Calgary

Fall 2021

Calgary and Region Economic Outlook

2021-2026

CALGARY INDICATORS AT A GLANCE

Legend:

Selected Indicators

2021 Estimate • 2023-2026 average

Economy (Calgary Economic Region)

GDP Growth (%)
4.2 • 2.2

Employment Growth (%)
3.0 • 2.0

Total Employment (persons)
859,000 • 935,900

Unemployment Rate (%)
9.5 • 6.5

Inflation Rate* (%)
3.1 • 2.0

** Calgary Census Metropolitan Area (CMA)*

Demographic (City of Calgary)

Total Population (persons)
1,323,700 • 1,387,500

Net Migration (persons)
8,600 • 10,000

Natural Increase (persons)
8,700 • 8,300

Total Household Formation (units)
6,600 • 7,100

Real Estate (City of Calgary)

Residential

Average Sale Price Growth (%)
8.4 • 1.5

Total Building Permits ($billion)
4.8 • 5.0

Housing Starts (units)
12,200 • 9,800

Non-residential

Non-residential Building Construction Inflation* (%)
1.9 • 2.5

** Calgary Census Metropolitan Area (CMA)*

Downtown Office Vacancy Rate (%)
26.4 • 18.7

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Introduction

Preamble

The City of Calgary tracks economic indicators throughout the year to develop insights about the impacts of external events on the local economy. The results from this process are published semi-annually as the Calgary and Region Economic Outlook; one in the spring and one in the fall.

The Outlook presents forecasts for a selected number of economic variables. It provides an analysis of those factors that are considered most likely to have a significant effect on the local economy over the forecast period.

Purpose

We create and publish this outlook to assist The City of Calgary in the financial and physical planning of the City. The forecast enables the municipal government to take the current economic conditions and potential economic outlook into consideration, to responsibly plan the financial path forward while understanding risks and opportunities.

The Outlook presents a comprehensive economic analysis of Calgary's local economy, which most other economic reports exclude. Unlike most research institutions, which restrict their analyses to the national or provincial economy and a few urban areas within the provinces, this Outlook answers the following key questions:

- What is the overall forecast for the rate of growth of Calgary's local economy?
- What are the drivers of Calgary's local economy?
- How many jobs is the Calgary Economic Region (CER) expected to create?
- What is the forecast for population growth in the City of Calgary and the CER?
- What is the expected consumer price inflation in the Calgary Census Metropolitan Area?
- What are the implications of the forecast, and how will it impact municipal finance?

Calgary as a small open economy

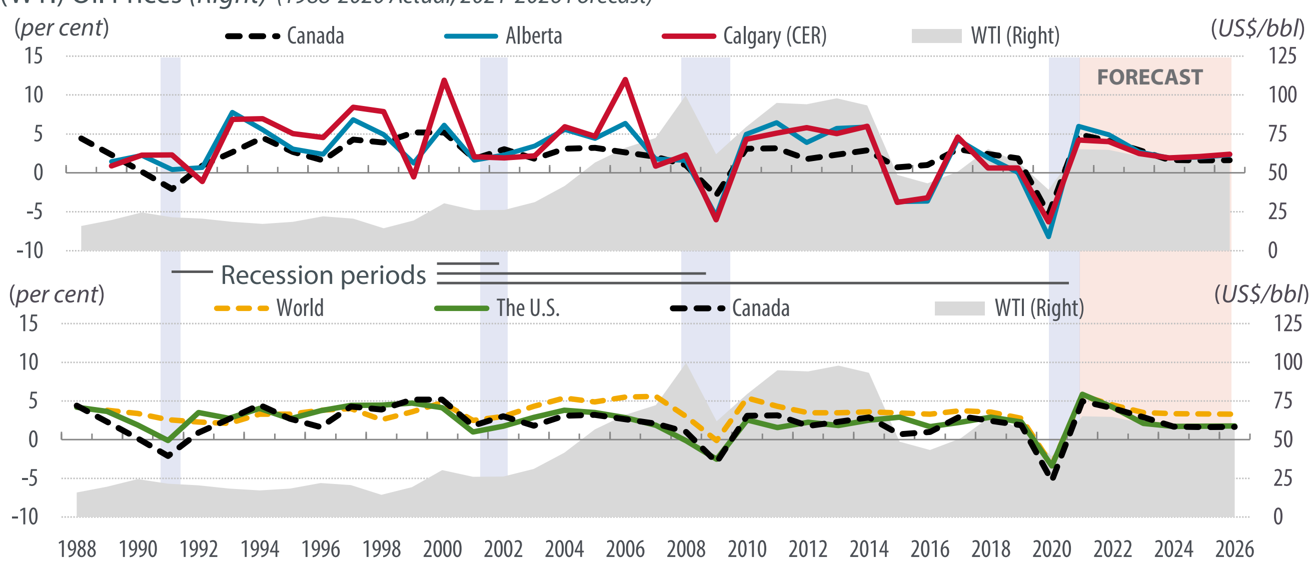
Calgary is a small open economy and therefore is affected by changes outside its borders. The growth of Calgary's local economy is driven by its participation in international trade, especially the exports of Alberta's crude oil and other commodities to the outside markets. Compared to their trade partners, Calgary and Alberta are small players and thus price takers.[1] The volatility of crude oil prices in the world market affects Calgary's economic growth and job market condition relative to the rest of Canada.

Our forecast for the region is also dependent on the economic and market conditions outside the CER over the forecast period. The critical external forces are as follows:

1. World economic expansion or contraction throughout the forecast period, and
2. Change of economic growth and job creation in the rest of Canada over the forecast period.

1 Calgary and Alberta have no significant impact on certain market prices of goods and services.

Calgary's Growth Drivers: Gross Domestic Product (GDP) Growth *(Left)* vs. West Texas Intermediate (WTI) Oil Prices *(Right)* *(1988-2020 Actual, 2021-2026 Forecast)*



Executive Summary

In 2021, with the increase in vaccines that have been approved and distributed across the globe, we are now seeing some recovery from the COVID-19 pandemic. The distribution of vaccines has been uneven across countries. Canada's fiscal response across all levels of government has tapered since 2020. We have seen reduced budget deficits as health-related restrictions ease, with employment continuing to gain ground in 2021. The COVID-19-caused monetary response path in 2020 remains stable in 2021. The Bank of Canada's overnight policy rate has remained low and unchanged. In contrast, the Bank of Canada has started to reduce its bond purchasing program that began in 2020, which provided relief and liquidity to the financial markets.

The improved global demand resulting from the easing of health-related restrictions has driven West Texas Intermediate (WTI) oil prices to upwards of $80 per barrel in 2021. The WTI is expected to average $65 per barrel in 2021, up from under $40 per barrel in 2020. The disruptions in global supply chains caused by the public health-related restrictions in different countries continue to put upward pressures on the prices of inputs, driving up production costs. Also impacting global supply chains and input prices are climate change-related disruptions observed across continents in 2021. Canada experienced forest fires in Alberta and British Columbia, heat-waves across Canada and hailstorms in Western Canada, helping annual natural gas prices in Alberta, which are expected to peak at over $3 per gigajoule for the first time since 2014. As a result, Alberta CPI inflation is expected to peak at 3.1 per cent in 2021 (a level last seen in 2008), assisted by solid oil price recovery. With the pent-up demand for goods and services from 2020 caused by the pandemic coupled with a low cost of borrowing and supply chain disruptions, there is no surprise why there is upward inflationary pressure in Canada in 2021. Calgary is expected to see CPI inflation increase to 3.1 per cent in 2021 and average 2.1 per cent between 2022-2026 as the economy moderates. Employment is expected to increase by 25,000 persons to 859,000 persons in 2021 but remain below the pre-pandemic employment level. The Calgary regional GDP growth decreased by -6.3 per cent in 2020 and is expected to increase by 4.2 per cent in 2021, and average 2.6 per cent over the forecast horizon. The City of Calgary is estimated to have increased by 17,000 persons or 1.3 per cent to 1.324 million persons in 2021. The net migration to the city contributed 50 per cent of the increase in population growth, while natural increase contributed the other 50 per cent.

The global economy GDP is expected to bounce back from a decrease of -3.3 per cent in 2020 to an increase of 5.7 per cent in 2021, as vaccines have become available. Though the pace of recovery will differ across the globe due to the varying degrees of health-related restrictions, economic-related prescriptions and vaccine availability, some developed countries are set up for faster recovery. The GDP is expected to rise by 5.9 per cent in the United States and by 5.0 per cent in Canada, with GDP growth expected to average around 2.4 per cent in Canada between 2022-2026.

As of Oct. 20, 2021, Canada has fully vaccinated over 73.3 per cent of its population, and 77.9 per cent of its population has had at least one dose against COVID-19. The health experts advise that herd immunity can be reached at around 75-90 per cent of the population fully vaccinated. Canada is currently going through a fourth wave of the pandemic as variants of COVID-19, such as the Delta-variant that is more contagious, have added further challenges to transmission rates and reintroduced health-related restrictions.

Some employers requiring workers to be fully vaccinated within a certain period could challenge the pace of employment recovery in Canada and the region. The school-aged children (under age 12) in Canada who have not been eligible to be vaccinated are now back in school as of Sept. 6, 2021, as the fourth wave of the pandemic takes flight. This wave may play out uncomfortably if the rate of infections among school age-children surges upwards, causing more parents to spend less time at work and more at home to take care of their children.

Executive Summary

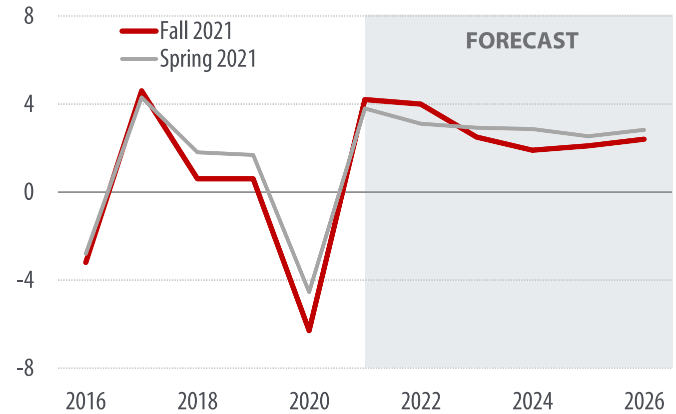
Forecast Table: Selected Key Indicators

	Actual	Estimate	Forecast				
	2020	**2021**	2022	2023	2024	2025	2026
World: GDP (%)	-3.3	**5.7**	4.5	3.5	3.4	3.3	3.3
The U.S.: GDP(%)	-3.4	**5.9**	4.2	2.1	1.7	1.7	1.8
Canada: GDP (%)	-5.3	**5.0**	4.1	2.9	1.7	1.6	1.7
Alberta: GDP (%)	-8.2	**6.0**	4.9	2.7	1.9	2.0	2.3
Calgary Economic Region: GDP (%)	-6.3	**4.2**	4.0	2.5	1.9	2.1	2.4
Calgary Economic Region: Unemployment Rate (%)	11.7	**9.5**	8.2	7.2	6.6	6.2	5.9
Calgary Census Metropolitan Area: CPI (%)	1.1	**3.1**	2.6	2.0	2.0	2.0	2.1
City of Calgary: Total Building Permits ($billion)	3.5	**4.8**	4.9	4.9	4.9	5.0	5.2
City of Calgary: Downtown Office Vacancy Rate (%)	25.7	**26.4**	24.2	21.2	19.0	17.7	16.9
City of Calgary: Total Population ('000 persons)	1,306.4*	**1,323.7***	1,341.6	1,360.1	1,378.7	1,396.6	1,414.4
City of Calgary: Housing Starts ('000 units)	7.9	**12.2**	10.7	9.8	9.8	9.8	9.9

* Estimates from Corporate Economics' Population Model.

Calgary Economic Region: Real GDP Growth

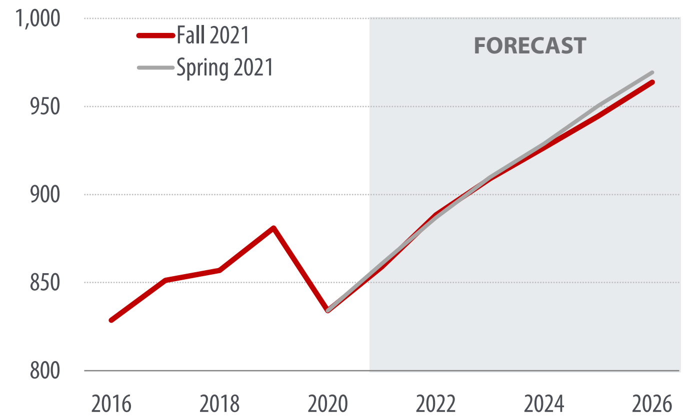
(per cent)



Source: Statistics Canada, Corporate Economics.
** Historical estimates of CER GDP have been revised by Corporate Economics as of Fall 2021 using an updated methodology.*

Calgary Economic Region: Total Employment

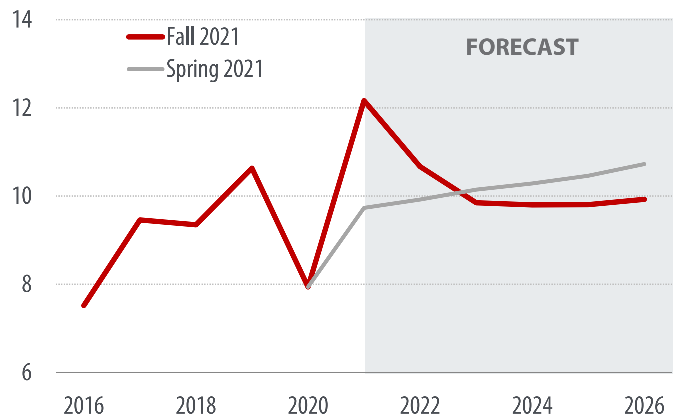
(thousands of persons)



Source: Statistics Canada, Corporate Economics.

City of Calgary: Housing Starts

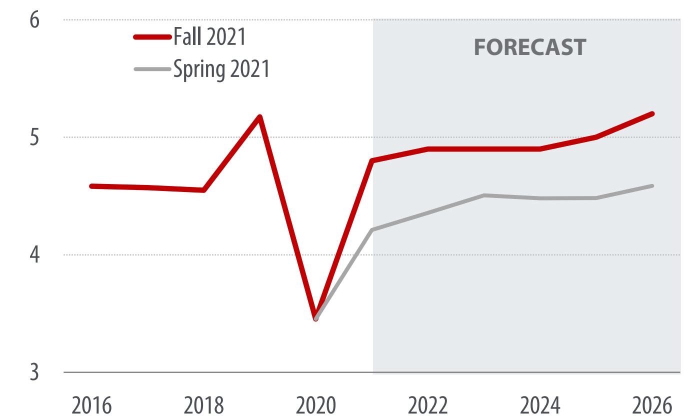
(thousands of units)



Source: CMHC, Corporate Economics.

City of Calgary: Total Building Permit Value

(billions of dollars)



Source: The City of Calgary, Corporate Economics.

Forecast Implications

Averages: Actual (2015 to 2018) vis-à-vis Forecast (2019 to 2022) Budget Cycle

Economic Indicator	Actual Previous City of Calgary Budget Cycle [2015 to 2018] Average	Forecast Current City of Calgary Budget Cycle [2019 to 2022] Average	Forecast Implications
Assumptions			
World			
Real Gross Domestic Product Growth (%)	3.5	2.4	A slower global growth combined with Climate change actions will result in slower growth in demand for commodities beyond 2022, even though recent oil price increases should benefit resource based economies including Alberta and Canada.
The United States			
Real Gross Domestic Product Growth (%)	2.5	2.2	Deceleration in demand for Canadian exports in line with a deceleration in growth in Canada's most significant trading partner, the U.S.
Canada			
Real Gross Domestic Product Growth (%)	1.9	1.4	The average rate of economic growth in Canada will be slower in this budget cycle than the previous one.
Prime Business Loan Rate (%)	3.0	2.9	Rates have dipped during the pandemic, but we expect rates to recover by the end of this cycle period post-pandemic. Similar average borrowing costs for The City's suppliers would keep The City's debt financing costs stable this cycle relative to the last one.
Exchange Rate (US$ for 1C$)	0.77	0.78	Exchange rate stability would keep the price of imported goods stable limiting the need to hedge.
Alberta			
Real Gross Domestic Product Growth (%)	-0.2	0.7	While Alberta faced recessions in both the previous business cycle and the current one, a rapid recovery will cause GDP to grow over the course of the current budget cycle.
Total Employment Growth (%)	0.3	0.7	The pace of job growth will increase in the current budget cycle.
Unemployment Rate (%)	7.2	8.7	Despite the higher pace of job growth this budget cycle, it will take time to recover from record unemployment.
Housing Starts ('000 Units)	29.4	28.2	Inventory build-up will ease the pace of housing starts relative to the pace of household formation.
Inflation Rate (%)	1.5	2.1	High inflation following the pandemic will increase consumer prices in Alberta.
West Texas Intermediate - WTI (US$/bbl)	52.0	56.5	Despite plunging oil prices in 2020, optimism as economies reopen from the pandemic have caused oil prices to strengthen from November 2020 onwards, causing the average forecasted WTI price to be slightly higher this budget cycle than last one.
Western Canadian Select - WCS (US$/bbl)	35.4	43.7	The WCS discount to WTI is easing as export capacity increases. Coupled with higher WTI prices, this means that WCS prices will be stronger in this cycle than the last.
Alberta Natural Gas Price - AECO/NIT ($/GJ)	2.1	2.4	Small increases in the price of natural gas will increase operating costs and franchise fee revenue.
Industrial Product Price Index (%)	1.5	2.6	Price growth for finished products will be higher than the previous budget cycle, due to the economic recovery in 2021-22.
Raw Materials Price Index (%)	-1.1	5.4	Raw material prices are expected to increase as the global economy rebounds from pandemic related shutdowns.
Alberta Average Hourly Wage Rate Growth (%)	2.2	1.3	Lower wage growth this business cycle will reduce incomes as well as the cost of labour.

Forecast Implications

Averages: Actual (2015 to 2018) vis-à-vis Forecast (2019 to 2022) Budget Cycle

Economic Indicator	Actual Previous City of Calgary Budget Cycle [2015 to 2018] Average	Forecast Current City of Calgary Budget Cycle [2019 to 2022] Average	Forecast Implications
Forecast			
Calgary Economic Region			
Real Gross Domestic Product Growth (%)	-0.3	0.6	Recessions hit Calgary in both budget cycles, with the COVID-19 driven recession deeper but shorter. The pace of growth in Calgary's regional economy is slightly higher this cycle than last one, but still behind the rate of growth for its major trading partners
Total Employment ('000 persons)	846.4	865.6	An increasing employed population will bring an increased consumer base and increase demand for housing in the region.
Total Employment Growth (%)	0.6	1.0	Even with the COVID-19 recession in 2020, the job growth rate will be higher in the current budget cycle than the previous one.
Unemployment Rate (%)	7.9	9.2	A high unemployment rate will reduce the pressure of competing for skilled workers, but increase demand for social services.
Calgary Census Metropolitan Area (CMA)			
Housing Starts ('000 units)	11.2	12.0	Housing investments are expected to increase slightly this budget cycle as the economy improves.
Inflation Rate (%)	1.5	2.0	A higher local inflation rate will raise the cost of living for consumers.
Non-Residential Building Construction Inflation (%)	-0.1	1.2	Costs are expected to rise every year in the forecast. Previously cost escalation would skip a year or more. Now it is more imperative to sign construction contracts early and avoid delays.
City of Calgary			
Demography			
Total Population ('000 Persons) *at the end of the cycle*	1,244.9	1,314.4	Larger total population means demand for municipal services would be higher and the residential property tax base would increase.
Total Population Growth (%)	1.5	1.4	Calgary population continues to grow, from births as well as in migration. When the pandemic finally ends the City may find itself having to do a lot of catch-up to provide services to its larger population.
Net Migration ('000 Persons)	7.8	9.9	International borders are partially closed to recreational travel due to the pandemic yet international migration continues, though slowed due to increased documentation requirements. On average, net-migration level is higher this budget cycle than the previous one.
Household Formation ('000 Units)	7.9	6.9	The rate of household formation would decrease as the population ages and the number of natural deaths starts to accelerate more than the number of births. Also, the rate of household formation is expected to be more stable which should make it easier to plan the physical growth of the city.
Real Estate			
Residential Market			
Housing Starts ('000 units)	9.1	10.4	A slight increase in residential building activity will support residential building permit revenues.
Average Residential MLS Sale Price (% change)	-0.3	1.9	After a period of stagnant housing prices last budget cycle, affordability will decline as prices rise following the pandemic.
Building Permits (city) ($billions)	5.0	4.6	Lower non-residential building permits this cycle will lead to a small drop in total building permits and reduce City revenues.
Non-Residential Market			
Downtown Office Vacancy Rate (%)	18.9	25.2	The downtown office vacancy rate continues to be elevated and will be above balanced market conditions for about 10 more years. However, market values of downtown offices appear to have somewhat recovered thereby limiting the impact of low office occupancy on municipal property tax revenues going forward.

Context

A Path towards Sustainable Recovery through COVID-19 Vaccination

The world faced COVID-19 in late 2019, and the death toll mounted across the globe. As countries embarked on public health-related restrictions to slow down the transmission of the virus between 2019 and 2021, Canada and regions are experiencing their fourth wave of COVID-19 and its variants as of July-August 2021. The Government of Alberta, battling the fourth wave of the pandemic, declared a state of public health emergency on Sept. 16, 2021. This was to protect the health care system that had become overwhelmed with the number of cases of unvaccinated COVID-19 hospital patients in intensive critical care. In addition, capacity restrictions have been reintroduced as of Sept. 20, but vary for non-essential business establishments based on whether they enforce a restriction exemption program requiring all establishment staff to be vaccinated. It also requires their respective clients to show proof of vaccination to be allowed into the establishment. On Sept. 3, 2021, The City of Calgary reinstated the State of Local Emergency and mask bylaw. On Sept. 23, the vaccine passport bylaw came into effect. Similar restrictions are happening across Canada, and these health-related restrictions will add to economic difficulties. Attaining a level of herd immunity through fully vaccinating the eligible Canadian population is within reach. This requires a certain percentage of the population to be infected by the virus or vaccinated to become immune. Canada's initial pace of vaccinating earlier in the year was slow but has picked up considerably. As of Oct. 20, 2021, Canada has fully vaccinated over 73.3 per cent of its population, and 77.9 per cent of its population has had at least one dose against COVID-19.[2]

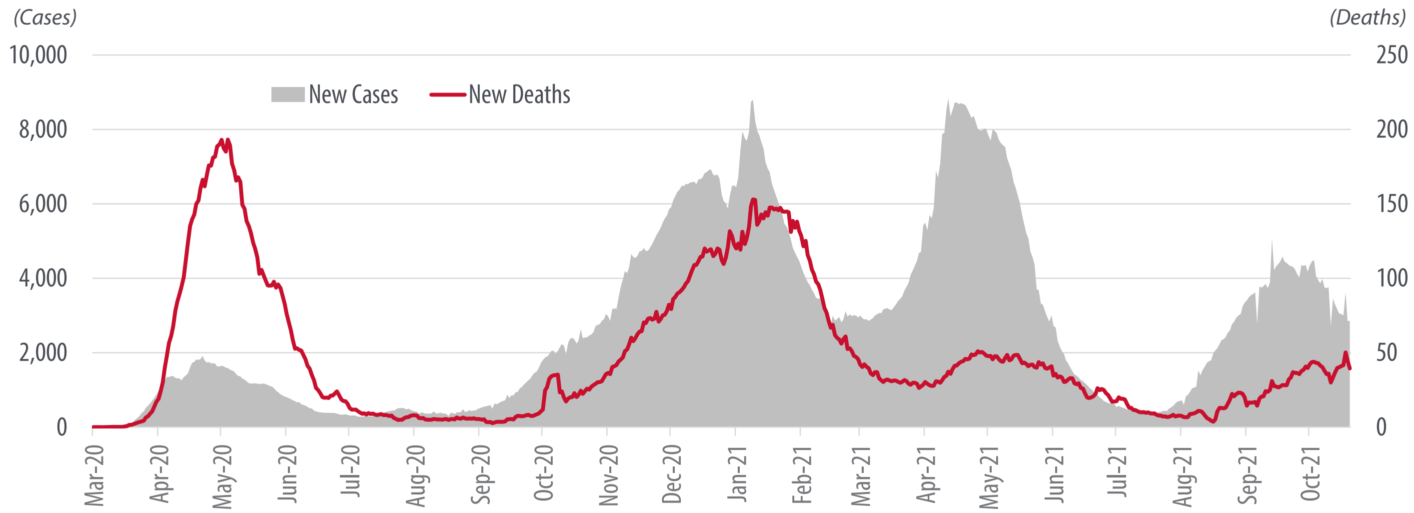
The path and pace of economic growth in Canada and within the regions in 2021 and beyond will depend on how quickly the regions reach herd immunity. However, the pace of economic growth will be further threatened if the pace to vaccinate across the globe is slowed. The increase in hospitalization rates of COVID-19 patients due to low vaccination rates of an eligible population in a region will inevitably overwhelm a health care system and accelerate public health-related restrictions. A slower pace to vaccinate across the globe threatens the global economic supply chain, disrupts the production of goods and services, drives up the cost of production and, above all, increases the loss of lives.

The Economic Impact of COVID-19 on the Goods-producing Sector and Service-producing Sector in 2021

The impact of COVID-19 has been uneven across industries. In the CER, the personal contact-intensive industry

2 https://ourworldindata.org/covid-vaccinations

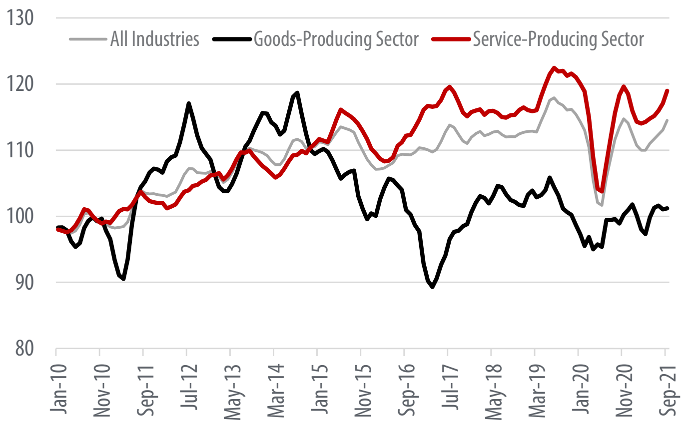
Canada COVID-19 New Cases and Deaths
(7-day Moving Average)
(as of October 20, 2021)



Source: Our World in Data, https://ourworldindata.org/covid-vaccinations, Corporate Economics.

sectors, such as leisure and hospitality businesses that are not considered essential business services, have been disproportionately affected and are part of the economy's services-producing sector. Over the last five years, about 77 per cent of total employment in the Calgary economic region has been in the services-producing sector. The total employment loss in 2020 was 47,000 persons, 84 per cent of which was in the services-producing sector. In addition, the average weekly wage earned in the services-producing sector is about 33 per cent lower than the average weekly wage earned in the goods-producing sector in 2021. This distribution of losses suggests that a vulnerable portion of the population with lower wage-earning capacity faces challenging employment prospects, as public health-related restrictions impact these establishments more. The consequence of this unevenness on the industry is a potential increase or persistence in income inequality and a slower pace of economic growth and recovery.

Calgary Economic Region: Employment Growth by Industry (January 2010 - September 2021)
(*index 2009=100*)



Source: Statistics Canada, Corporate Economics.

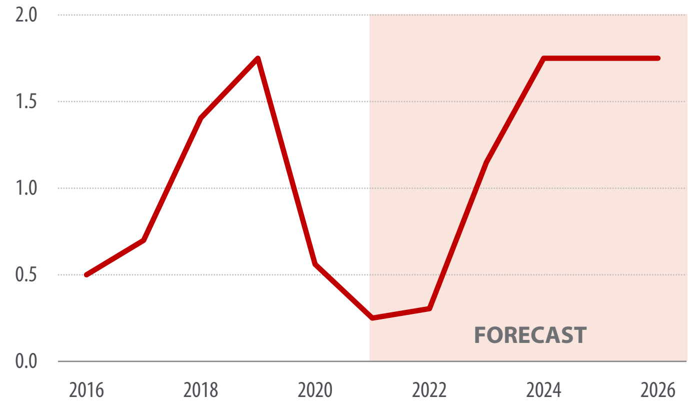
Accommodative Monetary Policies and Fiscal Stimulus Still in Effect as Inflation Rises

Quickly following the onset of the COVID-19 pandemic in March 2020, the Bank of Canada and the federal government deployed unprecedented policy responses. Since that time, even as a partial recovery has begun to take shape, strong policies to support the recovery have remained in place. The Bank of Canada is currently maintaining its policy rate at 0.25 per cent that it set at the beginning of the pandemic, as well as engaging in a smaller but still substantial quantitative easing[3] program. The federal government also responded with dramatic fiscal stimulus in response to the pandemic, resulting in a deficit of $354.2 billion in the 2020-21 fiscal year. High levels of spending are being continued in the current fiscal year, which is expected to result in a deficit of $154.7 billion in 2021-22.

Alberta's government has also responded to the pandemic with bold fiscal measures, which have continued in large part in the current fiscal year. Alberta has dedicated $3.4 billion towards COVID-19 and economic recovery initiatives in the 2021-22 fiscal year, which will contribute to an expected deficit of $7.8 billion.

These policies support the Canadian economy in the short-term against the impacts of the economic downturn by encouraging borrowing and investment as well as creating jobs and stimulating consumption. However, a potential side effect of aggressive monetary and fiscal policy is that inflation may rise, as witnessed in Canada's 4.4 per cent CPI inflation rate in September 2021 compared to under 2.0 per cent in September 2020.

Bank of Canada Overnight Rate
(*per cent*)



Source: Bank of Canada, Corporate Economics.

3 Quantitative easing program involves Central banks engaging in purchasing government and corporate bonds to increase cash flow in the financial system. The bond purchases are intended to suppress interest rates, reducing borrowing costs for investors.

Assumptions and Risks

Forecast Assumptions

Sustainable Economic Recovery as vaccine uptake improves

- The COVID-19 vaccines have shown to be effective against the virus, and vaccine uptake approaches herd immunity level in Canada. However, recognizing a highly contagious Delta variant of COVID-19 as a drain on the economy in the latter part of 2021 has been factored into the forecast. In addition, the economic impact of the Delta variant in 2022 is also recognized. However, its economic impact is relatively more minor than in 2021 as Canada attains herd immunity status and the pandemic dissipates in 2023.
- We assume that the global community follows a similar path of economic recovery as vaccines become readily available and the uptake improves.
- The Government of Canada and Alberta's 2021 fiscal policy is expected to improve healthcare and infrastructure spending.
- The Bank of Canada is expected to keep the overnight policy rate relatively unchanged in the first half of 2022.
- Infrastructure spending and improved economic activity in the United States will benefit Calgary, Alberta and the rest of Canada.
- Global growth is expected to bounce back in 2021 and remain positive throughout the forecast horizon, while crude oil prices are expected to rebound strongly in 2021 and moderate over the forecast horizon.

Forecast Risks

Upside Risks:

- The path of global vaccine availability and uptake improves faster than anticipated and causes fewer disruptions to global supply chains as public health-related restrictions are relaxed. The mended supply chain will aid delivery, firm up global demand and drive economic growth across the globe.

Downside Risks:

- The COVID-19 Delta variant, or other variants, decrease the effectiveness of the double dose vaccine of the already vaccinated population. This will bring back the public health-related restrictions and economic lockdowns and slow or possibly halt economic recovery.

As of mid-September, the provinces of Alberta and Saskatchewan have exceeded their hospital intensive care unit (ICU) capacity, overrun by non-vaccinated COVID-19 patients and upward hospitalization rates. Hospitals in Alberta are now overwhelmed and have begun preparing for triage protocols. A triage protocol is employed when resources to treat patients in critical care have been exhausted, along with other mitigating processes. The protocol involves structured decisions that are fair and ethical to determine the best care for the greatest number of persons.[4]

4 Critical Care Triage during Pandemic or Disaster - A Framework for Alberta, May 3rd, 2021.

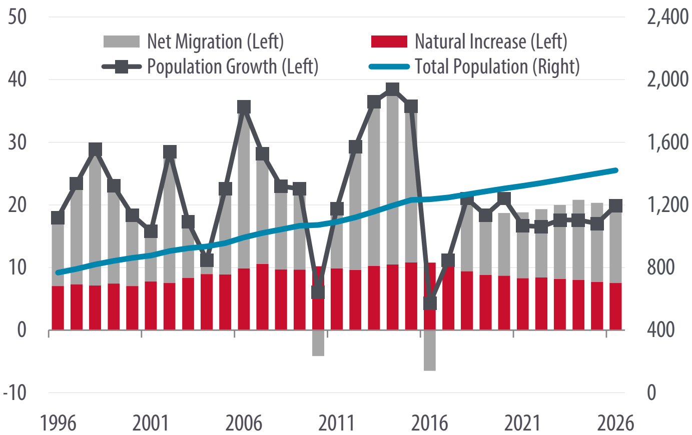
Forecast

City of Calgary

Population

Population Growth in Calgary by Components

Population Growth (thousands of persons) *Total Population (thousands of persons)*



Source: The City of Calgary, Corporate Economics.

Calgary's population is estimated to be 1,323,700 as of April 1, 2021, 1.3 per cent greater than one year before. Despite the economic challenges faced by the city over the past few years, Calgary still grew by 7.2 per cent or 93,000 persons between 2016 and 2021. In the long run, the population growth amassed by the city is even more dramatic, with the population growing by 51.0 per cent over the last 20 years, an increase of 447,000 persons. This growth since 2001 is made up of two major components: net migration, as more people move into the city than move out (234,000); and natural increase (174,000), as yearly births exceed deaths.

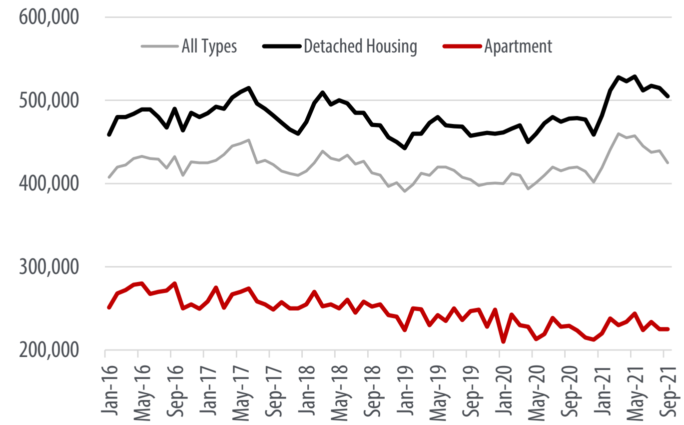
Looking forward, population growth in the City of Calgary is expected to remain steady, averaging 1.3 per cent growth over the 2022-2026 forecast horizon. Over this period, net migration is forecast to add 48,800 persons to the population, while natural increase contributes 41,800.

A closer look into the makeup of Calgary's population reveals that a significant demographic shift is imminent. As the baby boomer generation ages, the number of seniors (65 years and older) in the city is set to significantly increase. While seniors made up 12.5 per cent of the population in 2021, by 2026 that ratio is expected to increase to 14.6 per cent.

Residential Real Estate Market

Price Signals

City of Calgary MLS Market Median Prices
(January 2016 - September 2021)
(dollars)



Source: Calgary Real Estate Board (CREB), Corporate Economics.

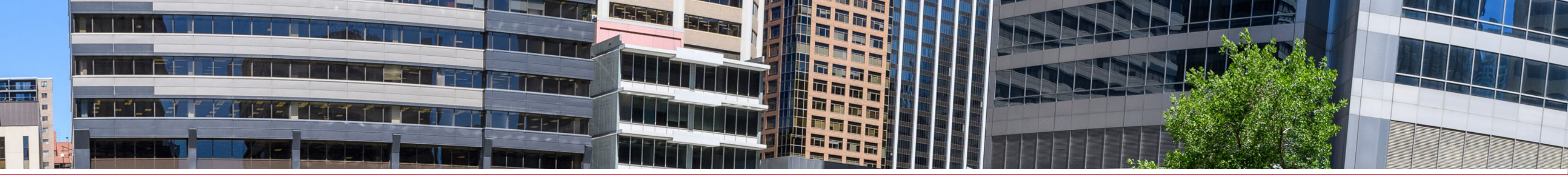
Residential resale market prices in the city of Calgary continued to cool off in recent months, after running up quickly this spring. The multiple listing service (MLS) median price for all types of resale homes in Calgary was $425,000 in September 2021. This price decreased by three per cent from $439,625 in August 2021, but still increased by one per cent from $418,700 in September 2020.

Over the past 20 years, the price movement in Calgary's resale housing market has been led by the price of detached houses. In September 2021, the MLS median price for detached homes was $505,000. It was slightly down from $515,000 in August but up by six per cent from $478,800 a year ago. In comparison, the MLS median price for apartments was relatively stable. It was $225,000 in September 2021, staying the same from August 2021 and relatively unchanged from $229,000 in September 2020.

The average MLS price for all types of resale homes in Calgary is expected to increase by as much as 8.4 per cent in 2021 and moderate to 3.3 per cent by 2022, but then retreat to 1.7 per cent per year between 2023-2026.

Resale Market Activities

Driven by the pent-up demand from the pandemic-caused recession, housing market activity increased



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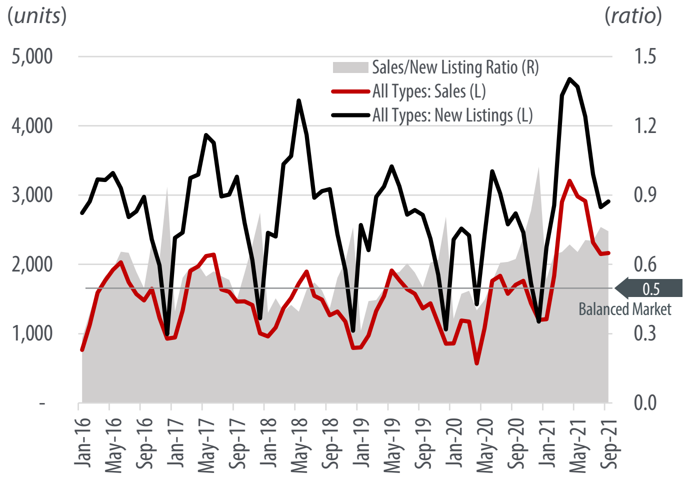
sharply this year in Calgary. From January to September 2021, the MLS sales for all types of existing homes in the city of Calgary totalled 21,671 units, up 84 per cent from 11,750 units during the same time last year and up from 12,904 in 2019.

City of Calgary MLS Resale Market Activities
(January 2016 - September 2021)



Source: Calgary Real Estate Board (CREB), Corporate Economics.

The increase in demand (MLS sales) was met by new listings and inventory reductions. From January to September 2021, the total MLS new listings were 31,940 units, up 40 per cent from 22,816 units during the same time last year and up from 25,629 in 2019. The average MLS resale home inventory declined to 5,790 units, down by four per cent from 6,015 units the same period a year ago and down from 6,966 in 2019.

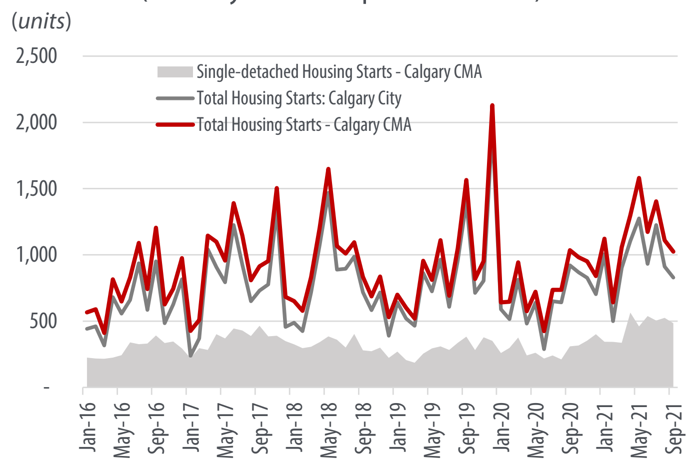
In the first nine months this year, the sales to new listings ratio in the city of Calgary averaged at 0.68, up from 0.50 the same period last year. The sale to new listing ratio is a measurement of the housing market balance. The observed ratio increase indicates a real estate market shifting from a balanced market (equal to around 0.5) to a seller's market.

New Home Market Activities

Responding to the favourable price signal, housing starts in the city of Calgary and Calgary Metropolitan Areas (CMA) increased rapidly in 2021. In the first nine months this year, housing starts in the city of Calgary totalled 8,684 units, up 57 per cent from the total of 5,539 units the same period last year. In Calgary CMA, the year-to-date housing starts reached 10,415 units, up 61 per cent from 6,461 units the same time last year.

Among all types of houses, apartments recorded the most starts this year in Calgary, making up 44 per cent of all starts, similar to the average over the last 5 years. They were followed by starts for single-family homes. As single-family homes are desirable to accommodate space requirements for teleworking during the pandemic, they accounted for 34 per cent of all starts, slightly higher than the average over the last five years. The ratio of single-family housing starts to apartment starts this year has been at its highest since 2013, lending further support to an appetite for such type of residential space.

Calgary City and CMA: New House Market Activities (January 2016 - September 2021)



Source: Canada Mortgage And Housing Corporation (CMHC), Corporate Economics.

Non-residential Real Estate Market

Downtown Office Vacancies

As of September 2021, Altus InSite puts the Calgary downtown office vacancy rate at about 27 per cent. Total available space in downtown Calgary currently sits at 12.05 million square feet, rising by an average of 360,000 square feet per quarter over the past 3 quarters. Most of that is in newly available headlease space availability as companies return unused space to the market. Under a normal balanced market condition, about 4.5 million square feet of office space was generally available in downtown Calgary. However, current conditions indicate that about 7.5 million square feet of unused space must be absorbed to achieve normal conditions.

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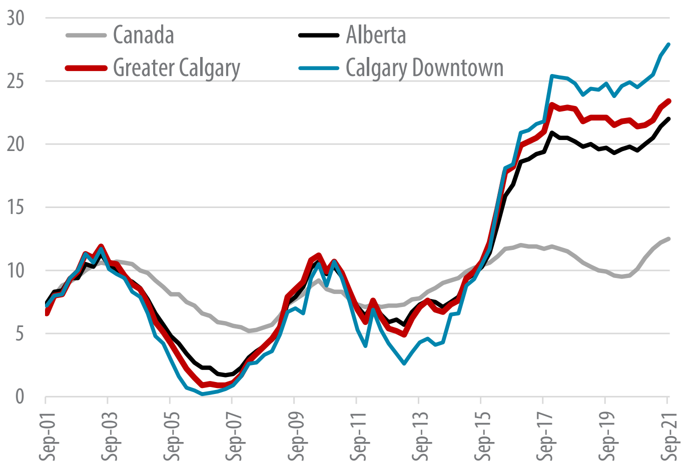
Calgary currently sits in an excess supply condition. Today, despite COVID-19 and an oil price crash that started in 2015, there is as much office space occupied in downtown Calgary as there was in 2009 when the office vacancy rate was at about nine per cent. What has significantly changed since 2009 is the addition of about eight million square feet of space to the Calgary downtown market, increasing capacity by about 20 per cent in the span of only 10 years. Those additions now have tenants, but not only because of new employment in Calgary. The new buildings have taken the market share of older buildings in Calgary, which now sit empty.

Office Market Total Vacant Rate: Calgary vs. Alberta and Canada (Q3 2001 - Q3 2021)

(*per cent*)



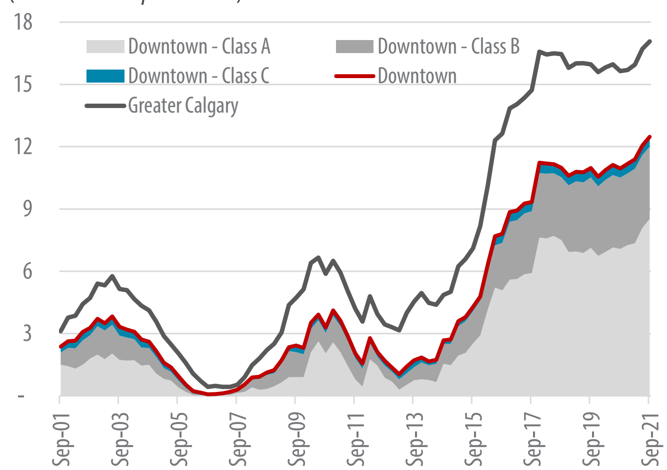
Source: Altus InSite, Corporate Economics.

We are aware of multiple initiatives to lessen the office vacancy issues in downtown Calgary. One is to encourage the conversion of such spaces to alternative uses such as residences or schools. This serves to remove supply from the office market while adding more variety of space to the downtown core. There are limits to how far such initiatives can be pushed and the size of the issue facing Calgary is rather large, at 7.5 million square feet. We note that a critical issue for the municipality is property taxes while office values are down due to high vacancy. We note with optimism that The Bow, an office tower with 1.7 million square feet of space, sold in the summer of 2021 for double the property's assessed value in 2021. This indicates that the property tax impacts of high vacancy rates may not be as severe as previously thought, though it will take one to two years for the impact of this and other sales to raise the property tax revenues of the City.

The pandemic's impact on today's market is unpredictable. Our previous estimates indicate that about three million square feet of office space sits vacant as a result of working from home during the pandemic. At the time of this writing, the provincial government has mandated that all workers who are able to work from home must do so. This will undoubtedly delay plans to return to the office. That said, employment is rising faster than we had anticipated previously, and long-term projections are favourable. As a result, our current projection calls for vacancy rates to remain unchanged for about another year and then decline, achieving market balance conditions around the fall of 2031.

Office Market Total Vacant Space by Class of Building in Calgary (Q3 2001 - Q3 2021)

(*millions of square feet*)

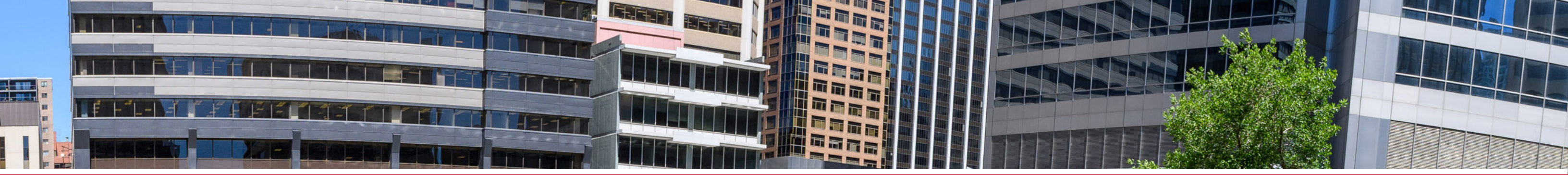


Source: Altus InSite, Corporate Economics.

The investment intentions in real estate for Calgary are tracked by the building permit construction requests to the City of Calgary by real estate developers. The information provided highlights the construction type of permit request, whether residential or non-residential, including the number of units intended to be created and the estimated construction value of the project.

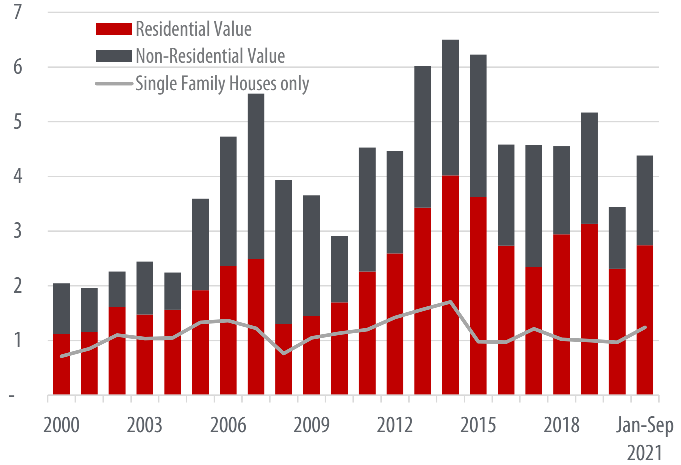
Building Permits

The total value of building permits in the city of Calgary fell from $5.2 billion in 2019 to $3.5 billion in 2020, driven by the COVID-19 recession. The last time the city's total building permit value was below $4 billion was in 2010, right after the U.S. sub-prime lending crisis-driven global recession in 2008-09.



Forecast

City of Calgary: Building Permit Value by Type
(2000 - YTD 2021)
(billions of dollars)



Source: The City of Calgary, Corporate Economics.

Starting this spring, pent-up demand for new homes and record-low mortgage rates fueled the residential real estate markets across Canada. In the city of Calgary, the year-to-date (YTD) total value of residential building permits reached $2.7 billion by September. This was an increase of 65 per cent from the level seen in the same period last year. Single-family housing building permit value grew by 84 per cent, from $0.7 billion by September 2020 to $1.2 billion by September 2021.

Non-residential building permit value has increased sharply so far this year. The YTD value of non-residential building permits increased by 87 per cent, from $0.9 billion by last September to $1.6 billion the same period this year.

In total, the YTD building permit value of $4.6 billion has surpassed the total annual value of $3.4 billion last year.

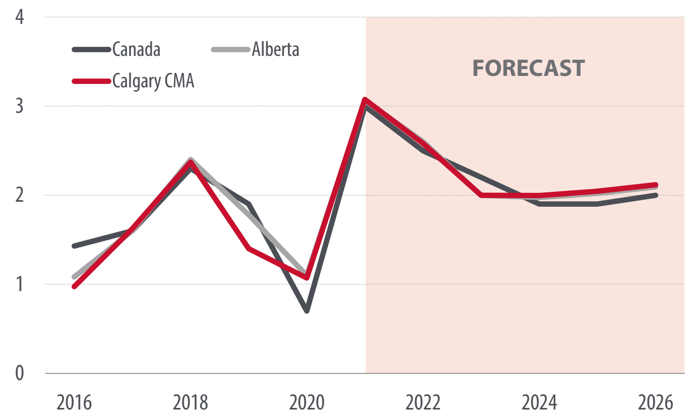
We expect the total value of building permits to bounce back to $4.8 billion in 2021, with a subtotal of $3.4 billion in the residential market and $1.4 billion in the non-residential market. Starting in 2022, higher investment intention in the non-residential sector should increase the total value of building permits to $5.2 billion by the end of the forecast period.

Calgary Census Metropolitan Area (CMA)

Consumer Price Index (CPI) Inflation

There are eight major categories of goods and services bought by a typical urban consumer used to construct the CPI. The most significant category of relative importance in the group is shelter, followed by transportation and food.

CPI Inflation: Calgary CMA vs. Alberta and Canada
(per cent)



Source: Statistics Canada, Corporate Economics.

While the global downturn in 2020 caused the pace of inflation to slow, the recovery so far in 2021 has resulted in a sharp increase in the rate of inflation. The 2021 annual CPI inflation rate in Calgary and CMA is forecast at 3.1 per cent, equal to Alberta's inflation rate and slightly higher than Canada's rate of 3.0 per cent.

The rather high inflation seen to date in 2021 in the CMA can be largely attributed to the fact that 2021 prices are being compared to prices in 2020 that were abnormally low due to temporary disruptions related to the pandemic (the base effect on inflation). However, within this context, many more specific drivers of inflation can be identified, both global and local in origin. After severely dropping in 2020, global crude oil prices have rebounded in 2021, leading to increased fuel costs. Global supply chain issues have created shortages of production inputs, such as computer chips, as surging demand outpaces supply. Locally, pent-up demand, changing preferences for larger living spaces and exceptionally low interest rates caused housing prices to jump in early 2021. In the summer of 2021, drought conditions in Western Canada

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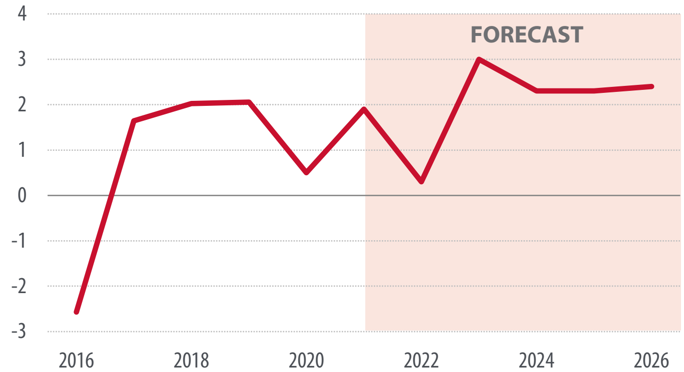
reduced the supply of agricultural products, which will result in a continued rise in food prices.

As inflationary pressures continue into 2022, the CPI inflation in the Calgary and CMA is forecast to remain above average at 2.6 per cent. On Sept. 8, 2021, the Bank of Canada repeated its expectation that it will delay raising its policy interest rate until the second half of 2022. In the long-term, as interest rates begin to rise and the economic recovery transitions to stable economic growth, annual CPI inflation in the CMA is expected to average 2.0 per cent in 2023-2026.

Non-residential Building Price Inflation

Calgary CMA: Non-residential Building Construction Inflation
(per cent)



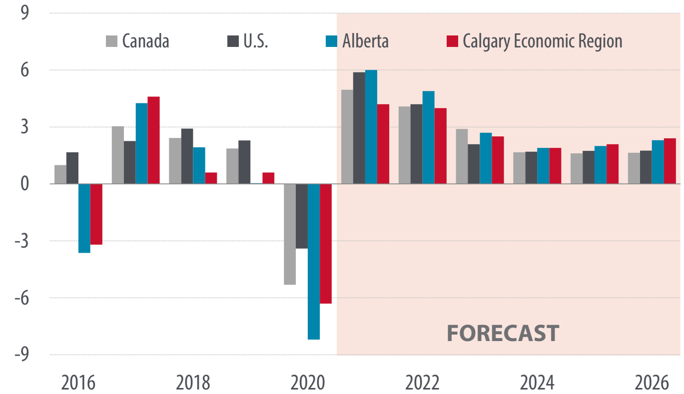
Source: Statistics Canada, Corporate Economics.

Costs to build non-residential structures in Calgary stalled in 2020 as the start of the pandemic caused the local economy to stutter. Today a significant bump in the price of energy is being felt in commercial construction as oil prices raise the costs of delivery and the energy needed to assemble buildings on-site. Beyond 2021, inflationary pressures for raw materials sourced outside Calgary will filter into Calgary as suppliers see increased demand for commercial construction in markets other than Calgary. With Calgary's high office vacancy rates, the demand for commercial construction is weakened and the construction industry is unlikely to achieve full employment in the coming years. As a result, the local construction market conditions won't support a sudden spike in commercial construction costs. Instead, we anticipate a prolonged period of annual inflation that is slightly above the historical average as cost increases slowly filter into the Calgary commercial market.

Calgary Economic Region (CER)

Real GDP Growth in the CER

Real GDP Growth: CER vs. its Major Trading Partners
(per cent)



Source: Bank of Canada, Corporate Economics.

Suffering from the effects of the COVID-19 pandemic as well as a collapse in global oil prices, the CER saw a major decline in economic activity in 2020, with real GDP falling by 6.3 per cent. While less than the 8.2 per cent decline felt by the province of Alberta as a whole, which was even more exposed to weak oil prices, the CER suffered a greater GDP loss than both Canada and the U.S. due to the region's reliance on the energy industry.

The outlook is more optimistic for 2021 and onwards. Following the distribution of vaccines to much of the population, nearly all COVID-19 related public health restrictions were removed in Alberta in the summer of 2021 (although some restrictions returned in September). Given this, pent-up demand is expected to drive economic activity through the remainder of 2021, while increased business confidence and continued low-interest rates spur a slow recovery in investment. A strong rebound in oil prices in 2021 is also a benefit to Calgary's energy industry.

Real GDP in the CER is forecast to increase by 4.2 per cent in 2021. An expected 4.0 per cent increase in 2022 will mark a full recovery from the economic downturn in 2022, though long-lasting impacts may still be felt in certain sectors, especially in tourism, hospitality and related industries. Growth in 2021 and 2022 will be smaller in the CER than in Alberta, primarily because the CER had a less severe downturn from which to recover in 2020. In 2023-

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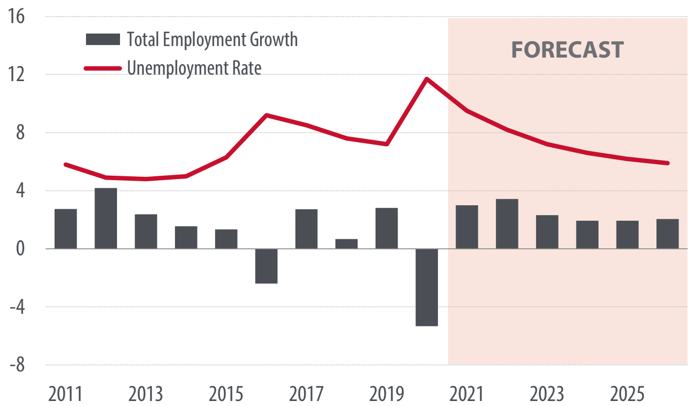
2026, annual real GDP growth in the CER is expected to average at 2.2 per cent, driven by population growth and stable energy prices.

CER's Labour Market

CER Employment Growth and Unemployment Rate
(per cent)

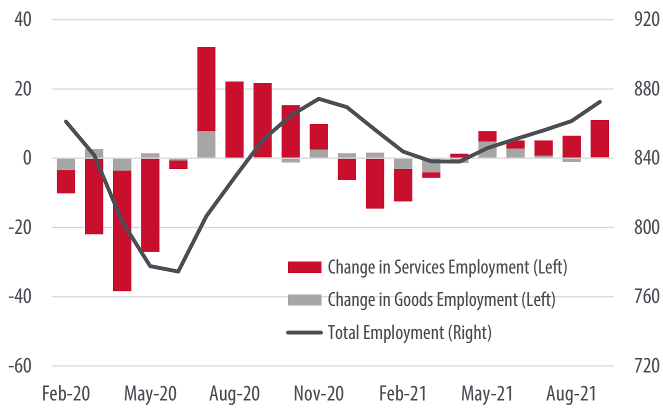


Source: Statistics Canada, Corporate Economics.

2020 was a difficult year for the CER's labour market. Total employment dropped by 47,000 (5.3 per cent) from the year before and the unemployment rate reached an annual average of 11.7 per cent. The services-producing sector took the biggest hit and accounted for the bulk of lost jobs. As public-facing businesses shut their doors in the face of public health restrictions, employment in the services industries dropped by 39,400. The industries of Trade, Accommodation and Food Services, and Professional, Scientific, and Technical Services accounted for most of these job losses, while employment increased in Health Care and Social Assistance in response to the pandemic. The goods-producing industries recorded less severe declines than most service-producing industries in 2020, with the manufacturing industry even reporting employment increases in the CER.

With much of 2021 now behind us, the labour market in the CER has made significant steps towards recovery. However, this recovery has been discontinuous and uneven. In summer and fall 2020, following the initial wave of the pandemic, the easing of public health restrictions led to a dramatic rebound in employment. In November 2020, employment had risen by 12.9 per cent since June 2020 and was only 1.3 per cent below the pre-pandemic employment level reported in November 2019. However, as the second and third waves of the pandemic arose in late 2020 and early 2021, the recovery stalled. Employment dipped slightly again as public health restrictions returned. However, as the distribution of vaccines progressed in the spring and summer of 2021, employment began to trend upward again. By September 2021, total employment had increased by 2.6 per cent since September 2020 but was still 1.9 per cent below the pre-pandemic September 2019 employment level.

Employment Recovery in the CER
(thousands of persons) *(thousands of persons)*



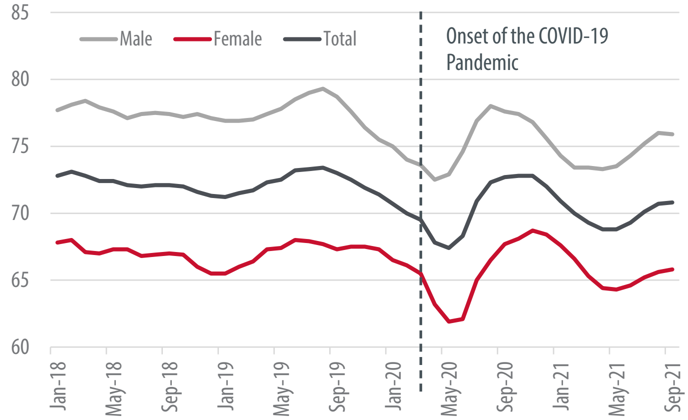
Source: Statistics Canada, Corporate Economics.

The employment recovery so far has been uneven among industries. Goods-producing industries have done better throughout the pandemic, with September 2021 employment just above the pre-pandemic employment of September 2019. Employment in services-producing industries has moved towards recovery but stood 2.5 per cent lower in September 2021 than in September 2019. Certain services-producing industries, however, are in much worse shape than others. Comparing September 2021 to September 2019, the four services-producing industries facing the most significant employment decreases are Public Administration (-34.3 per cent), Accommodation and Food Services (-23.5 per cent), Other Services (-23.5 per cent), and Information, Culture, and Recreation (-14.9 per cent).

Total employment in the CER is forecast to rise by 3.0 per cent in 2021 and recover to pre-pandemic levels by 2022, increasing by 3.4 per cent in that year. After reaching 11.7 per cent in 2020, the unemployment rate is expected to drop to 9.5 per cent in 2021 and 8.2 per cent in 2022.

The COVID-19 pandemic has also had significant impacts on labour force participation in the CER. The total labour force participation rate fell from 72.3 per cent in 2019 to 70.6 per cent in 2020, as the pandemic and corresponding lack of jobs led people to exit the labour force.

Labour Force Participation Rate in the CER
(per cent)



Source: Statistics Canada, Corporate Economics.

As was observed in the employment data, the participation rate suffered an initial drop during the first wave of the pandemic, followed by a recovery in late 2020 before dropping again during the second and third waves. While the female participation rate remained well below the male participation rate, as is typical, and females only made up 47 per cent of the total labour force in 2020, both the male and female participation rates followed a similar pattern. However, in the first wave, the effect was stronger on the female participation rate as women were more likely to both lose employment (In the Alberta labour force statistics over the last 10 years, women are proportionally more represented in part-time and service industries while men are proportionately more represented in goods and full- time industries) and choose to stay home with children as schools and daycares closed. Then as the first wave passed, restrictions were eased and schools were reopened. The female participation rate rebounded even more strongly than for males, briefly exceeding pre-pandemic levels. When the second and third waves of the pandemic drove down the total participation rate again in late 2020 and early 2021, the female participation rate experienced a relatively smaller downward impact as schools saw fewer closures during this period. While labour force participation began to rise again in the summer of 2021 as public health restrictions were lifted, by September 2021, both the male and female participation rates remained well below pre-pandemic levels. The male participation rate stood at 75.9 per cent (2.8 percentage points lower than September 2019), while the female participation rate was 65.8 (1.5 percentage points lower than September 2019). With female employment in September 2021 down 2.0 per cent from September 2019 compared to a 1.9 per cent decrease for men, the stronger recovery in the female participation rate exacerbated the gap between the unemployment rates for women (9.9 per cent) and men (8.5 per cent) in September 2021.

Looking forward, following the recovery from the effects of the pandemic, the labour force participation rate in the CER is expected to gradually decline and continue a downward trend observed since 2009. The primary driver of this declining participation rate is the aging population, as the large baby boomer generation reaches retirement age.

Interpreting the effect of the pandemic on wages in the Calgary CMA[5] is complicated by the fact that the lowest-paying jobs were more likely to be lost. As a result, higher-paid workers made up a more significant share of the workforce in 2020, and the average weekly wage rate increased by 5.0 per cent in the CMA.

As the economic recovery has progressed in 2021 and many lost jobs have returned, average weekly wages are returning back to their long-term trend. In September 2021, the average weekly wage stood at $1,240, a 1.8 per cent decline from September 2020. However, the September 2021 figure also represents a three-year increase of 8.4 per cent since September 2018, higher than the 6.9 per cent increase in the consumer price index (CPI) over the same period.

5 Wage data is only available for the Calgary CMA, not the CER.

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Textbox 1: Digital Transformations during the COVID-19 Pandemic and Beyond

In the Fall 2020 Outlook, we examined two areas of the digital economy that became particularly common as the COVID-19 pandemic disrupted society's typical ways of working and living. Now, with another year of the digital transformation's progress behind us, we will revisit this topic to understand the role played by digital technologies in allowing Calgary's economy to adapt to the pandemic. We will also explore how permanent shifts towards a more digitally reliant economy will impact our city going forward.

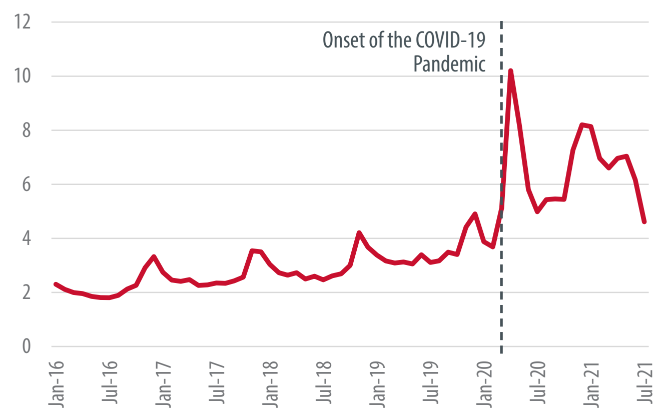
One clearly visible digital transformation during the pandemic was the shift towards remote work. On average, between April 2020 and June 2021, 33.5 per cent of employees in the CER worked most of their hours from home, which is higher than the national average of 30.7 per cent. Once employees adjusted to this new mode of work and became familiar with the benefits it offered, it was clear that the future of the office building had permanently changed. Recent observations show that a hybrid model of working both remotely and in the office may define the future of office-based occupations. A survey of Canadian workers conducted by KPMG in March 2021 found that 77 per cent of respondents would prefer the flexibility to work from home or at the office. The satisfaction with current remote work environments stood at 67 per cent, down from 76 per cent in July 2020. While hybrid work models would prevent businesses from giving up their physical offices, any negative impact on demand for office space would create challenges for Calgary's already struggling downtown core, which faced an office vacancy rate of 27 per cent in Q2 2021.

Another major digital transformation accelerated by the pandemic was the rise of e-commerce in the retail trade sector. The technology for selling products online was well established before the pandemic and e-commerce had been slowly growing in relevance. However, e-commerce in Canada made up only a small fraction of total retail sales, never exceeding five per cent of all sales prior to the pandemic. In April 2020, during the initial wave of COVID-19, over 10 per cent of all retail sales in Canada were purchased online. Since that initial spike, e-commerce has remained more relevant than before the pandemic. As public health restrictions were starting to be eased again across the country, e-commerces till accounted for 4.6 per cent of all sales in Canada in July 2021, despite the summer typically being a seasonal low point for online retail.

A permanent shift from physical stores towards online shopping would have a significant impact on Calgary's commercial real estate sector. CBRE reported a retail vacancy rate of 7.1 per cent in Calgary in the first half of 2021, as it continued to climb from its pre-pandemic level of 5.5 per cent in the second half of 2019.[6] Considering the impact of the public health restrictions on the retail sector, this rise in vacancies was much smaller than it could have been in the absence of government supports to affected businesses. Once government supports are withdrawn, the future of retail real estate will depend on Calgary's recovery from the pandemic and whether consumers return to physical shopping as opposed to e-commerce following the pandemic.

A persistent decline in activity in Calgary's downtown core due to the working from home situation could have a more deep impact on retail in the city centre than in the rest of Calgary. While continued investment in retail space in the outer suburbs is expected to accommodate population growth in new communities, vacancies in downtown retail space are likely to remain relatively high for the next few years.

E-commerce Sales as a Proportion of all Retail Trade
(per cent)



Source: Statistics Canada, Corporate Economics.

6 See CBRE Calgary Retail MarketView H1 2021

Textbox 2. Taxation Challenges in the Digital Economy

On September 20, the Liberal Party of Canada won a federal election to form another minority government. The election result signalled Canadians' approval of the party's current policy directions, including its fiscal plans with new tax measures proposed in the Fall 2020 Economic Statement and Budget 2021.

The new tax measures proposed by the federal government included two parts; applying the Goods and Services Tax and Harmonized Sales Tax (GST/HST) to E-commerce,[7] and levying a new digital services tax (DST) to large businesses engaged with online users in Canada.

The application of the GST/HST to E-commerce came into effect on July 1, 2021. Previously, foreign-based digital businesses could operate in Canada without charging the GST/HST because they did not have a physical presence in the country. As a result, the responsibility to pay the sales taxes was put on Canadian consumers, which gave foreign-based digital companies an unfair advantage over Canadian companies. Under the new rules, the following three types of businesses are required to register for the GST/HST to collect and remit sales taxes to the federal government and participating provincial governments:

- Non-resident vendors supplying digital products or services (including traditional services) to consumers in Canada.
- Distribution platform operators with sales of goods shipped from fulfillment warehouses or other places in Canada.
- All supplies of short-term accommodation in Canada facilitated by a digital accommodation platform.

The sales taxes from these new GST/HST sources are expected to generate $3.2 billion in five fiscal years from 2021-22 to 2025-26.

7 **E-commerce** is the delivery of information, products, services or payments by telephone, computer, or other automated media (Government of Canada definition).

The proposed DST was expected to be in effect as of Jan. 1, 2022 and intended to be temporary until an acceptable joint measure comes into effect.[8] The purpose of this new direct tax is to make large corporations (foreign or domestic) that carry out value-creating activities using digital economy[9] business models in Canada pay their fair share of taxes. The Canadian DST is proposed to be three per cent before GST/HST. It would apply to in-scope revenues from online business models, including online marketplaces, social media, online advertising and user data. The total tax revenue from the new DST is expected to be $3.4 billion over five fiscal years, starting from 2021-22.

Canada's new DST is not the first of its kind in the world. Many countries, including the Organization for Economic Co-operation and Development (OECD) and the Groupe of Twenty (G20) members, have enacted DST instead of waiting for when a joint agreement could be reached.

Since 2015, more than 135 countries from all regions of the world have worked together with the OECD to build an inclusive framework to address domestic tax base loss and profit shifting (BEPS) issues caused by multinational corporations. The Action 1 of 15 action items from this project is to deal with tax challenges arising from digitalization.

On July 1, 2021, the OECD and G20 Inclusive Framework on BEPS released a "Statement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalization of the Economy." On Oct. 8, 136 coun-

8 Latest news on October 12 citing Finance Minister Chrystia Freeland's office says "the liberal government would delay the implementation of the digital services tax from Jan 1, 2022 to Jan 1, 2024. The Canadian DST would only come into effect if the OECD agreement hasn't come into force by 2024, but if the Canadian tax is implemented, it would be retroactive."

9 **Digital economy**: The economy is characterized by an unparalleled reliance on intangibles, the massive use of data (notably personal data), the widespread adoption of multi-sided business models capturing value from externalities generated by free products, and the difficulty of determining the jurisdiction in which value creation occurs (OECD definition).

(continued...) Textbox 2. Taxation Challenges in the Digital Economy

tries and jurisdictions have agreed to the solution, setting a global minimum corporate tax of at least 15 per cent.

So, what is the issue here? Why does the Canadian Government and its counterparts in other countries have such a sense of urgency in taking action? And where are the municipalities whose infrastructures are generally taken advantage of to service the end-users in this tax reform?

The issue is that digital technology has enabled the development of new business models and value creation means, known as the digital economy. In the digital economy, data is a critical commodity to data-based products, and the users (such as Uber and Airbnb customers) are not only customers but also contributors to value-added productions. This user participation is one of the key inputs in today's digital economy as labour and capital in the traditional business models.

Current tax systems, designed for a traditional in-person[10] economy decades ago, are based on physical resources (such as labour, building and equipment) and their locations. However, multinational corporations do not need a physical presence locally when they do business by interacting with users remotely in the digital space. As a result, this new type of business activity is not subject to local tax under current rules and the big multinational companies are not paying their fair share of taxes.

Taking tax reform action is urgent for countries as digital transformation has accelerated dramatically since the beginning of the COVID-19 pandemic in late 2019, making the tax shifting issue more severe and permanent.

Until now, municipalities in Canada have not been invited to the discussions on the tax reform in the digital economy. Unlike the federal and provincial governments charging taxes on incomes, productions, imports and products, Canadian municipalities can only access real property taxes as their own-source taxes.

Property taxes help pay for municipal programs and services that benefit Canadians. For example, cities spend large shares of their tax revenues on infrastructure investment and services such as roads and transit. In the city of Calgary, the municipal government spent $1 billion (26 per cent) of its $3.9 billion total annual expenses[11] in 2020 on transportation.

With the shift from working in office spaces to working remotely from homes worsening an already struggling downtown with high office vacancy rates (resulting from an oil price collapse in late 2014 and causing two years of consecutive economic downturn (2015-2016)), the assessment values in the downtown office market and commercial real estate sector dropped severely in Calgary. This has led to shrinking non-residential tax bases and increasing property tax on other types of properties and in the suburbs, which has increased taxpayer outrage.

In the digital economy, physical infrastructure such as roads is still in high demand for delivering goods and services. Municipal goods and services are still demanded by residents for their quality of life. As a result, municipal governments in Canada need to think beyond property taxes when finding solutions to their revenue problems. They need to join the tax reform discussions with the federal and provincial governments to get their fair share of tax revenues on behalf of citizens in the digital economy.

10 An in-person economy is built on **bricks and mortar** businesses, defined as companies with a physical presence (for example, a building made of bricks and mortar) - that offer face-to-face consumer experiences.

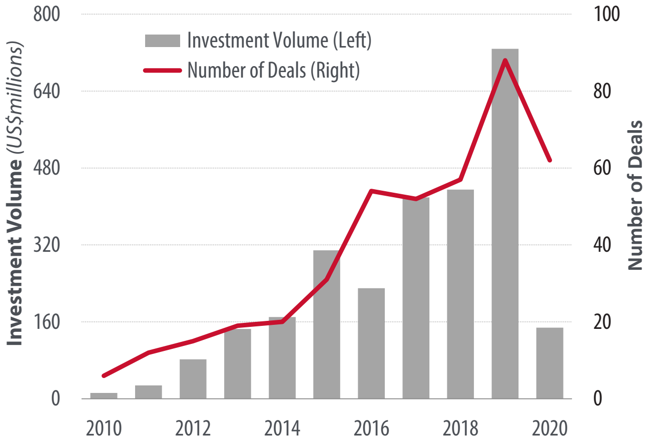
11 **Expenses** reflects how funds were used during the year, including the annual costs for owning and using capital assets (amortization). (Source: City of Calgary annual report 2020, page 12)

Forecast

Textbox 3: An Economy Undergoing Digital Transformation and Shifting E-commerce Trends: What to Watch Out For

Before the COVID-19 pandemic, e-commerce and digital transformation were relatively fast-growing. The start of the COVID-19 pandemic marked a significant increase in Canadian e-commerce growth of 10.1 per cent in 2020 (up from its 2019 levels of 8.1 per cent[12,13]). Similar patterns were observed in the digital and technology sector. The number of Canadian finance-technology (fintech) firms founded reached an all-time high of 101 in 2017, with a corresponding pre-IPO (initial public offering) equity investment volume of $728 million USD. This represented a 67.3 per cent increase from the previous year (2016). In the face of a current digital transformation and shifting e-commerce trends within the Canadian economy, what are some of the advantages and specific issues to watch out for?

Total pre-IPO Equity Investment Volume and Dollar Value, Canadian Fintech



Source: Accenture Fintech Report 2020: Accenture analysis of Crunchbase, Pitchbook, FinCadence, Maple FGS and CB Insights data.

Competitive Price Advantages and Disadvantages due to increasing global competition

A study by the International Trade Administration in September 2021 shows that there is a sizeable proportion of cross-border Canadian e-commerce sales. Competitive pricing and variety are popular reasons for the proportion of cross-border e-commerce transactions by Canadian consumers. However, with rising e-commerce numbers, partly due to the pandemic and partly due to ease of market access and payments brought about by digital transformation, the question is who are the people that are benefiting from this trend?

In September 2021, oil prices experienced a major increase, with WTI crude oil prices closing the month at $75.87 USD. This represents a 10.6 per cent rise from its closing price on the first day of September and a 0.85 per cent gain since the beginning of the third quarter. This contributed to the 1.96 per cent Canadian dollar value growth experienced since the beginning of the third quarter, along with a monthly inflation rise of 3.7 per cent in July to 4.1 per cent in August.[14] Ultimately, a continued major increase in current inflationary trends, along with the sustained growth of the Canadian dollar's value, will place Canadian producers at a significant competitive disadvantage, as this would cause Canadian goods and services to become relatively more expensive.

With a major increase in digital transformation and rising e-commerce sales, an area of focus would be on deflationary pressures and a stable currency to raise the global competitiveness of Canadian producers to boost domestic spending.

Policy discussions surrounding labour market trends as digital transformation persists

Today, our economy can be described as one slowly recovering from the pandemic, with inflationary pressures driven by supply shortages. One main issue of concern within the labour market has been rising job vacancies, caused by lower hiring numbers relative to labour demand. According to Statistics Canada, Canada's job vacancy has increased from the 3.1 per cent in January 2021 to 4.8 per cent in July 2021. Alberta's job vacancy rate displays a similar trend, with a 1.8 per cent increase within the same time period. Therefore,

12 Source: Statista Research Department

13 Reflects Canadian purchases both in domestic and foreign markets

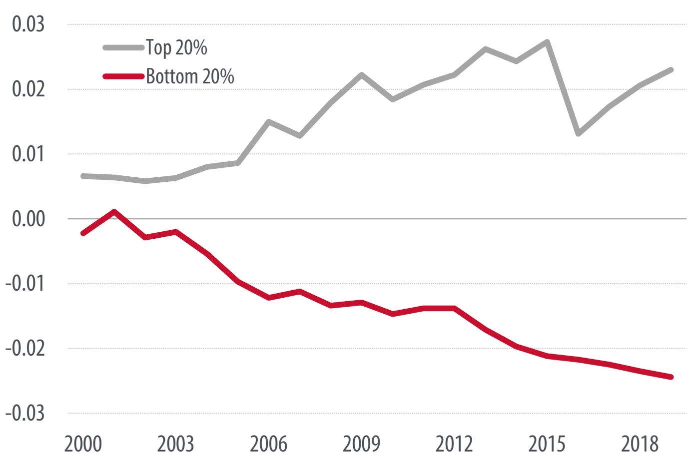
14 Source: Bloomberg

(continued...) Textbox 3: An Economy Undergoing Digital Transformation and Shifting E-commerce Trends: What to Watch Out For

despite the drop in Canada's seasonally adjusted unemployment rate to 7.1 per cent in August 2021, the continued rise in the vacancy rate shows labour supply shortages. While this has primarily been attributed to relief and support programs, whether this is in fact due to labour mismatches and a general rise in job search periods remains a question. Generally, transforming economies go through a period of rising structural unemployment and require educational training system's that addresses the skills in-demand. The skill sets for going to greener jobs (clean energy-type jobs) would add to a current job mismatch between traditional fossil fuel mining jobs and the new-tech-going-greener jobs.

How will digital transformation affect economic inequality discussions?

Canada: Savings-To-Income Ratio



Source: Statistics Canada.

An important issue that needs attention is wealth distribution as the economy transitions to a more technologically-driven type and places a higher emphasis on e-commerce. The past year has already had significant impacts on income equality. Liquidity injections and asset purchase programs by the Bank of Canada (BoC) have served to stabilize and support stock market recovery and protect investors. Relief and support programs designed to help employees negatively impacted by labour market shocks also helped lessen the decline that otherwise would have affected consumer spending. Liquidity injections intended to support the stock market also helped protect the wealth of high-income earners, who make up the large majority of shareholders, while relief programs helped in protecting low-income earners. According to Statistics Canada, this led to a 37 per cent increase in income of low-income earners and a reduction in the income gap. This does not tell the whole story, however. The decline in the income gap corresponded with a widening of the savings gap, indicating the potential for widening income inequalities as future spending power widens.

As our economy becomes more e-commerce-focused and digitally-oriented, and relief programs for displaced workers and businesses near their end, another question also arises: which income group stands to benefit the most? Is it the higher-income groups, who can transition in terms of business activity and skills? The tech investors who have high and middle-income groups and form the large majority? The demographic with access to stable internet, computers and other devices that support an easier transition? We will have to wait to see which group comes out on top.

The 2019 Communications Monitoring Report by the Canadian Radio-Television and Telecommunications Commission showed that 92 per cent of Canadians have internet access. Statistics Canada also reported a decrease in mobile wireless plan prices by 15 per cent in 2020. However, the report shows less than two-thirds of low-income earners (bottom 20 per cent or households earning less than $32,914) have access to internet services and a home computer. This is in contrast to the highest 20 per cent ($132,809 or higher), with 89 per cent of this group having access to internet services. This shows low-income earners will be more likely to stick to physical businesses, although the decline in wireless prices provides a more positive outlook.

This also suggests that as lower-income groups are facing a more difficult transition with the structural economic shift, it would lead to a possible widening of income gaps in the future.

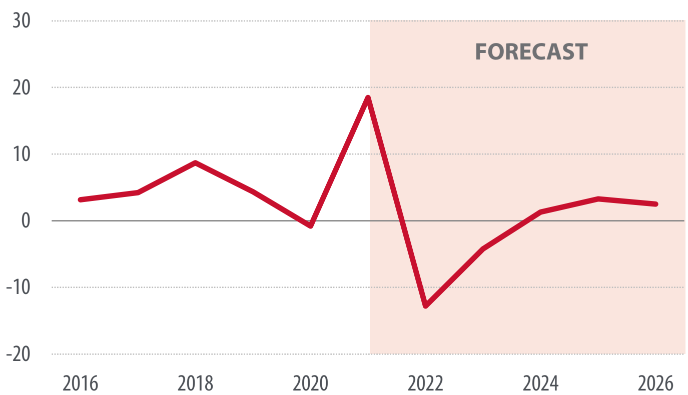
Forecast

Commodity Price Inflation Rates

Construction Commodity Price Inflation

Iron and Steel

Iron and Steel Price Inflation
(*per cent*)

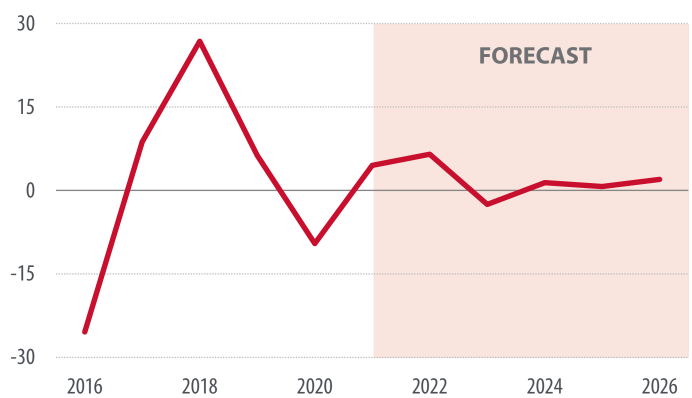


Source: Statistics Canada, Corporate Economics.

All eyes are off tariffs now as shortages of iron and steel make it hard for producers to get final products. Raw materials are having a hard time making it through supply chains as the pandemic rages. The U.S. economy is rebounding greatly, resulting in higher employment and greater demand for products. However, supply constraints continue to bind the markets. Higher prices are expected in Canada in the short-term.

Aluminum products

Aluminum Price Inflation
(*per cent*)

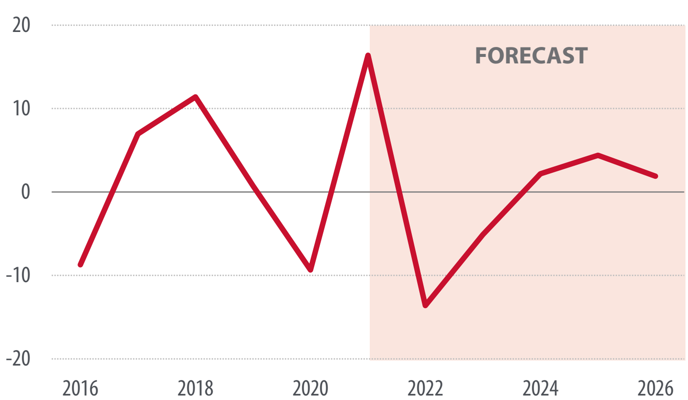


Source: Statistics Canada, Corporate Economics.

Like iron, industrial use of aluminum is expected to increase this year while shipping delays cause short-term price spikes. Unlike iron, international production of aluminum has increased during the pandemic and this is expected to moderate prices. In the short-term, shipping charges are high as North America restocks shelves which makes importing raw materials more expensive (bauxite, for example). This increased cost will be short-lived. The long-term outlook for aluminum prices is prolonged stability.

Asphalt

Asphalt Price Inflation
(*per cent*)



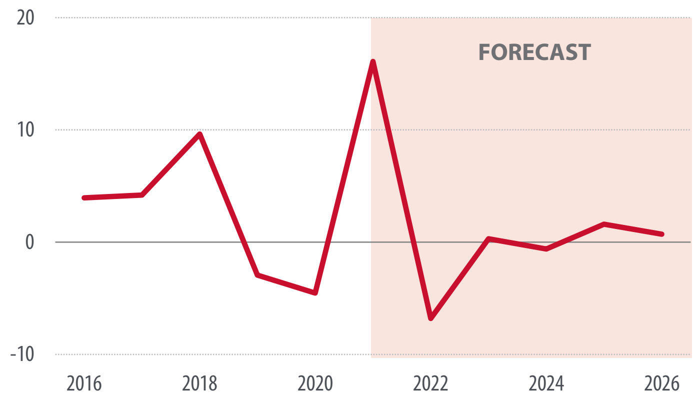
Source: Statistics Canada, Corporate Economics.

Asphalt prices closely follow the price of oil, but are also dependent upon inventories. Oil prices are rising steadily, but are responsive to short-term events like hurricane season. Rising oil prices are placing some upward pressure on asphalt prices. Additionally, asphalt's primary uses are for roofing materials and road work, and recent storms in Calgary have driven up the demand for asphalt roofing materials significantly. Road work continues in Calgary with the ring road construction, and pent-up demand for houses has resulted in increased housing starts in 2021, though we anticipate housing starts should decrease in the next few years. On net, price drops in 2020 due to reduced demand should go away by mid-2022. After that, we anticipate more stable asphalt prices to come through.

Forecast

Wood

Wood Price Inflation
(*per cent*)



Source: Statistics Canada, Corporate Economics.

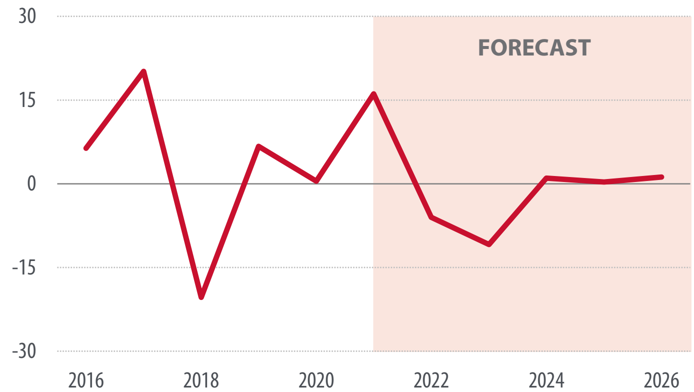
In the spring, finished wood prices spiked due to the slow return of supply after pandemic-related business restrictions and demand for new housing construction and home renovations projects increased as pent-up demand came suddenly and significantly. Price spikes lasted several months and resulted in some increase in housing prices, but lumber prices have gone down recently. The up and down of business restrictions, pent-up demand and sudden releases of pent-up demand in Alberta as waves of the pandemic rise and fall over the next year and possibly longer should translate to some large short-term swings in 2021-2023 and level out after that.

Operational Commodity Price Inflation

Rubber

Rubber prices are rising, but not strictly due to weather or changes in the price of oil. The pandemic has dramatically impacted Southeast Asia, where the bulk of the world's natural rubber is grown and where the international markets for rubber are located. As the pandemic rages, production is off simply because there aren't enough people to tend crops. It is unknown if this will result in long-term impacts on natural rubber production, but what is known is that the Chinese economy (like the U.S. economy) is roaring back and China is actively securing supply in international markets for its own needs. This combination is causing a dramatic increase in the price of rubber this year, much more dramatically than we anticipated previously. We now anticipate elevated prices to continue this year and next before falling off somewhat in 2023.

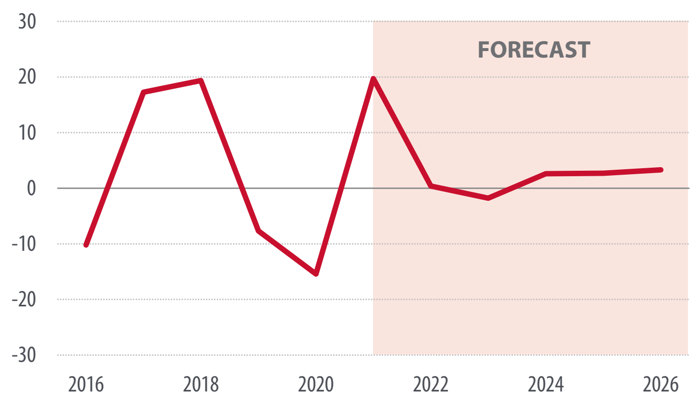
Rubber Price Inflation
(*per cent*)



Source: Statistics Canada, Corporate Economics.

Diesel Oil

Diesel Oil Price Inflation
(*per cent*)



Source: Statistics Canada, Corporate Economics.

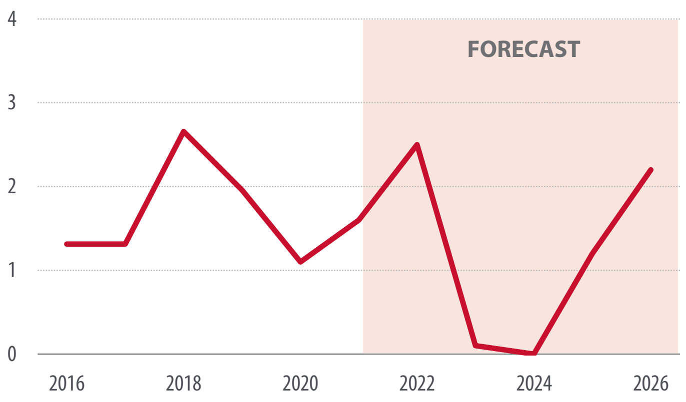
Diesel prices were contained during 2020. The time of low oil prices from a combination of increased supply while global demand was down due to lockdowns is coming to an end. The U.S. economy came back to life in 2021, beating our expectations for increased diesel fuel usage. The Chinese demand is also on the rise, even though the Chinese vaccines are less effective and China has had to reinstate severe lockdowns to control the spread of COVID-19 in 2021. Increased global demand for oil caused diesel

and gasoline prices in Alberta to spike higher than we were anticipating based on local feedstock prices and domestic demand. We now anticipate that the current diesel prices are telling of long-term prices in Alberta.

It is possible that refining capacity increases (particularly in the U.S.) could result in softening prices for diesel in Canada, but the risks are balanced with hurricanes potentially knocking Southern U.S. refineries off-line for months or more. On net, risks are balanced and we anticipate there will be short-term spikes and dips in prices due to short-term physical market issues.

Automotive Parts

Vehicle Parts Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

During the travel restriction periods in 2020, people drove less, slowing demand in parts industries. With the global microchip shortage causing a shortage in new vehicles, it has become more important to maintain existing stocks to drive up the demand for vehicle parts.

Global supply chains are strained, and there are input shortages for many parts, none the least of which are a global shortage of semiconductors. During lockdowns, people have turned to playing video games, which has contributed to driving the international demand for microchips to all-time highs and has resulted in shortages for things like new motor vehicles which require more and more electronics to meet consumer demands and emission control targets. Demand for video game systems is largely satisfied in the west but the pandemic now rages through heavily populated Asian countries and demand for gaming systems in those very large countries is unsatisfied. As well, while the pandemic rages, ports face worker shortages that delay international shipments of needed components. Several North American auto-manufacturers are slowing or stopping production simply because they can't get the materials they need. This is impacting the market for parts.

In 2021, availability is the issue facing the parts industries. The parts markets will likely see alternating periods of availability issues and price increases in the coming years.

Textbox 4: Shocks and Shortages

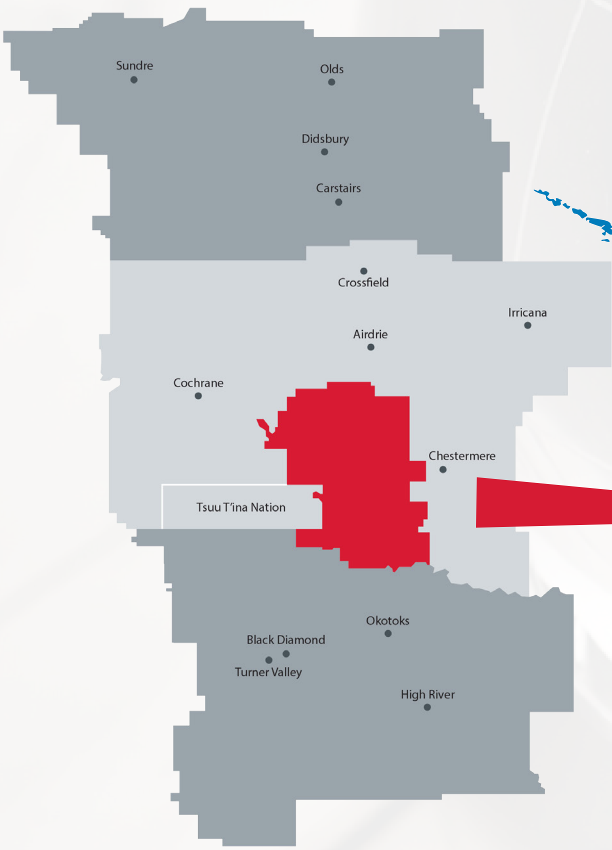
When there is a shock to the economic system, the system responds. Typically, we see price shock, like in the 1970's when OPEC caused the price of oil to skyrocket. The financial flows ordinarily occurring in the economy suddenly changed direction, more money went out of people's pockets to pay for gasoline and less was available for other purchases. In the U.S., that caused a deep recession as the money spent on oil left the country and did not return to inside the U.S. Shocks have short-term and long-term impacts. When a shock occurs, it is typically followed by a rebound. If GDP drops by 10 per cent one year, it usually rebounds by eight or nine per cent the next year. The problem is that isn't the end of the story. The instability caused by the original shock results in echoes throughout the economy for years after.

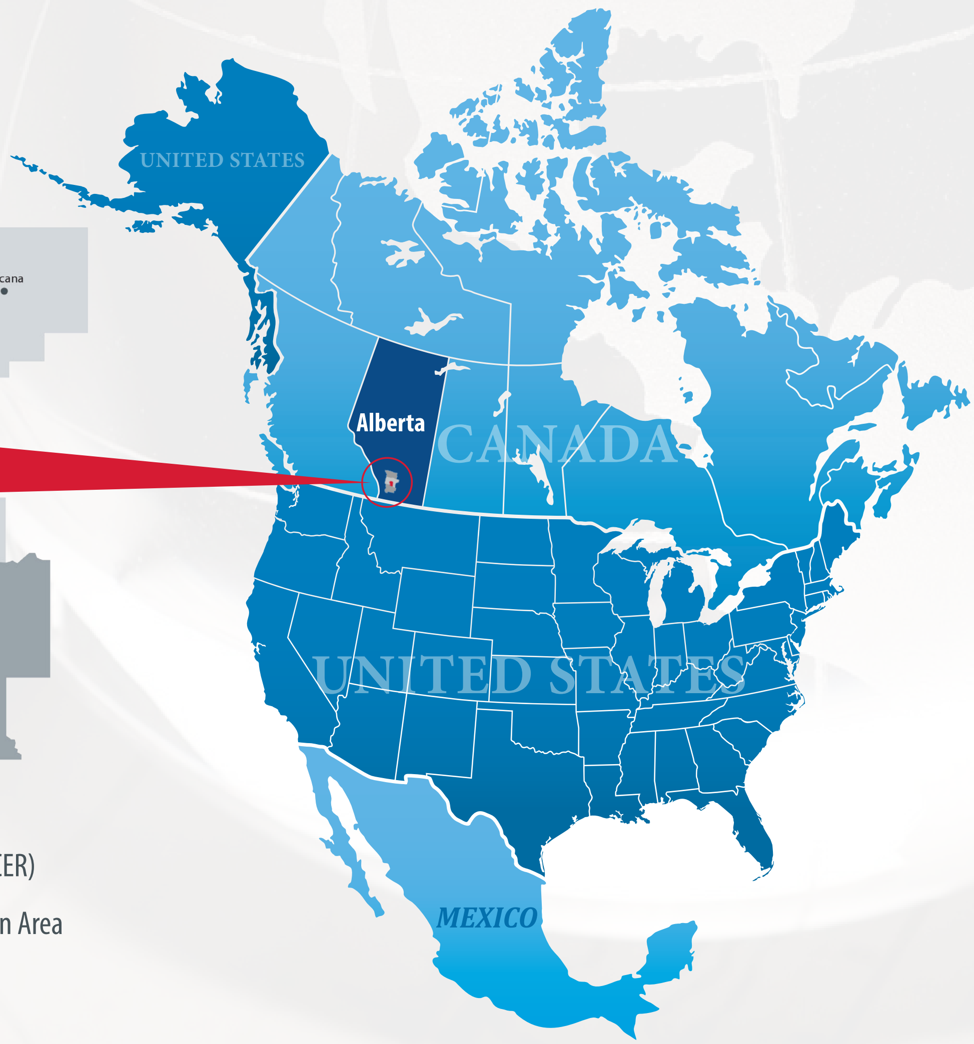
Today we are in a global pandemic that is impacting different regions to a different extent, and at different times, with different governments reacting differently and with different results. The developed and some emerging countries employed strict measures such as stay-at-home orders and business restrictions with some income supports that allowed survival but did not help discretionary purchases, and eventually required people to access to vaccines and allowed businesses to re-open. However, the developing and some emerging countries did not have the option of closing and many did not have access to vaccines. Limited international travel assisted some in avoiding the worst of the pandemic, and the world moved along slowly from 2020 into 2021. Then the Delta variant (a variant of COVID-19) came and everything changed again. At the time of this writing, the developed and some emerging countries are entering the fourth wave.

The outputs of one industry are the inputs to another. During the first response to the pandemic in the developed and some emerging countries, people were restricted from their normal activities and demands for discretionary purchase built up. Pent-up demand was released in North America in the spring of 2021, only to find that production had stalled during lockdowns, causing shortages. Microchips and lumber were among the first commodities to experience shortages that limited the production of other goods such as cars, trucks, houses and decks. Prices have risen significantly, causing some demand not to be met as people have had to save to make certain purchases and creating a second round of pent-up demand yet to take advantage of. As the Delta variant moves around the globe, more industries are impacted as the global supply chains are disrupted and demand for discretionary purchases will continue to grow. In the summer of 2021 in Alberta, it was virtually impossible to buy a boat, RV, truck or many other things due to increased demand and limited supply caused by the current global pandemic.

Shortages will be both short-term, as in the case of lumber in the spring of 2021, and long-term, like the current ongoing global microchip shortage. The resulting impacts of inflation and shortages will echo through international supply chains for some years to come.

Calgary Economic Region Map





+ + Calgary Economic Region (CER)

+ Calgary Census Metropolitan Area (CMA)

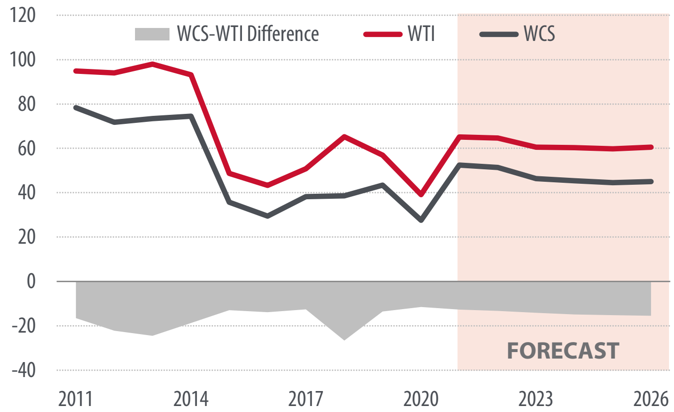
City of Calgary

Economic and Market Conditions Outside Calgary

Energy Markets

World Crude Oil Market

WTI and WCS Crude Oil Price
(US$/bbl)



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

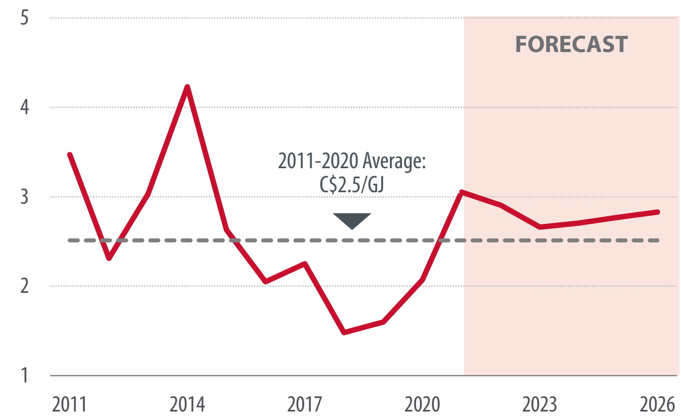
Oil prices have seen a strong recovery since their dramatic collapse in spring 2020. The global benchmark price West Texas Intermediate (WTI) reached US $67.7 per barrel in August 2021, compared to $42.3 in August 2020. Refreshing global demand coupled with voluntary limitations on supply by global oil producers led to this rapid price recovery. Going forward, the WTI oil price is expected to remain relatively stable as continued recovery in demand is followed by reasonable increases in global supply, with a forecast average price of US $61.2 per barrel over the 2022-2026 forecast period.

Western Canadian Select (WCS), a local Alberta benchmark price, has seen a similar recovery to WTI. The WCS prices are typically lower than WTI due to the lower quality of Alberta's oil and higher transportation costs, but the difference between the two prices has remained stable, averaging at US $13.2 per barrel in August 2021.

While export capacity remains a challenge for Alberta oil producers, the newly opened Enbridge Line 3 replacement (operational as of Oct. 1, 2021) as well as progress on the Trans Mountain pipeline expansion will offer increased capacity as expected slow increases in production come to be over the next several years. Thus, the WCS-WTI price differential is expected to increase only mildly over the forecast horizon, and WCS is expected to average US $46.6 per barrel over 2022-2026.

North American Natural Gas Market

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



Source: Intercontinental Exchange Inc, Corporate Economics.

After remaining resilient throughout 2020, natural gas prices have strengthened further in 2021. In August 2021, the local Alberta AECO-C natural gas price averaged at $3.03/GJ, up 48.1 per cent from August 2020 and up 199.7 per cent from August 2019.

The increasing prices are driven by higher demand for natural gas in oil sands operations and petrochemical plants, as well as for power generation. Not only did unusually hot summer temperatures drive up demand for electricity in Alberta, but large coal-burning generators continued to be converted to natural gas or shut down, increasing the reliance of the electrical grid on natural gas. On the supply side, the issues with pipeline capacity and oversupply that caused low prices in 2019 have been lessened.

Following a mild decline from a peak in 2021, AECO-C prices are expected to average $2.77/GJ over the 2022-2026 forecast period.

Textbox 5: Performance-based Regulation

What is Performance-based regulation?

Performance-based regulation (PBR) is a method of utility regulation that has gained prominence in North America in the twenty-first century.[15] Advocates of PBR state that a properly formed PBR plan can create an environment that motivates regulated utilities to seek out efficiencies (such as in its operations, deployment of capital, processes and financing) while maintaining service quality to customers through performance metrics that are typically required and enforced by the applicable utilities regulator.

The regulator of utilities in Alberta is the Alberta Utilities Commission (AUC or the Commission).

History: cost-of-service approach

Prior to the adoption of PBR in North America, a cost-of-service (COS) approach (sometimes referred to as "rate-of-return regulation") was often employed by government-regulated monopolies, particularly utilities. The AUC has described its cost-of-service approach as a two-phase process:

- Firstly, a "revenue requirement" is determined for each regulated utility. This involves scrutinizing and determining the total annual operating, maintenance, administrative, capital-related, and financing (e.g. cost of debt and equity) expenses of the utility. The regulator also determines the approved rate of return on equity (ROE); this is often referred to as the utility company's profit.
- Secondly, utility rates (to collect this revenue) are set. Rates by customer class (such as residential, commercial) and on what billing unit basis (such as monthly charge, per kilowatt hour or gigajoule) are determined. Rates are established by dividing the revenue requirement for each customer class by the billing units.

15 Performance-based regulation is also known as rate-based regulation.

The AUC has stated that the decisions for COS are made on a forecast basis, generally for two years.[16]

History: performance-based regulation

The AUC began soliciting feedback from stakeholders concerning the framework and implementation of a PBR framework for Alberta in early 2010. In this letter, the AUC stated that the COS approach "offers few incentives to improve efficiency, and produces incentives for regulated companies to maximize costs and inefficiently allocate resources", and that COS "provides few opportunities to create meaningful positive economic incentives which would benefit both the companies and the customers." The Commission also outlined its two objectives for PBR:

- Develop a regulatory framework that creates incentives for the regulated companies to improve their efficiency while ensuring that the gains from those improved efficiencies are shared with customers.
- Improve the efficiency of the regulatory framework.[17]

The AUC described a basic PBR plan as beginning with rates established through a cost of service proceeding. Rates are adjusted in subsequent years by a rate of inflation ("I factor") less an offset ("X factor") to reflect productivity improvements companies can be expected to achieve during the PBR plan period. The I minus X (or "I-X") adjustment is meant to reflect industry-wide conditions and thereby create industry price changes in a competitive market. Other mechanisms form typical PBR plans, such as a Z factor to deal with extreme-type events (such as hurricanes, floods and forest fires) specific to the industry that would not be reflected in the inflation factor, and other approved factors to manage certain costs.[18]

16 AUC Decision 2012-237, September 12, 2012, paragraphs 7-9.

17 RATE REGULATION INITIATIVE ROUND TABLE, AUC letter dated February 26, 2010.

18 AUC Decision 2012-237, September 12, 2012, paragraphs 16-18.

(continued...) Textbox 5: Performance-based Regulation

The City has been actively involved with PBR since its start in Alberta in 2010, focusing on ATCO Gas. ATCO Gas is the current natural gas monopoly which serves all ratepayers in Calgary. The City has advocated on behalf of Calgary ratepayers with the intent of ensuring PBR provides fair natural gas distribution rates.

The first PBR period ("first generation PBR") took place from Jan. 1, 2013 to Dec. 31, 2017. The ongoing PBR period ("second generation PBR") commenced on Jan. 1, 2018 and is scheduled to end on Dec. 31, 2022.

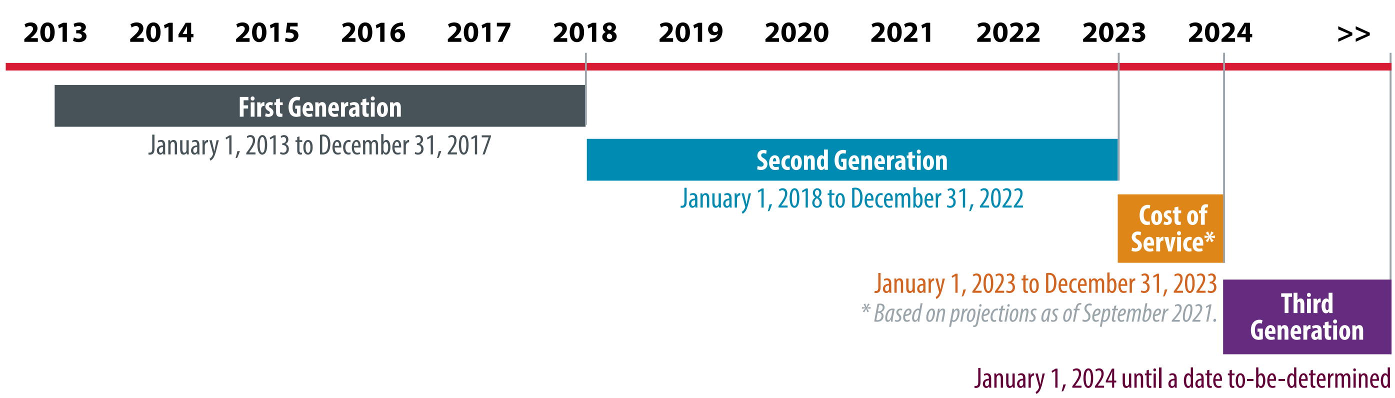
Present day: where we are with PBR

On March 1, 2021, the Commission issued a bulletin to engage the electricity and gas distribution facility owners (DFOs) and consumer groups to assess the approach to distributed rate regulation following the expiration of second generation PBR.[19] On June 30, 2021, the Commission concluded its most recent evaluation of PBR in Alberta. The Commission announced that although first and second generation PBR achieved many of the Commission's goals, there remains areas for improvement. Notably, the Commission agreed with many submissions from the City of Calgary, acknowledging that PBR "may not have best reflected the economic realities experienced in Alberta."[20]

The June 30, 2021 Commission decision also confirmed the third generation of PBR for Alberta. This third PBR term is to commence in 2024, upon the completion of a 2023 COS year.[21] A starting point for a PBR plan is the relinking of a utility's revenues and costs, along with the resulting rates that will be established at the beginning of the PBR term (often referred to as "going-in rates"). This process is already underway, with the Commission establishing a timeline of November 2021 to January 2022 for the formal submission of COS applications from DFOs.

The Commission has also announced its intention to start a proceeding to establish the guidelines of the third generation PBR plan in mid-2022.[22]

Three generations of PBR in Alberta



19 AUC Bulletin 2021-04, Stakeholder consultations to evaluate performance-based regulation in Alberta and to determine process to establish 2023 rates for distribution facility owners, March 1, 2021.

20 AUC Decision 26356-D01-2021, June 30, 2021, paragraph 30.

21 Ibid., paragraph 82.

22 Ibid., paragraph 85.

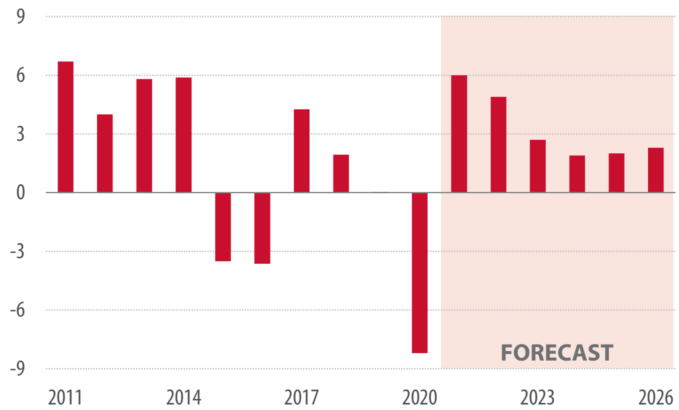
Economic and Market Conditions Outside Calgary

Alberta

Economic Recovery in Alberta

After a horrible year in 2020, Alberta's economy is set to make significant progress towards recovery in 2021. Alberta's total economic activity, measured by real GDP, fell by 8.2 per cent in 2020, an even greater drop than initially estimated. Alberta experienced a more severe decrease than any other province by a large amount,[23] as it suffered from a collapse in crude oil prices on top of the effects of sweeping public health restrictions related to the COVID-19 pandemic.

Alberta: Gross Domestic Product Growth Rate
(per cent)



Source: Statistics Canada, Corporate Economics.

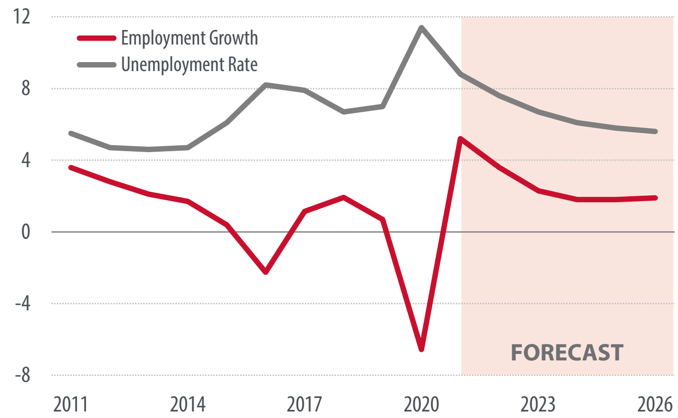
Alberta's situation has improved significantly in 2021, so far. On July 1, nearly all public health restrictions were removed, and many public-facing businesses have cautiously resumed offering normal levels of services. Alberta's largely oil-dependent economy has also benefitted from rising global oil demand and higher prices. In August 2021, total oil production in the province was up 18.7 per cent from August 2020, and natural gas production was up 8.4 per cent. In June 2021, manufacturing sales and retail trade sales both recorded their highest levels on record for Alberta, marking an impressive recovery from 2020.

In line with the promising signals for Alberta's economy observed so far this year, real GDP is expected to increase by 6.0 per cent in 2021. The recovery is expected to continue in 2022 with a 4.9 per cent increase, sending GDP above pre-pandemic levels. The GDP growth is then forecast to return to a more stable growth path, averaging at 2.2 per cent in 2023-2026.

In response to the COVID-19 pandemic, the Alberta government put in exceptional fiscal measures. In the 2020-21 fiscal year, Alberta put $5.6 billion to COVID-19 relief and recovery measures but realized a record deficit of $17 billion. The strong fiscal response will be continued in the 2021-22 fiscal year, with $3.4 billion in expenses expected for COVID-19 and economic recovery initiatives. These strong fiscal measures are expected to support economic recovery and the creation of jobs in the province. While government revenues are expected to recover substantially since the previous fiscal year, revenues will not be enough to cover all expenses. A deficit of $7.8 billion is expected in 2021-22 and there is not yet a timeframe for a return to a balanced budget.

Alberta's Labour Market

Alberta: Labour Market
(per cent)



Source: Statistics Canada, Corporate Economics.

Employment in Alberta is also showing strong signs of recovery. In September 2021, seasonally adjusted employment had grown by 17.6 per cent since the first impact of the COVID-19 pandemic in April 2020, representing 340,700 jobs recovered, and a 0.2 per cent increase over February 2020 levels. The recovery since April 2020 has been especially noticeable in the industries that were most severely impacted by public health restrictions, such as Wholesale and Retail Trade (+84,900) and Accommodation and Food Services (+52,600).

23 Alberta's GDP contraction of 8.2 per cent was nearly 3 percentage points larger than the next largest decrease of 5.3 per cent seen in Quebec.

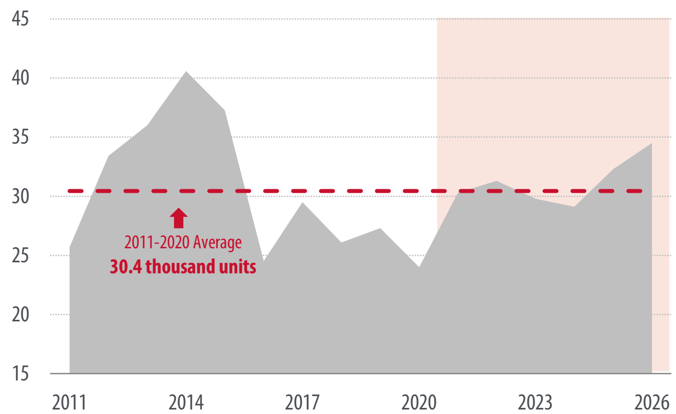
Economic and Market Conditions Outside Calgary

After peaking at 15.8 per cent in June 2020, Alberta's seasonally adjusted unemployment rate dropped to 8.1 per cent in September 2021. However, labour force participation remains below pre-pandemic levels, suggesting that some former workers are still undecided on re-entering the workforce.

Following the 6.6 per cent decrease in employment in 2020, Alberta is expected to see growth of 5.2 per cent in 2021 and 3.6 per cent in 2022. Correspondingly, the unemployment rate is forecast to shrink from 11.4 per cent in 2020 to 8.8 per cent in 2021 and 7.6 per cent in 2022, reaching 5.6 per cent by 2026.

Investment in Alberta

Alberta: Housing Starts
(*thousands of units*)



Source: Statistics Canada, Corporate Economics.

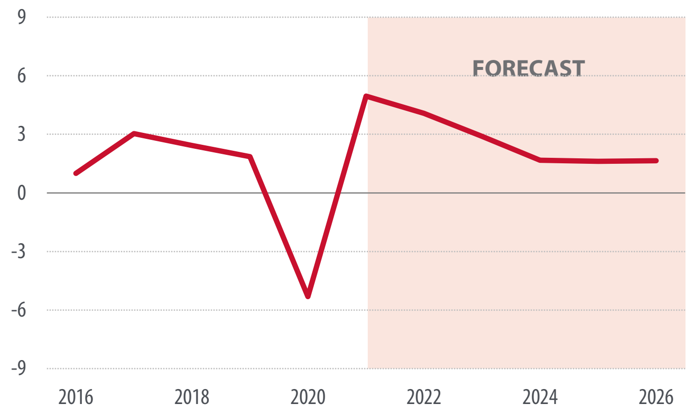
Residential investment in Alberta, as indicated by housing starts, is showing strength in 2021 so far. Year-to-date urban housing starts as of September 2021 were up 37.6 per cent from the same period in 2020.[24] The significant increase so far in 2021 is led by single-family housing starts, though starts for all housing types have increased. Low mortgage rates, pent-up demand from 2020 and changing consumer preferences for additional space are driving strong market activity in 2021.

After total housing starts in the province reached 24,043 in 2020, Alberta is forecast to record 30,300 housing starts in 2021. This is close to the ten-year historical average.

Non-residential business investment in Alberta is also poised to make gains in 2021 after a collapse in 2020, in conjunction with the expected economic recovery. In addition, strong energy prices have increased revenues for oil and gas producers and created renewed hope in this major Alberta industry. While investment in oil and gas is expected to gradually increase over the next several years, it is not expected to return anywhere close to the highs seen in 2013-2014.

Canada

Canada Real GDP Growth
(*per cent*)



Source: Statistics Canada, Corporate Economics.

Economic activities in Canada surprisingly fell in Q2 2021 after three-quarters of continuous growth since Q3 2020. Real GDP in Q2 2021 decreased by 0.3 per cent from Q1, or by -1.1 per cent at an annualized rate. The biggest contributor to this negative growth was the export sector. International supply chain troubles (such as shortages of microchips and delays of shipments) reduced the imports of parts which caused the exports of goods to decline by an annualized rate of 5 per cent.

The second-largest driver behind the Q2 2021 decrease was the quick fall in residential capital formations. The annualized growth rate in residential investment was -12.4 per cent in Q2 2021, down from 42 per cent in Q1 2021, 17 per cent in Q4 2020 and 182 per cent in Q3 2020.

The latest consensus forecast for Canada's real GDP growth is 5.0 per cent in 2021 and 4.1 per cent in 2022, before slowing down to 2.1 per cent in 2023. This forecast is an upward adjustment from the spring outlook. Forecasters consider Canada's successful vaccine rollout and the better than expected growth outlook in the U.S. as the reasons behind it.

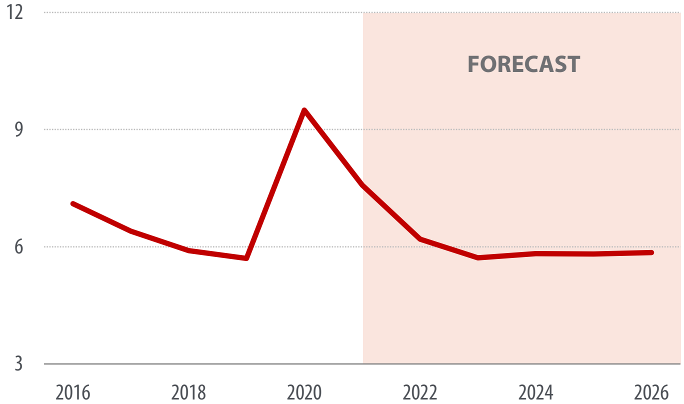
24 ear-to-date urban housing starts figures only include housing starts in urban centres with a population of at least 10,000. Annual total housing starts figures account for the whole province.

Economic and Market Conditions Outside Calgary

Labour Market

Canada Unemployment Rate

(per cent)



Source: Statistics Canada, Corporate Economics.

Canada's labour market condition[25] continued to improve from the pandemic shocks in recent months. In September 2021, the total employment reached 19.2 million in all industries, up by 1.0 million from the September 2020 level of 18.2 million but it was still just slightly lower by 40,500 from the pre-pandemic level in August 2019.

Some service industries saw significant job losses in the past 24 months, such as the accommodation and food services industry (-179,700). However, other industries did better and created more jobs servicing the shifting demand since the pandemic. They included the professional, scientific and technical services (+152,500) and the finance, insurance, real estate, rental and leasing (+96,200) industries.

Since September 2019, Canada's working-age population has increased by 587,800, with more people who dropped out or were not in the labour force (+303,800) than people who joined the labour force (+284,000). During this time, Canada's labour market participation rate bounced back quickly from 65.4 per cent in September 2020 to 66.0 per cent in September 2021, a level close to the 66.3 per cent in September 2019 pre-pandemic.

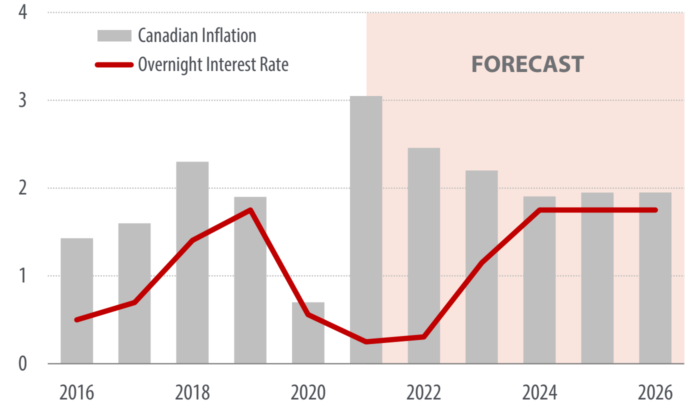
Canada's unemployment rate dropped by 3.7 percentage points from 10.3 per cent in September 2020 to 7.3 per cent in September 2021. However, it was still higher than the pre-pandemic level of 5.8 per cent in September 2019.

It is expected that Canada's total employment will recover quicker than the normalization of the unemployment rate. The country's total employment is expected to pass the pre-pandemic peak in the next few months; however, its unemployment rate will take another two to three years to return to the levels seen in 2019.

Monetary Policy and Inflation Rate

Bank of Canada Policy Rate vs. Inflation Rate

(per cent)



Source: Bank of Canada, Statistics Canada, Corporate Economics.

Recent developments in the Canadian economy, especially the surprising output decline in the second quarter, confirmed the Bank of Canada (BoC)'s judgment that "the recovery continues to require extraordinary monetary policy support", as written in its July Monetary Policy Report. As a result, the BoC announced on Sept. 8, 2021, to hold the target for the overnight rate unchanged at the effective lower bound of 0.25 per cent. The Bank is expected to keep the policy rate at 0.25 until 2023, before raising it to contain higher inflation.

In addition to the low policy rate, the BoC kept its large-scale quantitative easing (QE) program to buy government bonds, although at a lower level of $2 billion per week from the initial level of $5 billion per week last year. The QE program has lowered the cost of borrowing for the Government of Canada to finance its fiscal stimulus packages in response to the pandemic impact on Canadian households and businesses.

The CPI inflation in Canada rose to 4.4 per cent in September 2021 from 0.5 per cent in September 2020, partially because of the low base effect. The BoC considered that the higher than 2 per cent inflation rates recently were

25 Data source: Statistics Canada labour force survey, three month moving average, unadjusted for seasonality, September 2021

boosted by temporary factors such as supply chain disruptions from the pandemic. It expects those factors to fade and the inflation to fall back to around 2 per cent mid-target by 2023.

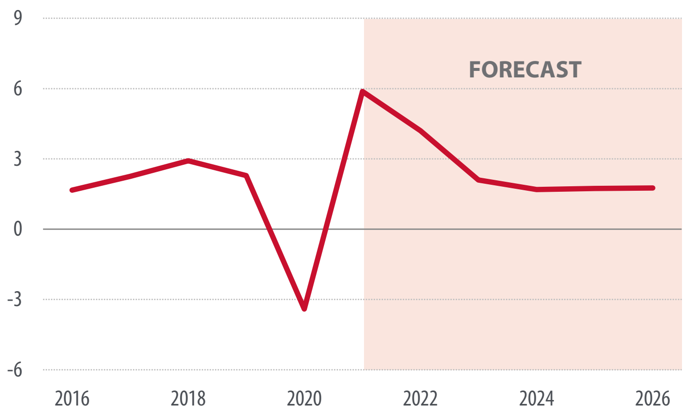
The Canadian dollar's appreciation against the U.S. dollar in recent months peaked in May 2021, when one Canadian dollar could exchange for 0.825 U.S. dollar. Since then, the dollar has fallen slightly against the U.S. dollar. In 2021, the Canadian and U.S. annual average exchange rate is expected to increase to $0.80.

As the BoC is expected to raise interest rate before its counterpart (the U.S. Federal Reserve). The interest rate differentials and higher oil prices should push the Canadian dollar higher in exchange for the U.S. dollar in the forecast period.

The U.S.

Real GDP Growth

U.S. Real GDP Growth
(per cent)



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

Real GDP in the U.S. grew at an annual rate of 6.6 per cent in the second quarter this year, following a growth of 6.3 per cent in the first quarter. The growth in Q2 was driven by increases in consumer spending in goods (+12.8 per cent) and services (11.3 per cent), and exports (+6.6 per cent). But it was partially offset by the lower residential investment (-11.5 per cent) and government spending (-1.9 per cent), as well as higher imports (+6.7 per cent).

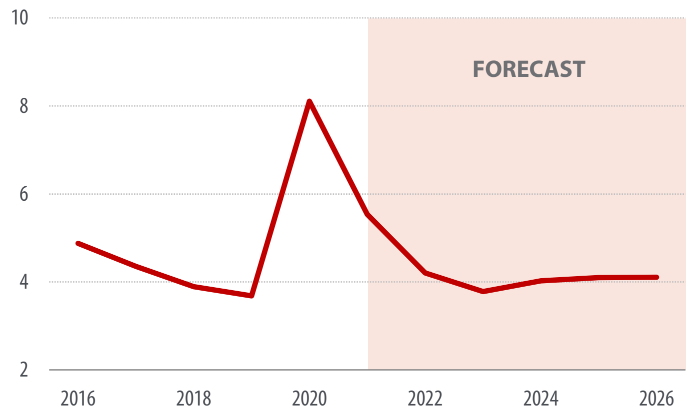
The better than expected growth in the first half of this year was driven by rapid vaccine rollout and economic reopening, additional fiscal supports and the release of pent-up demand for services. By Q2 2021, real GDP in the U.S. at an annualized level of $19.4 trillion in the chained 2012 dollars has passed its pre-pandemic peak of $19.2 trillion in Q4 2019.

It is expected that additional fiscal packages proposed by the Biden Administration will be passed this fall, including the $1 billion infrastructure bill. These fiscal stimulus measures should add more to the GDP growth and job creations in the U.S. economy in the next few years.

As a result, the consensus forecast for U.S. growth has been adjusted higher than the spring outlook for the next two years. The real GDP growth in the U.S. is expected to be 5.9 per cent in 2021 and 4.2 per cent in 2022.

Labour Market

U.S. Unemployment Rate
(per cent)



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

The employment situation in the U.S. continued to improve with the country's economic recovery. Seasonally adjusted household survey data shows that in August 2021, the unemployment rate dropped to 5.2 per cent from 8.4 per cent in August 2020. And the total employment increased to 153.2 million, up 5.9 million from a year ago.

However, the labour force participation rate was still only 61.7 per cent in August 2021, much lower than the pre-pandemic peak of 63.4 per cent in January 2020. The low participation rate might be part of the reasons there were hiring difficulties faced by some industries in recent months. In July 2021 (the latest data available), job openings in the U.S. reached a record high of 10.9 million over the past twenty years. The hope is that the expiration of

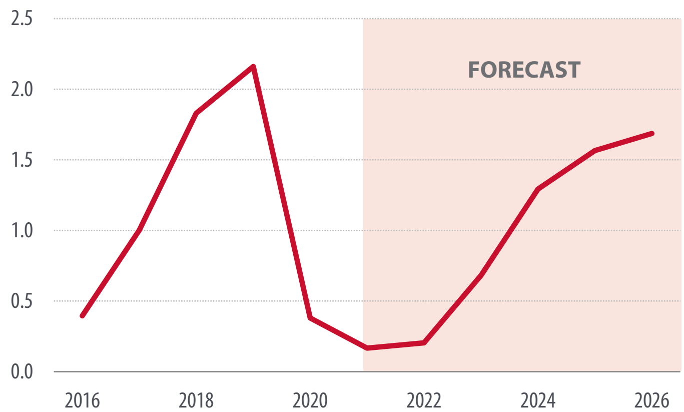
Economic and Market Conditions Outside Calgary

unemployment benefit top-ups in September should help increase the labour supply, raising the labour force participation rate.

There are still considerable issues in the U.S. labour market due to the mismatch between skills offered and demanded. The total unemployed in the U.S. was 8.4 million in August 2021, up by 2.6 million from the pre-pandemic low of 5.8 million in January 2020.

Monetary Policy Measures

U.S. Federal Funds Rate
(per cent)



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

The latest CPI data shows that the U.S. inflation rate spiked in August 2021 over the past 12 months. At 5.3 per cent, the CPI inflation rate for all items reached a level much higher than the Federal Reserve's midpoint target of 2 per cent. However, they considered the recent inflation increases were due to the low base effect and the short-term imbalance between demand and supply in durable goods since the rapid economic reopening.

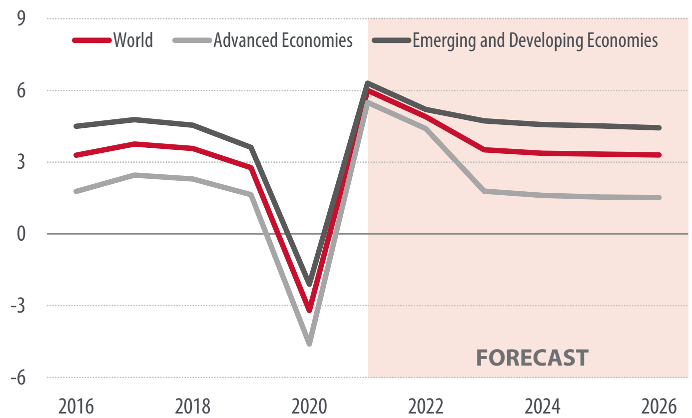
The Fed predicted that those inflation pressures would be short-lived, and wage inflation and inflation expectations were well within the long-term objective. As a result, the Fed is expected to continue its monetary policy support for the post-pandemic economic recovery by maintaining its target range for the federal funds rate at 0 to 0.25 per cent.

On August 27, the Federal Reserve Chair Powell stated that they would start to reduce the pace of asset purchases this year if the economy grew significantly. However, the coming reduction in asset purchases was not to be considered a direct signal about the timing of raising the interest rate. Instead, the Federal Reserve would wait until the U.S. economy reaching conditions consistent with maximum employment and inflation moderately exceeding 2 per cent for some time.

The World

Real GDP Growth

World: Real GDP Growth Rates
(per cent)



Source: International Monetary Fund, Corporate Economics.

The latest estimates from the International Monetary Fund (IMF) show that economic activities decreased in 2020 by -3.2 per cent in the world, -4.6 in the advanced economies (AEs) and -2.1 in the emerging market and developing economies (EMs).

The world real GDP is expected to grow by 5.7 per cent in 2021 and 4.5 per cent in 2022. The new forecast is an upward adjustment compared to the spring outlook, driven by the faster than expected vaccine rollouts and stronger fiscal policy supports in the advanced economies.

The real GDP growth is expected to be 5.5 per cent in 2021 and 4.4 per cent in 2022 in AEs. In comparison, the growth outlook for EMs is 6.3 per cent in 2021 and 5.2 per cent in 2022.

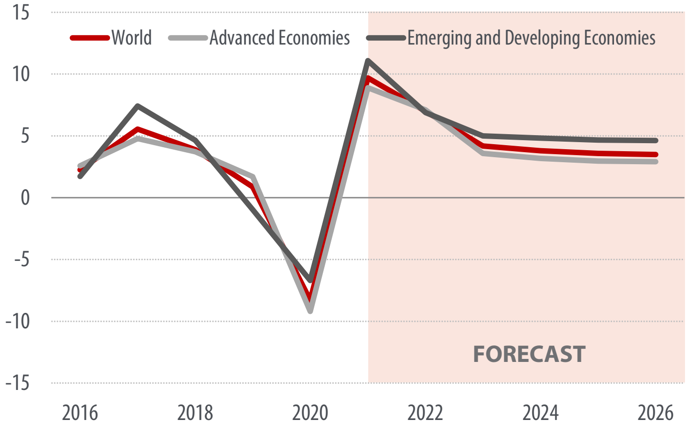
Trade Volume Changes

The global trade volumes are forecast to increase by 9.7 per cent in 2021 and seven per cent in 2021, after contracting by 8.3 per cent in 2020. The trade rebound is expected to be stronger this year in EMs (11.1 per cent) than in AEs (8.9 per cent). However, in 2022 the growth in

Economic and Market Conditions Outside Calgary

AEs (7.1 per cent) is expected to pass that of EMs (6.9 per cent).

World: Trade Volume Growth
(per cent)



Source: International Monetary Fund, Corporate Economics.

During the 2020 pandemic recession, merchandise trade volumes declined less than the service trade volumes and have returned to pre-pandemic levels since this summer. The shift of consumer spending to durable goods in AEs contributed to the sharp rebound in global trade since the second half of 2020.

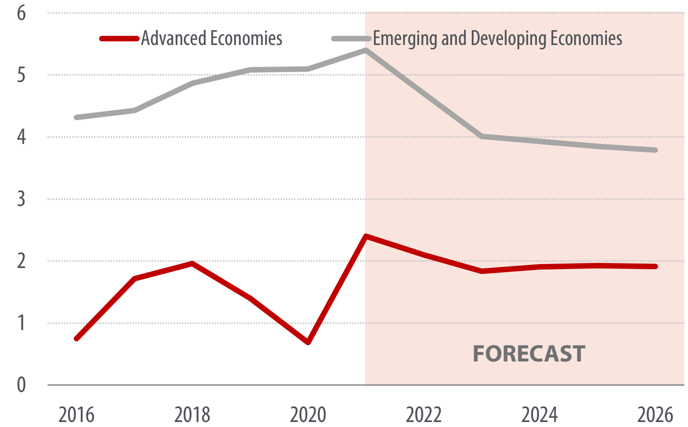
In comparison, the trade volumes of services declined more than those of the merchandise trade in 2020 and remain impacted by the border closures on tourism and transportation. The full recovery in this sector is expected to be slow due to the lasting effects on international travel.

CPI Inflation

The CPI inflation in the world was lower last year at 3.2 per cent, driven by the decline of inflation rate in the AEs at 0.7 per cent. The global inflation rates are expected to spike this year, mainly due to the lower base effect from last year's low commodity prices.

The forecast for the 2022 inflation rates is adjusted up from the spring outlook because of the stronger than spring economic outlook. The CPI inflation is expected to be to reach 2.4 per cent this year and 2.1 per cent next year in AEs, compared to 5.4 per cent in 2021 and 4.7 per cent in 2022 in EMs.

World: Inflation Rates
(per cent)



Source: International Monetary Fund, Corporate Economics.

Forecast Tables

Glossary

Who We Are

Forecast 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 2021						FORECAST					
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
ASSUMPTIONS											
World											
Real Gross Domestic Product Growth (%)	3.3	3.8	3.6	2.8	-3.3	5.7	4.5	3.5	3.4	3.3	3.3
The United States											
Real Gross Domestic Product Growth (%)	1.7	2.3	2.9	2.3	-3.4	5.9	4.2	2.1	1.7	1.7	1.8
Canada											
Real Gross Domestic Product Growth (%)	1.0	3.0	2.4	1.9	-5.3	5.0	4.1	2.9	1.7	1.6	1.7
Prime Business Loan Rate (%)	2.7	2.9	3.6	4.0	2.7	2.5	2.5	2.7	3.2	3.7	4.2
Exchange Rate (US$ for 1C$)	0.76	0.77	0.77	0.75	0.75	0.80	0.82	0.82	0.83	0.83	0.84
Alberta											
Real Gross Domestic Product Growth (%)	-3.6	4.3	1.9	0.0	-8.2	6.0	4.9	2.7	1.9	2.0	2.3
Total Employment Growth (%)	-2.3	1.1	1.9	0.7	-6.6	5.2	3.6	2.3	1.8	1.8	1.9
Unemployment Rate (%)	8.2	7.9	6.7	7.0	11.4	8.8	7.6	6.7	6.1	5.8	5.6
Housing Starts ('000 Units)	24.5	29.5	26.1	27.3	24.0	30.3	31.3	29.8	29.1	32.3	34.5
Inflation Rate - CPI (%)	1.1	1.6	2.4	1.8	1.1	3.1	2.6	2.0	2.0	2.0	2.1
Crude Oil Price - WTI (US$/bbl)	43.3	50.8	65.2	57.0	39.2	65.1	64.7	60.5	60.4	59.8	60.5
Western Canadian Select - WCS (US$/bbl)	29.5	38.2	38.6	43.4	27.6	52.4	51.4	46.4	45.5	44.5	45.1
Alberta Natural Gas Price - AECO/NIT ($/GJ)	2.1	2.3	1.5	1.6	2.1	3.1	2.9	2.7	2.7	2.8	2.8
Industrial Product Price Index (%)	-0.2	3.1	3.9	-0.1	-0.4	11.2	-0.5	1.3	1.6	1.6	1.5
Raw Materials Price Index (%)	-4.6	11.0	9.2	-2.5	-8.2	29.2	3.0	0.4	0.9	0.8	0.9
Alberta Average Hourly Wage Rate Growth (%)†	1.7	1.2	2.4	2.1	4.8	-2.0	0.3	1.7	2.7	3.1	3.3
FORECAST											
Calgary Economic Region (CER)											
Real Gross Domestic Product Growth (%)*	-3.2	4.6	0.6	0.6	-6.3	4.2	4.0	2.5	1.9	2.1	2.4
Total Employment ('000 persons)	828.6	851.2	856.9	881.0	834.0	859.0	888.4	908.9	926.5	944.4	963.7
Total Employment Growth (%)	-2.4	2.7	0.7	2.8	-5.3	3.0	3.4	2.3	1.9	1.9	2.0
Unemployment Rate (%)	9.2	8.5	7.6	7.2	11.7	9.5	8.2	7.2	6.6	6.2	5.9
Calgary Census Metropolitan Area (CMA)											
Housing Starts ('000 units)	9.2	11.5	11.0	11.9	9.2	14.1	12.6	12.1	12.3	12.7	13.0
Inflation Rate - CPI (%)	1.0	1.6	2.4	1.4	1.1	3.1	2.6	2.0	2.0	2.0	2.1
Non-Residential Building Construction Inflation (%)	-2.6	1.6	2.0	2.1	0.5	1.9	0.3	3.0	2.3	2.3	2.4

Numbers may not add up due to rounding.
* Source: Corporate Economics.
† Note: In contrast to the previous outlook, the hourly wage rate, not the annual wage rate, is reported here. The average wage decrease in 2021 is primarily caused by low-wage workers returning to employment rather than pay cuts to individuals.

Forecast Tables

Table 2 - Selected Real Estate Indicators for City of Calgary

City of Calgary

FORECAST COMPLETED: September 2021						FORECAST					
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Residential Market											
Housing Starts ('000 units)	7.5	9.5	9.4	10.6	7.9	12.2	10.7	9.8	9.8	9.8	9.9
Calgary Average Residential MLS Sale Price (%)*	2.4	0.5	-1.1	-3.9	-0.6	8.4	3.8	1.7	1.3	1.3	1.5
Total Building Permits ($billions)	4.6	4.6	4.6	5.2	3.5	4.8	4.9	4.9	4.9	5.0	5.2
Non-Residential Market											
Downtown Office Vacancy Rate (%)**	18.1	22.5	24.8	24.3	25.7	26.4	24.2	21.2	19.0	17.7	16.9

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

Table 3 - Selected Commodity Prices

City of Calgary

FORECAST COMPLETED: September 2021						FORECAST					
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
CONSTRUCTION COMMODITIES											
Iron and steel products	3.2	4.2	8.7	4.3	-0.8	18.5	-12.8	-4.2	1.3	3.3	2.5
Aluminum products	-8.7	7.0	11.4	0.8	-9.3	16.4	-13.6	-5.1	2.2	4.4	1.9
Wood	4.0	4.2	9.6	-2.9	-4.5	16.1	-6.8	0.3	-0.6	1.6	0.7
Asphalt*	-25.4	8.7	26.8	6.3	-9.5	4.5	6.5	-2.5	1.4	0.7	2.0
OPERATIONAL COMMODITIES											
Rubber	6.4	20.1	-20.3	6.7	0.5	16.1	-6.0	-10.9	1.0	0.3	1.2
Diesel oil	-10.2	17.3	19.4	-7.7	-15.4	19.7	0.4	-1.8	2.6	2.7	3.3
Vehicle parts	1.3	1.3	2.7	2.0	1.1	1.6	2.5	0.1	0.0	1.2	2.2

Numbers may not add up due to rounding.
* Based on Ontario Ministry of Transportation Asphalt Price Index

Forecast Tables

Table 4 - City of Calgary Population Projection

City of Calgary *(thousands of persons)*

FORECAST COMPLETED: September 2021					Estimate		FORECAST				
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Total Population (as April)	1,235.2	1,246.3	1,267.3	1,285.7	1,306.4	1,323.7	1,341.6	1,360.1	1,378.7	1,396.6	1,414.4
Total Population Growth Rate (%) (April - March)	0.3	0.9	1.7	1.4	1.6	1.3	1.3	1.4	1.4	1.3	1.3
Total Net Migration (April - March)	-6.5	1.1	11.7	9.6	12.3	8.6	9.0	9.9	10.2	9.8	9.9
Total Births (April - March)	16.6	16.3	15.9	15.3	15.6	15.8	15.8	15.8	15.8	15.8	15.7
Total Deaths (April - March)	5.9	6.2	6.6	6.5	7.2	7.1	7.0	7.2	7.4	7.6	7.9
Total Natural Increase (April - March)	10.7	10.1	9.3	8.8	8.4	8.7	8.8	8.7	8.4	8.1	7.8
Total Households (as April)	463.7	471.2	482.7	489.1	496.7	503.3	510.1	517.4	524.6	531.7	538.6
Total Household Formation (April - March)	1.2	7.5	11.6	6.3	7.7	6.6	6.8	7.3	7.3	7.0	6.9

Population by Cohort	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
0-4	78.6	78.7	79.2	79.7	79.6	79.5	79.0	78.9	78.2	78.4	78.2
5-9	77.0	79.1	80.2	80.0	79.3	78.7	78.8	79.0	79.5	79.4	79.3
10-14	67.4	69.2	71.9	74.6	77.0	79.0	80.5	80.9	80.6	79.9	79.3
15-19	68.2	68.7	69.6	70.9	70.8	71.2	72.0	74.0	76.2	78.5	80.6
20-24	79.1	77.5	77.0	78.2	78.9	78.6	78.3	77.8	77.7	77.5	78.0
25-29	104.3	102.5	100.1	98.1	97.4	94.5	92.8	92.3	92.4	92.6	92.6
30-34	114.0	114.3	114.0	113.0	113.8	114.4	113.7	112.6	111.6	110.0	107.6
35-39	102.8	104.6	107.8	110.8	115.8	118.9	121.5	123.1	123.6	123.8	124.6
40-44	95.3	95.3	96.6	98.2	101.8	105.3	109.2	113.6	118.4	122.8	126.1
45-49	86.6	87.7	90.1	91.3	93.2	95.0	96.5	98.5	101.3	104.6	108.2
50-54	88.2	86.4	85.2	83.9	84.0	84.9	87.3	90.0	92.0	93.7	95.6
55-59	81.0	81.6	82.6	83.2	83.1	82.9	82.1	81.1	80.4	80.4	81.4
60-64	62.1	65.0	69.1	72.1	73.9	75.4	76.5	76.7	77.2	77.3	77.0
65-69	46.0	48.2	50.2	52.5	55.2	58.3	61.4	64.7	67.3	69.2	70.6
70-74	29.7	31.4	34.7	37.8	40.1	42.8	45.1	46.4	48.2	50.8	53.7
75-79	21.7	22.2	23.5	24.9	25.8	27.0	28.3	30.7	33.1	35.3	37.6
80-84	16.7	16.9	17.4	17.6	17.7	18.0	18.5	19.3	20.2	21.1	22.1
85-89	10.8	11.1	11.6	11.8	11.8	11.8	12.0	12.2	12.3	12.6	12.9
90-99	5.5	5.9	6.3	6.8	7.0	7.3	7.6	7.8	8.1	8.3	8.5
100+	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Total	**1,235.2**	**1,246.3**	**1,267.3**	**1,285.7**	**1,306.4**	**1,323.7**	**1,341.6**	**1,360.1**	**1,378.7**	**1,396.6**	**1,414.4**
Youth (12-18)	80.1	81.5	83.4	85.1	86.7	89.4	91.9	94.2	95.9	97.1	97.6
Primary School Age 6-17	168.7	173.3	177.7	180.7	182.9	185.1	187.0	189.1	190.7	192.4	192.6
Working Age 15-65	881.5	883.4	892.2	899.7	912.7	921.1	929.9	939.9	950.7	961.2	971.7
Seniors 65+	130.6	136.0	143.9	151.6	157.9	165.4	173.4	181.5	189.7	197.8	205.9
Super Seniors 85+	16.5	17.2	18.1	18.9	19.1	19.4	20.0	20.5	20.9	21.4	21.8
Female Super Seniors 85+	10.6	11.0	11.5	12.0	12.1	12.3	12.7	13.0	13.3	13.7	14.0
Average Age	**36.8**	**37.0**	**37.2**	**37.5**	**37.6**	**37.9**	**38.1**	**38.4**	**38.6**	**38.9**	**39.1**

Numbers may not add up due to rounding.

Forecast Tables

Table 5 - Calgary Census Metropolitan Area (CMA) Population Projection

Calgary Metropolitan Area (CMA) *(thousands of persons)*

FORECAST COMPLETED: September 2021					Estimate		FORECAST				
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Total Population (July)	1,414.0	1,438.2	1,458.3	1,483.5	1,514.0	1,533.4	1,553.8	1,578.1	1,601.8	1,621.4	1,640.5
Total Population Growth Rate (%) (July 1 - June 30)	2.0	1.7	1.4	1.7	2.1	1.3	1.3	1.6	1.5	1.2	1.2
Total Net Migration (July-June)	19.6	11.6	17.3	23.3	21.7	9.8	11.0	15.3	15.1	11.3	11.4
Net Migration 18-24	3.8	3.6	4.5	5.5	5.1	2.4	2.7	3.7	3.7	2.8	2.8
Net Migration 28-40	5.1	2.5	4.8	6.3	6.7	2.6	2.9	4.1	4.0	3.0	3.0
Total Births	19.3	18.3	18.0	17.4	17.3	17.7	17.5	17.4	17.3	17.2	17.1
Total Deaths	6.4	6.9	7.3	7.5	7.7	8.2	8.1	8.3	8.7	9.0	9.4
Total Natural Increase	13.0	11.4	10.7	10.0	9.5	9.5	9.4	9.1	8.6	8.3	7.7

Population by Cohort	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
0-4	90.3	91.5	91.4	91.2	90.8	90.5	89.5	89.3	89.1	89.2	88.5
5-9	89.2	92.4	93.4	93.7	93.9	93.8	94.7	95.3	95.7	95.3	95.1
10-14	78.8	81.4	84.2	87.6	90.9	93.9	96.2	97.8	98.4	98.4	98.4
15-19	80.9	81.7	82.2	83.3	84.9	85.8	87.4	90.8	94.5	97.5	100.6
20-24	94.0	92.6	91.5	91.7	93.4	93.1	92.8	93.3	94.1	94.6	95.6
25-29	119.0	118.2	115.4	114.0	112.4	108.4	105.8	105.0	104.9	105.0	105.0
30-34	128.1	129.7	129.6	129.2	129.6	128.9	127.2	125.4	123.7	120.3	116.7
35-39	116.1	119.3	122.7	126.9	131.2	133.6	135.2	135.9	135.4	134.6	134.2
40-44	108.5	109.2	110.7	113.0	116.4	119.5	122.8	126.8	130.9	134.5	137.0
45-49	99.0	101.0	103.3	105.3	107.2	109.0	110.2	111.9	114.0	116.8	120.0
50-54	100.6	99.0	97.5	96.4	96.0	96.7	99.2	101.8	104.0	105.7	107.6
55-59	92.5	93.8	94.9	96.0	97.0	97.1	96.2	95.0	94.1	93.7	94.3
60-64	70.6	74.5	79.2	83.0	86.7	89.3	91.3	92.5	93.8	94.6	94.7
65-69	52.3	55.4	57.6	60.5	64.8	68.6	73.0	77.6	81.3	84.5	87.0
70-74	33.5	35.7	39.7	43.5	47.1	50.8	54.0	56.1	58.7	62.3	66.0
75-79	24.1	24.9	26.2	28.0	30.0	31.7	33.8	37.4	40.9	43.8	47.2
80-84	18.4	18.7	19.1	19.7	20.3	20.8	21.6	22.7	24.2	25.8	27.2
85-89	11.8	12.3	12.7	13.0	13.2	13.4	13.7	14.0	14.3	14.7	15.2
90+	6.3	6.8	7.2	7.6	8.1	8.6	9.0	9.4	9.8	10.0	10.4
Total	**1,414.0**	**1,438.2**	**1,458.3**	**1,483.5**	**1,514.0**	**1,533.4**	**1,553.8**	**1,578.1**	**1,601.8**	**1,621.4**	**1,640.5**
Average Age	**36.6**	**36.7**	**37.0**	**37.3**	**37.6**	**37.8**	**38.1**	**38.4**	**38.6**	**38.9**	**39.2**

Numbers may not add up due to rounding.

Forecast Tables

Table 6 - Calgary Economic Region (CER) Population Projection

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

FORECAST COMPLETED: September 2021					Estimate		FORECAST				
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Total Population (as April)	1,547.1	1,567.8	1,593.2	1,624.5	1,654.5	1,679.3	1,705.7	1,738.4	1,770.7	1,797.0	1,822.7
Total Population Growth Rate (%) (April - March)	1.7	1.3	1.6	2.0	1.8	1.5	1.6	1.9	1.9	1.5	1.4
Total Net Migration (April - March)	13.3	9.2	14.7	21.4	20.4	10.8	11.8	16.2	16.1	12.2	12.0
Total Births (April - March)	19.8	19.1	18.8	18.2	18.1	19.0	19.0	19.1	19.2	19.4	19.5
Total Deaths (April - March)	7.1	7.6	8.1	8.3	8.6	10.3	10.2	10.5	10.9	11.3	11.7
Total Natural Increase (April - March)	12.7	11.5	10.6	10.0	9.6	8.7	8.8	8.6	8.4	8.1	7.8

Population by Cohort	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
0-4	97.6	97.4	97.0	96.6	95.7	94.9	95.0	95.7	97.0	98.3	98.7
5-9	99.8	100.8	100.9	100.9	101.1	102.3	103.0	103.7	103.8	102.8	102.1
10-14	88.8	91.8	95.4	98.9	102.1	104.7	106.4	107.6	108.3	108.7	110.1
15-19	88.7	89.2	90.4	92.2	93.8	96.1	99.9	105.0	109.6	113.2	115.8
20-24	98.4	97.3	97.4	99.2	100.8	102.1	103.3	106.2	109.4	111.4	113.8
25-29	123.5	120.8	119.4	117.9	115.8	114.4	114.6	116.7	119.8	122.0	123.8
30-34	136.2	135.8	135.2	135.5	136.8	135.8	134.5	134.0	132.3	129.9	129.1
35-39	126.6	129.8	133.9	138.1	141.3	143.1	143.9	144.0	144.2	144.6	143.9
40-44	116.8	118.0	120.3	123.5	127.4	130.8	134.7	139.0	143.1	145.8	147.8
45-49	108.6	111.0	113.0	114.7	116.7	117.7	119.3	121.3	124.0	127.3	130.9
50-54	107.1	105.4	104.1	103.5	104.2	106.5	108.8	110.6	111.9	113.5	114.5
55-59	102.2	103.3	104.4	105.4	105.5	103.9	102.1	100.5	99.3	99.7	101.9
60-64	81.8	86.8	90.8	94.6	97.4	99.3	100.3	101.3	101.8	101.3	99.7
65-69	61.5	63.8	66.9	71.4	76.0	80.6	85.4	89.4	92.7	95.2	96.9
70-74	40.0	44.4	48.6	52.5	56.6	60.3	62.5	65.6	69.6	73.7	78.1
75-79	27.8	29.2	31.2	33.5	35.6	37.9	41.7	45.6	49.0	52.6	55.9
80-84	20.6	21.1	21.7	22.5	23.3	24.0	25.2	26.8	28.6	30.3	32.2
85-89	13.4	13.9	14.2	14.6	14.9	15.0	15.2	15.5	15.8	16.3	17.0
90+	7.4	7.9	8.3	8.9	9.4	9.7	9.9	10.2	10.3	10.5	10.7
Total	**1,547.1**	**1,567.8**	**1,593.2**	**1,624.5**	**1,654.5**	**1,679.3**	**1,705.7**	**1,738.4**	**1,770.7**	**1,797.0**	**1,822.7**
Average Age	**36.9**	**37.2**	**37.5**	**37.8**	**38.0**	**38.2**	**38.4**	**38.6**	**38.7**	**38.9**	**39.1**

Numbers may not add up due to rounding.

Glossary

Advanced economies

Currently made up of 39 developed countries: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, Ireland, Israel, Italy, Japan, (Republic of) Korea, Latvia, Lithuania, Luxembourg, Macao SAR, Malta, Netherlands, New Zealand, Norway, Portugal, Puerto Rico, San Marino, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, 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.

Apartment

Within the context of this report and Calgary's Civic Census, an apartment is a structure originally designed and built to contain at least three dwelling units on three or more levels. The dwelling units share outside entrances. Apartments include rental units and those that are owner-occupied.

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 from 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 physical goods that can be bought and sold on the spot or futures markets. Commodities are goods that are usually produced or sold by many different companies. A commodity is uniform in quality between companies that produce and 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 and rice).

Consumer price index (CPI)

The Consumer Price Index (CPI) is an indicator of the consumer prices met 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.

Contact-intensive

According to the U.S. Department of Labor, a contact-intensive industry is one where the job requires the worker to perform job tasks in close physical proximity to other people. Examples of contact-intensive occupations include barbers, physical therapists, personal care aides, nurses, flight attendants, grade school teachers, and food/beverage servers.

Detached housing

Independent structures that are typically built on land that exceeds the footprint of the building on each of its sides.

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 limited productive resources that have alternative uses to 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

Glossary

them and when. A "strong' or "healthy" economy is usually one that is growing at a good pace.

Emerging and developing economies

This group of countries include developing economies that are low- and middle-income countries, and emerging economies that are in transition from developing economies to developed countries. Some of the largest countries in the world like China, India, Brazil and Russia are emerging economies.

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.

Great Recession (2008-2009)

The Great Recession was a widespread period of economic decline during the late 2000s where most of the world's economies, particularly those of North America, Europe and Japan, fell into a recession. For Canada and the United States, the recession was most acute in 2008 and 2009. Both countries experienced multiple quarters of consecutive negative GDP growth. In response to the Great Recession, many governments around the world introduced multi-billion dollars economic stimulus plans and engaged in numerous interest rate cuts.

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.

Headlease

A headlease is a lease agreement between a landlord and a tenant. A Sublease exists when the tenant named in the Headlease rents out some or all of the space covered under the Headlease to a different party, a subtenant.

Herd immunity

Herd immunity, also known as "population immunity", is the indirect protection from an infectious disease that happens when a population is immune either through vaccination or immunity developed through previous infection.

Household formation

The number of new households that will be formed over the long term. Based on projections of population by age cohort and age-specific headship rates, household formation is the underlying driver of long-term demand for new housing and thus new home construction.

Housing markets

Consists of two markets: new house and resale 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 resale 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.

IMF

The International Monetary Fund (IMF) is an organization created in 1945, governed by and accountable to the 189 countries that make up its near-global membership. The IMF's primary purpose is to ensure the stability of the international monetary system—the system of exchange rates and international payments that enables countries (and their citizens) to transact with each other.

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.

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

The labour force participation rate is the percentage of the total population aged 15+ who are in the labour force.

Median price

The median price is the middle point that divides all transactions into two equal parts: 50 per cent of transactions occur at price that is lower than the median price and the other 50 per cent occur at a price that is higher. The median price is a preferred measure of central tendency than the average price, as it is not adversely influenced by extreme values.

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.

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.

Natural increase

Natural increase is the variation in the population size over a given period as a result of the difference between the numbers of births and deaths.

OPEC

The Organization of Petroleum Exporting Countries (OPEC) is an organization of 13 oil producing countries (Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, the United Arab Emirates, and Venezuela) that seeks to actively manage oil production in its member countries by setting production targets. OPEC member countries typically produce 40 to 50 per cent of the world's crude oil, and Saudi Arabia is OPEC's largest producer. OPEC is described by most market observers as a cartel whose actions, particularly those by Saudi Arabia, serve as a major influence on global oil production and price.

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.

Unemployment rate

In Canada, the unemployment rate measures unemployment and is expressed as a percentage of the total labour force, which is the total number of people who are 15 years of age and over who are either employed or unemployed.

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.

Working age population

Describes persons aged 15+.

WTI

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


BIKE SIGNAL

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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Sources:
Altus InSite, Bank of Canada, CMHC, Conference Board of Canada, CREA, CREB, Government of Alberta, Government of Canada, International Monetary Fund (IMF), Statistics Canada, Stokes Economics, The City of Calgary, U.S. Energy Information Administration (EIA), Federal Reserve Bank of St. Louis (FRED), World Health Organization (WHO), and others.