Fall 2018

Calgary & Region
Economic Outlook
2018 – 2023

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Introduction

Purpose

The City of Calgary monitors and tracks economic indicators to develop insights on how external events are impacting the local economy throughout the year. The results from this process are published semi-annually as the Economic Outlook—in the spring and then again in the fall.

The Economic Outlook presents forecasts for a select number of economic variables. The choice of variables reflects factors that are considered likely to have a significant effect on the local economy over the forecast period.

Plan

The core study area for the economic forecast is the local (city of Calgary) and regional economies (Calgary Economic Region (CER)).

There is a need to consider the provincial, national and world economies to determine the state of the local and regional economy. This consideration of external factors is because the CER is a small open economy and is therefore affected by changes outside its borders.

For example, political instability in the world's oil-producing regions can produce a sharp increase in oil prices, which affects Alberta's energy industry's cash flow and investment in the local economy. The economic forecast relies on assumptions about changes in the world outside of the CER over the forecast period. The critical assumptions for the forecast period are:

- A robust world economic expansion.
- Economic growth and job creation in other Canadian provinces and territories that is slightly better than the local and provincial levels.

The actual level of economic activity will be different from the forecast should these, or other assumptions change.

Payoff

The economic outlook is created to support The City of Calgary in the financial planning and budgeting for the forecasted period. It provides a contextual basis for decision making.

By monitoring and reporting on the economic region and its environment, decision-makers better understand the opportunities and threats the region faces and the potential impacts of different decisions.

The economic outlook fills a significant information gap as no other publication currently provides a comprehensive analysis of Calgary's local and regional economies. Several research institutions restrict their forecasts to the Alberta economy, and few forecasts are available for the urban areas within the province. Key questions addressed in this outlook report are:

- What is the overall forecast for the rate of growth in the regional economy?
- What are the drivers of the local economy?
- How many jobs is the local economy expected to create?
- What is the forecast for population growth in the city and region?
- What is the expected inflation rate?
- What are the implications especially for municipal finance?

Executive Summary

1. World oil price and exchange rate stability to moderate growth in the local and regional economy

High prices for Western Canadian Select (WCS) crude throughout the forecast period should lift and sustain CER economic growth. All sectors of the economy will benefit from improvement in the energy and related sectors as capital expenditures and staffing levels improve. Improvements in capital spending and job growth will not be sufficient to get the local economy to full capacity.

The price differential between West Texas Intermediate (WTI) and Western Canadian Select (WCS) is expected to narrow over the forecast period. Our baseline assumption is for WTI to average US$69/barrel in 2019 declining to $US64/barrel in 2022, while WCS prices are expected to rise steadily from US$47/barrel in 2019 to US$54/barrel by 2022.

Pipeline exports of natural gas into the United States (U.S.) are expected to decrease over the next few years because of the lower cost of U.S. domestic production and transportation. As a result, low natural gas prices are expected to persist for the next two years. Our baseline assumptions call for AECO-C to average $2.1/GJ in 2019 and $2.5/GJ in 2020.

The regional economy is expected to expand by 3.4 per cent in 2018, down from 4.4 per cent growth in 2017. Subsequently, it should increase by between 2.1 per cent in 2019 and 2.5 per cent in 2023.

The Alberta economy will enter its third year of positive economic growth in 2019. Investments outside the oil patch will exceed investments in the oil patch for the third year running, despite higher and more stable oil prices. The pace of growth for real gross domestic product (GDP) is forecasted to decelerate from the 2017 high of 4.9 per cent to 2.0 per cent by 2022. The speed of economic growth will be modest going forward.

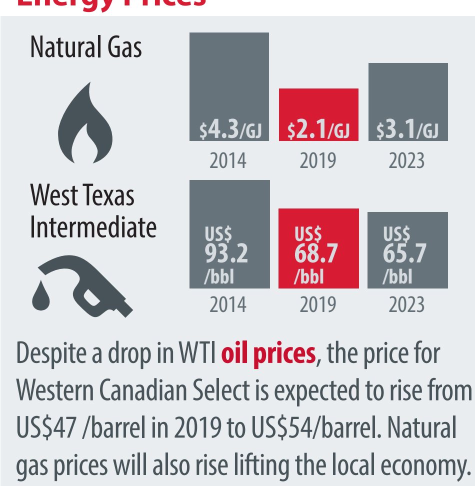
Because the Bank of Canada will start increasing interest rates at the same time the federal and provincial governments reduce or eliminate stimulus spending, this is forecasted to lead to a deceleration of Canadian GDP growth from 3.0 per cent in 2017 to 2.0 per cent in 2018 and 2019.

The downward pressure on the loonie due to an expected slower pace of interest rate increases relative to the U.S. will be more than offset by upward pressure from more favorable terms of trade as oil prices recover resulting in exchange rate stability.

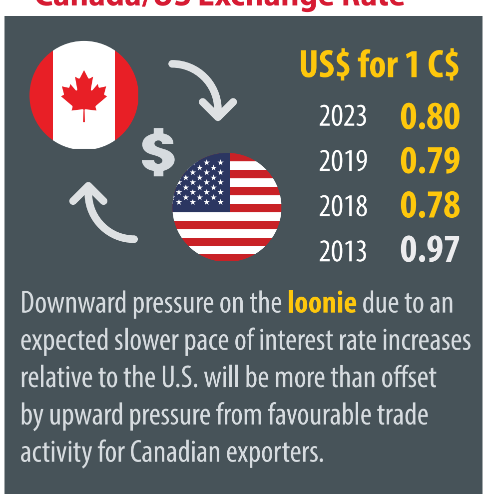
The January 1 introduction of the Tax Cuts and Jobs Act (TCJA) has led to procyclical fiscal stimulus, and this is expected to boost U.S. GDP growth to 2.9 per cent in 2018 before decelerating to 2.5 per cent in 2019.

Global real GDP growth (across all economies in the world) has been accelerating in recent years and is projected to peak at 3.7 per cent in 2018 before decelerating to 3.6 per cent at the end of the forecast period.

Energy Prices



Canada/US Exchange Rate



GDP Growth Comparison

Executive Summary

2. Capital investment will improve but remain below pre-recession levels

Housing starts in Calgary are expected to amount to 12,000 units in 2018 and 10,200 units in 2020, up from 9,500 in 2017. Housing starts are expected to total 40,500 units over the 2019-2022 period. This pace for housing starts should be in line with the speed of household formation (40,000 households) in the period.

The value of building permits for the 12 months ending August 2018 was estimated at $5.358 billion, up from $4.644 billion for the same period in 2017. The forecast for building permit values is $4.5 billion in 2018 and 2019. They should eventually increase to $5.1 billion by 2023.

Alberta housing starts are forecasted to total 28,900 units in 2018, and 29,200 units in 2019, which is right around the 29,500 units for 2017.

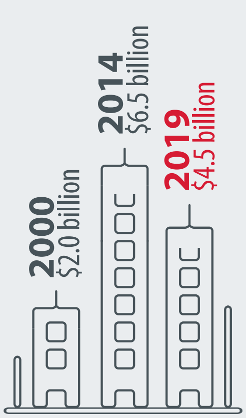
Housing inventories have remained elevated for the past two years in Alberta, with the majority in multi-family units. The ease in housing starts over the 2019 to 2023 period should help prevent further gains in inventories.

The prime lending rate is expected to continue its course toward higher rates through to 2021. It will increase aggressively in 2018 and 2019, before settling at 5.0 per cent by the end of 2021.

Investment spending in Calgary should improve as businesses upgrade their plants and equipment to maintain or gain a competitive edge. The latest estimate (October 17, 2018) for large-scale investments ($5 million or greater) underway and located in the CER across ten sectors is $15.1 billion. There is another $17.8 billion for investments expected to start between 2019 and 2021 (including $4.65 billion for the Green Line Light Rail Transit (LRT)) for a total short to medium term investment of $33.0 billion.

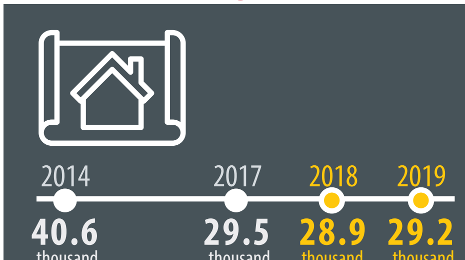
For Alberta, there are 685 major projects—382 are already underway, and 303 should start before 2021. Projects that are underway would require an investment of $52.7 billion. Projects that are scheduled to commence between 2019 and 2020 are projected to need another $132.0 billion investment. Thirty-five per cent of the investment value for projects that should begin between 2019 and 2020 is attributable to oil sands and oil and gas firms compared with 15.0 per cent of projects underway. The CER is home to the headquarters of several energy firms and will receive significant economic benefits from this level of investment activity.

Calgary Building Permits



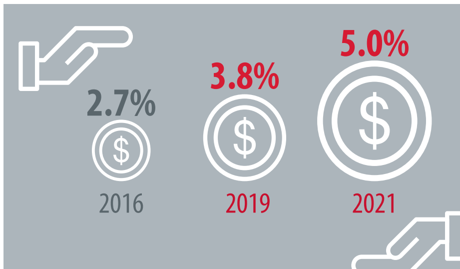
The forecast for **building permits** in 2018 and 2019 is $4.5 billion. This estimate is significantly higher than $2.0 billion at the turn of the century but lower than the pre-recession high of $6.5 billion in 2014.

Alberta Housing Starts



Alberta **housing starts** are forecasted to total 28,900 units in 2018, and 29,200 units in 2019, which is around the 29,500 units for 2017 but much lower than the highs of 40,600 in 2014.

Prime Business Loan Rate



The **prime lending rate** is expected to continue its course toward higher rates through to 2021. The rate is projected to increase aggressively in 2018 and 2019, before settling at 5.0 per cent by the end of 2021.

Executive Summary

3. Population, job and wage growth as the local and regional economies expand

Calgary's population is expected to grow to 1.372 million by 2022 and 1.399 million in 2023, up from 1.267 million in 2018. Total population would increase by 131,400 over the 2018-2023 period or by 26,300 annually. Net migration would be the primary driver of population growth.

Population growth for the 2019-2022 period is expected to be faster for the city of Calgary (2.0 per cent) than the entire province of Alberta (1.6 per cent). This relatively higher pace of growth is because the city of Calgary is expected to remain a more attractive destination for migrants relative to other Alberta jurisdictions.

Calgary remains the commercial and economic centre of southern Alberta and provides opportunities in a range of industries including petrochemical and energy, finance, technology, tourism, and media.

The projection for net migration to Alberta over the 2019 to 2022 period is 172,800 persons compared with 113,800 persons (2015-2018) and 254,500 persons (2011-2014). This midpoint position relative to the previous eight years reflects slower job growth and less economic incentives compared with the rest of Canada.

The overall population growth statistic (of +131,400) masks the shifts in the population distribution among different age groups over the 2019-2023 period. The most substantial population increases would occur in the 35-39 age group (+21,500) and the 40-44 age group (+23,300). These cohorts correspond with those groups that have high migration rates. The 20-24 age group (+500) and the 25-29 age group (+700) should experience small changes.

Total employment in the CER is expected to grow by 1.6 per cent in 2018, down from 2.7 per cent in 2017. Employment would increase by 1.6 per cent in 2019, and 2.1 per cent in 2020 as economic activity expands.

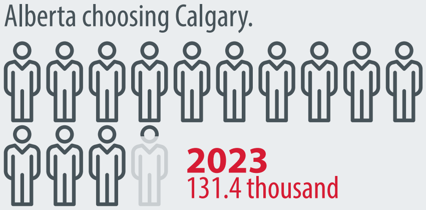
The CER's unemployment rate rose to a twenty-first century high of 9.2 per cent in 2016, up from 6.3 per cent in 2015. A faster average annual rate of job creation in Calgary over the 2019-2022 budget cycle of 1.7 per cent compared with 1.2 per cent for the current 2015-2018 cycle is forecasted to lower the unemployment rate to 7.2 per cent in 2019 and 6.0 per cent in 2023.

Total employment in the CER is expected to grow by 1.6 per cent in 2019, which is also the average annual pace of growth for the forecast period.

Calgary Population Growth

2018
23.9 thousand

Calgary's population is expected to increase by 131,400 in five years. **Net migration** will be the primary driver of population growth with a large share of migrants to Alberta choosing Calgary.



2023
131.4 thousand

Population Increase by Cohort

Middle-aged cohorts aged 35-39 (+21,500) and 40-44 (+23,300) have the highest migration rates and should experience the most substantial population increases.

Regional (CER) Employment

Sustained **job creation** in the regional economy should occur with 113,100 jobs expected in five years starting with 22,100 jobs in 2019, which will help to lower the unemployment rate to 6.0 per cent by 2023.

2019
920 thousand

2023
1,011 thousand

Executive Summary

4. Consumer, business and municipal operating costs to creep up slowly

Higher oil prices will increase transportation and heating costs, and other areas of the economy will have these higher costs transmitted to them. Elevated vacancy rates would lower shelter costs but will not be enough to prevent higher overall inflation rates. However, a mild appreciation of the Canadian dollar relative to the U.S. dollar should keep prices for imported consumer goods and services steady or slightly cheaper and provide a partial offset to higher inflation rates. The consumer price index should increase by 2.0 per cent in 2019 and then decelerate to 1.8 per cent by 2022 because the Bank of Canada's overnight rate is expected to increase.

The increase in transportation costs due to higher oil prices has been the most significant source of inflation. The prices of some commodities are significantly higher (e.g. asphalt, rubber, crude oil, and diesel oil), while prices for some others are slightly lower (e.g. iron and steel, aluminum, natural gas and vehicle parts). Commodity prices have strengthened and have also been a factor in making finished products more expensive. Annual price changes for consumer goods will be moderate for the rest of the forecast period, but risks of sanctions and production cuts elsewhere in the global economy, remain.

Over the forecast horizon, four economic forces, offsetting each other to some degree are expected to lead to an average annual non-residential building inflation rate of between +1.4 and +2.4 per cent.

- The relatively high local unemployment rate will limit upward pressure on labour costs in the earlier part of the forecast horizon.
- A gradual exchange rate appreciation will make material imports cheaper putting downward pressure on prices.
- Higher oil prices will increase transportation costs to get materials to construction sites also putting upward pressure on the inflation rate.
- Higher domestic interest rates will raise borrowing costs putting upward pressure on the inflation rate as construction firms look to raise prices to maintain profit margins.

In addition to a higher cost of living and a higher cost of doing business, the local and national economies will also be affected by a loss of tax competitiveness.

The U.S. is now more tax competitive than Canada because of the Tax Cuts and Job Act (TCJA) introduced by the U.S. government in 2018 with the combined corporate tax rate from all levels of government at 25.8 per cent and 26.8 per cent respectively.

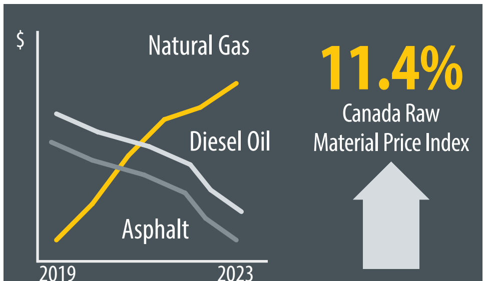
Calgary (and Canada) is a small open economy that is strongly influenced by external forces. The prevailing world price for crude oil has been a significant driver of local economic activity. For the forecast period, the loss of tax advantage relative to the U.S. is expected to hold back the pace of economic growth.

Calgary Inflation

The rate of increase in the **cost of living** declined from a high of 3.0 per cent in 2014 to 1.0 per cent in 2016. It should increase by 2.0 per cent in 2019 and then drop to 1.8 per cent by 2022.

2022 **1.8%**
2019 **2.0%**
2016 **1.0%**
2014 **3.0%**

Commodity Prices



Increases in the **cost of City operations** will be mild. Asphalt and Diesel are key operating inputs with near-term price declines. Most raw material and commodity inputs, including natural gas, will experience price increases.

Calgary Construction Inflation

The cost of **non-residential construction activity** has increased in 2018 led by a sharp rise in diesel prices for energy and transportation. Subsequently, it is projected to average between +1.4 and +2.4 per cent.

2.4% 2023
2.1% 2019
1.7% 2018

Executive Summary

Forecast Averages: Current (2015-18) vis-à-vis Future (2019-22) Budget Cycle

Variable	Current City of Calgary Budget Cycle [2015-2018] Average	Next City of Calgary Budget Cycle [2019-2022] Average	Forecast Implications
Assumptions			
World			
Real Gross Domestic Product Growth (%)	3.5	3.6	A larger economic and demographic base will increase the demand for commodities and place upward pressure on commodity prices. This will have a positive impact on Canadian terms of trade as Canada produces several commodities.
The United States			
Real Gross Domestic Product Growth (%)	2.4	2.0	Deceleration in demand growth for Canadian exports as Canada becomes less tax competitive.
Canada			
Real Gross Domestic Product Growth (%)	1.8	1.8	The average rate of economic growth in Canada will remain unchanged.
Prime Business Loan Rate (%)	3.0	4.6	Higher borrowing costs for The City's suppliers will increase The City's purchase costs, and will also affect variable rate mortgages for Calgarians.
Exchange Rate (US$ for 1C$)	0.8	0.8	Exchange rate stability will keep the price of imported goods stable limiting the need to hedge.
Alberta			
Real Gross Domestic Product Growth (%)	0.0	2.2	The Alberta economy will leave the recession behind and move into a phase of economic expansion growing slightly ahead of its potential.
Total Employment Growth (%)	0.7	1.5	The pace of job growth will account for most of the growth in gross domestic product.
Unemployment Rate (%)	7.1	6.2	The unemployment rate will improve as the economy recovers.
Housing Starts ('000 Units)	30.1	27.9	Inventory build-up will ease the pace of housing starts to the pace of household formation.
CPI-Inflation Rate (%)	1.5	2.1	Inflation rate will increase as the economy expands.
West Texas Intermediate - WTI (US$/bbl)	52.5	65.9	Better price stability but moderately higher crude oil prices will increase prices for petroleum based commodities, transportation costs and inflation.
Western Canadian Select - WCS (US$/bbl)	36.1	50.4	Price differential between WTI and WCS will converge as transportation constraints ease gradually despite limited pipeline capacity.
Alberta Natural Gas Price - AECO/NIT ($/GJ)	2.2	2.6	The impact on The City of Calgary will be mixed. Higher prices will put upward pressure on operating costs and at the same time put upward pressure on franchise fee revenue.
Industrial Product Price Index (%)	1.5	1.8	Price growth for finished products will be higher in the next budget cycle.
Raw Materials Price Index (%)	-0.5	0.9	Raw material prices will recover from decline during the recession to mild growth.
Alberta Average Wage Rate Increase for All Industries (%)	-0.8	2.6	Job growth will lower the unemployment rate. Competition for talent will emerge and lead to moderate rates of wage inflation.

Executive Summary

Forecast Averages: Current (2015-18) vis-à-vis Future (2019-22) Budget Cycle

Variable	Current City of Calgary Budget Cycle [2015-2018] Average	Next City of Calgary Budget Cycle [2019-2022] Average	Forecast Implications
Forecast			
Calgary Economic Region			
Real Gross Domestic Product Growth (%)	0.3	2.2	The pace of growth in the regional economy will outstrip growth in the Alberta and national economy.
Total Employment ('000 persons)	879.9	937.7	Job growth will increase demand for non-residential space lifting The City's property tax base.
Total Employment Growth (%)	1.2	1.7	Non-residential construction activity will intensify as proposed 2019-2020 investments commence.
Unemployment Rate (%)	7.9	6.7	A lower unemployment rate will increase the competition for skilled workers and increase cost pressure on The City.
Calgary Census Metropolitan Area (CMA)			
CPI-Inflation Rate (%)	1.4	1.9	The local inflation rate will be higher than the provincial and national inflation rates.
Non-Residential Building Price Inflation (%)	-0.2	1.9	The rate of escalation for construction costs will be comparable to the current cycle.
City of Calgary			
Demography			
Total Population ('000 Persons) *at the end of the cycle*	1,267	1,372	Demand for municipal services will be higher and the residential property tax base will increase.
Total Population Growth (%)	1.5	2.0	The pace of population growth will be faster than the current cycle as the local economy exits a recession.
Net Migration ('000 Persons)	7.7	16.1	Positive net migration will be the primary source of population growth. Most migrants will come from international sources.
Household Formation ('000 Units)	8.4	10.0	The rate of household formation will increase with a faster pace of population growth.
Real Estate			
Residential Market			
Housing Starts ('000 units)	9.8	10.1	The City's revenues from residential building permits would be lower; assuming all things are equal.
Building Permits ($billion) (city)	-0.1	2.9	City revenues from building permits would be lower. Revenue from non-residential activity will decrease relative to the past cycle.
Average Residential MLS Sale Price (% change)	5.0	4.6	Household wealth would grow at a slower pace.
Non-Residential Market			
Downtown Office Vacancy Rate (%)	18.1	19.8	The downtown office vacancy rate will remain close to the average for the current cycle.

Numbers may not add up due to rounding.

Executive Summary

Forecast Risks

Limited market access for Alberta crude, relatively stronger loonie, earlier onset of the U.S. demand peak

1. Pipeline capacity is going to be outpaced by Alberta oil production this year. If limited market access continues for a sustained period, it will put downward pressure on investment and economic growth. WCS and WTI price differentials could widen or stagnate rather than converge.

2. Demand for Alberta crude is relatively inelastic due to limited market access. A stronger loonie creates an incentive to cut prices and maintain sales that will reduce profit margins and deter investment. A weaker loonie encourages investment with more profits and spurs growth.

3. Increasing government spending and reducing taxes during an expansion will stimulate short-term U.S. growth but will come with medium to long-term risks, including, higher public debt, inflation surprises, and the earlier onset of an expansion peak that will affect demand for Alberta's exports.

Inability to keep up with faster job growth elsewhere in Canada, challenging transition from the goods- to the services-producing sector, loss of skills and productivity from baby boomers

7. This forecast assumes economic and employment growth will be only slightly more robust elsewhere in Canada than it will be in Alberta. A faster rate of economic expansion in the rest of Canada would see the local unemployment rate remain elevated over the forecast period, as labour force growth exceeds employment growth.

8. The concentration of job opportunities in the services-producing sector has implications for labour market volatility as goods-producing sector job seekers move out and services-producing sector job-seekers move in. Potential short-term skills shortages from this transition will affect the local economy.

9. The exit of baby boomers from the workplace creates a knowledge and productivity gap that could be difficult to replace. As a result, job growth could occur at a faster pace than economic output growth. The current forecast assumes similar levels of productivity.

Household spending restraint, unfavourable tax advantage for Canada, unresolved trade agreement on aluminum, steel and softwood lumber

4. The already high household debt level in an increasing interest rate environment means that home affordability for Canadians will be affected. Higher household indebtedness could dampen the ability of households to increase investment in housing with implications for housing starts.

5. Eliminating Canada's tax competitiveness relative to the U.S. in recent years will affect tax planning and investment location decisions. Also, a more aggressive pace of interest rate expansion by the U.S. Federal Reserve will increase the attractiveness of U.S. investments over Canadian opportunities for capital flows.

6. The U.S. is the primary trade partner for the regional, provincial and national economy. On June 1, 2018, the U.S. government eliminated an initial exemption on import tariffs for steel and aluminum. The recent announcement of the USMCA and broader "America first" trade policy could affect investment levels.

Inappropriate timing of interest rate changes, geopolitical tensions and impact on commodity supply, potential changes to tax policy

10. The Bank of Canada and U.S. Federal Reserve are on a path toward higher interest rates. The timing of interest rate increases, which take as many as 18-24 months to get reflected in the economy, could be too rapid or too slow. If the authorities do not get it right, they will have to make subsequent adjustments that will affect the path of the prime lending rate and the inflation rate.

11. Additional tariffs, beyond current ones on aluminum and steel; global production cuts particularly for crude oil due to events in Libya and Venezuela and deeper than expected cuts by OPEC and non-OPEC countries; and sanctions on aluminum producers and crude oil from Iran all pose supply risks.

12. A more tax-competitive U.S. economy will attract skilled labour and capital away from Canada. It will give the U.S. economy strength and offer export opportunities to Canadian exporters. The fallout could influence Canadian tax policy with the pursuit of improved competitiveness.

Forecast

Forecast: The Local City of Calgary Economy

Population and Labour Supply

The Pace and Magnitude of Local Population Growth

The 2018 municipal census placed Calgary's population at 1.267 million persons, up from 1.246 million in 2017. The population increased by 21,007 persons or 1.7 per cent. Net migration (+11,588) accounted for more than half (55.2 per cent) of total population growth. Natural increase, defined as the difference between births and deaths, added another 9,419 persons to the increase in city population.

City population is projected to increase to 1.372 million persons in 2022 and 1.399 million by 2023. Population growth is therefore estimated at 131,400 persons between 2018 and 2023 or by 26,300 annually. Net migration is expected to account for 61.0 per cent of the total increase as the primary driver of population growth. Net migration would increase from 11,588 persons in 2018 to 17,200 by 2021. Over the forecast horizon, annual net migration should average 16,000 persons with natural increase accounting for the balance of 10,300 persons.

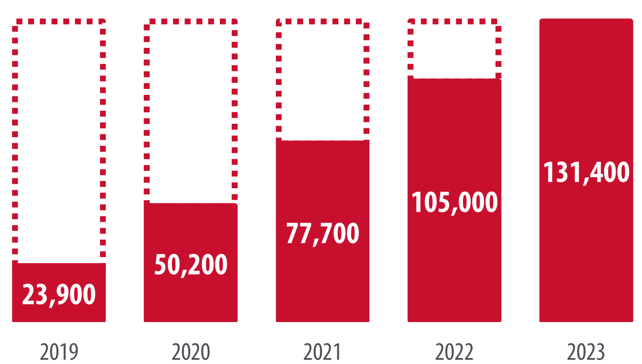
The Leading Source of Local Population Growth

Modest job growth will lead to a gradual improvement in the unemployment rate in the local and provincial economies. Lower than Canadian average job growth will reduce the attractiveness of Alberta and Calgary as destinations for potential job seekers relative to other Canadian jurisdictions.

Faster economic growth elsewhere in Canada will make net international migration the vital source of population growth for Calgary going forward. Over the 1988 to 1996 period, Calgary had a similarly high annual average unemployment rate of 8.2 per cent and net migration into the city of Calgary averaged 4,800 persons per year.

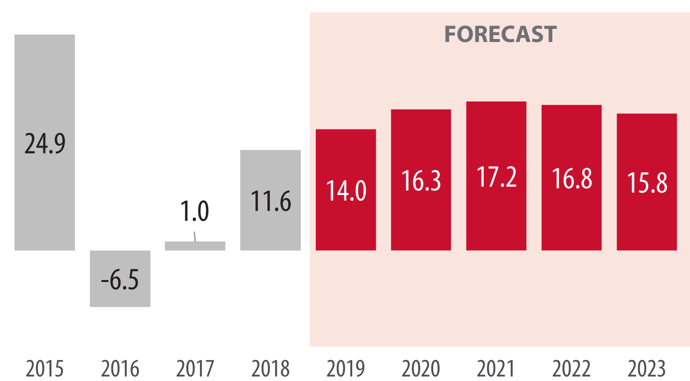
Fast forward to the 2016 to 2018 period, and Calgary experienced an average unemployment rate of 8.4 per cent with the average annual level of net migration to the city of Calgary at 2,000 persons per year. Over this period, net international migration was positive and significant (an average of +14,000 persons per year) and helped to offset the considerable loss from interprovincial and intercity net migration (an average of -12,000 persons per year). As the Alberta unemployment rate remains high relative to the rest of Canada, international net migration is expected to be the leading source of city population growth.

Cumulative Population Growth Forecast
(persons)



Source: Civic Census, Corporate Economics.

Net Migration
(thousands of persons)



Source: Civic Census, Corporate Economics.

Forecast

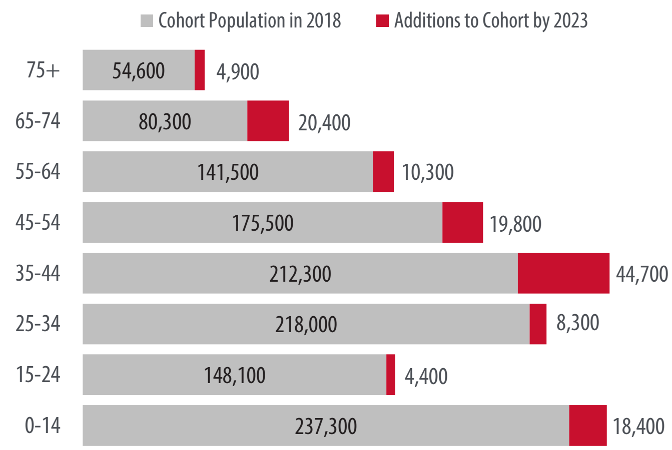
Demographic Change and Implications for Labour Supply and Market Demand

Population growth for the 2019-2022 period is expected to be faster for the city of Calgary (2.0 per cent) than the entire province of Alberta (1.6 per cent). This relatively higher pace of growth is because the city of Calgary is expected to remain a more attractive destination for migrants relative to other Alberta jurisdictions.

Calgary remains the commercial and economic centre of southern Alberta and provides opportunities in a range of industries including petrochemical and energy, finance, technology, tourism, and media. It is also idyllic for work-life balance given the proximity of two beautiful rivers and the Rocky Mountains.

The overall growth statistic (of +131,400) masks the shifts in the population distribution among different age groups over the 2019-2023 period. The most substantial population increases would occur in the 35-39 age group (+21,500) and the 40-44 age group (+23,300). These cohorts correspond with those groups that have high migration rates. The 20-24 age group (+500) and the 25-29 age group (+700) should experience small changes.

Population Growth by Cohort (2019-2023)
(persons)



Source: Civic Census, Corporate Economics.

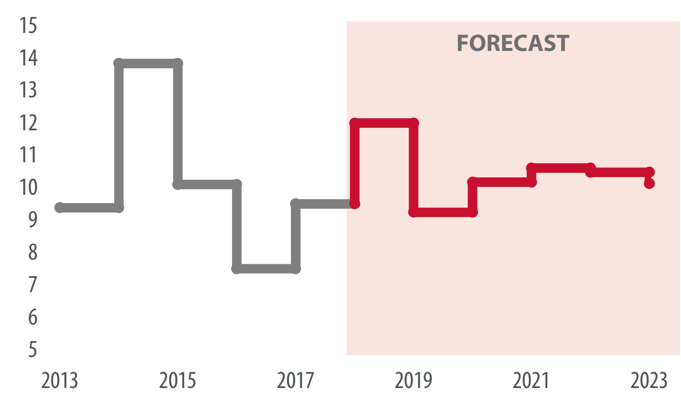
These population shifts will have labour supply and market demand implications for businesses and organizations. For labour supply, firms that are reliant on entry-level workers (aged 20-24) will have difficulty staffing vacant positions and those targeting experienced workers (aged 35-44) will have an abundance of options. For market demand, firms that supply goods and services to young adults (aged 20-29) will have to broaden their reach to markets outside of Calgary and those focused on the middle-aged (aged 35-44) will likely require expanded capacity to deal with a larger customer pool. The City of Calgary, as a competitor in the local labour market, will also have to respond to these changes in the search for talent and the level of service needed by different demographic groups.

Building and Other Investments

The Residential Market – Demand, Supply and Prices

The increase in economic activity in Calgary Economic Region in 2017 provided the driver for household formation in the city of Calgary, estimated at 11,600 households in 2018, from 7,500 households in 2017. The rise in household formation also helped edge housing starts upwards to 12,000 units in 2018. Total housing starts are expected to average 10,100 units per year between 2019 and 2023, alongside household formation which is expected to average 10,000 households per year.

Housing Starts
(thousands of units)



Source: CMHC, Corporate Economics.

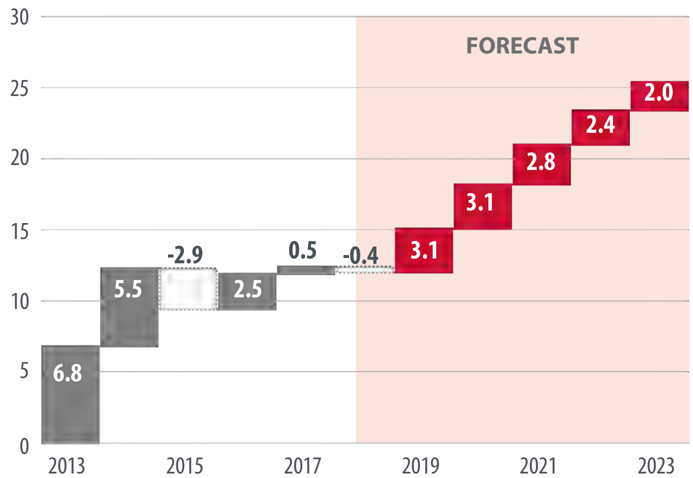
Residential housing prices in Calgary have been affected by income changes over the past couple of years. Stagnant incomes and a relatively high unemployment rate have combined to stall average MLS prices in 2017. House price stagnation has continued through to 2018 with the weakness in the overall business environment

impacting house prices this year.

Next year, rising employment, wage inflation and incomes are expected to have a positive impact on residential house price appreciation as the average house price is expected to appreciate by 3.1 per cent. In the latter years of the forecast period, rising interest rates should lead to a deceleration in house price escalation to 2.0 per cent by 2023.

Average Residential MLS Sale Price

(per cent change relative to 2012)



Source: CREB, Corporate Economics.

Despite moderate price escalation for the average house price throughout the forecast period, each market segment will fare differently.

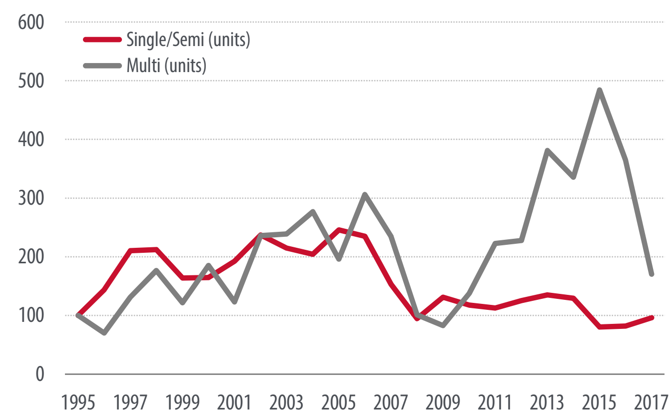
- Single-Family (detached dwellings): Prices for detached dwellings have been robust to oil price changes. Strong demand and preference for this dwelling type in Calgary are anticipated to continue and result in modest price escalation.
- Multi-Family (attached dwellings): The price for a multi-family dwelling is typically 25.0 per cent lower than a single-family home making them more affordable. As a result, there has been an increase in the demand for this dwelling structure over the past ten years putting downward pressure on the price differential. The outlook for this segment is positive, and we anticipate more Calgarians will consider this housing option for two reasons. First, the introduction of new mortgage rules in 2018 has led to more stringent criteria to confirm affordability for prospective home buyers. Second, interest rates are expected to rise over the forecast horizon also limiting affordability.
- Condos: The vacancy rate in the Calgary condo market has dropped significantly over the past year to just under 7.0 per cent. Despite this significant improvement, the vacancy rate remains more than double the average local vacancy rate. Higher interest rates have pushed some prospective home buyers into this market space and out of single-family units. By 2022, the expectation is that the Calgary condo market should exit from buyers' market conditions.

The Non-Residential Market – Demand, Supply and Prices

The vacancy rate in Calgary's downtown office sector is elevated compared to the historical norm of about 10.0 per cent. The vacancy rate for downtown office head lease appears to have peaked at 23.0 per cent in 2018 and is expected to commence a path toward decline beginning in 2019. The vacancy rate forecast is a decline to 16.0 per cent by 2023. As the vacancy rate drops, gross rents are expected to rise over the period from just over $30 per square foot today to slightly under $40 per square foot by 2024.

Recent Surge in Supply for Multifamily Units

(Index, 1995 = 100)



Source: Calgary Growth Strategies, Corporate Economics.

The last period that Calgary had such a prolonged glut of office space was in the late 80's to the mid 90's. Over that time only one significant office building was added

to Calgary's downtown skyline, Banker's Hall West. It appears the cycle is repeating.

Some firms are starting to take advantage of lower rents for space in the Calgary downtown core as demonstrated by a shift of offices from B and C quality space to A and AA rated spaces. With a higher vacancy rate expected for the C and B categories for an extended period, building owners will face tough choices as the cost of building maintenance persists without revenue or cash flow to cover them.

The Non-Residential Market – Non-Residential Building Price Inflation

Non-residential building construction inflation reflects the value of all materials, labour, equipment, overhead and profit to construct a new building. It excludes value added taxes and any costs for land, land assembly, building design, land development and real estate fees. Despite relatively high unemployment in Calgary and soft wage pressure for construction firms, non-residential building construction inflation is expected to increase by 10.0 per cent in 2018. Strong price inflation is because of a significant increase in prices for materials, including diesel oil.

Over the forecast horizon, four economic forces, offsetting each other to some degree are expected to lead to an average annual non-residential building inflation rate of between +1.4 and +2.4 per cent.

- The relatively high local unemployment rate will limit upward pressure on labour costs in the earlier part of the forecast horizon.
- A gradual exchange rate appreciation will make material imports cheaper putting downward pressure on prices.
- Higher oil prices will increase transportation costs to get materials to construction sites also putting upward pressure on the inflation rate.
- Higher domestic interest rates will raise borrowing costs putting upward pressure on the inflation rate as construction firms look to raise prices to maintain profit margins.

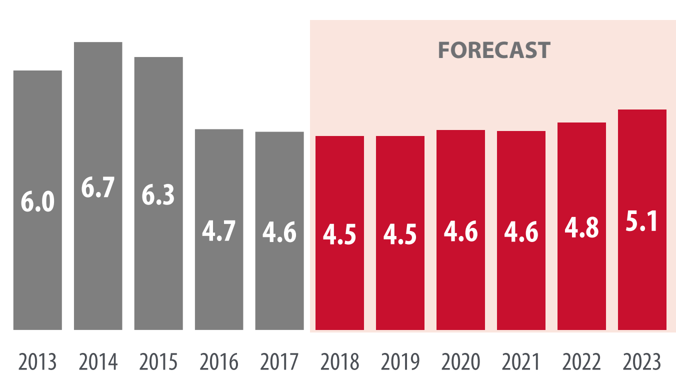
The Resulting Level and Direction of Building Investment

Building investments in the city of Calgary totalled $4.5 billion in 2017. Residential building investment contributed $2.3 billion leading to 51:49 split between residential and non-residential building investment. For 2018, total building investment for the city of Calgary should increase to $4.5 billion, but the residential to non-residential split is forecasted to change to 55:45. Residential building investment should increase to $2.5 billion, while non-residential investment would decrease to $2.0 billion. The decline in non-residential building investment is in response to high office vacancy rates and an elevated unemployment rate in the Calgary Region. New investments in retail and industrial components are forecasted to help sustain values at the current level.

Building investment is expected to reach $5.1 billion by 2023. The residential to non-residential split will return to more normal levels with residential building investment expected at $2.7 billion (53.0 per cent). In the intervening years, building investment is expected to increase gradually and average $4.7 billion over the forecast horizon (2019-2023). The rise in residential construction would be supported by the increase in net migration and improving economic conditions, as the unemployment rate declines.

The value of building permits for the twelve months ending August 2018 was estimated at $5.358 billion, up from $4.644 billion for the same period in 2017. The forecast for building permit values is $4.5 billion in 2018 and 2019. They should eventually increase to $5.1 billion by 2023.

Total Building Permit Values
($billions)



Source: Statistics Canada, Corporate Economics.

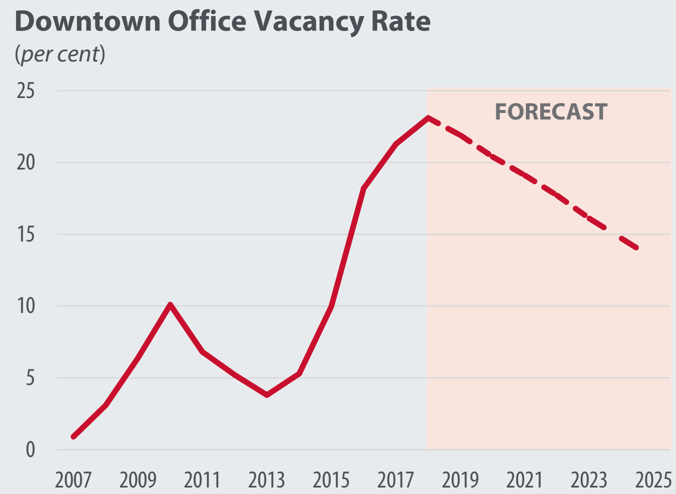
Textbox 1: Downtown Office Vacancy Rate

The office vacancy rate in downtown Calgary has increased since 2013, peaking in 2018 at 23 per cent. The downtown office vacancy rate is expected to decline slowly in the next three to seven years, from 22 per cent in 2019 to 13.3 per cent in 2025.

The demand side shock from significant energy sector layoffs during the 2015-2016 recession triggered the current high downtown office vacancy rate. At the same time, the completion of new office buildings in 2017 added to the inventory.

Because of the excess inventory in the downtown office, developers are not expected to start any new major downtown office construction for some time. Most of the additions to downtown office space availability are forecasted to be due to completion of projects that are already underway. Also, the recent buildup of good quality office space outside downtown provides a substitute for downtown office space. As a result, the absorption of the downtown office buildings will depend on the demand side activities, principally employment growth for office workers. Economic and employment growth in the Calgary Economic Region is expected to improve compared to 2015-2018 and will help to absorb excess capacity pushing down the vacancy rate.

The primary forecast risk relates to uncertainty with market access for Alberta crude – it will have an impact on the level of investment relative to the pre-recession decade and the pace of downtown office space absorption and by extension the pace of vacancy rate decline.



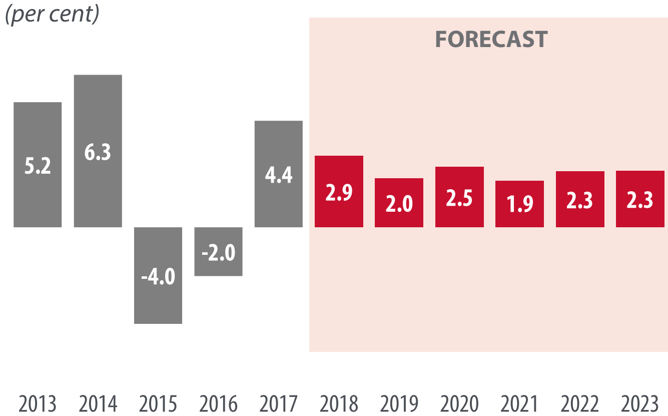
Source: Colliers, Altus InSite, Corporate Economics.

Forecast: The Broader Regional Economy (Calgary Economic Region)

The Pace and Magnitude of Economic Output Growth

The Calgary Economic Region grew by 0.3 per cent annually over the 2015-2018 budget and planning cycle. This statistic masks the variation in the annual growth rate over that period. At the beginning of 2015, the economy was in expansion. By the end of 2015, output shrank by 4.0 per cent due to lower oil prices. The decline continued through 2016 when the level of economic activity experienced a further reduction by 2.0 per cent. In 2017, the economy rebounded by 4.4 per cent, recovering most of the lost output. All of the economic output lost would have been recovered by 2018. For 2017 and 2018, the economy should have expanded by an average annual rate of 3.9 per cent. The economic peak, recession and the recovery were driven by international market forces that increased the supply for oil and pushed prices down. Strong oil price growth throughout the commodity supercycle (a long cycle of commodity price increases from 1996 until mid-2014) stimulated investments in technology innovations, and Calgary benefited with a relatively low unemployment rate that acted as a magnet for migrants from the rest of Canada.

Regional economy to recover loss from 2014 peak in 2018: Annual growth rate in CER GDP
(per cent)



Source: Statistics Canada, Corporate Economics.

Oil price declines, job losses, reduction in housing starts, declining wages and interprovincial and intercity outmigration followed. With the economic recovery these indicators rebounded but some others—especially residential and office vacancy rates —are yet to recover fully.

Modest increases in oil prices throughout the forecast period will lift and sustain CER economic growth. All sectors of the economy will benefit from improvement in the energy and related sectors as capital expenditures and staffing levels recover. Over the forecast period, the aging of the baby boomers will impose a drag on the economy's potential growth rate, as they withdraw from the labour force. Net migration mostly in the middle-age cohort (aged 35-44) will offset the labour force withdrawal of the baby boomers. The regional economy should expand by 2.9 per cent in 2018, down from 4.4 per cent growth in 2017. Subsequently, it is expected to increase by between 2.0 per cent in 2019 and 2.3 per cent in 2023.

Economic growth over the forecast period in Alberta and Calgary will also be driven by an expanding world economy, along with increased business spending and steady consumer demand. A growing world economy is expected to lead to relatively stable product prices and an expanded market for the region's exports of goods and services.

Contribution to CER Economic Expansion

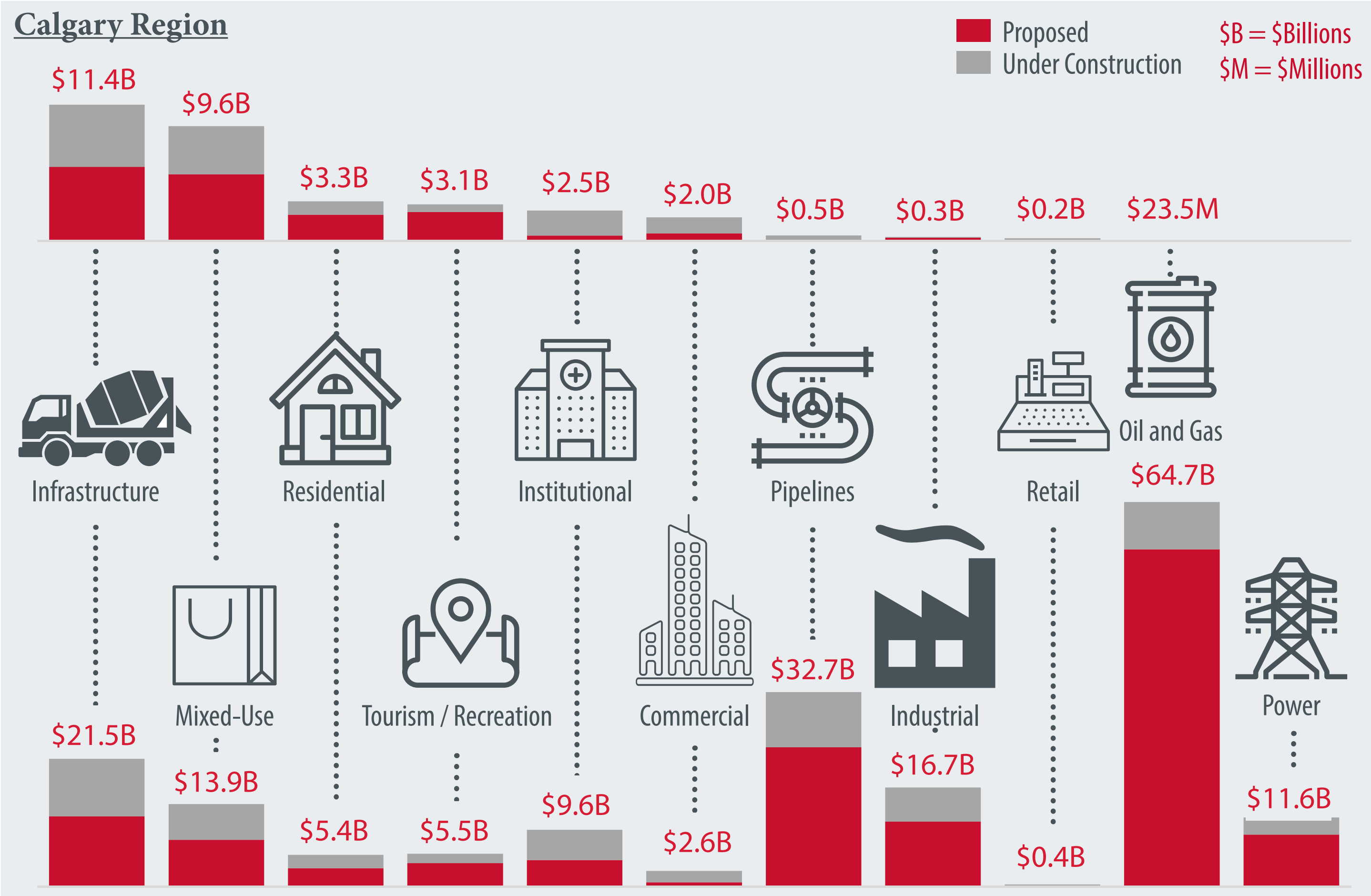
Increased Investment Activity

CER investment spending should improve as businesses upgrade their plants and equipment to maintain or gain a competitive edge. The latest estimate (October 17, 2018) for large-scale investments ($5 million or greater) underway and located in the CER across ten sectors is $15.1 billion. There is another $17.8 billion for investments expected to start between 2019 and 2021 (including $4.65 billion for the Green Line LRT) for a total short to medium term investment of $33.0 billion.

Investment activity in Alberta is also expected to strengthen over the 2019-2022 period. Data for

Forecast

The Value of Major Investment Projects in Calgary Region and Alberta



Sources: Government of Alberta *(as of October 17, 2018)*

Alberta incorporates one additional sector (the power sector). For Alberta, there are 685 major projects—382 are already underway, and 303 should start before 2021. Projects that are underway would require an investment of $52.7 billion. Projects that are scheduled to commence between 2019 and 2020 are projected to need another $132.0 billion investment. Thirty-five per cent of the investment value for projects that should begin between 2019 and 2020 is attributable to oil sands and oil and gas firms compared with 15.0 per cent of projects underway. The sustained increase in WCS oil prices will maintain the energy sector's cash flow and support investment activity in the energy industry and related industries over the short to medium term. The CER is home to the headquarters of several energy firms and will receive significant economic benefits from this level of investment activity.

Population growth should boost the people-servicing sectors of the economy such as housing, retail trade, and accommodation. However, rising interest rates, slow employment and wage growth, and relatively high real estate vacancy rates should combine to moderate new home construction.

An Expanded Labour Force Transitioning from Goods Production to Services Provision

The Calgary Economic Region's labour force was estimated at 965,000 persons in 2017, up from 947,800 in 2016 and 935,300 in 2015. The labour force increased at the same average annual pace (1.6 per cent) as the working age population from 2015 through to 2017, so the labour force participation rate of 73.8 per cent in

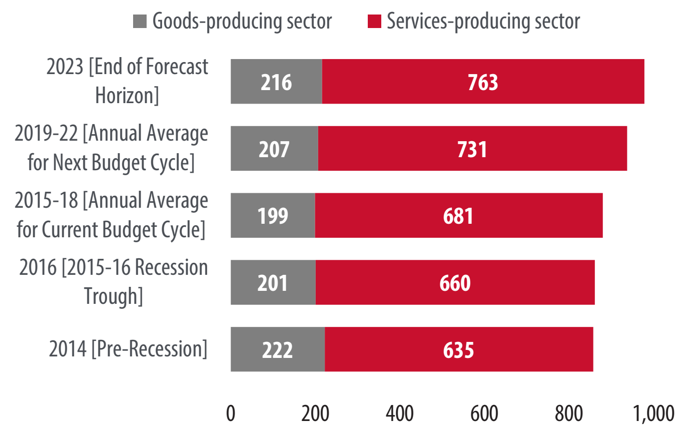
Forecast

2015 is identical with the participation rate for 2012. The labour force participation rate remains lower than the pre-recession peak of 76.8 per cent in 2008. The pre-recession peak for Canada was 67.6 per cent in 2008 climbing to 65.8 per cent by 2015.

By the end of the forecast horizon in 2023, the labour force participation rate is expected to dip to about 72.0 per cent. The working age population is expected to increase at a compound average annual growth rate of 1.8 per cent. This pace of growth is slightly higher than that for total population growth because net migration and the transition of those in the 10-14 age cohort into the working age population should exceed losses due to deaths. Strong population growth will drive consumption. The growth trajectory for the working age population is forecasted to be faster than the average annual growth rate of the labour force of 1.4 per cent as more individuals choose to stay out of a crowded job market.

Although the average annual pace of goods-producing sector job growth through to 2023 (1.8 per cent) should exceed services-producing sector job growth (1.7 per cent), the regional economy is not expected to recover all goods-producing sector jobs lost during the 2015-16 recession. The inability to fully recover lost jobs is because the 15.0 per cent decline in goods-producing sector jobs from 2014 through to 2017 requires faster job growth to make up for the losses. The inability of the goods-producing sector to make up for lost jobs will be more than offset by the services-producing sector. All services-producing sector jobs lost between 2015 and 2016, because of the recession, were recovered in 2017. The services-producing sector is also expected to add 100,000 new jobs relative to the recession trough by 2023. The substantial forecasted increase in services-producing sector jobs suggests that this is a structural shift, rather than a temporary phenomenon.

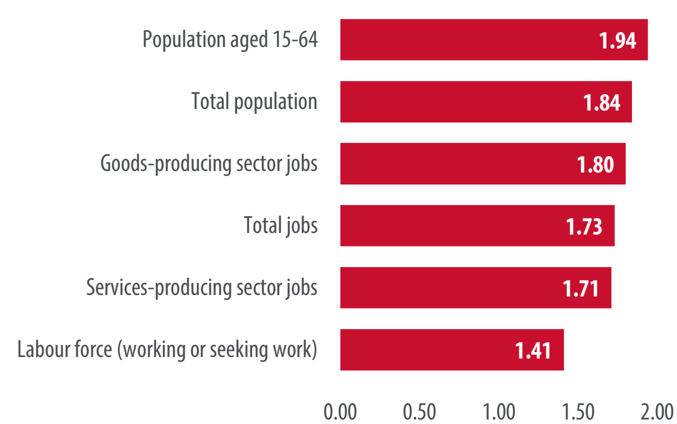
More services-producing sector jobs
('000 persons)



Source: Statistics Canada, Corporate Economics.

Total employment is expected to average 898,300 in 2018, up 22,200 from the pre-recession peak of 876,100 in 2015 and 37,300 from the recession trough of 861,000 in 2016. Total employment in the CER is expected to grow by 1.6 per cent in 2018, down from 2.7 per cent in 2017. Employment would increase by 1.6 per cent in 2019, and 2.1 per cent in 2020 as economic activity returns to average rates.

Population growth faster than job growth
(per cent, compound annual growth rate)



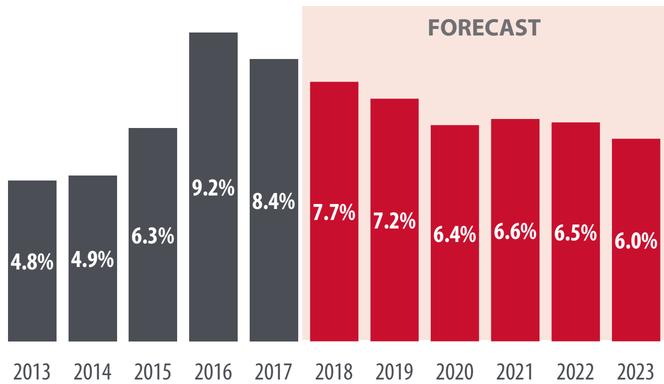
Source: Statistics Canada, Corporate Economics.

The CER unemployment rate rose to a twenty-first century high of 9.2 per cent in 2016, up from 6.3 per cent in 2015. A faster average annual rate of job creation in Calgary over the 2019-2022 budget cycle of 1.7 per cent compared with 1.2 per cent for the current

Forecast

2014-18 cycle should lower the unemployment rate to 7.2 per cent in 2019 and 6.0 per cent in 2023.

Unemployment Rate to fall
(per cent)



Source: Statistics Canada, Corporate Economics.

Faster Population Growth relative to the rest of Alberta

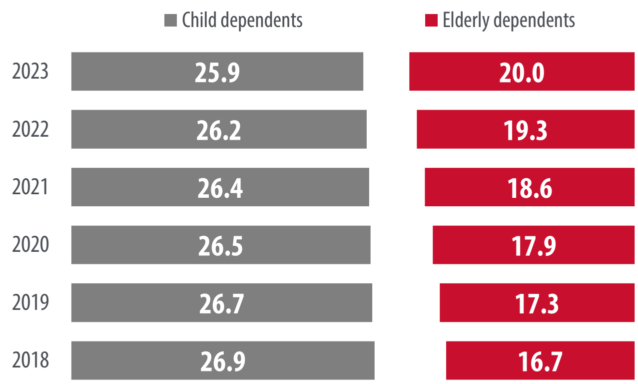
The Calgary Economic Region's (CER) population is projected to hit 1.561 million in 2018, up 28,400 from 1.532 million in 2017. During this period, net migration (16,000) outstripped natural increase (12,400) as the primary source of population growth.

The CER's population should increase by 170,600 persons between 2018 and 2023. Most of the growth will be driven by net migration (117,100), as the quality of life in the region remains attractive to international migrants. The natural increase is projected to remain relatively stable at around 10,700 every year as future increases in the number of births is offset by future increases in the number of deaths.

The aging of the baby boomer population is expected to lead to an increase in the dependency ratio and will constrain growth in the labour force. The elderly dependency ratio (people aged 65 and older per 100 people aged 15-64) will increase from 16.7 in 2018 to 20.0 in 2023. Over the same period, the child dependency ratio (people aged 0-14 per 100 people aged 15-64) will decrease from 26.9 to 25.9. These projections suggest that the number of potential retirees will exceed the number of potential labour market entrants. For example, individuals in the 15-24 age groups, the first-time labour market entrants, are estimated at 183,600 in 2018 and should increase by 23,000 to 206,600 in 2023. Meanwhile, the 55-64 age group, the pre-retirees, is estimated at 192,200 and should grow by 16,400 to 208,600 in 2023.

With economic growth accelerating in the rest of Canada, employment prospects in the regions outside Calgary are expected to improve and should reduce net migration to the Calgary Economic Region. The forecast assumes that net migration will fall from 29,600 in 2020 to 18,100 by 2022.

Aging of baby boomers to lift dependency ratio
(per hundred persons)



Source: Statistics Canada, Corporate Economics.

Forecast: Commodity and Consumer Prices – Local and Regional Economic Impact

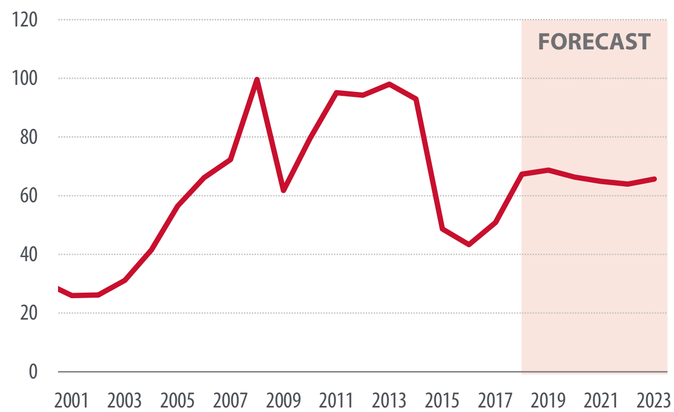
Commodity Prices

Energy Commodities

Crude Oil: WTI crude oil prices have increased to an average above US$66/barrel so far in 2018. A variety of factors, including the production cuts by the Organization of the Petroleum Exporting Countries (OPEC), reduced supply from Venezuela, and the tensions caused by the U.S. sanctions against Iran support the higher price.

However, there are uncertainties and downside risks for prices, as sustained high prices could quickly increase U.S. shale production and ease tight global supply conditions. A trade dispute between the U.S. and China and the currency crisis in Turkey have negatively impacted global demand for crude oil. For 2018, WTI is forecasted to average at US$67.3/barrel and slightly increase to US$68.7/barrel in 2019.

WTI Crude Oil Price Forecast
(US$/bbl)



Source: U.S. Energy Information Administration, Bloomberg, Consensus Economics, Corporate Economics.

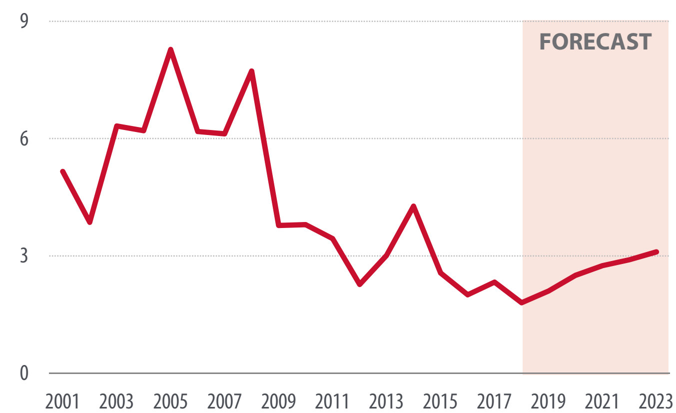
Alberta producers continue to suffer from the steep price discount between benchmarks for Canadian and U.S. crude oil, with Western Canadian Select trading at about US$25/barrel less than WTI and experiencing more volatility. Crude oil transportation to markets remains the bottleneck. The Federal Court of Appeal revoked the federal government's approval to build the Trans Mountain pipeline expansion project in August 2018, which affected the business environment and discouraged investment intentions in Alberta. Pipeline capacity is expected to remain a constraint on Alberta energy growth this year and over the forecast period.

Natural Gas: Low prices are expected to continue plaguing Alberta natural gas producers in 2018. The rising production from shale gas in the U.S. has replaced western Canadian gas in some of its traditional markets of Eastern Canada, the Eastern U.S., and eventually, the mid-continent U.S. Similar to the challenges for crude oil, lack of transportation capacity contributes to the erosion of Alberta's market share in North America.

Alberta natural gas needs to access new market overseas. Multiple Liquefied Natural Gas (LNG) processing facilities are planned but not yet built.

The benchmark Alberta natural gas price at the AECO hub is expected to average at $1.8/GJ in 2018 and $2.1/GJ 2019, and gradually increase over the forecast period to $3.1/GJ by 2023. The price differential between AECO-C and Henry Hub is expected to widen in 2019 and 2020 unless the transportation capacity in Alberta improves.

AECO-C Natural Gas Price
(C$/GJ)

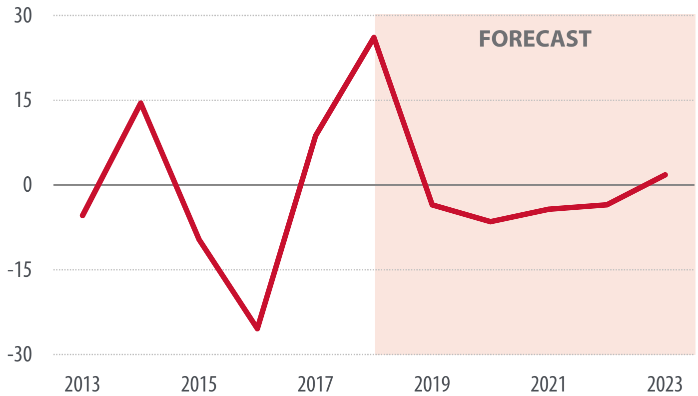


Source: GLJ Publications, Corporate Economics.

Forecast

Asphalt: Rising global oil prices and to a lesser extent the mild exchange rate appreciation of the Canadian dollar relative to the U.S. dollar led to upward pressure for Asphalt prices in Alberta this year. This year's dramatic price increase gives way due to softer diesel fuel inflation in the future. Modest price decreases should follow in the latter part of the forecast period due to softer diesel fuel inflation in the future.

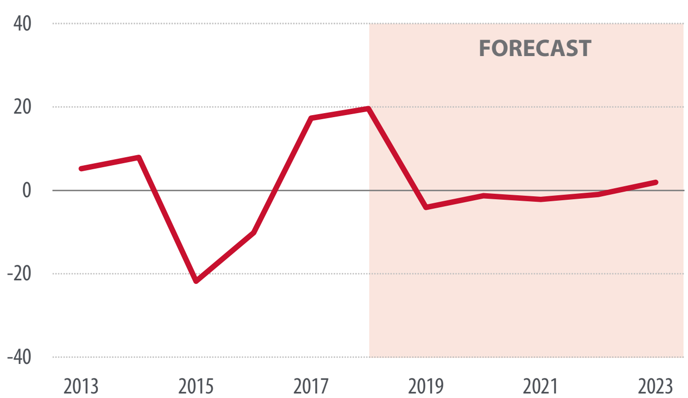
Asphalt Price Inflation
(*per cent*)



Source: Statistics Canada, Corporate Economics.

Diesel: A significant portion of the diesel and gasoline consumed in Alberta is shipped in from refineries in the U.S. With rising WTI prices and an improving US economy imports of fuel from the U.S. have attracted a premium price and Albertans have felt it as diesel prices increased to an average of 126.4 cents per litre in 2018.

Diesel Oil Price Inflation
(*per cent*)



Source: Statistics Canada, Corporate Economics.

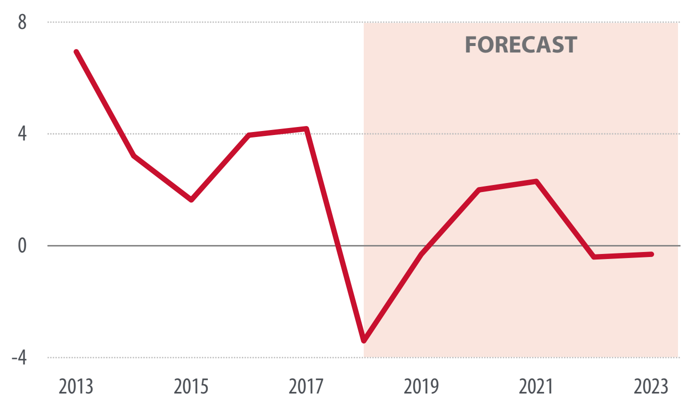
Given the outlook for WTI oil prices, the landlocked nature of domestic oil, and increased production the forecast is for diesel prices to soften to 121.25 cents per litre next year then slowly weaken to 116.0 cents per litre by 2022-23 as supply rebalances.

Raw Materials

Wood: Softwood lumber price escalation last year was short lived. U.S. production ramped up quickly to take advantage of the recovering home market and tariffs operated to insulate U.S. suppliers from Canadian competition. Also, interest rate increases have put a damper on some demand. Consequently, Canadian softwood lost ground and prices faltered this year and gave back almost all the gains made last year.

Work on a softwood lumber trade agreement with the U.S. is incomplete. Rising interest rates are expected to continue and should negatively impact softwood prices next year. After 2019 we anticipate small price increases that do not keep pace with inflation. With all the uncertainty over the industry in the short term, and with only modest price changes in the forecast, it is unlikely that the Alberta forestry industry would be able to increase its employment or take any significant advantage of improving economic conditions south of the border.

Wood Price Inflation
(*per cent*)



Source: Statistics Canada, Corporate Economics.

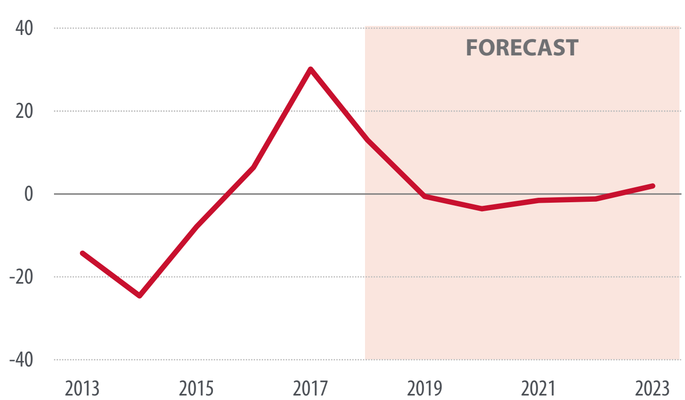
Rubber: Most of the global rubber production is for manufacturing of automotive tires. Oil prices, extreme

weather events, the general global economy and global supply patterns, changes in use of personal vehicles, international trade in oil and natural gas, and the value of the Canadian dollar all impact the price of rubber in Canada.

A weaker Canadian dollar and increased global supply have had a significant impact on the price change this year. The Canadian dollar continues to be soft against the U.S. dollar and has pushed the Canadian price of rubber up significantly this year. Production in non-traditional countries of natural rubber has increased recently resulting in the demand-supply balance shifting toward a surplus in global supply and downward pressure on prices. Malaysia no longer has a virtual monopoly on natural rubber with India and Indonesia investing heavily in this commodity. Farms engaged in the production of rubber are now more spread out, and increased use of natural gas in the Pacific Rim increases the opportunity for synthetic rubber production to ramp up in the event of a natural disaster.

Extreme weather events, like typhoons, can strike rubber farms with devastating, long-lasting consequences on supply— after a rubber tree is planted it often takes ten years for it to start producing. However, the global market is not as exposed to these events as it was in the past because of production activity in more countries. Greater balance in global rubber supply should limit price escalation over the forecast horizon.

Rubber Price Inflation
(per cent)



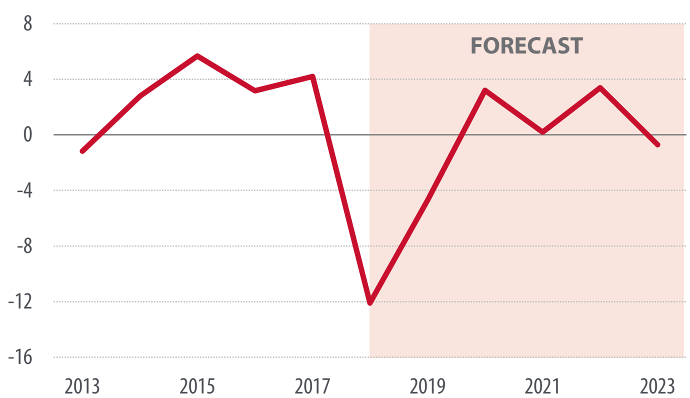
Source: Statistics Canada, Corporate Economics.

Metals and Minerals

Steel: U.S. demand has buoyed the price of steel in North America above world averages. However, a tariff on steel exports from Canada to the U.S. emerged in 2018. The tariff limited exports and increased domestic supply, driving prices down by about 12.0 per cent. Canadian exports of steel to the U.S. are unlikely to return to their previous levels over the forecast horizon.

With limited export opportunities and increased domestic supply, steel prices should experience a further reduction next year. Consequently, steel producers would respond to the disincentive and reduce output. The expectation for the latter part of the forecast horizon is for mild price appreciation similar to the pace of overall inflation.

Iron and Steel Price Inflation
(per cent)



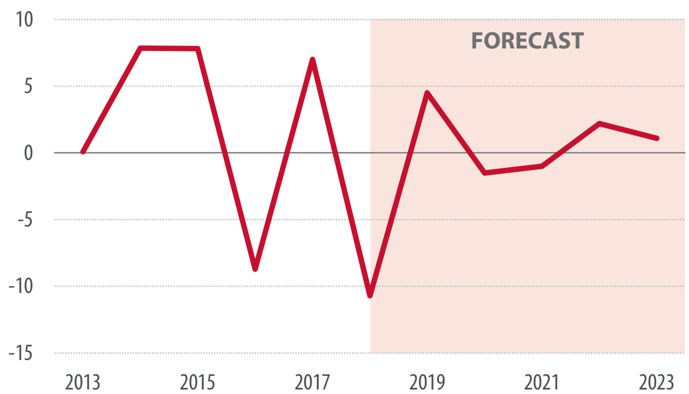
Source: Statistics Canada, Corporate Economics.

Aluminum: Like steel, aluminum has been the recent target of U.S. tariffs. Canada currently has a production advantage over U.S. manufacturers owing to cheap hydroelectric resources in Quebec. However, longer term, new sulfur limits on marine fuel should escalate the cost to import raw mineral (bauxite) into Canada thereby eroding Canada's competitive advantage in aluminum smelting. The tariffs and new Sulphur limits on marine fuel should shrink access to U.S. markets for Canadian producers going forward.

The outlook for Canadian steel and Canadian aluminum is for muted price increases in the latter period of the forecast horizon that don't match inflation

and for reduced employment and business investment in the industries. For Calgary, the implication is slower growth in input prices for building construction.

Aluminum Price Inflation
(per cent)

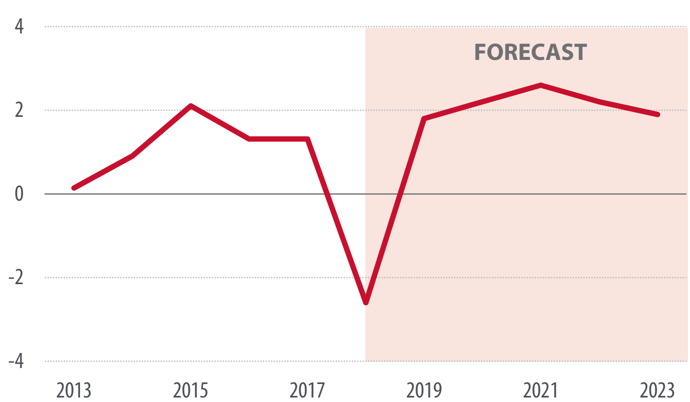


Source: Statistics Canada, Corporate Economics.

Automotive Parts: Short-term electricity and tax relief in Ontario softened parts prices this year. The impact was modest as manufacturers absorbed the cost savings anticipating they would have limited ability to pass on future cost increases.

Because Canadian raw material price increases for steel and aluminum are expected to be soft, price increases are expected to remain around 2 per cent beginning in 2019.

Vehicle Parts Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

Prices for Consumer Goods

Consumer Price Inflation in the Calgary Economic Region

The increase in transportation costs due to higher fuel prices has been the most significant source of inflation. The prices of some commodities are significantly higher (e.g. asphalt, rubber, crude oil, and diesel oil), while prices for some others are slightly lower (e.g. iron and steel, aluminum, natural gas and vehicle parts). Commodity prices have strengthened and have also been a factor in making finished products more expensive. Annual price changes for consumer goods are expected to be moderate for the rest of the forecast period, but risks of tariffs, as well as sanctions and production cuts elsewhere in the global economy, remain.

The inflation rate should average 2.0 per cent in 2018 – the same inflation rate estimate provided in spring 2018. The Bank of Canada's interest rate increases has limited consumer spending as individuals are encouraged to save more. They have also slowed business activity because of higher borrowing costs.

As the CER recovers and gains strength over the forecast period the local inflation rate should remain right around the mid-point of the Bank of Canada's inflation target range of 1.0 to 3.0 per cent from 2018 to 2020.

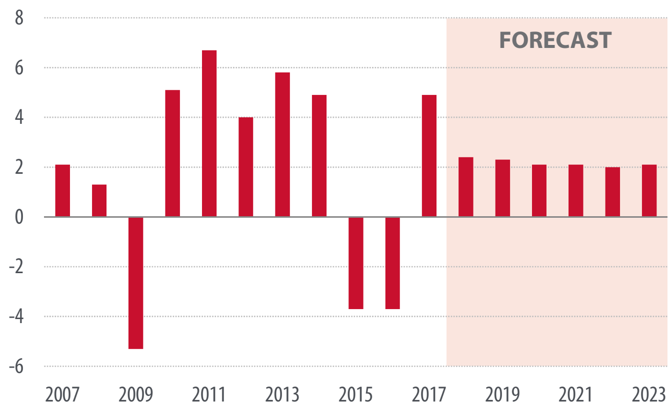
Higher oil prices would increase transportation and heating costs, and other areas of the economy will have these higher costs transmitted to them. Still, elevated vacancy rates would depress shelter costs but are not expected to be enough to prevent higher overall inflation rates. However, a mild appreciation of the Canadian dollar relative to the U.S. dollar should keep prices for imported consumer goods and services steady or slightly cheaper and provide a partial offset to higher inflation rates. The consumer price index should increase by 2.0 per cent in 2019 and then decline to 1.8 per cent by 2022 after the Bank of Canada completes an expected sequence of aggressive increases to the overnight rate in 2018 and 2019.

Assumptions: Economic Conditions in Alberta

Alberta Economic Growth

Alberta's economy continues to recover from the 2015-2016 recession. As the recovery continues, the pace of growth is expected to be slower than the 4.9 per cent growth rate experienced in 2017. Economic growth should decelerate to 2.4 per cent in 2018 and 2.3 per cent in 2019.

Gross Domestic Product Growth Rate
(per cent)



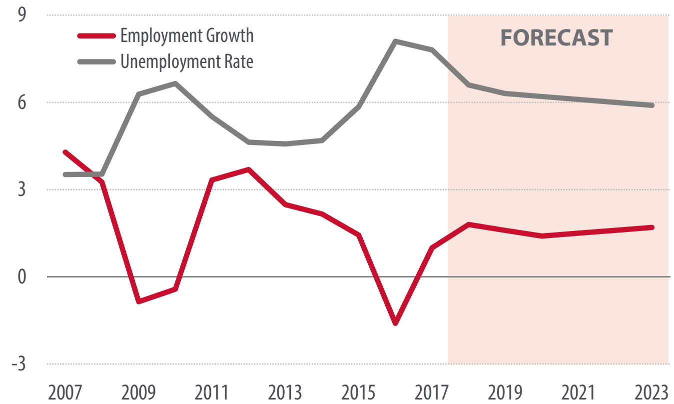
Source: Statistics Canada, Center for Spatial Economics, Conference Board of Canada, Corporate Economics.

The Alberta Labour Market and Population Growth

The labour market in Alberta continues to improve gradually. In the first half of 2018, job creation was strong in construction, manufacturing, and primary and utility industries. The energy sector has also seen increased demand for employment, but jobs are unlikely to return to the pre-recession level in the near term. The value and number of Employment Insurance (EI) beneficiaries have decreased steadily from the highs of mid-2016 but remain elevated relative to pre-recession levels.

The unemployment rate fell from a peak of 8.1 per cent in 2016 to 7.8 per cent in 2017. The unemployment rate is expected to continue to move lower to a 2018 average of 6.6 per cent. With the labour market slowly tightening, Albertans can expect wages and household income to improve in 2019 as the unemployment rate reduces to 6.3 per cent.

Labour Market
(per cent)



Source: Statistics Canada, Corporate Economics.

With Alberta's recovery on track, interprovincial migration has returned to positive levels. The improving labour market started to attract people from other provinces with increased job opportunities, though at a relatively slower pace than the pre-recession level. International migration and natural increase continue to be stable sources of population growth in Alberta.

The projection for net migration to Alberta over the 2019 to 2022 period is 172,800 persons compared with 113,800 persons (2015-2018) and 254,500 persons (2011-2014). This midpoint position relative to the previous eight years reflects slower job growth and less economic incentives compared with the rest of Canada.

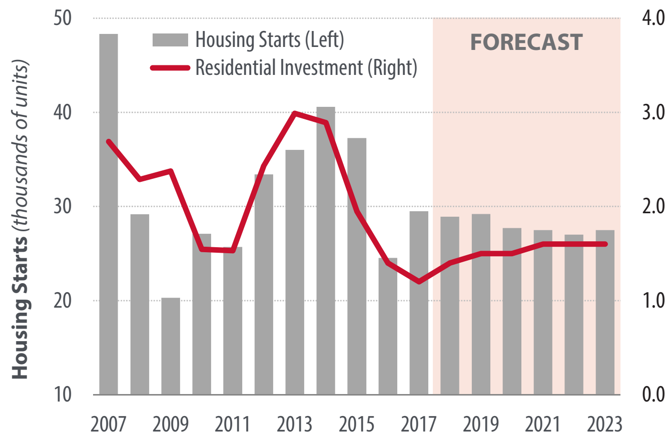
The Growth in Residential and Non-Residential Business Investment

The improvement in net migration should help ease some of the over-supply in the Alberta housing market. Stricter lending conditions and higher mortgage rates would also exasperate over-supply.

Housing inventories have remained elevated for the past two years in Alberta, with the majority in multi-family units. Housing starts in 2018 are expected to

remain comparable with last year's level but should be lower than the pre-recession record and historical norms. Housing starts are forecasted to total 28,900 units in 2018, and 29,200 units in 2019.

Housing Starts and Population Growth



Source: Statistics Canada, Alberta Treasury Board and Finance, C4SE, Corporate Economics.

Wth oil prices higher than expected, energy investment activity has strengthened in Alberta. Businesses are becoming more confident about their medium-term prospects. Alberta's labour market continues to improve, with the unemployment rate expected to fall below 6.0 per cent by 2023. However, the growth in household spending has been weaker than expected due to higher borrowing costs.

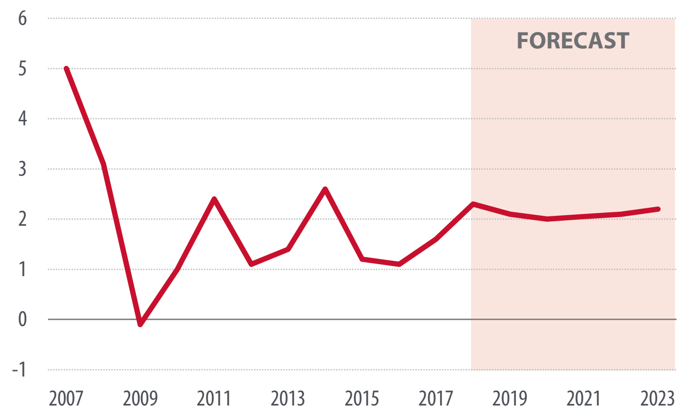
Despite the positive outlook for Alberta's economy, there are downside risks from uncertainty about U.S. trade policy and pipeline construction for the oil and gas industry. The rise of trade protectionism globally will create headwinds. The delay of the Trans Mountain pipeline expansion project will slow investment in the energy sector.

Alberta Consumer Price Index (CPI) Inflation

Consumer prices are being driven up by rising energy prices and the resulting increase in transportation costs. Stronger crude oil prices have helped to propel inflation in Alberta with over 20.0 per cent increase in gasoline prices this summer compared to the summer of 2017. The costs of food, accommodation, and retail purchases are also higher. Higher trade tariffs will raise the price of imported goods, boost inflation and reduce consumer's purchasing power in Alberta.

Consumer Price Inflation

(per cent)



Source: Statistics Canada, Corporate Economics.

Assumptions

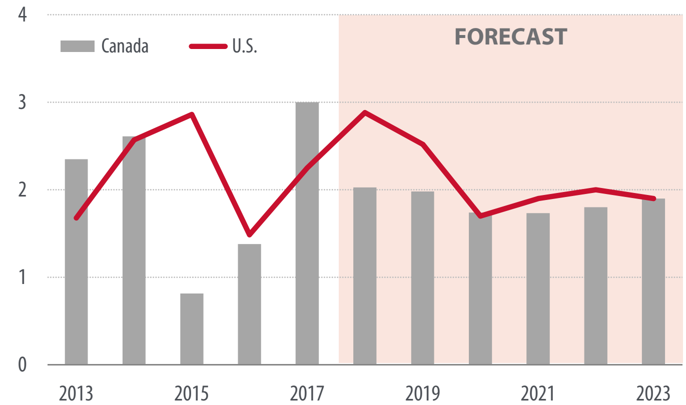
Assumptions: Economic Conditions in Canada

Canadian Real GDP growth

After a slow start to the year, real Gross Domestic Product (GDP) growth accelerated in the second quarter to 2.9 per cent, helped by the rebound of household consumption growth (2.6 per cent) and business investment growth (1.9 per cent). Despite the uncertainty surrounding the NAFTA renegotiation and trade tensions between Canada and the U.S., for most of the year, net-exports supported by 12.3 per cent increase in exports made its most significant contribution to GDP growth since 2016.

Looking forward, the existing high household debt in an increasing interest rate environment means that Canadian households will need to use a more substantial amount of their incomes to pay for loans, which would dampen their ability to increase consumption and investment in housing. Newly imposed 25.0 per cent tariff on steel and 10.0 per cent tariff on aluminum by the U.S. should start to impact trade negatively. These tariffs were not addressed in the October 1 announcement of a new United States-Mexico-Canada Agreement (USMCA) to replace the North American Free Trade Agreement (NAFTA). Textbox 2 provides more details on the implications of the USMCA.

Canadian vs. U.S. Real GDP Growth
(per cent)



Source: Statistics Canada, Federal Reserve Bank of St. Louis, Corporate Economics.

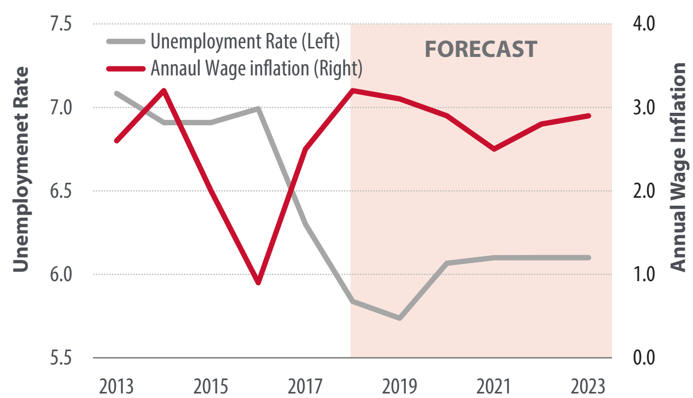
Because the Bank of Canada will start increasing interest rates at the same time the federal and provincial governments reduce or eliminate stimulus spending, this is forecasted to lead to a deceleration of Canadian GDP growth from 3.0 per cent in 2017 to 2.0 per cent in 2018 and 2019.

Job Creation in the Canadian Labour Market

The Canadian labour market continued a healthy pace of growth in the first half of 2018, although the total employment fell in August. In August, the national unemployment rate was 6.0 per cent, a near decade low. Year-over-year, total employment increased by 172,000 people, with more gains in full-time positions (+326,000) than losses in part-time jobs (-154,000).

Thanks to the tightening labour market, wage inflation in Canada was up in 2017 and is expected to be higher in the next three years, after a recent low in 2016.

Unemployment Rate vs. Annual Wage Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

Monetary Policy and Implications for the Prime Business Lending Rate and Exchange Rate

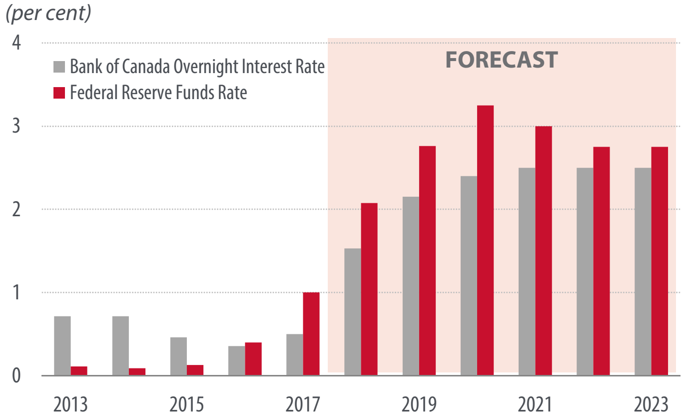
Consumer price inflation in Canada has been firming up for several months. In July 2018, the headline inflation rate increased to 3.0 per cent, driven mainly

by higher energy prices. The core inflation measure, which excludes energy and food, was 2.3 per cent. Both the headline inflation rate and the core inflation rate are in the upper band of the Bank of Canada's target range of inflation, which enhances the probability of a near-term interest rate increase. The Bank of Canada is expected to raise rates two to three times in 2019, each with a 0.25 percentage point increase. The Bank of Canada's pace of interest rate increases is expected to be slower than that of the U.S. Federal Reserve (U.S. Fed), as uncertainty and downward risks are higher in the Canadian economy. Future Bank of Canada overnight interest rate increases will push the prime lending rate from 3.5 per cent in 2018 to 5.0 per cent in 2023.

The loonie is expected to appreciate from US$0.78 for every Canadian dollar in 2018 to US$0.80 for every Canadian dollar in 2023. This mild appreciation will be due to the expectation of higher prices for Western Canadian Select. The USD/CAD exchange rate should remain relatively stable because of monetary policy convergence, whereby both the U.S. Fed and the Bank of Canada are on course for future rate increases.

Bank of Canada Overnight Interest Rate vs. Federal Reserve Funds Rate

(per cent)



Source: Statistics Canada, Federal Reserve Bank of St. Louis, Corporate Economics.

Assumptions: The United States Economy

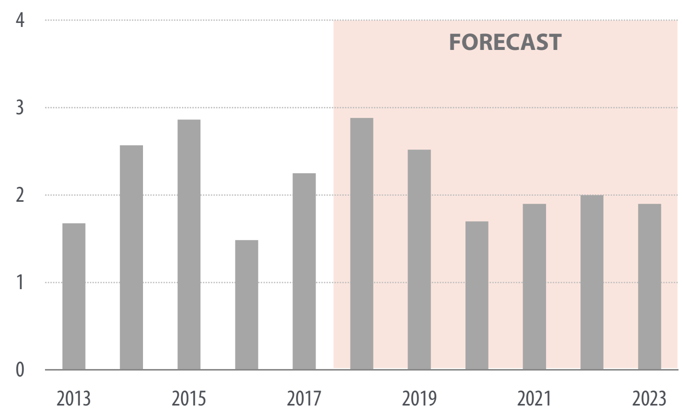
Real GDP Growth

U.S. real GDP growth accelerated to an annual rate of 4.2 per cent in Q2 2018, one of the strongest in a decade, driven by the tax cuts that have pushed up both consumer spending and business investment. The U.S. civilian unemployment rate dropped to 3.9 per cent in August 2018, a record low since 2000 and below the long-term natural rate of unemployment. The tightening of the labour market combined with the continued strong demand for labour has pushed wage inflation higher, after years of low increases.

Supported by a robust labour market, higher wage rate, and rising asset values, U.S. consumer confidence in August hit 133.4 (index 1985=100), the highest level since October 2000. High consumer confidence supports strong future growth in personal spending. As a result, real GDP growth in the U.S. is expected to reach 2.9 per cent in 2018 and 2.5 per cent in 2019.

Real GDP Growth

(per cent)



Source: Federal Reserve Bank of St. Louis, Corporate Economics.

Beyond 2019, the unwinding of benefits from tax cuts and rising interest rates should decelerate U.S. growth to 1.7 per cent in 2020. The U.S. GDP is then expected to grow around its potential output growth level of 2.0 per cent for the 2021 to 2023 period.

Assumptions

Fiscal Stimulus from U.S. Tax Reforms and the U.S. Tax Advantage

Effective January 1, 2018, the Tax Cuts and Jobs Act (TCJA) has improved U.S. business competitiveness significantly. After lagging Canada in business tax advantages for more than a decade, the U.S. now has a lower combined corporate tax rate from all levels of government at 25.8 per cent compared with a 26.8 per cent average for Canadian jurisdictions.

The fiscal stimulus from the tax cuts started to show its benefits in the U.S. economy in recent months. The TCJA has encouraged businesses to purchase more equipment to take advantage of the new rule that allows them to expense all their spending over five years. The cut to the corporate income tax rate from 35 per cent to 21 per cent also saw sizeable after-tax business profits rise across industries. The fiscal stimulus from the tax cuts is expected to add 0.4 and 0.3 percentage points to U.S. GDP growth in 2018 and 2019, respectively.

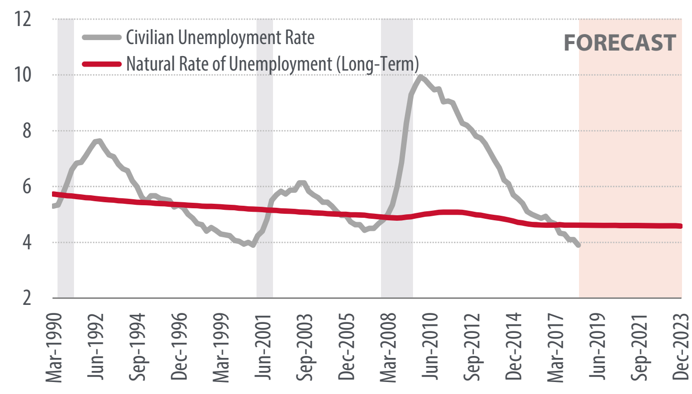
Implications of Monetary Policy Tightening

The U.S. economy has been running above its potential level of growth for a while, with deficit-financed tax cuts pushing the U.S. economy beyond its long-term capacity limits. Providing fiscal stimulus so late in the cycle with an unemployment rate at its cyclical low is uncommon and increases inflation risks. U.S. inflation has already picked up, with the headline CPI inflation firming up to the highest level since mid-2000 at 2.9 per cent in July and 2.7 per cent in August 2018.

The Fed has increased its funds' rate three times this year (March, June, and September) and is expected to raise rates on one more occasion before the year runs out. Four rate increases, each by a quarter percentage point (0.25 percentage point), are expected in 2019. By the end of 2019, the Fed funds rate is expected to reach 3.5 per cent, the highest point in a decade of mostly accommodative monetary policy.

Civilian Unemployment Rate vs. Natural Rate of Unemployment (Long-term)

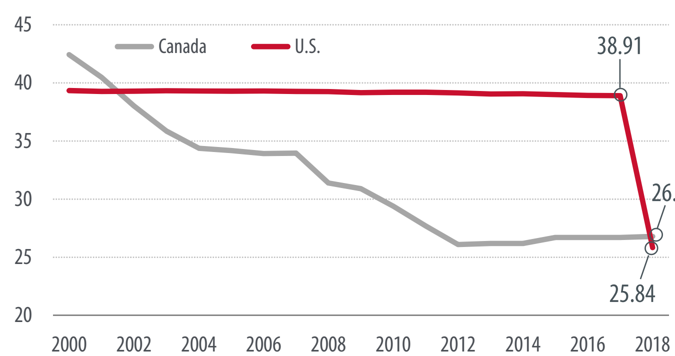
(per cent)



Source: U.S. Congressional Budget Office, retrieved from FRED, Federal Reserve Bank of St. Louis, Corporate Economics.

Combined Central and Sub-central Government Corporate Income Tax Rate Comparison: Canada vs. U.S.

(per cent)



Source: OECD, Corporate Economics.

Textbox 2: The United States-Mexico-Canada Agreement (USMCA)

The Agreement

The renegotiation of the North American Free Trade Agreement (NAFTA) began in August 2017 and concluded with a September 30, 2018 announcement. September 30 was the deadline imposed by the U.S., failing which Section 232 security tariffs of between 20 and 25 per cent on exported cars and car parts into the United States would have been effective. When finalized, the renegotiated agreement will be called the United States-Mexico-Canada Agreement (USMCA). The USMCA will have to be passed by each country's central government.

Auto Industry. USMCA puts a cap on the number of cars and value of car parts imported into the U.S. Canada agreed to a maximum quota of 2.6 million passenger vehicles per annum and US$32.4 billion in parts (light trucks are exempt). These are not binding constraints because Canada currently produces just under 2 million light vehicles for its domestic and export markets and exports over C$20 billion (or roughly US$16 billion) in parts.

Dairy Trade. Farmers in the United States will now have access to an additional 3.6 per cent of the Canadian dairy supply chain. Canada has agreed to eliminate its Class 6 and Class 7 milk categories within six months. Specifically, U.S. farmers will have access to five contributors to the supply chain management network for dairy trade: 1) eggs; 2) chickens; 3) milk; 4) hatching eggs; and 5) turkey.

Dispute Resolution. Canada also preserved "Chapter 19" of the original NAFTA deal, which is a resolution mechanism for trade disputes that enables external arbitrators to settle disputes. A tool Canada has used in its Lumber trade disputes with the United States. Chapter 11, which allows companies to sue governments when trade disputes arise, is eliminated.

Steel and aluminum. The USMCA does not assure Canada protection from "Section 232" tariffs on steel and aluminum imports. Instead, there is a promissory note to Canada to be excluded from any future national security-related tariffs as it relates to automobiles and auto parts. Nevertheless, Canada intends to see this issue resolved before ratifying the USMCA in 2019.

Sunset clause. The U.S. advocated for a sunset clause to have the trade agreement revisited every five years. This clause is in place but the period of validity of the USMCA is 16-years. Mexico led advocacy to extend the period of validity. It is useful to note that each party have the option to terminate the USMCA with six months' notice.

Benefits for Canada from the USMCA

1. ***New rules for autos and exemption from potential auto tariffs:*** There are new rules that increase origin content from 62.5 to 75 per cent and require 40 per cent of each car to be made by workers making U.S.$16 or more an hour to qualify as duty-free. The Canadian auto sector is protected from potentially significant U.S. auto tariffs – like the 10 to 25 per cent aluminum and steel product tariffs. Exemption from any future automobile and automobile parts tariffs imposed by the United States due to national security.
2. ***Sunset clause extended:*** Canada preferred no sunset clause, but a 16-year agreement is better than a 5-year agreement.
3. ***Dispute resolution:*** Canada successfully kept NAFTA's Chapter 19 dispute settlement mechanism mostly intact – to forestall future tariff actions by the U.S. administration.
4. ***Tariff cool-down period:*** 60-day exemption from any further U.S. tariffs or import restrictions imposed under Section 232 to allow the two parties to work toward a negotiated outcome.
5. ***Less uncertainty:*** The timing of securing a deal or none is no longer a part of risk factors which

Textbox *(continued...)*

had plagued the long run economic outlook for Canada and likewise Calgary.

Concessions made by Canada in the USMCA

1. ***Dairy trade:*** Canada will allocate 3.6% of the Canadian dairy market to the U.S. Like recent agreements (CETA and CPTPP), that made similar concessions, the government may provide some compensation to Canadian (including Alberta) farmers. Access to Canadian agriculture supply chain management of 3.6 per cent for dairy trade is not sufficient to have any meaningful impact on local farmers and the Canadian consumer because of the limited effect on price competition.
2. ***'De minimis' thresholds:*** Threshold for duty-free cross-border online purchases raised from C$20 to C$150. Local retailers will be affected negatively, but consumers will be happy.
3. ***Biologic drugs:*** Canada also gave into demands to lengthen patent protection for biologic drugs to 10 years from 8 years.

Outstanding U.S. and Canada Trade Disputes

1. ***Softwood lumber:*** A softwood lumber trade dispute between Canada and the United States remains unresolved. Canada is now looking to the World Trade Organization (WTO) to resolve this dispute, but, with "chapter 19" still intact in USMCA, Canada may choose to use this tool.
2. ***Steel and aluminum tariffs:*** Section 232 tariffs on U.S. imports of Canadian steel and aluminum remain.

Direct Implications for Calgary

1. ***Less uncertainty:*** There are over 300 major projects (investment of C$5 million or more) proposed for initiation in 2019-2020 throughout Alberta. About 30 per cent of these are in the Calgary economic Region (CER). The reduction of uncertainty reduces the risk of project delays and provides an opportunity for additional ones to emerge.
2. ***De minimis thresholds:*** For every dollar spent online in 2007, 56 cents were to Canadian vendors. Raising the limit for duty-free imports will encourage more online shopping benefitting U.S. vendors. The Canadian market for online purchases is enormous (70 million online orders valued at C$12.8 billion in 2007). Calgary could benefit from investments in local distribution networks (industrial development and transportation modes) to get goods into the hands of Calgarians.
3. ***Dairy trade:*** The import of dairy produce from the U.S to Alberta doubled from C $9.7 million in 2014 to C$20.0 million in 2017. This change will raise imports of U.S. products for Calgary and could affect farmers in the Calgary area.
4. ***Steel and aluminum tariffs:*** In addition to structural steel and aluminum, there is the potential for increased costs across all manufactured products containing steel or aluminum. A large volume of products will likely incur a relatively small cost increase. The City utilizes a customs brokerage to manage cross-border procurement of materials and supplies from the U.S. acquired directly. The brokerage provides monthly reporting to the City on additional costs, if any, of the counter tariffs on products (including steel and aluminum) that are imported directly by the City. In the first post-tariff report, there were no counter tariffs applied to the City's purchases in July 2018.

Assumptions: The World Economy

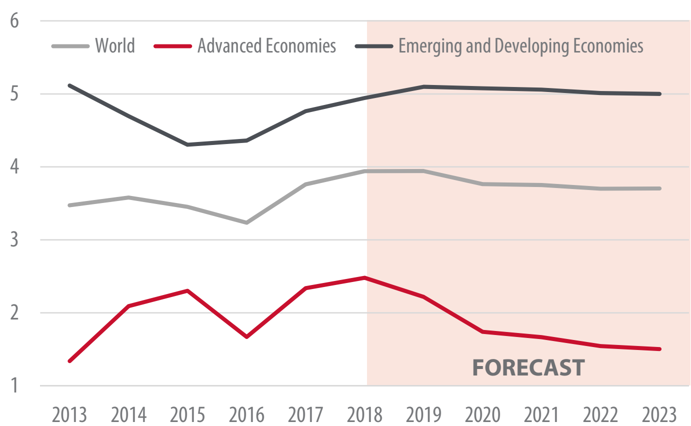
The Pace and Distribution of Real GDP Growth across World Economies

World gross domestic product is expected to average 3.6 per cent over the 2019 to 2023 forecast horizon and is estimated to grow at 3.7 per cent in 2018 and 2019. Over the last 39 years, world economic growth has averaged 3.5 per cent, and growth is projected to remain above this average for the entire forecast horizon. Inflation is forecasted at 3.8 per cent for 2018 and should subsequently decrease to an average of 3.5 per cent for the forecast horizon.

Real GDP growth across all economies has been accelerating in recent years and should peak at 3.8 per cent in 2018 before decelerating to 3.3 per cent at the end of the forecast period. The pace of growth is expected to be uneven with developing countries expanding at a faster rate with a forecast period average of 4.8 per cent compared with 1.7 per cent for advanced economies. Amongst advanced economies, there would also be uneven growth. The U.S. and Canada should benefit from higher yields and higher oil prices respectively.

Gross Domestic Product Growth

(per cent)

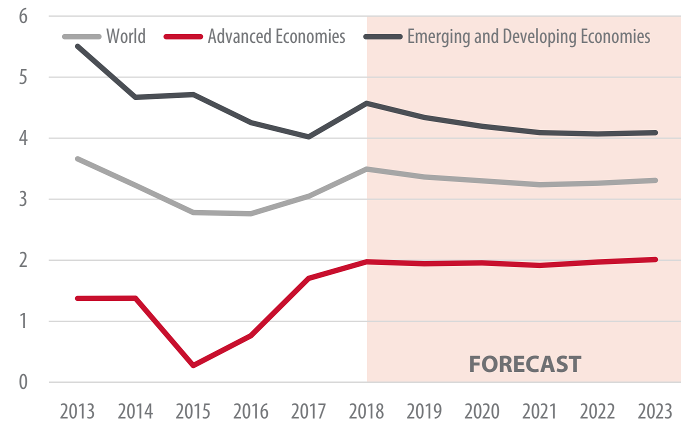


Source: International Monetary Fund, Corporate Economics.

Inflation is expected to average 2.0 per cent per year for advanced economies, and 4.5 per cent for emerging and developing economies over the forecast horizon. Inflation should hover around 2.0 per cent for advanced economies as they pursue inflation targeting to maintain annual consumer price growth in the +1.0 per cent and +3.0 per cent range.

Inflation Rates

(per cent)



Source: International Monetary Fund, Corporate Economics.

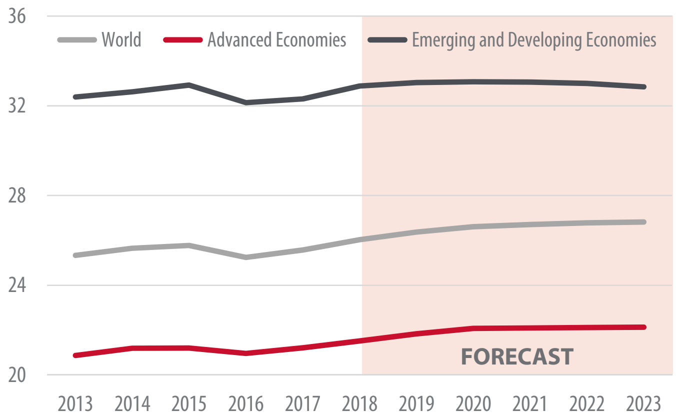
Investment and Capital Build-Up to Support Global Growth

The investment share of GDP is a significant driver of economic growth and is expected to increase over the forecast period. The investment share of GDP is expected to average 33.0 per cent and 23.0 per cent for emerging and developing economies and advanced economies respectively. This difference in investment shares of GDP explains most of the faster pace of growth in emerging and developing economies than the pace for advanced economies.

Savings need to be available for conversion into investments to sustain the investment share of GDP. The resource gap (the difference between savings and investments) needs to be zero or positive. Over the forecast horizon, the resource gap for advanced economies should be positive and is expected to increase, indicating funding sufficiency using own financial resources. In contrast, the resource gap for emerging and developing economies should be negative. To meet the funding gap, emerging and developing economies will need to have an increase in

gross national savings or rely on investment flows from advanced economies to meet the shortfall.

Investment as Share of GDP
(*per cent*)



Source: International Monetary Fund, Corporate Economics.

Trade Protectionism and Anti-Immigration Effects on the Global Labour Market

Trade protectionism and anti-immigration sentiments are gaining some popularity in some economies. A higher global tariff regime will be a headwind limiting global growth. Although some government balance sheets will benefit from additional tariff revenue, the overall impact will be negative for producers (higher input costs) and consumers (lower product variety and higher prices for goods and services). Global labour demand would also suffer—although some regions will benefit at the expense of others. Anti-immigration would affect the distribution of the worldwide labour supply. Those countries with low fertility rates that pursue such policies risk constraining national economic growth.

Tables

Table 1 - Selected Economic Indicators

Rest of the World, United States, Canada, Alberta, Calgary Economic Region (CER) & Calgary Census Metropolitan Area (CMA)											
FORECAST COMPLETED: September 2018						BASE FORECAST					
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ASSUMPTIONS											
World											
Real Gross Domestic Product Growth (%)	3.5	3.6	3.5	3.3	3.7	3.7	3.7	3.7	3.6	3.6	3.6
The United States											
Real Gross Domestic Product Growth (%)	1.7	2.6	2.9	1.5	2.3	2.9	2.5	1.7	1.9	2.0	1.9
Canada											
Real Gross Domestic Product Growth (%)	2.3	2.6	0.8	1.4	3.0	2.0	2.0	1.7	1.7	1.8	1.9
Prime Business Loan Rate (%)	3.0	3.0	2.8	2.7	2.9	3.5	4.1	4.7	4.8	5.0	5.0
Exchange Rate (US$ for 1C$)	0.97	0.91	0.78	0.76	0.77	0.78	0.78	0.79	0.79	0.80	0.80
Alberta											
Real Gross Domestic Product Growth (%)	5.8	4.9	-3.7	-3.7	4.9	2.4	2.3	2.2	2.1	2.0	2.1
Total Employment Growth (%)	2.5	2.2	1.4	-1.6	1.0	1.8	1.6	1.4	1.5	1.6	1.7
Unemployment Rate (%)	4.6	4.7	5.9	8.1	7.8	6.6	6.3	6.2	6.1	6.0	5.9
Housing Starts ('000 Units)	36.0	40.6	37.3	24.5	29.5	28.9	29.2	27.7	27.5	27.0	27.5
CPI - Inflation Rate (%)	1.4	2.6	1.2	1.1	1.6	2.3	2.1	2.0	2.1	2.1	2.2
Crude Oil Price - WTI (US$/bbl)	97.9	93.2	48.7	43.3	50.8	67.3	68.7	66.3	64.9	63.9	65.7
Western Canadian Select - WCS (US$/bbl)	73.5	74.5	35.1	29.5	37.6	42.4	46.5	48.8	52.4	54.1	56.0
Alberta Natural Gas Price - AECO/NIT ($/GJ)	3.0	4.3	2.6	2.0	2.3	1.8	2.1	2.5	2.8	2.9	3.1
Industrial Product Price Index (%)	0.4	2.5	-0.8	-0.2	3.1	3.7	1.6	2.0	1.7	1.7	1.6
Raw Materials Price Index (%)	0.9	1.6	-19.9	-4.6	11.0	11.4	-0.7	2.4	1.0	0.9	1.0
Alberta Average Wage Rate Increase for All Industries (%)	4.9	4.6	-3.0	-4.1	1.8	1.9	2.6	2.6	2.5	2.6	2.5
FORECAST											
Calgary Economic Region (CER)											
Real Gross Domestic Product Growth (%)*	5.2	6.3	-4.0	-2.0	4.4	2.9	2.0	2.5	1.9	2.3	2.3
Total Employment ('000 persons)**	837.9	857.2	876.1	861.0	884.3	898.3	912.9	932.1	945.1	960.9	978.5
Total Employment Growth (%)**	3.1	2.3	2.6	-2.1	2.7	1.6	1.6	2.1	1.4	1.7	1.8
Unemployment Rate (%)**	4.8	4.9	6.3	9.2	8.4	7.7	7.2	6.4	6.6	6.5	6.0
Calgary Census Metropolitan Area (CMA)											
CPI - Inflation Rate (%)	1.7	3.0	1.2	1.0	1.7	2.0	2.0	2.0	1.7	1.8	1.9
Non-Residential Building Price Inflation (%)	1.2	1.3	-0.6	-2.6	0.6	1.7	2.1	2.4	1.4	1.8	2.4

Numbers may not add up due to rounding

* Source: Centre for Spatial Economics, Corporate Economics
** Total population, census divisions and census metropolitan areas, 2001 Census boundaries

Table 2 - Selected Indicators for City of Calgary

City of Calgary

FORECAST COMPLETED: September 2018						BASE FORECAST					
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
DEMOGRAPHY											
Total Population ('000 Persons)	1,157	1,195	1,231	1,235	1,246	1,267	1,291	1,318	1,345	1,372	1,399
Total Population Growth (%)	3.3	3.3	3.0	0.3	0.9	1.7	1.9	2.0	2.1	2.0	1.9
Net Migration ('000 Persons)	26.2	28.0	24.9	-6.5	1.0	11.6	14.0	16.3	17.2	16.8	15.8
Household Formation ('000 Units)	13.7	14.5	13.4	1.2	7.5	11.6	9.1	10.0	10.5	10.4	10.1
REAL ESTATE											
Residential Market											
Housing Starts	9.4	13.8	10.1	7.5	9.5	12.0	9.2	10.2	10.6	10.5	10.1
Calgary Average Residential MLS sale price (%)*	6.8	5.5	-2.9	2.5	0.5	-0.4	3.1	3.1	2.8	2.4	2.0
Total Building Permits ($billions)	6.0	6.7	6.3	4.7	4.6	4.5	4.5	4.6	4.6	4.8	5.1
Non-Residential Market											
Downtown Office Vacancy Rate (%)**	3.8	5.3	10.0	18.2	21.3	23.1	21.9	20.4	19.1	17.7	16.1

Numbers may not add up due to rounding. *Source: CREB, Corporate Economics. ** Source: Altus InSite

Table 3 - Selected Commodity Prices

City of Calgary

FORECAST COMPLETED: September 2018						BASE FORECAST					
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CONSTRUCTION COMMODITIES											
Iron and steel products	-1.2	2.8	5.7	3.2	4.2	-12.1	-4.7	3.2	0.2	3.4	-0.7
Aluminum products	0.1	7.9	7.8	-8.7	7.0	-10.7	4.5	-1.5	-1.0	2.2	1.1
Wood	6.9	3.2	1.6	4.0	4.2	-3.4	-0.3	2.0	2.3	-0.4	-0.3
Asphalt*	-5.4	14.5	-9.6	-25.4	8.7	26.1	-3.5	-6.5	-4.3	-3.5	1.8
OPERATIONAL COMMODITIES											
Rubber	-14.3	-24.6	-7.9	6.4	30.1	13.0	-0.6	-3.6	-1.6	-1.2	1.9
Diesel oil	5.2	7.9	-21.8	-10.2	17.3	19.6	-4.1	-1.3	-2.2	-1.0	1.9
Vehicle parts	0.1	0.9	2.1	1.3	1.3	-2.6	1.8	2.2	2.6	2.2	1.9

Numbers may not add up due to rounding
NOTE: MLS prices represent significant market differences. Apartment/Condo prices expected to decrease while house prices remain resilient.
* Based on Ontario Ministry of Transportation Asphalt Price Index

Table 4 - City of Calgary Population Projection

City of Calgary *(thousands of persons)*

FORECAST COMPLETED: September 2018		BASE FORECAST						
	2018	2019	2020	2021	2022	2023	2024	2025
Total Population (as April)	1,267.3	1,291.2	1,317.5	1,345.0	1,372.3	1,398.7	1,424.3	1,449.3
Total Population Growth Rate (April - March)	1.7	1.9	2.0	2.1	2.0	1.9	1.8	1.8
Total Net Migration (April - March)	11.6	14.0	16.3	17.2	16.8	15.8	14.9	14.4
Total Births (April - March)	16.6	17.0	17.3	17.7	18.1	18.4	18.6	18.7
Total Deaths (April - March)	7.2	7.1	7.3	7.4	7.6	7.7	7.9	8.1
Total Natural Increase (April - March)	9.4	9.9	10.1	10.3	10.5	10.6	10.7	10.6
Total Households (as April)	482.7	491.8	501.9	512.3	522.7	532.8	542.5	552.0
Total Household Formation (April - March)	11.6	9.1	10.0	10.5	10.4	10.1	9.7	9.5

Population by Cohort	2018	2019	2020	2021	2022	2023	2024	2025
0-4	87.9	87.6	87.3	87.3	87.5	87.9	89.5	90.9
5-9	79.5	81.4	82.7	84.0	85.6	87.4	87.1	86.8
10-14	69.9	72.1	74.8	77.2	79.2	80.4	82.3	83.6
15-19	68.6	68.2	68.6	69.5	70.8	72.5	74.8	77.3
20-24	79.5	79.3	79.6	80.1	80.3	80.0	79.4	79.4
25-29	102.0	102.4	103.3	103.5	102.8	102.7	102.5	102.2
30-34	116.0	117.6	118.8	120.3	122.3	123.6	124.5	124.9
35-39	111.7	116.5	122.1	127.2	131.0	133.1	134.9	135.7
40-44	100.6	103.5	107.5	112.5	117.9	123.9	129.0	134.2
45-49	88.1	92.0	95.4	98.5	102.2	105.7	108.8	112.7
50-54	87.4	86.5	86.0	86.1	87.2	89.6	93.5	96.8
55-59	78.3	79.1	80.0	81.2	81.8	82.2	81.4	81.0
60-64	63.2	66.0	67.7	68.8	69.4	69.6	70.3	71.4
65-69	48.7	49.5	50.9	52.8	55.1	57.3	59.8	61.5
70-74	31.6	34.3	36.8	39.0	41.2	43.4	44.1	45.4
75-79	22.1	22.6	23.5	24.2	25.1	26.3	28.7	30.9
80-84	16.2	16.2	16.1	16.3	16.5	16.8	17.2	17.9
85-89	10.7	10.7	10.6	10.4	10.3	10.2	10.2	10.2
90-99	5.4	5.5	5.6	5.8	5.9	6.0	6.0	6.0
100+	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total	**1,267.3**	**1,291.2**	**1,317.5**	**1,345.0**	**1,372.3**	**1,398.7**	**1,424.3**	**1,449.3**
Youth (12-18)	81.4	82.6	84.3	86.7	89.8	92.6	94.9	96.5
Primary School Age 6-17	174.0	176.9	181.0	185.6	190.2	194.4	198.4	200.9
Working Age 15-65	895.3	911.1	929.0	947.7	965.8	982.8	999.1	1,015.8
Seniors 65+	134.8	139.0	143.7	148.7	154.3	160.2	166.2	172.2
Super Seniors 85+	16.3	16.4	16.4	16.4	16.4	16.4	16.4	16.4
Female Super Seniors 85+	10.3	10.4	10.4	10.3	10.3	10.3	10.3	10.3

Numbers may not add up due to rounding

Table 5 - Calgary Economic Region (CER) Population Projection

Calgary Economic Region (CER) *(thousands of persons)*

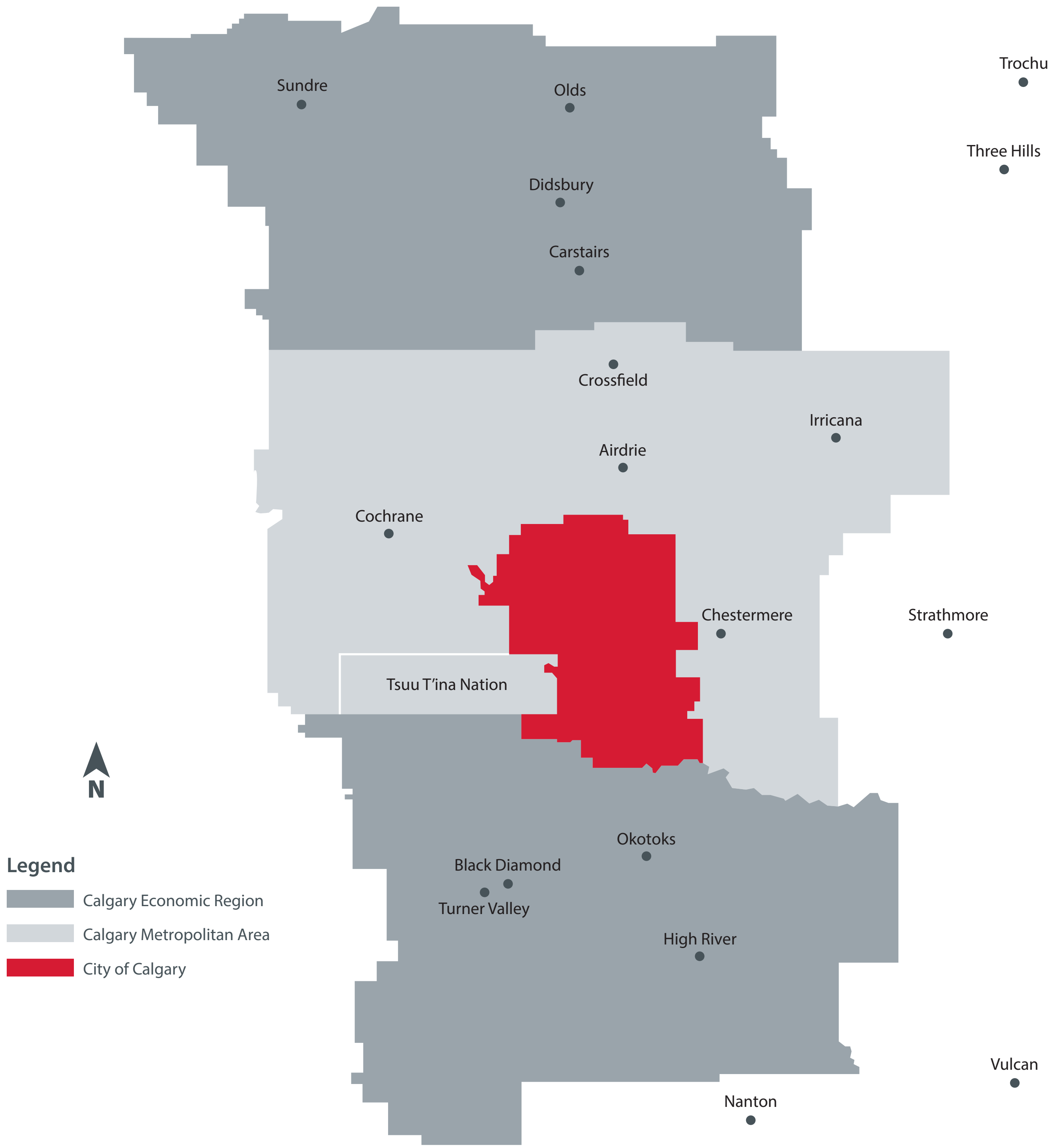
FORECAST COMPLETED: September 2018		**BASE FORECAST**						
	2018 (estimate)	2019	2020	2021	2022	2023	2024	2025
Total Population (as April)	1,560.6	1,599.9	1,635.0	1,662.7	1,695.2	1,731.2	1,761.1	1,785.0
Total Population Growth Rate (April - March)	2.0	2.5	2.2	1.7	2.0	2.1	1.7	1.4
Total Net Migration (April - March)	-	20.7	29.6	25.4	18.1	23.3	27	21.3
Total Births (April - March)	-	19.1	19.4	19.8	20.1	20.2	20.4	20.7
Total Deaths (April - March)	-	9.1	9.6	10.1	10.6	11	11.5	12
Total Natural Increase (April - March)	-	10	9.8	9.7	9.5	9.2	8.9	8.7
Total Households (as April)	600.2	615.4	628.9	639.5	652	665.8	677.4	686.5
Total Household Formation (April - March)	11.8	15.1	13.5	10.6	12.5	13.8	11.5	9.2

Population by Cohort	2018 (estimate)	2019	2020	2021	2022	2023	2024	2025
0-4	97.7	98.6	99.4	100	100.5	101.9	103.1	103.8
5-9	100.9	99.9	98.9	98.3	98.4	99.2	99.8	100.6
10-14	93.6	98.2	102.1	104.5	106.4	106.3	105	103.5
15-19	88.4	90.4	92.7	95	98.3	102.6	106.7	109.7
20-24	95.2	98	100.2	101.2	102.9	104	105.1	105.9
25-29	116.4	117.5	117.1	114.7	114.9	117.2	118.5	118.8
30-34	131.7	133.2	134.2	134.7	135	135.6	135.4	133.5
35-39	127.2	133.2	138.2	141.3	143.3	145.6	146.1	145.9
40-44	116.8	119.9	123.6	127.1	131.5	136.8	142	146.2
45-49	111.6	114.3	116.3	118.4	120.2	122.4	124.9	128.1
50-54	106.9	106.2	106.3	107.4	110.5	113.7	116.1	117.8
55-59	104.5	106.2	107.7	108.1	107.5	106.4	105.6	105.5
60-64	87.7	92	95.4	98.3	100.7	102.2	103.7	105.1
65-69	64.2	67.1	70.8	75.2	79.6	84.6	88.6	91.8
70-74	44.4	48.4	52	55.4	58.8	60.5	63	66.4
75-79	29.5	31.2	32.7	34.4	36.6	40.3	43.7	46.7
80-84	21.4	21.8	22.4	22.9	23.8	24.8	26.1	27.2
85-89	14.1	14.4	14.7	14.8	15	15.3	15.5	15.8
90-99	8.1	9.1	9.9	10.4	11	11.4	11.6	11.7
100+	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8
Total	**1560.6**	**1599.9**	**1635.0**	**1662.7**	**1695.2**	**1731.2**	**1761.1**	**1785.0**

Numbers may not add up due to rounding

Glossary

Calgary Economic Region



Glossary

Advanced economies

► Currently composed of 31 developed countries: Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovenia, Spain, Sweden, Switzerland, Taiwan Province of China, United Kingdom and the United States.

AECO C

► Is the central natural gas spot market price for Alberta, measured in Canadian dollar per gigajoule. Joule is the international measure of energy. One gigajoule corresponds to one billion joules.

Aggregate demand

► The sum of consumer, government and business spending and net exports.

Baby-Boomer Generation (BBG)

► Those born between January 1st 1946 and December 31st 1964.

Calgary Economic Region (CER)

► Is an Alberta economic region that covers the city of Calgary and its surrounding twenty cities, towns, villages, and Indian reserves including: Beiseker (Village), Black Diamond (Town), Carstairs (Town),Chestermere (City), Cochrane (Town), Cremona (Village), Crossfield (Town), Didsbury (Town), Eden Valley 216 (Indian reserve), Foothills No. 31 (Municipal district), High River (Town), Irricana (Town), Longview (Village), Mountain View County (Municipal district), Okotoks (Town), Olds (Town), Rocky View County (Municipal district), Sundre (Town), Tsuu T'ina Nation 145 (Sarcee 145) (Indian reserve), Turner Valley (Town).

Census metropolitan area (CMA)

► Urban Census metropolitan area (CMA) is an area consisting of one or more neighbouring municipalities situated around a major urban core. A CMA must have a total population of at least 100,000 of which 50,000 or more live in the urban core.

Commodities

► Commodities are tangible goods that can be bought and sold in spot or futures markets. Commodities are goods that are usually produced and/or sold by many different companies. A commodity is uniform in quality between companies that produce/sell it in the sense that we cannot tell the difference between one firm's product and another. Examples of commodities include oil, electricity, metals, cement and agricultural products, such as wheat, corn, rice.

Consumer price index (CPI)

► The Consumer Price Index (CPI) is an indicator of the consumer prices encountered by consumers. It is obtained by calculating, on a monthly basis, the cost of a fixed "basket" of goods purchased by a typical consumer during a given month. The basket contains products from various categories, including shelter, food, entertainment, fuel and transportation. Since the contents of the basket remain constant in terms of quantity and quality, the changes in the index reflect price changes. The CPI is a widely used indicator of inflation (or deflation) and indicates the changing purchasing power of money in Canada.

Core inflation rate

► Rate of inflation in the Consumer Price Index excluding food and energy.

Economic region

► An economic region (ER) is a grouping of complete census divisions (CDs) created as a standard geographic unit for analysis of regional economic activity.

Economy

► The term economy refers to the institutional structures, rules and arrangements by which people and society choose to employ scarce productive resources that have alternative uses in order to

Glossary

produce various goods over time and to distribute them for consumption, now and in the future, among various people and groups in society. In a free market economy like Canada's the laws of supply and demand determine what, how and where goods and services should be produced, who should consume them and when. A "strong' or "healthy" economy is usually one that is growing at a good pace.

Emerging economies

- This is a reference to countries that, due to growth performance, are considered in transition between developing and developed countries. The most important emerging economies are Brazil, China, India and Russia, sometimes referred to as BRIC.

Employment rate

- The number of employed persons expressed as a percentage of the working age population.

Fiscal policy

- Also called budgetary policy, the overall program for directing government spending and taxation for the purpose of keeping the actual Gross Domestic Product (GDP) close to the potential full employment GDP, but without overreaching that potential and causing inflation.

Goods-producing sector

- Includes agriculture, forestry, fishing, mining, oil and gas extraction, utilities (electric, gas and power), construction and manufacturing.

Gross domestic product (GDP)

- GDP is a measure of the value of all goods and services produced by the economy. Unlike Gross National Product (GNP), GDP only includes the values of goods and services earned by a region or nation within its boundaries.

Home market value

- An indicator to compare houses across the country. This indicator is based on an 1,800 sq. ft., seven-room, three-bedroom, two-bath home in a suburban community where middle income Canadian families of four reside.

Housing markets

- Consists of two markets: new house and re-sale markets referred to as MLS (Multiple Listing Service). Each is described by different parameters and followed closely by different statistical bodies: the Planning and Building Department with The City of Calgary and Statistics Canada for new houses, and The Canadian Real Estate Association for the re-sale market.

Housing units

- A general term that refers to single-family houses, townhouses, mobile homes and/or condominiums.

Housing starts

- A housing start is defined as the beginning of construction work on a building, usually when the concrete has been poured for the whole of the footing around the structure, or an equivalent stage where a basement will not be part of the structure.

MLS

- The Multiple Listing Service, or MLS, is a local or regional service that compiles available real estate for sale submitted by member brokers and agents, along with detailed information that brokers and agents can access online.

Index

- An economic tool that allows for data comparison over time. An index number is used to indicate change in magnitude (cost or price) as compared with the magnitude at some specified time.

Glossary

Inflation rate

- A measure of the percentage change in the Consumer Price Index for a specific period of time.

In-migrants

- Persons currently living within a census metropolitan area (CMA), that five years earlier lived elsewhere in Canada or abroad.

Labour force

- The working age population (aged 15+) who are actively involved in the labour market, which includes those employed and unemployed people. It does not include people who are at their working age but not working or looking for work.

Labour force participation rate

- Is the ratio of the labour force to working age population.

Migrants

- Persons who lived in a different census subdivision (CSD) than the one they lived in five years earlier (internal migrants) or who lived outside Canada (external migrants or immigrants).

Monetary policy

- Refers to government measures undertaken to affect financial markets and credit conditions with the ultimate objective of influencing the overall behaviour of the economy. Monetary policy is usually the responsibility of the central banks, such as the Bank of Canada.

Non-accelerating inflation rate of unemployment (NAIRU)

- Is the rate of unemployment consistent with an economy that is growing at its long-term potential so there is no upward or downward pressure on inflation. It changes over time primarily because of demographic shifts and technological advancements.

Tariff

- A tariff is a tax imposed on imported goods and services from foreign countries.

Recession

- A period in which the economy experiences two consecutive quarters of gross domestic product decreases. During this temporary period there is a decline in industrial production and trade.

United States-Mexico-Canada Agreement (USMCA)

- Is the new trade deal reached among the US, Mexico, and Canada on September 30th, 2018, after more than a year of the renegotiations of the North American Free Trade Agreement (NAFTA) started in August,2017.

WCS

- Western Canadian Select (WCS) is the benchmark for emerging heavy, high TAN (acidic) crudes, one of many petroleum products from the Western Canadian Sedimentary Basin oil sands.

WTI

- West Texas Intermediate (WTI) crude oil is the underlying commodity of the New York Mercantile Exchange's oil futures contracts. Light, sweet crude oil is commonly referred to as "oil" in the Western world.

Who We Are

Corporate Economics provides services in four areas: forecasting, information provision, policy analysis and consulting. We also monitor the current economic trends which allows us to develop unique insights on how external events are impacting the local economy and the Municipal government. We are experienced at researching different economic topics and have developed reliable methods of forecasting and analysis.

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Many of our publications are available on the internet at **www.calgary.ca/economy**.

Sources:
Statistics Canada, CMHC, CREA, CREB, Bank of Canada, Conference Board of Canada, GLJ Energy Publications, The City of Calgary, Centre for Spatial Economics (C4SE), U.S. Federal Reserve Bank of St. Louis (FRED), U.S. Energy Information Administration (EIA), International Money Fund (World Economy Outlook), and others.