strategy development by employers, for curriculum development by educational and training institutions, and for labour market analysis and insight by both provincial and federal governments.

In producing LMI since 2011, we have developed a solid understanding the sectors driving the Canadian economy as a whole as well as the regional economies and the growth drivers in each.

The APGST Labour Market Information Process

The APGST LMI process is characterized by:

- A bottom-up approach to projecting economic activity that starts with major project investments, both proposed and in progress;
- Detailed analysis of demographic changes, including factors such as retirement, immigration, interprovincial mobility and entry; and
- Extensive detail regarding labour markets, not only concerning the demand for workers but, more critically, the supply.

The process unfolds in a series of steps that ultimately lead to the detailed forecasts provided in this report.

1. National Occupation Classifications (NOCs)

At the outset of the APGST LMI Project in 2010, it was decided that the project would use the Statistics Canada NOC standard occupations and report at the four-digit occupation level.

- The purpose of this decision was to enable the use of existing LMI forecast models, most of which are based on the NOC model.
- This approach also allows for comparisons between other relevant forecasts, and a macro assessment of data validity and reliability.
- The APGST LMI Project focuses on occupations in key sectors that are relevant to the transportation infrastructure that supports APGC operations.
- From these occupations, the APGST project committees selected those they considered to be essential to the efficient function of the Gateway and its businesses.
- The project examines 56 occupations of the 500 included in the 2011 NOC structure.

2. APGST Economic Scenarios

In 2012, the APGST LMI Project added economic scenarios to its analysis, and expanded on this to include independent evaluation in 2014. The current report develops three scenarios for the economy over the 10-year forecast time frame.

The scenario inputs (natural resource, utilities and infrastructure projects over \$50M, commodity prices and growth assumptions) are reviewed by a group of BC and Canadian economists for reasonableness and validity, and are adjusted based on their feedback.

More detailed information about the scenarios is in the *Economic Scenarios* section that follows.

3. C4SE Forecast Model

The Centre for Spatial Economics (C4SE) works with APGST to refine the economic scenarios and generate a 10-year, four-digit occupation-level forecast for each economic scenario.

- C4SE is an independent firm that develops and maintains a complex labour market information forecasting tool that supports the models used in BC, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick and Newfoundland, as well as at the Petroleum Human Resource Sector Council, BuildForce Canada (the construction sector's labour market model) and the Canadian GeoExchange Coalition.
- The labour market information in the modelling system has more than two million unique elements, and is derived from information provided by Statistics Canada from its Labour Force Survey and Census of Canada, as well as provincial-, regional-, sectoral- and industry-level information.

4. Data Analysis, Indicator Development

APGST uses the C4SE forecast information to generate detailed analyses for each of the BC regions, sectors, occupations, and the province of BC as a whole.

The analysis also includes metrics and a composite index, replacement demand, expansion, job openings, net changes in demand and supply, flow of new entrants, flow of workers from other occupations, wages and workforce age.

5. Industry-based Focus Group Review

Next, initial analyses are developed and presented to focus groups composed of industry and business representatives.

- These groups assess the validity of the information and the extent to which it reflects their on-the-ground experience, and provide direction to the APGST team on areas for deeper investigation, adjustment and refinement.
- Between four and six sessions are held, and include businesses from all key sectors and regions, representing various sizes and scopes of activity. Usually 25 to 40 participants are involved.
- The project committee reviews and finalizes its recommendations for the LMI Project.

6. Validated Forecast

Industry feedback and economic adjustments are then provided to C4SE, which generates a second forecast. The APGST team then adjusts all analyses and measures to reflect the updated forecast.

7. Key Information and Information Development

From the validated forecast, APGST develops key information and issues, impact assessments, and overall outcomes of the 10-year forecasts, and analyzes the effects of the three different economic scenarios on the supply and demand for all occupations.

APGST then creates draft information packages, reports and communications materials.

8. Industry Validation of Challenges and Opportunities

Finally, APGST presents the key facts and a challenge and opportunity analysis to a series of industry and business representatives.

- These groups assess the validity of the information and the extent to which it reflects their on-the-ground experience, and provide direction to APGST on areas for deeper investigation, adjustment and refinement.
- Between four and six sessions are held, and include businesses from all key sectors and regions, representing various sizes and scopes of activity. Usually 30 to 50 participants are involved.
- The project committee reviews and finalizes recommendations for the LMI project.

Economic Scenarios

The economic scenarios are created using the Major Projects Inventory (MPI) from each of the provinces. . The APGST MPI includes Infrastructure, Utilities and Natural Resource projects valued at \$50M or more, and excludes residential or commercial construction, tourism activities, health care, and education. *A full list of the projects and values by scenario is available in Appendix 1.*

This list is reviewed by economists within and outside of the provinces as well as by industry leaders and experts. Through this process, projects are categorized within one of three scenarios:

- *Low Investment Scenario:* comprises only projects that are currently underway; uses conservative growth assumptions; aims to mirror the BC Ministry of Finance criteria for economic forecasts.
- *Moderate Investment Scenario:* comprises projects that are underway and proposed, excluding any that have significant policy barriers yet to conclude. This list is vetted and adjusted by a group of economic advisors as well as the industry-based project committees. The expected scenario is used as the basis of analysis for the APGST LMI Project.
- *High Investment Scenario:* comprises projects that are underway and proposed (the APGST does not use projects on hold in any of its scenarios). This list is vetted and adjusted by a group of economic advisors as well as the industry-based project committees. This scenario is developed as the best possible case, and is used to generate an upper limit for the forecasts.

The variables and criteria used to allocate projects to the scenarios include:

Low Scenario	Moderate Scenario	High Scenario
Most closely reflects the Provincial Ministries of Finance	Includes all in Low	Includes all in Low and Moderate
Start dates are usually the current year or earlier	Start dates are within 2-3 years	Start dates may be 3 or more years out and, except in the case of LNG projects, do not have question marks in the start or end date
Completion dates have not passed	Completion dates have not passed	Completion dates have not passed
Status is "Construction Started" or the project is a virtual certainty	Status is "Proposed"	Status is "Proposed"
All needed approvals are in place	All environmental approvals are underway and many are in place	Environmental approvals are in the early stages
Web pages and other material state the project is underway or have a specific and near-term start date	Web pages state that the project is under development and indicate actions completed and underway that go beyond exploration and/or initial investigation	Web pages state that the project has been initiated and that some activities, including exploration, are underway or completed

The scenario allocations are then reviewed by:

- Three to five economic experts
- The project committee
- Industry
- Focus groups

Changes to the scenarios are made based on these reviews and comments to create the final list.

Additional assumptions that feed into the scenarios include:

- Expectations for key economic indicators, including GDP growth in BC, Alberta, Saskatchewan and Manitoba, Canada, China, India and Korea;
- Expectations for key natural resource prices, including lumber, coal, gold, natural gas, oil, wheat and potash;
- Expectations for employment and labour force participation over a 10-year time frame; and
- Adjustments for project expenditures that will occur outside of the APGC and Canada.

Definitions of the Terms Used in This Project

Base Supply

A measure of the decline in the number of workers who are active in an occupation at the beginning of the forecast and subsequently leave due to Replacement over the forecast period. Base Supply is calculated as the total supply less the average number of unemployed workers, less Replacement from each year of the forecast. Base Supply calculations demonstrate the changes in each year of the forecast period to the cohort of workers as compared with the first year of the forecast.

Expansion or Expansion Demand

Expansion is defined here as the number of job openings in an occupation created by economic or business growth.

International Mobility

International Mobility refers to the NET number of workers that coming to Canada from other countries. It includes temporary foreign workers as well as immigrants to Canada. When more workers leave for other countries than come to Canada this can be a negative number.

Job Openings

Job openings is defined here as the need for new workers in an occupation created by expansion and/or replacement demand.

Labour Demand

Labour Demand is defined here as the number of jobs available for workers who have the skills and/or required certifications to be considered qualified to work in each occupation in each year.

Labour Force Mobility

Labour Force Mobility refers to workers who are in the workforce and change from one occupation to another. An example of this is a worker who was a Heavy Duty Equipment operator and changes employment to become a Truck Driver or who return to the workforce after a short period away, such as after a disability leave

Labour Supply

The number of workers who have the skills and/or certifications to be qualified to work in each occupation each year, including those who are newly trained, have moved from other provinces or countries, or have moved from other occupations.

Mobility

Mobility refers to the net number of workers coming into the APGC from other provinces. Net means the difference between those who leave the APGC to work in other provinces and those who come to the APGC from other provinces.

New Entrants

New Entrants are generally between the ages of 15 and 30. The number of new entrants is not the same as the number of graduates from school/training such as that measured by educational institution administrative data. New entrants refer to the number of graduates from school/training that fill the job openings. This number would not likely be the same as the administrative data for graduates since graduates do not always end up in the labour force. The number of New Entrants also considers previous participation

in the Labour force - if a new graduate has never worked before graduation they would be counted as 1.0 New Entrant. If a new graduate has worked 25% time before graduation, they would be counted as .075% of a New Entrant.

New Supply or Net New Workers

New Supply or Net New Workers is the number of workers who are new to the occupations from four sources: immigration, other provinces or regions, other occupations, or those who are newly trained and new to the workforce. This creates growth in labour supply.

Replacement or Replacement Demand

Replacement is defined here as the number of job openings in an occupation created by attrition – that is, the number of workers who leave each occupation, and the labour market as a whole, due to retirement or death each year.

Supply

Labour supply is defined here as the number of workers who have the skills and/or required certifications to be considered qualified to work in each occupation in each year.

The APGST Measures

Hiring Difficulty Index

Assesses the overall challenges for employers who are trying to hire in the labour market. It aggregates five metrics and combines them to provide a single measure that reflects the different interactions between the labour market components. For example, the metrics can show the ratio of workers to Job Openings (the Market Tightness) as “Tight,” with International Reliance and Supply Lag Low and Mobility positive (i.e., workers are moving in), while the Loss of Experience is Moderate and the reliance on New Entrants is Extreme. This implies quite different labour market conditions than a situation where the Market Tightness is “Tightening” (i.e., less difficult) but International Reliance is High, supply is growing much more slowly than Job Openings, and a high portion of current workers are leaving to work in other provinces.

To develop the index each of the 5 metrics, described below, are assigned a numeric value for each measure (e.g., Low =2, Medium =4, High = 6) and weighting (between 10% and 20%) based on the level of importance and impact that measure has on an employer’s ability to find the workers they need to fill job openings. Those values are then summed across the 5 measures to generate the Hiring Difficulty Index value (from 0-37). Finally those values are then assigned a difficulty measure seen below:

Oversupplied market	0-8
Easy market	9-15
Some challenges	16-22
Difficult	23-29
Extremely difficult	30+

International Reliance Measure

Assesses the extent to which the New Supply of workers is dependent on workers from other countries. Given that the levers that control Immigration are not in the control of employers, this measure provides insight into the potential for New Supply expectations to be influenced by changes in Immigration policy.

No New Supply	<i>New Supply is 0 or negative</i>
None	<i>International workers are not part of New Supply</i>
Low	<i>Less than 10% of New Supply represented by Immigration</i>
Medium	<i>10% to 25% of New Supply represented by Immigration</i>
High	<i>25% to 50% of New Supply represented by Immigration</i>
Extreme	<i>50% or more of New Supply represented by Immigration</i>

Loss of Experience

Assesses the rate at which experienced workers are retiring in relation to the number of Job Openings.

Low	<i>35% of Job Openings represented by Replacement</i>
Medium	<i>35-70% of Job Openings represented by Replacement</i>
High	<i>More than 70% of Job Openings represented by Replacement</i>

Market Tightness

Assesses the “tightness” of the labour market; i.e., the degree of difficulty an employer may experience in trying to hire into the occupation.

1 - Excess supply	<i>More than 60% higher than normal unemployment</i>
2 - Balanced supply and demand	<i>Between 30-60% higher than normal unemployment</i>
3 - Nearing a tight labour market	<i>Between 0-30% higher than normal unemployment</i>
4 - Excess demand, limited supply	<i>Below normal unemployment</i>

Mobility Measure

Demonstrates the extent to which movement into or out of the province affects the supply of workers available to fill Job Openings.

Fewer jobs	<i>The number of positions (demand) has declined from the previous year</i>
No Job Openings	<i>There are 0 Job Openings</i>
No Mobility	<i>Net Mobility is 0</i>
Moving in	<i>Workers are moving to the province</i>
Low leaving	<i>10% or less of workers leaving</i>
Moderate leaving	<i>10% to 25% of workers leaving</i>
High leaving	<i>25% to 50% of workers leaving</i>
Extreme leaving	<i>50% or more of workers leaving</i>

Supply Lag Measure

Assesses the extent to which New Supply is keeping pace with Job Openings. It allows for an assessment of the extent to which conditions are tightening or loosening in the labour market.

Count too small	<i>Job Openings or New Supply is less than 6</i>
No New Supply	<i>New Supply is 0 or negative</i>
Low	<i>New Supply is 97% or more of Job Openings</i>
Medium	<i>New Supply is 93-97% of Job Openings</i>
High	<i>New Supply is 93% or less of Job Openings</i>

Limitations of the Models and Forecasts

The forecasts are generated from a combination of economic indicators, major capital projects (in progress and expected during the forecast period), population demographics, historical trends, and international trade expectations. They are developed to provide insight into the likely and possible events of the future, given the known economic and population conditions.

As with any forecasting tool, the models used here are useful mostly for the trends they demonstrate. Looking at forecasts generated in 2006 or even 2007, it is apparent that many events in 2008 could not have been predicted; therefore, the forecasts for that year proved inaccurate. However, as a general rule, these models provide a good predictive picture of future conditions, making it possible to take action to ameliorate or counteract any undesirable possibilities before they occur.

Appendix 1: Economic Context of the forecast

Economic Indicators by Scenario

	Scenario	Moderate ⁴⁵			Low			High		
Region	Indicator	2016	2017-21	2021+	2016	2017-21	2021+	2016	2017-21	2021+
BC	GDP	2.4	2.2	2.1	2.2	1.3	1.6	5.1	3.4	1.8
	Unemployment rate	5.8	5.7	5.2	6.0	6.6	6.4	5.1	4.4	4.8
AB	GDP	-1.3	1.2	1.7	-1.6	0.8	1.3	-0.4	1.7	2.0
	Unemployment rate	7.3	6.4	5.2	7.6	6.9	5.9	6.8	5.7	4.8
SK	GDP	1.0	1.1	0.7	0.0	0.7	0.4	2.0	2.3	1.0
	Unemployment rate	5.4	5.2	5.2	5.8	5.9	5.6	5.0	4.3	5.0
MB	GDP	2.6	1.7	1.8	2.2	1.4	1.7	2.9	2.0	2.0
	Unemployment rate	5.1	5.2	5.1	5.3	5.6	5.6	5.0	4.8	4.6

		Moderate ⁶			Low			High		
Country ⁷		2016	2017-21	2021+	2016	2017-21	2021+	2016	2017-21	2021+
China	GDP	6.2	5.9	6.0	5.0	4.9	5.0	6.7	6.8	7.0
China	Unemployment rate	4.1	4.1	4.1	4.1	4.2	4.2	4.1	4.0	4.0
India	GDP	7.5	7.6	7.8	7.5	5.9	6.5	7.5	9.4	9.6
India	Unemployment rate	-	-	-	-	-	-	-	-	-
Japan	GDP	1.0	0.7	0.7	1.0	0.6	0.5	1.0	1.1	1.0
Japan	Unemployment rate	3.7	3.8	3.7	3.7	3.8	3.8	3.7	3.7	3.7
Korea	GDP	3.3	3.6	3.7	3.3	2.8	2.9	3.3	5.4	5.5
Korea	Unemployment rate	3.6	3.4	3.3	3.6	3.4	3.4	3.6	3.3	3.2
United States	GDP	2.6	2.5	2.2	2.4	2.0	1.7	2.8	2.9	2.7
United States	Unemployment rate	5.5	5.0	4.8	5.5	5.1	4.9	5.5	4.9	4.8

⁴ Canadian Data Source: APGC Forecast Model

⁵ International Data Source: World Bank

⁶ International Data Source: World Bank

⁷ The Country data is generated as high, low and moderate, which may not align with the impact of expected commodity prices, they are included to assess the impact of economic differences in key trading partners.

Commodity Price Forecasts by Scenario

Commodity		Moderate			Low			High		
		2016	2017-21	2021+	2016	2017-21	2021+	2016	2017-21	2021+
Coal, Australia	\$/mt	\$63	\$63	\$63	\$63	\$50	\$51	\$63	\$64	\$65
WTI Oil (US\$)	\$/bbl	\$33	\$47	\$72	\$32	\$46	\$66	\$34	\$49	\$77
Natural gas LNG, Japan	\$/mmbtu	\$10	\$11	\$12	\$10	\$8	\$8	\$10	\$14	\$15
Henry Hub Natural Gas (US\$)	\$/mmbtu	\$2.6	\$3.7	\$5.2	\$2.6	\$3.6	\$5	\$2.7	\$3.8	\$5.6
Wheat, US, HRW	\$/mt	\$265	\$253	\$233	\$265	\$201	\$197	\$265	\$390	\$383
Timber	Index, 2010=100	\$96	\$97	\$101	\$96	\$84	\$85	\$96	\$115	\$120
Copper	\$/mt	\$6,152	\$6,175	\$6,190	\$6,152	\$5,800	\$5,900	\$6,152	\$6,500	\$7,000
Nickel	\$/mt	\$15,144	\$14,943	\$14,656	\$15,144	\$11,623	\$11,569	\$15,144	\$16,000	\$17,500
Gold	\$/toz	\$1,174	\$1,092	\$963	\$1,174	\$879	\$855	\$1,174	\$1,307	\$1,459

APGC Proposed Major Projects by Scenario

	Project Name:	Project Value (Millions):	Construction Dates		Scenario
BC	Abbotsford Airport Expansion	\$100	Spring 2010	2020	Low
BC	Big Bend Substation	\$56	Spring 2013	Spring 2017	Low
BC	Big Silver Creek Hydroelectric Project	\$65	Spring 2014	Fall 2016	Low
BC	Bralorne Mine/King/ Pioneer Mines	\$100	Spring 2011	2016	Low
BC	Brucejack Gold Project	\$747	Fall 2015	Summer 2017	Low
BC	Cache Creek Landfill Gas Utilization Project and Extension	\$100	Fall 2014	Late 2016	Low
BC	Cariboo Connector - Highway 97 Improvements	\$440	Summer 2005	Fall 2018	Low
BC	Central Okanagan Multi-Modal Corridor	\$75	Fall 2005	2020	Low
BC	Cheakamus Unit 1 and Unit 2 Generator Replacement	\$74	Spring 2014	Summer 2019	Low
BC	Dawson Creek / Chetwynd Area Transmission Project	\$296	Summer 2012	Early 2016	Low
BC	Deltaport Terminal, Road and Rail Improvements	\$280	Spring 2013	Late 2016	Low
BC	Elk Valley Water Quality Plan	\$600	Fall 2014	2018	Low
BC	Fairview Container Terminal Expansion (Phase 2A)	\$200	Spring 2015	Summer 2017	Low
BC	Fort St. James Green Energy LP	\$235	Early 2014	16-Jul	Low

	Project Name:	Project Value (Millions):	Construction Dates		Scenario
BC	G.M. Shrum Units 1 to 10 Control Systems Upgrade Project	\$63	Summer 2015	Summer 2021	Low
BC	Highway 1 Lower Lynn Corridor Improvement Project	\$100	2017	2020	Low
BC	Horne Payne Substation Project	\$94	Summer 2015	Fall 2018	Low
BC	Huckleberry Copper / Silver / Molybdenum Mine	\$201	Spring 2012	2021	Low
BC	Jimmie Creek Hydroelectric Project	\$120	Fall 2014	16-Jul	Low
BC	John Hart Generating Station Replacement	\$1,093	Fall 2013	Early 2019	Low
BC	Johnson Street Bridge Replacement	\$94	13-May	Spring 2017	Low
BC	Kelowna International Airport Expansion	\$150	08-Feb	2025	Low
BC	McKenzie Interchante	\$85	2017	2018	Low
BC	Meikle Wind Energy Project	\$400	Spring 2015	Late 2016	Low
BC	Merritt Green Energy Project	\$235	Late 2013	16-Oct	Low
BC	North Creek Hydroelectric Project	\$71	14-May	16-May	Low
BC	Port of Stewart Expansion - Phase 3	\$70	Spring 2015	2016	Low
BC	Roberts Bank Container Expansion Program Terminal 2 and Deltaport 3rd Berth	\$1,150	07-Feb	2023	Low
BC	Ruskin Dam Safety and Powerhouse Upgrade	\$748	Early 2011	Summer 2017	Low
BC	Site C Clean Energy Project	\$8,335	Summer 2015	Fall 2024	Low
BC	Skytrain - Evergreen Line	\$1,430	Early 2012	Fall 2016	Low
BC	Skytrain Expansion - Expo Line	\$3,100	Fall 2008	2020	Low
BC	Surrey Organics Biofuel Facility	\$68	Spring 2015	Early 2017	Low
BC	Tilbury LNG Facility Expansion	\$400	14-Oct	Summer 2016	Low
BC	Trans Canada Hwy Improvements - Monte Creek to Pritchard	\$60	11-Oct	Spring 2016	Low
BC	Trans Canada Hwy Improvements - Pritchard to Hoffman's Bluff	\$62	Spring 2013	Fall 2016	Low
BC	Tretheway Creek Waterpower Project	\$60	Spring 2014	Fall 2016	Low
BC	Upper Lillooet River Hydroelectric Project	\$420	Spring 2014	16-Jun	Low
BC	Vancouver International Airport Expansion	\$1,775	Apr-00	2027	Low
BC	216 Street Interchange/ Highway 1 Widening	\$59	2016	Spring 2018	Moderate
BC	Bremner/Trio Hydro Project	\$90	Summer 2015	2016	Moderate
BC	Centerm Expansion Project	\$250	Late 2016	2020	Moderate
BC	Core Area Wastewater Management Project - Seaterra Program	\$788		2020	Moderate
BC	George Massey Tunnel Replacement Project	\$2,400	2017	22-Dec	Moderate
BC	Highway 97 Improvements - Highway 33 to Edwards Road	\$60	2016	2018	Moderate

	Project Name:	Project Value (Millions):	Construction Dates		Scenario
BC	Horseshoe Bay Terminal Upgrades	\$200	2020	2022	Moderate
BC	Lions Gate Sewage Treatment Plant	\$400		2020	Moderate
BC	LNG Facility	\$25,000	2017	2022	Moderate
BC	LNG Pipeline	\$4,800	2017	2020	Moderate
BC	Metro Vancouver Waste-to-Energy Incineration Facility	\$450	Fall 2015	2018	Moderate
BC	Nanaimo Sewage Plant Upgrades	\$86	Summer 2015	2016	Moderate
BC	Narrows Inlet Hydro Project	\$210	15-Sep	17-Nov	Moderate
BC	Pattullo Bridge Replacement	\$1,000	2017	2025	Moderate
BC	Skytrain - UBC Line	\$2,800	2017	2020	Moderate
BC	Terminal A Extension Project	\$250	2016	2018	Moderate
BC	Terrace Kitimat Line Replacement	\$115	2017	2018	Moderate
BC	Tumbler Ridge Wind Energy Project	\$125	2017	2018	Moderate
BC	Silvertip Silver Mine	\$50	2016	2017	High
BC	Capilano (Cleveland) Dam Power Plant	\$90	2017	2020	High
BC	LNG Pipeline	\$130	2019	2021	High
BC	WesPac Tilbury Jetty Marine Project	\$175	Late 2016	Early 2018	High
BC	Crown Mountain Coking Coal Project	\$370	Summer 2016	2018	High
BC	AltaGas Liquid Propane Terminal	\$450	2017	2020	High
BC	LNG Facility	\$600	2016	2018	High
BC	Fairview Container Terminal Expansion Phase 2B	\$650	2018	2021	High
BC	Prince Rupert Potash Terminal	\$775	2017	2020	High
BC	Avanti Kitsault Mine Project	\$1,000	2016	2018	High
BC	Schaft Creek Porphyry Copper-Gold Mine	\$2,900	2016	2019	High
BC	Gas Transmission Project	\$5,000	Early 2016	Early 2019	High
BC	Trans Mountain Pipeline Expansion (TMX)	\$5,400	2016	2017	High
BC	LNG Facility	\$11,400	2016	2019	High

	Project Name	Project Value (Millions)	Construction Dates	Scenario
AB	17th Ave Transitway	\$98	2016-2018	Low
AB	AGLC Distribution Centre	\$92	Commencing 2016	Low
AB	Anthony Henday Drive NE Divided Roadway	\$1,810	2012 - 2016	Low
AB	Bowness Sanitary Offload Trunk	\$50	2015 - 2016	Low
AB	Centrifuge Plant for Mature Fine Tailings	\$1,900	2012 - 2015	Low
AB	CFB Cold Lake Infrastructure Upgrades	\$120	2006 - 2015	Low
AB	Christina Lake Thermal Expansion Project	\$2,700	2012 - 2017	Low
AB	Cold Lake Pipeline Twinning Foster Creek	\$1,200	2013 - 2016	Low
AB	Crude Oil Pipeline Edmonton to Hardisty	\$844	2014 - 2015	Low
AB	Edmonton Terminal South Expansion	\$260	2013 - 2015	Low
AB	Fort Hills Oil Sands Mine	\$13,500	2013 - 2017	Low
AB	Foster Creek Oil Sands Project	\$2,000	2012 - 2017	Low
AB	Glenmore Trail Improvements	\$83	2015-2017	Low
AB	Grand Rapids Pipeline Project	\$3,200	2014 - 2016	Low
AB	Hangingstone SAGD Commercial Production Project	\$774	2013 - 2016	Low
AB	Heartland Pipeline and TC Terminal	\$900	2014 - 2016	Low
AB	Highway 2 and 41 Avenue SW Interchange	\$205	2014 - 2015	Low
AB	Highway 63 Grade, Base and Pave	\$130	2013 - 2016	Low
AB	Highway 63 Grade, Base and Pave 771710	\$130	2013-2016	Low
AB	Horizon Oil Sands Project Phase 2 and 3	\$2,060	2012 - 2017	Low
AB	Kirby North Phase 1 Oil Sands Project	\$1,450	2015 - 2016	Low
AB	Macleod Trail and 162 Ave S Interchange	\$65	2015-2017	Low
AB	Narrows Lake In Situ Oil Sands Project	\$1,600	2013 - 2017	Low
AB	North West Bitumen Upgrader Phase 1	\$8,500	2013 - 2017	Low
AB	Northern Courier Pipeline Project	\$660	2014 - 2017	Low
AB	Polaris Expansion Narrows Lake Connection	\$72	2013 - 2016	Low
AB	Polyethylene Facility Expansion	\$1,000	2013 - 2016	Low
AB	Red Deer Area Transmission Development	\$350	2014 - 2016	Low
AB	Redwater RFS 2 Fractionator Twinning	\$415	2013 - 2015	Low
AB	Saturn 2	\$170	2013 - 2015	Low
AB	Simonette Gas Plant Modifications	\$90	2014 - 2015	Low
AB	South Foothills Transmission Project	\$345	2014 - 2015	Low

	Project Name	Project Value (Millions)	Construction Dates	Scenario
AB	Southwest Calgary Ring Road - Hwy 22 to Glenmore	\$1,900	2016-2025	Low
AB	Surmont Phase 2 Oil Sands Development	\$2,000	2010 - 2015	Low
AB	Walterdale Bridge Replacement	\$155	2013-2017	Low
AB	Wastewater Treatment Plant Upgrades Phase 2	\$58	2012 - 2015	Low
AB	Alberta Carbon Trunk Line	\$600	2014 - 2015	Moderate
AB	ATCO Gas Fired Power Plant	\$800	2014 - 2017	Moderate
AB	Biorefinery	\$200	2014 - 2015	Moderate
AB	Bonnybrook Wastewater Treatment Plant Upgrade	\$126	2014 - 2018	Moderate
AB	Gilead Research and Development Lab	\$50	2014 - 2016	Moderate
AB	Highway 19 Twinning	\$80	Announced	Moderate
AB	HR Milner Generating Station Expansion	\$1,400	2014 - 2020	Moderate
AB	Northern Gateway Pipeline	\$1,580	2015-2018	Moderate
AB	Pelican Lake Grand Rapids SAGD Oil Sands Project	\$2,000	2014 - 2017	Moderate
AB	Picture Butte - Etzikom Coulee Transmission Line	\$160	2014 - 2015	Moderate
AB	Terminal Expansion	\$100	2014 - 2015	Moderate
AB	Aspen Oil Sands Project	\$7,000	2016-2020	High
AB	Audet Lands Oil Sands Facility	\$550	2015-2016	High
AB	Baseline Terminal	\$672	2015-2019	High
AB	Birchwood SAGD Oil Sands Project	\$510	2016-2017	High
AB	Blackrod SAGD Oil Sands Project Phase 1	\$802	2014 - 2016	High
AB	Bonnybrook Wastewater Treatment Plant D Expansion	\$600	2017-2022	High
AB	Calgary Urban Pipeline Replacement Project	\$450	2016-2018	High
AB	Canadian Diluent Hub Phase 1	\$350	2016 - 2017	High
AB	Christina Lake SAGD Project Phase 3	\$500	2016-2018	High
AB	Deerland Peaking Station	\$140	2016	High
AB	Dover Commercial Project Phase 1	\$2,500	2014 - 2017	High
AB	Dunkirk Project	\$123	2015 - 2016	High
AB	Edmonton Terminal Expansion Project Phase 2	\$112	2015 - 2017	High
AB	Edmonton Urban Pipeline Replacement Project	\$250	2015 - 2018	High
AB	Fort McMurray West Transmission Line	\$1,430	2017 - 2019	High
AB	Frontier Oil Sands Mine	\$20,000	2019-2026	High
AB	Genesee Generating Station Units 4 and 5 Project	\$1,400	2016-2019	High

	Project Name	Project Value (Millions)	Construction Dates	Scenario
AB	Germain Commercial Demonstration Project Phase 2	\$110	2013 - 2015	High
AB	Great Spirit Power Project	\$1,000	2015 - 2017	High
AB	Grouse In Situ Oil Sands Project	\$1,530	2015 - 2017	High
AB	Hoole Grand Rapids SAGD Project Phase 1	\$452	2014 - 2016	High
AB	Iron / Vanadium Mine and Mill Buildings	\$300	2018 - 2020	High
AB	Iron / Vanadium Mine Power Plant	\$75	2018 - 2020	High
AB	Iron / Vanadium Mine Infrastructure	\$100	2018 - 2020	High
AB	Kathleen Andrews Transit Garage	\$196	Commencing 2015	High
AB	Keyera NGL Expansion	\$220	2015 - 2016	High
AB	Muskwa SAGD Oil Sands Project	\$800	2014 - 2017	High
AB	Northern NGL Pipeline System Expansion Phase 2	\$415	2015 - 2016	High
AB	Peace NGL Pipeline System Expansion	\$415	2016-2019	High
AB	Pike Oil Sands Project	\$3,800	2016 - 2018	High
AB	Pipeline System Expansions Phase 3	\$2,400	2015 - 2017	High
AB	Propane Dehydrogenation Facility	\$800	2016-2019	High
AB	Redwater RFS 3 Fractionator	\$460	2016 - 2017	High
AB	Rigel Oil Sands Project	\$390	2015 - 2017	High
AB	Saleski Oil Sands Pilot Project Expansion	\$520	2015 - 2017	High
AB	Saleski Thermal Oil Sands Project	\$300	2015 - 2017	High
AB	Sasol Natural Gas to Liquid Refinery	\$12,500	Commencing 2017	High
AB	Sepiko Kesik (Saleski East) Oil Sands Project	\$70	2016 - 2018	High
AB	Stoney CNG Transit Bus Garage	\$200	2016-2018	High
AB	Strathcona Salt Cavern Storage Project	\$200	2015 - 2017	High
AB	Sundance 7 Gas-Fired Power Plant	\$1,600	2020-2022	High
AB	Taiga Oil Sands Project	\$1,570	2015-2018	High
AB	Telephone Lake SAGD Project Phase 1	\$1,000	2014-2018	High
AB	Trans Mountain Pipeline Expansion	\$5,400	2016 - 2018	High
AB	Transmission Line Castle Rock Ridge to Chapel Rock	\$500	2017 - 2018	High
AB	Valley Line LRT	\$1,800	2016 - 2020	High
AB	Voyageur South Mine	\$4,400	Commencing 2018	High
AB	Walleye SAGD Oil Sands Project	\$450	2015 - 2016	High
AB	'West Ells' Oil Sands Project Phases 1 and 2	\$525	2012 - 2015	High

	Project Name	Project Value (Millions)	Construction Dates	Scenario
AB	Windy Point Wind Farm	\$150	2016-2017	High
AB	Wood Buffalo Crude Oil Pipeline Extension	\$1,300	2015 - 2017	High

	Project Name	Project Value (Millions)	Construction Dates		Scenario
SK	2014/2015 Highways Capital Program-Fall 2014 Tender Plan	\$200.0	2014	2015	Low
SK	Agriculture and Oil terminal	\$94.7.0	2013	2016	Low
SK	Agrium's Potash Mine Expansion	\$2,470	2015	2017	Low
SK	Biomass Generator Power Plant	\$150.0	2014	2016	Low
SK	Carbon Capture Test Facility	\$70.0	2013	2015	Low
SK	Hwy 16 Twinning	\$55.0	2014	2019	Low
SK	K+S's New Legacy Potash Mine	\$4100.0	2012	2016	Low
SK	Large Diameter pipe mill	\$200.0	2015	2018	Low
SK	Legacy Uranium Mine and Mill Site Clean Up	\$250.0	2007	2020	Low
SK	Line - Aberdeen to Wolverine - 230kV - New	\$73.4.0	2013	2017	Low
SK	Line - I1K - 230kV - New	\$380.0	2013	2015	Low
SK	Line - TCP Piapot to Swift Current - 230kV - New	\$58.0	2013	2016	Low
SK	Mid-Saskatchewan Pipeline System	\$100.0	2014	2015	Low
SK	Mosaic's Potash Mine Expansion	\$1700.0	2015	2017	Low
SK	New Bypass	\$53.0	2010	2015	Low
SK	New Stadium at Evraz Place	\$278.2	2014	2017	Low
SK	Oil Refining Expansion	\$100.0	2013	2015	Low
SK	Pipeline Network	\$115.0	2015	2015	Low
SK	Queen Elizabeth Repowering	\$532.0	2013	2015	Low
SK	Regina Bypass-Connects Hwy 11 with the Trans-Canada Hwy	\$1880.0	2015	2019	Low
SK	Waste Water Treatment Plant	\$130.0	2004	N/A	Low
SK	Wastewater Treatment Plant Upgrades	\$224.3	2008	2016	Low
SK	Areva's Uranium Mine Project	\$1050.0	2018	2022	Moderate
SK	BHP: Jansen mine Part 1 (Phase 2)	\$2,600.0	2014	2019	Moderate
SK	Cast Iron Water Main Replacement	\$117.0	2015	2035	Moderate
SK	Enbridge: Line 3 Replacement	3136	2015	2017	Moderate

	Project Name	Project Value (Millions)	Construction Dates		Scenario
SK	Genesis Grain and Fertilizer Plant - near Belle Plaine	\$1760.0	2015	N/A	Moderate
SK	Karnalyte's 625,000 tonnes per year Greenfield Solution Potash Mine and Processing Facility	\$593.0	2016	2017	Moderate
SK	Line 3 Replacement	\$4830.0	2015	2017	Moderate
SK	McOrmond/Highway #5 and Boychuck/Highway #16 Interchanges	\$80.0	2015	2017	Moderate
SK	Natural gas Power Plant	\$750.0	2016	2019	Moderate
SK	North Commuter Parkway and Traffic Bridge Project	\$252.0	2012	2018	Moderate
SK	SaskPower: Tazi Twe hydroelectric project	630	2016	2020	Moderate
SK	BHP: Jansen mine Part 2-Included to maintain growth	\$4,500.0	2020	2022	High
SK	Cameco's Uranium Mine	\$2600	2018	2022	High
SK	Energy East Pipeline Project	\$863.0	2017	2019	High
SK	Fortune Minerals: Processing facility	\$230	2016	2018	High
SK	Keystone XL Oil Pipeline Project	\$800.0	2010	N/A	High
SK	New Solutions Potash	\$2500.0	2016	N/A	High
SK	Roughrider Advance Exploration	\$300.0	2014	2022	High
SK	Solution Potash Mine and Processing Facility Upgrade to 2.13 million tonnes per year (2nd Phase)	\$2000.0	2014	2016	High
SK	Vale's New Solution Potash Mine	\$3000.0	2016	2020	High
SK	Western Potash Corp: Milestone Pilot Project	80	2017	2018	High
SK	Western Potash Corp's New Potash Mine	\$3300.0	2017	2018	High

	Project Name	Project Value (Millions)	Construction Dates	Scenario
MB	Canada Inns to Develop New Hotel at McPhillips Station Casino	\$50	2015-2016	Low
MB	East Side Transportation Initiative	\$1000	2014-2023	Low
MB	Enbridge : Line 3 Pipeline Replacement	\$1372	2015-2017	Low
MB	Energy East Pipeline -	\$563.6	2015-2018	Low
MB	Manitoba Hydro Dam -	\$6500	2012-2021	Low
MB	Manitoba Hydro Hydro Dam -	\$560	2010-2015	Low
MB	Manitoba Hydro Hydro Transmission lines - Bipole III	\$5280	2012-2018	Low

	Project Name	Project Value (Millions)	Construction Dates	Scenario
MB	Manitoba hydro Reil	\$1200	2015-2018	Low
MB	Permanent Flood Channel - Lake St. Martin and Lake Winnipeg	\$250	2016-2021	Low
MB	Winnipeg Convention Centre - Convention Centre Addition	\$210	2013:1-2016:4	Low
MB	Highway 1 and Highway 16 Overpass	\$\$130	2020-2022	High
MB	Lalor mine - concentrator	200	2017-2019	Moderate
MB	Southwest Rapid Transitway (Stage 2)	\$400	2016-2019	Moderate
MB	Vale Mine Expansion	500	2016-2019	Moderate
MB	Water Treatment Plant, NEWPCC - Biological Nutrient Removal (BNR) - 2230 Main Street	\$547	2016-2019	Moderate
MB	Water Treatment Plant, SEWPCC - Biological Nutrient Removal (BNR) - 100 Ed Spencer Drive	\$272	2015-2017	Moderate
MB	Manitoba Minnesota Transmission Project	\$350	2018- 2021	High