Calgary

Fall 2023

Calgary and Region Economic Outlook

2023-2028

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Introduction

The City of Calgary (The City) tracks economic indicators throughout the year to develop insights about the impacts of external events on the local economy. The results are published in the Economic Outlook semi-annually in the spring and fall and are available to the public.

The timing of the release of The City's Fall Economic Outlook is late October every year. The timing is dependent on several items. For example, the report typically follows and incorporates insights from a fall release of the International Monetary Fund's World Economic Outlook, and the Bank of Canada's quarterly monetary policy update. The late October release of the Fall 2023 Economic Outlook also supports Council's work during the November 2023 Adjustments to the 2023-2026 Service Plans and Budgets.

Purpose

The Fall 2023 Economic Outlook supports The City's financial and physical planning. It provides a reasonable basis for decision-making by outlining and clarifying the economic opportunities and threats facing the Calgary Economic Region. The outlook considers several economic indicators. The choice of indicators reflects factors deemed likely to affect local economic performance over the forecast period.

Plan

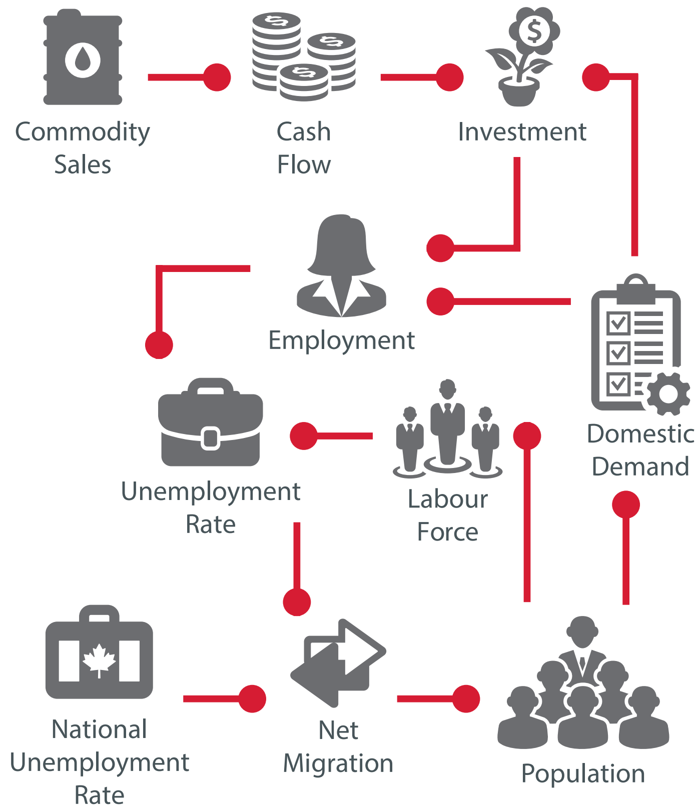
There are two areas or economies of interest. The first is the local (or city of Calgary) economy. The second is the regional economy (Calgary Economic Region or CER).

The CER is a small open economy affected by changes outside its borders. Consequently, external influences from the provincial, national and world economies get transmitted to the local and regional economies. Outside factors judged to have a substantial impact get presented as forecast assumptions. Most national and international forecast estimates in the assumptions section reflect the average expectations of private sector forecasters. All the CER or City forecast estimates are the output of City of Calgary forecast models, validated by private sector forecasts.

The economic cycle for commodity-based regions helps to inform projections of economic activity in the CER. The level of crude oil sales affects the cash flow of Alberta's energy industry and investment in the local economy. A summary of the path from crude oil sales to increased domestic demand is available in the chart below. The Fall 2023 Economic Outlook uses assumptions about changes in the path for the 2023 to 2028 period as follows:

- Deceleration of inflation in global markets and near-term resilience in global economic prospects;
- Significant energy industry cashflows after robust exports last year attracted many migrants; and

Transmission from Strong Commodity Performance to Strong Economic Performance



- A significant drop in investment levels as businesses exercise caution in the face of economic uncertainty.

Payoff

The Fall 2023 Economic Outlook provides comprehensive estimates of the future conditions for Calgary's local and regional economies. Like the work of alternative forecast providers, it uses theoretical and empirical economic underpinnings. However, unlike the work of alternative forecasters, it provides the complete set of indicators requested by local decision-makers for the city and CER.

Finally, it tackles key recurring questions posed by City of Calgary decision-makers:

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

Executive Summary

1. Robust crude oil production and exports in the province have provided solid support to Calgary's local and regional economic growth

Total oil production in Alberta has been growing steadily for many years, increasing 104 per cent from 2007 to 2019. Production declined by 5.1 per cent in 2020, largely due to the COVID-19 pandemic. In 2021, production started increasing again, surpassing its pre-COVID level with an annual growth rate of 8.0 per cent. The growth trend continued into 2022, as the war in Ukraine led to a surge in world oil prices and demand for non-Russian oil. Alberta crude oil production increased 11 per cent in 2022. Strong Alberta crude oil production has supported sturdy export growth. In the first half of 2023, Alberta's crude oil represented 83 per cent of Canadian production and 89 per cent of Canadian total crude exports.

From 2023 through 2028, Alberta crude oil exports should continue to grow, while at a decelerated pace compared to the rapid growth in the past two years. The slowing growth is expected under all three scenarios developed by the Canada Energy Regulator in 2023, including the *'Global Net-Zero'* scenario and *'Canada Net-zero'* scenario, which both assume Canada achieves net-zero emission by 2050, and the *'Current Measures'* scenario, which also assumes active nationwide actions to reduce GHG emissions. Specifically, achieving the net-zero scenarios requires Canada's oil and gas industry to significantly reduce its emissions and restructure its end-use energy sources.

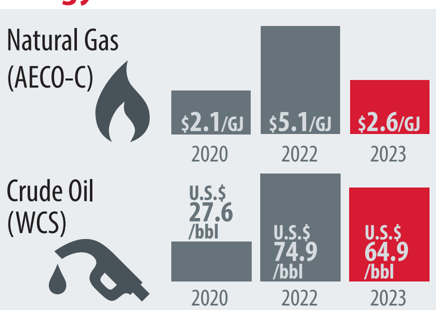
The average prices of Canadian crude oil exports were volatile over the past few years, which impacted the export values and the cashflows into the energy industry. After averaging around U.S.$58 per barrel (bbl) from 2017 to 2019, the annual average price for West Texas Intermediate (WTI) crude oil fell to U.S.$39/bbl in 2020. This price decrease was largely caused by reduced global demand during the COVID-19 pandemic. Crude oil prices began to increase again in 2021 as business activities rebounded when many countries eased pandemic restrictions. Price increases accelerated in early 2022 when the war in Ukraine started, with the WTI average at U.S.$95/bbl. For the forecast horizon, the average annual price should remain strong, above 2017-2020 prices, while softened from the 2022 high. Alberta's export capacity depends on pipelines and crude-by-rail. With Trans Mountain pipeline expansion completion delayed to the second quarter of 2024, the price differential between the Western Canadian Select (WCS) and WTI should continue to exist in the near term before improving with increased transportation capacity.

Natural gas prices in North America increased significantly in 2022 after the war in Ukraine started. Alberta producers responded with higher drilling and production, reaching 11.0 billion cubic feet per day (Bcf/d). This increase represents a 12 per cent annual growth from the 9.8 Bcf/d in 2021. Natural gas prices have moderated since the beginning of 2023 due to three factors. Firstly, the relatively milder winter in 2023 resulted in lower natural gas demand in Canada and the U.S. Secondly, natural gas production growth in the U.S. has been robust, leading to reduced demand for Canadian exports. And thirdly, the inventories in both countries are at above-average levels, weighing on both the North American benchmark price Henry Hub and the Alberta benchmark Alberta Energy Company trading prices (AECO-C).

Power generation has become a significant support to Alberta natural gas demand. The improved pipeline transportation capacity should also provide a lift to the AECO-C prices with the North Corridor expansion to the primary Nova Gas Transmission Limited (NGTL) system which was completed and came into service in Q2 2023. The AECO-C prices should average $2.6/GJ in 2023 before gradually increasing to $4.1/GJ by 2028 as supply expands. The price discount between AECO-C and Henry Hub should ease as transportation capacity continues to improve.

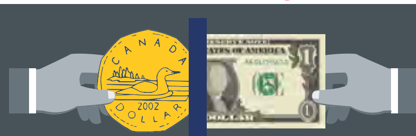
The exchange rate should average U.S.$0.76 per CAD$ between 2023 and 2028. Exchange rate stability relative to the 2019 to 2022 average should support trade, as trading partners benefit from increased price certainty. For the oil and gas industry, growth in crude oil exports to U.S. markets alongside a stable dollar would translate into steady cashflows for businesses in and around the oil and gas industry and support a strong economy.

Energy Prices



The WCS **oil price** and the AECO-C **natural gas price** would soften from the 2022 spike but remain strong enough to attract capital investment and support economic growth.

Canada/U.S. Exchange Rate



U.S.$ for 1 C$

2024-2028 Average	**0.76**	2022	**0.77**
2023	**0.75**	2021	**0.80**

A relatively **stable and subdued** Canadian dollar relative to the U.S. dollar should help avoid higher price volatility for imported consumer goods and support Canadian exports.

GDP Growth Comparison

In 2023, the **real GDP growth rate** for the regional economy would remain robust and exceed the provincial, Canadian, U.S. and global economic performance.

Calgary CER	**3.1%**
Alberta	2.9%
Canada	1.4%
U.S.	1.9%
World	3.0%

2. Non-residential and business fixed investment levels should decline in 2023 after the 2022 surge as businesses continue to exercise caution in the face of uncertainty and elevated financing costs, while housing investment remains resilient driven by strong apartment construction

After the surge in 2022, total investment in the Calgary Economic Region is forecast to decline in 2023, before gradually recovering between 2024 and 2028. Similarly, investment in Alberta's economy should also decrease in 2023, though at a relatively milder pace.

The elevated financing costs and tight credit conditions have been weighing on investment intentions. The Bank of Canada has taken a series of monetary policy measures to combat persistent inflationary pressures, including raising interest rates and quantitative tightening. The annual average prime lending rate increased from 2.4 per cent in 2021 to 4.2 per cent in 2022 and is expected to increase further to 7.0 per cent in 2023. This is a record high in the past two decades. High borrowing and construction costs are the key factors holding back investment in both Calgary and Alberta.

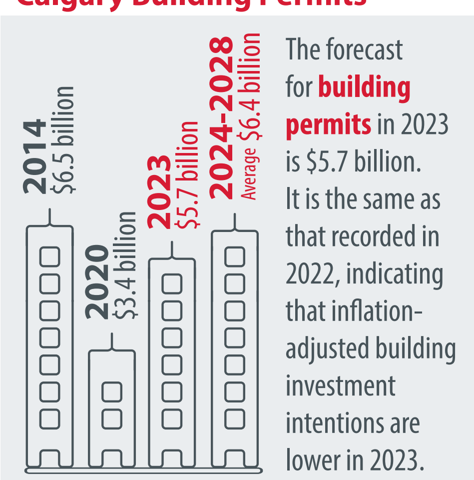
Two industries are expected to contribute the most to the aggregate business fixed investment decline in Calgary this year: transportation and warehousing, and utilities, both with a double-digit pace of decrease in capital investments. The slowdown in the transportation and warehousing sector is mainly caused by the rising cost of transportation equipment and slowing demand growth in both Canada and the U.S. The utilities industry in Calgary is expected to see reduced investment and employment in 2023 with elevated business costs, before a rebound in 2024 and the rest of the forecast period. In comparison, there are industries that have shown resilience in investment growth this year, including the manufacturing and professional, scientific, and technical services (PSTS) industries. After the drawback during the COVID-19 pandemic restrictions, the manufacturing sector is expected to see strong business fixed investment in 2023, contributing to the certainty and stability of local supply chains and enhancing capacity and access to other markets. Calgary's PSTS industry should also expect solid growth in 2023, driven by the increasing demand from the energy sector and the momentum in tech sector growth. Going forward, businesses should continue to exercise caution in the face of uncertainty, high financing costs, and increasing construction and utilities cost pressures.

Despite the overall weakness in residential investment in Alberta, housing investment in Calgary has been relatively strong (contrary to the Spring 2023 Economic Outlook expectations – a notable update) in 2023. After reaching a record high of 14,800 units in 2022, total housing starts in Calgary maintained its robustness in the first three quarters of 2023, driven by higher building construction investment intentions on apartments. There has been a shift in housing preferences towards apartments as the higher interest rate environment continues to challenge homeownership and affordability. Investment in purpose-built rental apartment construction increased solidly in Calgary, to respond to the surging population growth from international and interprovincial net migration. In comparison, non-residential building investment intention is expected to decline in 2023, due to rising interest rates and labour shortages in the construction sector.

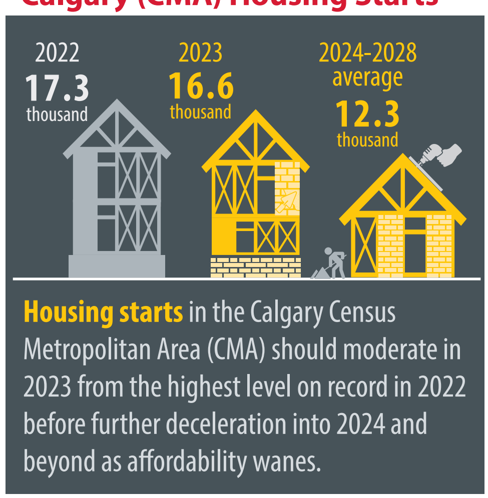
With increased residential building investment intentions and a slowdown in housing demand, the pace of house price appreciation is expected to moderate in 2023. Calgary buyers are looking towards apartments as a significant option in housing needs as buyers shift away from purchasing single-family homes and other relatively more expensive housing types.

In 2023, the total value of building investment intentions in Calgary is expected to be $5.7 billion. Though the nominal value remains unchanged from the $5.7 billion observed in 2022, the real value should decrease more given the elevated construction inflation. Almost three of every four investment dollars in new buildings is expected to be directed at residential property construction in 2023. Building construction investment intentions should gradually increase between 2024 and 2028, averaging $6.4 billion annually, as solid population growth and slightly lower borrowing costs emerge over the forecast horizon.

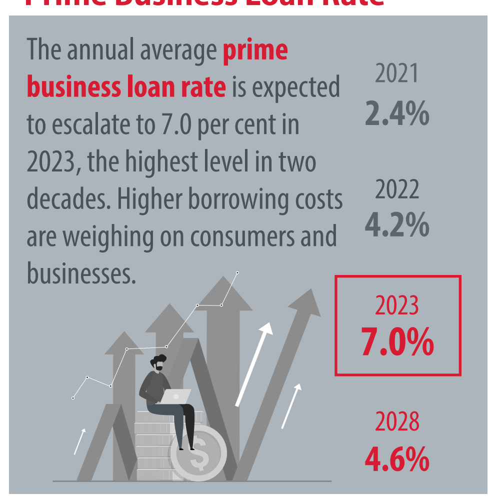
Calgary Building Permits



Calgary (CMA) Housing Starts



Prime Business Loan Rate



Executive Summary

3. Strong population growth and labour market performance should increase economy-wide earnings and boost consumer spending, though elevated inflation and interest rates should weigh on consumption

The population growth in Alberta has been exceptionally strong in 2023, with the fastest population growth in the country. International net migration has remained robust, bolstered by net inflows of both permanent residents and non-permanent residents, including newcomers from Ukraine, temporary foreign workers, and international students. The interprovincial net migration to Alberta has also been higher than earlier expected. Between 2022 July 1 and 2023 June 30, more than 46,000 people moved into the province from the rest of Canada. The relatively lower cost of living and better housing affordability in Alberta compared to other major Canadian cities, as well as the strong economic performance, have contributed to the interprovincial population growth. Higher net migration levels should further boost Alberta's economic activity, support consumption and residential investment in the provincial and CER economies and help mitigate the labour market tightness.

The City's estimate for the local population as of 2023 April 1 is 1,389,200, representing an annual population growth rate of 3.0 per cent over 2022. The population estimates for the city represent the population as of April 1 of a given year, consistent with the former City of Calgary civic census. With higher-than-expected population growth from net international and interprovincial migration in Alberta, it is possible that the population estimate for Calgary in 2023 was at the lower bound of the forecast. However, with the discontinuation of Calgary's civic census in 2019, it is premature to estimate to what level the higher provincial population growth should cascade to Calgary's annual population estimate. The Corporate Economics team will continue to monitor the changes and reflect the updated forecast in the Spring 2024 Economic Outlook as more statistics become available for the annual population estimate.

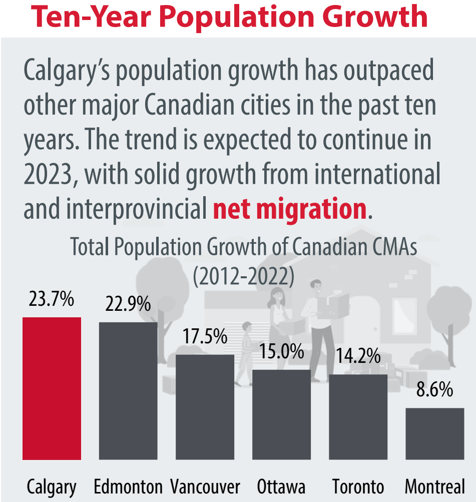
It should be noted that the population surge is unlikely to be sustainable. The net migration from international and interprovincial sources is expected to decelerate in 2024 and the rest of the forecast period. With the Canada-Ukraine Authorization for Emergency Travel program coming to an end, the number of new non-permanent residents is expected to decline next year. The net migration from foreign students should also subside in 2024, with educational services in the province reaching capacity. Net migration is expected to stabilize at a level slightly higher than its historical average between 2024 and 2028.

Job creation is expected to moderate to 2.8 per cent in 2023 after a blistering 7.3 per cent in 2022. That represents an addition of 26,100 net new jobs in the CER in 2023. The slowdown in job creation is partly the result of a shift from mitigating the labour force shortage to matching the right skills between job seekers and employers. In line with investment growth, the two industries that should experience the fastest pace of job growth are manufacturing and the professional, scientific, and technical services industries. Business, building and other support services should also expect higher employment in 2023. Job losses are expected for sectors with a decline in investment intentions, including utilities, retail trade and educational services. Between 2024 and 2028, the average annual rate of job growth should decelerate to 2.3 per cent.

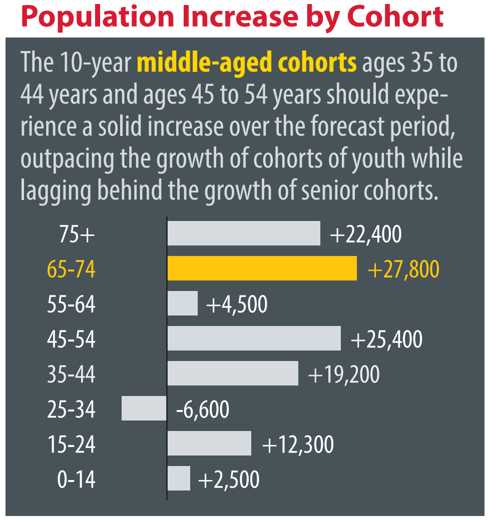
The overall employment growth alongside real wage increase should boost economy-wide earnings and consumer spending in 2023. The significant population growth should also provide a solid base for the labour market and consumer spending. Personal consumption spending is the main contributor to local GDP growth, representing about three out of every five dollars of economic activity in Calgary. However, the elevated inflation and rising interest rates have been a drag on household spending, especially on large ticket items. Rising debt servicing costs and the worsening indebtedness of Calgarians should dampen real consumer spending in 2024.

The average annual unemployment rate should stay above 6.0 per cent until 2024 before trending downwards from 2025. That's because job growth in the next two years would only slightly exceed labour force growth. As a result, the CER unemployment rate should exceed the Alberta and Canadian average without new policy developments that encourage faster job growth.

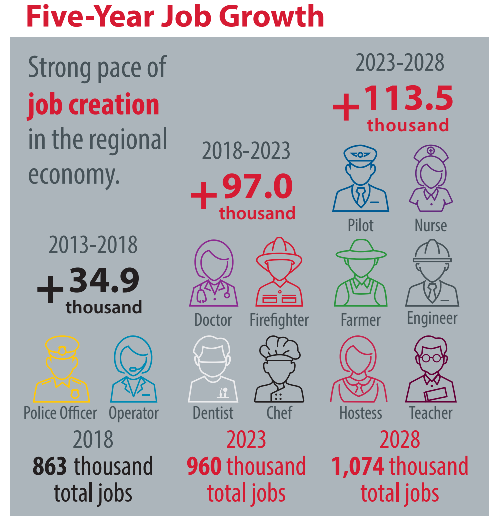
Ten-Year Population Growth



Population Increase by Cohort



Five-Year Job Growth



4. Inflation should continue to decelerate, but there are signs of persistency in inflationary pressures and weakening of the downward momentum

Consumer prices in Calgary are growing at a much lower pace in 2023, with the base year effects easing as the large price increases from 2022 drop from the year-over-year calculation. After a 7.2 per cent increase in 2022, the annual average inflation growth in Calgary is expected to moderate to 3.9 per cent in 2023.

Multiple factors have contributed to the deceleration of inflation growth. The supply chain constraints that originated during the pandemic and deteriorated after the Russian-Ukraine war have improved significantly since the beginning of 2023. Compared to last year, energy prices are lower, and input costs have moderated. The impact of the Bank of Canada's tightening monetary policy actions over the past year will continue to work its way through the economy and put downward pressure on inflation.

Though inflation continues to come down, there are signs of persistency in inflationary pressures and weakening of the downward momentum. Firstly, demand continues to outpace supply as consumption spending has been strong in Calgary. Strong inflows of newcomers to Calgary support the growth in demand for goods and services, and the pent-up demand for services continues to recover from the impact of the COVID-19 pandemic. Secondly, housing prices have been more robust than earlier expected, with a tight housing supply caused by low inventory and subdued new listings, and a relatively strong housing demand. Thirdly, core inflation excluding food and energy has also been stubborn, especially in service sectors, due to the tight labour market despite signs of easing, robust consumer demand, and elevated inflation expectations. While goods price inflation is expected to ease further, service price inflation should moderate at a more gradual pace.

For Calgary consumers, slower increases in the cost of living in 2023 provide some relief from the sharp increase in 2022. The sources of 2023 consumer price inflation in order of the magnitude of their expected contribution to inflation are:

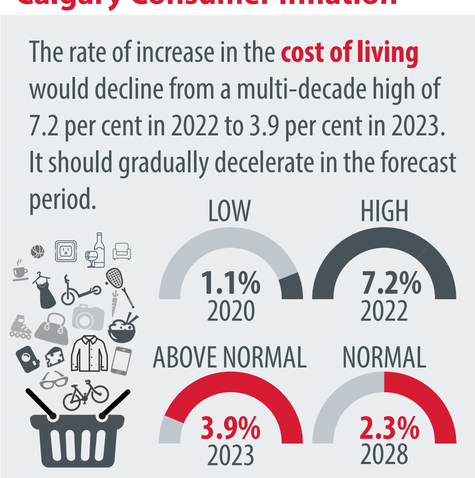
- Positive shelter inflation (26 per cent of the consumer basket): shelter prices accelerate as electricity prices in Alberta surged, driving up household energy costs. The sharp increase in electricity prices is attributable to a surge in the regulator-approved 'Regulated Rate Option' for electricity prices, which hit a record this summer (four to six times higher than what was observed from 2018 to 2020).
- Positive food inflation (16 per cent of the consumer basket): although the price growth for groceries has slowed in 2023 on a year-over-year basis, food price levels remain elevated. The food production and supply chain has been impacted by geopolitical turmoil, extreme weather events, and labour shortages. The deceleration of food price growth will be a gradual process.
- Negative transportation inflation (18 per cent of the consumer basket): overall gasoline and diesel prices should decline in 2023 compared to last year because of lower global oil prices resulting from supply outpacing demand.
- A relatively stable Canadian dollar relative to the U.S. dollar should help avoid higher prices for imported consumer goods and services because of the exchange rate.

Businesses should expect significant upward pressures on labour costs given the tightness of the labour market within particular industries. Alberta wage inflation is expected to stay high at 2.5 per cent in 2023, before moderating slightly to 2.4 per cent in 2024. The municipal government is not immune to a competitive labour market, which would lead to additional operating cost pressures, putting upward pressure on taxes.

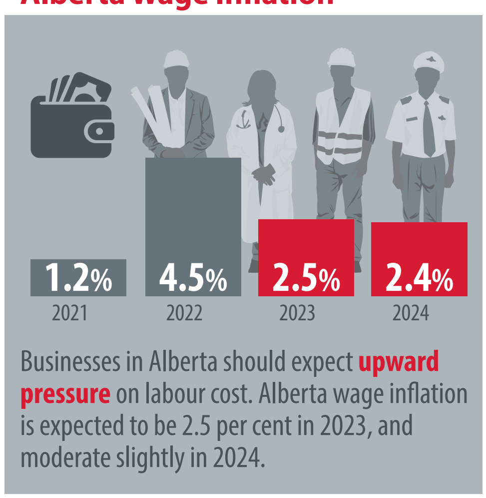
Average housing prices are expected to increase moderately by 1.9 per cent in 2023, driven by strong demand for shelter from population growth and increasing residential building costs. This is an upward adjustment compared to the 2023 Spring Economic Outlook.

The sustained increase in prices for non-residential building construction should increase 6.1 per cent in 2023, reflecting the increase in wages, rising financing costs, and sustained high prices for some underlying construction commodities like concrete, wood, and structural metal above pre-COVID-19 levels. Non-residential building construction inflation measures the cost of private sector capital investment and government investment. It is expected to decelerate in 2024 and through the forecast period.

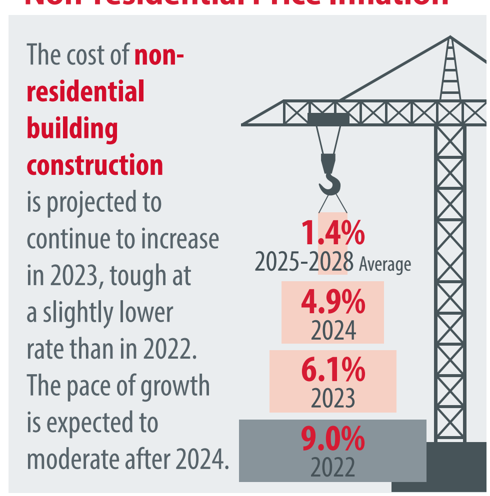
Calgary Consumer Inflation



Alberta Wage Inflation



Non-residential Price Inflation



Executive Summary

Forecast Implications

Averages: Previous vis-à-vis Current City of Calgary Service Plans and Budget Cycle

Economic Indicator	Estimate Previous Service Plans and Budget Cycle [2019 to 2022] Annual Average	Forecast Current Service Plans and Budget Cycle [2023 to 2026] Annual Average	Forecast Implications
Assumptions			
World			
Real Gross Domestic Product Growth (%)	2.3	3.1	The average growth of the world GDP is expected to be higher for the current service plans and budget cycle than the previous one. Despite monetary tightening policies and geopolitical shocks, global economic growth is supported by robust household and corporate balance sheets. The resilience in the global market should have a positive impact on consumer confidence and spending in Calgary.
The United States			
Real Gross Domestic Product Growth (%)	1.9	1.6	The U.S. economic growth is expected to slow in this cycle with fiscal policy restraint and reduced spending from pandemic-related savings. This should weigh on the demand for Canadian exports. However, Canada's energy exports are expected to outperform non-energy exports.
Canada			
Real Gross Domestic Product Growth (%)	1.4	1.5	Canada's economy should be supported by rapid population growth and strong household spending. The average rate of economic growth in Canada will be higher in this cycle than in the previous one, supporting interprovincial trade.
Prime Business Loan Rate (%)	3.3	5.8	Interest rates will stay elevated in the current cycle. Higher financing costs should weigh on business investment incentives and household debt levels in Canada.
Exchange Rate (U.S.$ for 1C$)	0.77	0.76	The exchange rate between U.S. and Canadian dollars is expected to remain stable in the current cycle. This should support trade as trading partners benefit from improved price certainty.
Alberta			
Real Gross Domestic Product Growth (%)	0.5	2.3	Compared to the previous cycle, Alberta's economic performance is expected to be significantly stronger during 2023-2026. The City benefits from the Province's robust fiscal situation and strong economy.
Total Employment Growth (%)	1.2	2.2	Alberta should expect strong employment growth and tightness in labour market in this cycle. Employers in Calgary will have a more challenging time finding workers and competing against the rest of the province.
Unemployment Rate (%)	8.1	5.6	A lower unemployment rate in the 2023-2026 cycle leads to reduced demand for social assistance programs from The City as the number of unemployed persons declines.
Housing Starts ('000 units)	29.9	33.0	Strong population growth in Alberta supports the housing demand and residential investment in the current service plans and budget cycle. This should contribute to economic growth within the province.
Inflation Rate - CPI (%)	3.1	2.5	With tightening monetary policies and the pullback in input costs, inflation is expected to moderate in the current cycle. This should reduce pressure on City expenditures.
West Texas Intermediate - WTI (U.S.$/bbl)	64.8	79.1	Crude oil prices have been volatile so far in 2023. This prompts The City to continue to explore countercyclical fiscal policy options to help moderate the impact of price volatility and economic fluctuations. Oil prices will remain elevated in this cycle compared to the previous one.
Western Canadian Select - WCS (U.S.$/bbl)	50.1	64.1	Improved transportation capacity and expanded access to markets should help sustain a stable price difference between the WCS and WTI. This should support energy investment in the province and local economy.
Alberta Natural Gas Price - AECO/NIT ($/GJ)	3.1	3.4	Natural gas prices are expected to average higher in this cycle than in the previous one. This will increase operational costs for businesses and the cost of living for households. Although this will yield higher franchise fees for The City, operating expenditures for some City services will increase.
Industrial Product Price Index (%)	6.6	0.3	Prices for industrial products are expected to decrease from their mid-2022 peak in this service plans and budget cycle, resulting in a lower average of price growth in 2023-2026. This should moderate the inflationary pressures for The City.
Raw Materials Price Index (%)	11.3	-2.3	Raw material prices are expected to decline in this cycle from the price spike experienced in the previous two years, which should reduce cost pressures for businesses.
Alberta Average Annual Wage Rate Growth (%)	1.6	2.4	Higher wage growth in the current cycle will raise incomes and improve affordability. However, it will also increase the labour cost, contributing to the inflationary persistence within the province and The City.

Averages: Previous vis-à-vis Current City of Calgary Service Plans and Budget Cycle

Economic Indicator	Estimate Previous Service Plans and Budget Cycle [2019 to 2022] Annual Average	Forecast Current Service Plans and Budget Cycle [2023 to 2026] Annual Average	Forecast Implications
Forecast			
Calgary Economic Region			
Real Gross Domestic Product Growth (%)	1.0	3.1	Calgary Economic Region should expect solid economic growth in the current service plans and budget cycle, supporting the resilience of the property tax base.
Total Employment ('000 people)	882.7	997.6	Strong job growth will expand the consumer base, increasing demand for housing and goods and services in the region.
Total Employment Growth (%)	2.1	2.5	The employment growth rate is expected to remain strong in this cycle, continuing to create solid demand for City services and infrastructure.
Unemployment Rate (%)	8.4	6.1	Lower unemployment rates in this cycle should increase the competition for skilled workers and reduce the demand for social services that support the unemployed. The tightness in the labour market will cause increasing pressures on labour costs for The City.
Calgary Census Metropolitan Area (CMA)			
Housing Starts ('000 units)	13.4	13.6	Housing investments in the Calgary area are expected to be higher in nominal values in the current service plans and budget cycle. Strong population growth from international and interprovincial net migration should support solid housing starts in Calgary CMA.
Inflation Rate - CPI (%)	3.2	2.7	Consumer price inflation is expected moderate in this cycle. This will not undo the price gains of 2021-2023, and prices will stay at a relatively elevated level compared to two years ago. Moderation of the costs of goods and services helps mitigate the risks of cost overruns and budget adjustments.
Non-Residential Building Price Inflation (%)	3.9	3.3	Non-residential construction costs are expected to continue to rise in this cycle, weighing on non-residential building activities, including The City's infrastructure investment.
City of Calgary			
Demography			
Total Population ('000 people)	1,315.7	1,422.9	A larger total population indicates a higher demand for municipal services and infrastructure. It also means that the residential property tax base would increase.
Total Population Growth (%)	1.6	1.9	Calgary's population growth is expected to be higher in this cycle than the previous one, driven by robust net migration in the forecast period. This could generate additional pressure on certain City services.
Net Migration ('000 people)	11.9	19.2	Calgary has seen strong migration and expects the trend to continue in 2023. This should support consumption and demand for housing and mitigate the labour market tightness in Calgary.
Household Formation ('000 units)	7.5	10.4	The higher household formation in the current cycle supports higher demand for residential spaces, therefore indicating a larger residential tax base and increased demand for City infrastructure and services.
Real Estate			
Residential Market			
Housing Starts ('000 units)	11.5	11.5	Stable residential construction activity in the current cycle should support increases in the residential tax base, development and building permit activity, and demand for the continued expansion of City infrastructure.
Calgary Average Residential MLS Sale Price (%)	2.1	3.1	Home affordability in Calgary will remain challenging for new housing market entrants as housing prices continue to grow in the current cycle. This should increase the supply of new housing units and reduce the pressure on property tax growth for existing homeowners.
Benchmark Home Price Growth (%)	5.1	3.4	Benchmark home price growth should also moderate in this cycle compared to the previous one. This is driven by strong demand for shelter from population growth and increasing residential building costs. The elevated shelter costs should weigh on the affordability for Calgarians.
Total Building Permits ($billions)	4.9	6.1	Higher building permit values in the current cycle will lead to a broader property tax base, higher revenues, and demand for services.

Numbers may not add up due to rounding.

Executive Summary

Forecast Risks

Risks arising from activities in the Rest of the World:

Major factors that could alter actual economic performance include downside pressure on the global gross domestic product (GDP), global supply and demand, and temporarily eased risks to the global financial markets.

Risks from market conditions and policy differences across Canada:

Significant factors that could alter actual economic performance include downside pressure on household wealth and business investment, stronger than expected consumption demand, and environmental policy divergence that creates business investment uncertainty.

1

Global Economic Outlook

The forecast risks remain **tilted to the downside** on the global GDP growth, as the forecast for 2023 and 2024 remains subdued by historical standards. On the upside, global supply chains have significantly improved from the COVID-19 pandemic and the Russian-Ukraine war. The services sector has been resilient, supporting global economic activity. On the downside, elevated inflation persists and tighter credit availability weighs on global debt burdens. The Israel-Hamas war should add more uncertainty to the global economic outlook.

2

Global Supply and Demand

Global production has shown weakness with reduced investment in major advanced economies. The driving factors include deepening geoeconomic fragmentation, weakening consumption of goods from nonservices sectors, persistent inflation, and elevated financing costs. China's recovery after the reopening from COVID-19 restrictions has been weaker than expected. International trade should expect further softness and future geopolitical uncertainties could cause additional volatility in commodity prices.

3

Policy Divergence and Financial Market Volatility

The risks of global financial markets have eased due to the swift reactions earlier this year to contain the debt distress of problematic regional banks in the United States and Credit Suisse. The financial stability of the bank sector has, therefore, improved for the global market. However, tight monetary policies across many countries should put downward pressure on financial stability through higher financing costs and increased credit risks. In 2023 and 2024, global financial markets should continue to remain highly sensitive to inflation news.

4

The Speed of Inflation Deceleration to Normal Levels

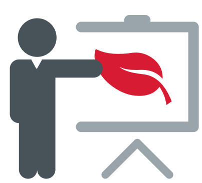
Inflation in Canada has remained elevated, though it has been decelerating. The interest rate increases have been part of the monetary policy actions to contain inflationary pressures. This has weighed on household spending and business investment. Though trending down, there is uncertainty in the pace of inflation deceleration to its pre-pandemic levels. **Downside risks exist on Canadian economic activity** if inflation remains elevated for longer. Household wealth and business incentives could further dampen, resulting in larger output losses.

5

Canadian Consumption Demand

The population growth in Canada has been strong due to robust inflows of net migration of permanent and non-permanent residents. This has provided **support to Canadian consumption demand** across a broad range of goods and services. Other factors contributing to the excess consumption demand include the tight labour market, higher pent-up demand from Canadians, and a stronger willingness to spend their accumulated wealth.

6



Environmental Policy Coherence vis-à-vis Divergence

Environmental policy divergence exists between municipal, provincial, and federal governments. This will create **uncertainty and ambiguity, therefore, downside risks to business investment**. The heightened tensions should continue to exist between different orders of governments on environmental policy and the pace of policy implementation. The proposed Clean Electricity Regulation is a good example. Uncoordinated incentives from policymakers will drag down the efficiency of green transition and make the future of environmental policy across governments ambiguous.

Risks from potential changes in Alberta provincial economy:

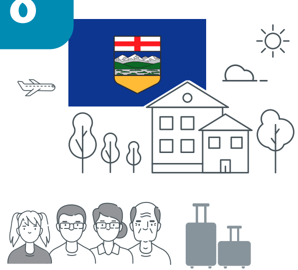
Significant factors that could alter actual economic performance include the uncertainties associated with oil and natural gas prices and exports, migration and its impact on consumption and investment, and labour market balance.

7

Oil and Natural Gas Prices and Exports

Crude oil prices have been volatile so far this year, due to global demand concerns, geopolitical uncertainties, and production cuts in Saudi Arabia. Despite the volatility, the WTI price in 2023 should remain elevated, though softening from the 2022 high. North American natural gas prices have been weaker due to lower demand and above-average inventories. Overall, **the oil and gas sector investment and exports should be robust in the forecast period**, supported by healthy cashflows and improving transportation capacity. The Israel-Hamas war could cause upward pressures and more volatility in energy prices.

8



The Level of Net Migration

Alberta's population is increasing at an exceptional pace in 2023, driven by surges in international and interprovincial net migration. The numbers of permanent residents and non-permanent residents are higher, including newcomers from Ukraine, temporary foreign workers and international students. Higher net migration levels beyond those incorporated in the forecast should further boost population growth in Alberta, **support consumption and residential investment in the provincial and CER economies and mitigate the labour market tightness**.

9

Labour Market Balance

Robust population growth from net migration into the province is helping to fill job vacancies and improve employment. However, the net migration spike will not immediately translate into higher labour force participation and employment levels. It will take time to mitigate the discrepancy between skills and jobs. Alberta's tight labour market is expected to see further relief in the forecast period. During the process, the **upward pressure on wages throughout Alberta beyond currently anticipated levels should be gradually mitigated**.

Risks from local and regional private and public sector influences:

The uncertainty associated with a tougher business environment, potential stress on household financial health, weakening momentum on household spending, and wage pressures.

10

Business Environment and Investment

Many Calgary businesses are cautious of the overall business environment and holding back investment. The elevated borrowing costs, tight credit conditions, high construction and labour costs, and the prospect of slowing economic activity are key factors contributing to their current challenges. Though residential investment is strong due to rapid population growth, private (non-residential) investment has declined in 2023. **There are downside risks to Calgary's economic growth if the level of business investment caution persists**.

11

Household Financial Health and Spending

Housing spending in Calgary has been strong, supported by population growth and accumulated household savings. However, its momentum is weakening. Higher interest rates have been working their way through the economy, causing increasing debt-service costs, including mortgages. Households are expected to cut back their discretionary spending as a result. As more households renew their mortgage at higher rates in the near future, **consumption spending growth should moderate over the next year**, especially the demand for goods and services that are interest rate sensitive.

12

Real Disposable Income

Real wage growth in the forecast period is expected to be higher than the tepid growth experienced in 2019-2022. A higher real disposable income should help improve households' purchasing power and affordability. However, higher wages also indicate higher labour costs for both private and public sectors. Wage pressures will weigh on labour contracts and put upward pressure on cost-push inflation. **Avoiding an inflation wage spiral in the local economy will sustain positive economic growth for longer as real disposable income increases**.

Forecast

The Local City of Calgary Economy

The Sources of Economic Growth in Calgary

Much like the rest of Canada, consecutive interest rate hikes by the Bank of Canada to tackle inflation have taken a toll on Calgary's economy. The overnight rate has climbed from 0.25 per cent to 5.0 per cent in less than two years, and the effects are now starting to be felt. Inflation within the region as of September 2023 stood at 4.4 per cent, almost 2.4 percentage points lower year-over-year. While inflation appears to be slowing down, Calgary has faced some head-winds. Soaring business costs due to the rise in interest rates appear to be slowing down investment and employment growth compared to last year. Energy prices have softened after elevated values in 2022. In addition, the severity of wildfires across the province this year led to a temporary disruption in energy production.

Despite these headwinds, Calgary's economy is still expected to expand as the following factors provide some support within a less-than-optimistic macroeconomic environment:

1. **Manufacturing and exports growth due to stronger-than-expected foreign demand from the United States**

   Despite fears of a recession in 2023, the U.S. economy has performed better than expected throughout the first half of this year. Even though business sentiment has been down, consumer spending has remained stable, which accounts for more than 60 per cent of the U.S. GDP. This has boosted foreign demand, which is expected to support increased regional manufacturing and exports in Calgary.

2. **Robust domestic demand from record-high population growth across Canada**

   Population growth across the province has been significant due to relative housing affordability, a recovering labour market, and the federal government's immigration program that has spurred net migration. Alberta's population grew by 4.1 per cent year-over-year as of July 2023, growing faster than the national average of 3.0 per cent. This growth represents one of the highest on record. Strong population growth is expected to offset some of the impacts of the Bank of Canada's monetary tightening on consumer demand, translating into higher real estate and leasing activities as demand for home purchases and rentals remains stable. Increased consumer spending as more people move to Calgary is expected to alleviate some of the demand issues the region was initially expected to face.

3. **Stable energy prices and tighter crude oil spreads**

   Crude oil and natural gas prices have cooled and stabilized after significant spikes in 2022. However, the effects of the decrease in crude oil prices this year have been somewhat offset by tightening price differentials between the WTI and WCS. As pipeline and refinery capacity rises, and refinery costs drop due to lower gas prices, international trade and exports are expected to benefit from stable energy demand and a lower WTI-WCS spread.

4. **Increased output prices within the agricultural sector**

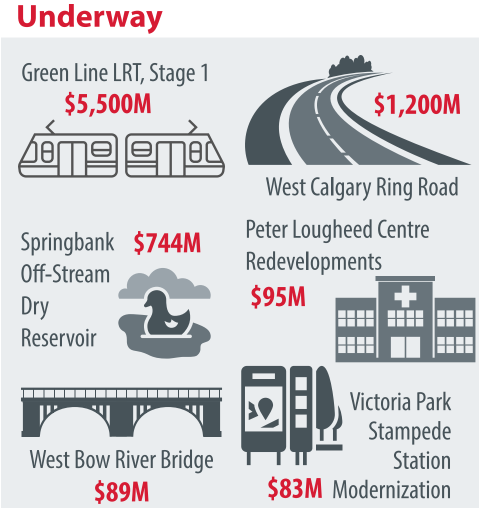
   The agricultural sector is expected to receive a boost as higher food prices and an increasing population benefit crop and animal producers. While inflation within the Calgary Census Metropolitan Area (CMA) has eased, food inflation remains persistent. These, combined with reasonably stable operational costs during the latter part of the year, are expected to benefit the sector.

The Contribution of Private and Public Investments and Impact on Construction Inflation

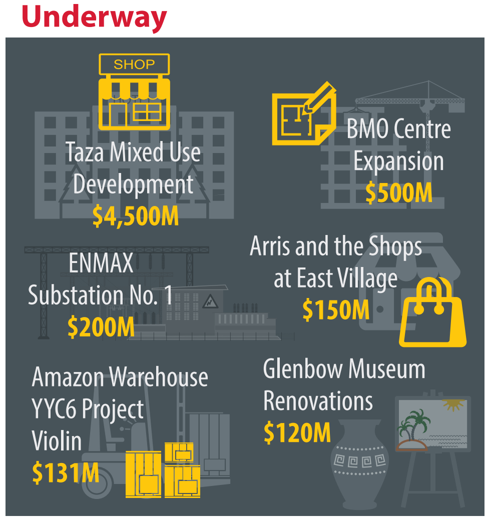
Investment – Investment Intentions and Prospects

In the Spring 2023 economic outlook, some major capital projects were highlighted that are expected to boost the economy. These

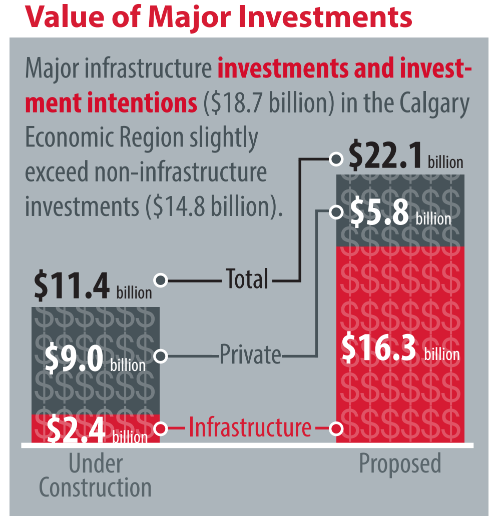
Top Infrastructure Investments Underway



Top Private Investments Underway



Value of Major Investments



projects include the Green Line Light Rail Transit (LRT), the Future Energy Park Renewable Natural Gas and Ethanol Project, and the West Calgary Ring Road project, at approximately $8 billion combined.

Since then, other major capital projects have been proposed and set to commence in the near future, including a finalized deal to fund the $1.2 billion Calgary Event Centre project. The Alberta Government announced in early October that they will provide $330 million for infrastructure investments, including land purchases, road and bridge construction and demolishing the Saddledome. The Calgary Municipal Land Corporation, the City of Calgary and Arts Commons have also announced the $40 million Olympic Plaza Transformation Project, a new City of Calgary initiative to renew important but aging downtown cultural space. The project was announced in June 2023. Coca-Cola Canada Bottling Limited also has plans in place for a $70 million investment into the development of a state-of-the-art warehouse in northeast Calgary, which is expected to be 60,000 square feet in size.

In response to the housing supply problem the city region faces, additional residential projects are being put in place to boost the supply of homes. Several capital projects, representing a combined value of approximately $1.7 billion, are already underway or set to begin between 2023 and 2024 with the intent of increasing residential spaces. A total of more than 7,900 residential units are expected to be added to the residential supply as a result of some of these projects.

Overall, investments are expected to decline in 2023, mostly in transportation and warehousing and utilities. On the other hand, the manufacturing and professional, scientific and technical service industries are expected to receive a boost in investments, offsetting some of the decline being felt in other industries. Investments in Calgary are expected to improve in 2024 as population growth is expected to continue, and the elevated financing cost environment is expected to improve.

Non-Residential Construction Price Inflation – Impact on City Costs

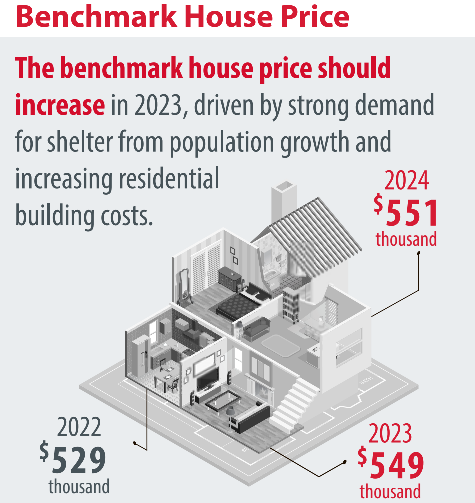
Some short-term inflationary risks on construction investments remain in the local economy. The Building Construction Price Index (BCPI), provided by Statistics Canada, measures the quarterly changes over time in contractors' prices to construct a range of new residential and non-residential buildings. The Non-residential BCPI indicates that though the year-over-year price acceleration for construction has moderated from 9.6 per cent in Q2 2022 to 4.7 per cent in Q2 2023, some concerns still remain with the elevated costs. Specifically, there has been some upward pressure in the prices of concrete, wood, plastics, and structural metal in the second quarter of this year. Steel prices have not softened, as the uncertainties continue to exist with the war between Ukraine and Russia. Should the conflict be resolved soon, the impact of increased interest rates on the construction industry lingers. That has created a "bow wave" of increased costs that builders and suppliers will have to swallow until their existing contracts expire. The contractual delay in passing on the increased financing costs will offset the decrease in raw material prices. Fuel costs are expected to see more volatility and uncertainty. Current expectations for oil prices point toward overall construction inflation averaging about 6.1 per cent this year, before further softening to the Bank of Canada's preferred range of close to 2.0 per cent for the remainder of the forecast. Although the pace of price changes will be slower, construction costs are much higher than their pre-pandemic levels. Should there be a spike in energy prices, there will be additional upward pressures on inflation in the non-residential building construction market.

Residential Activity – Building Investment and Expansion of the Residential Tax Base

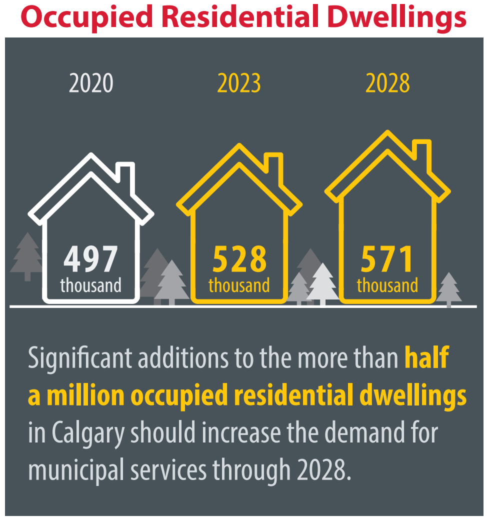
The residential real estate market in Calgary is expected to slow down in 2023 on the backdrop of a sustained elevating interest rate environment. Despite the strong population gains and employment growth, higher financing costs have been weighing on the housing market.

Building construction investment intentions are captured by the total building construction permit values. Total building permit values are expected to be $5.7 billion in 2023, with its nominal value unchanged from the $5.7 billion observed in 2022. The investment intentions set the stage for the expected real estate construction investments. It provides support to the increasing demand for residential spaces needed to address a growing population and changing demographics.

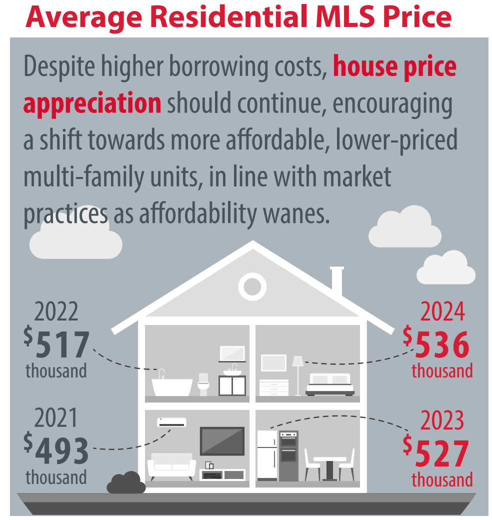
Benchmark House Price



Occupied Residential Dwellings



Average Residential MLS Price



After a significant increase of 9.0 per cent in 2022, the non-residential construction inflation is expected to further increase at a milder rate during the forecast period. This should keep the price levels much higher and therefore the nominal value of building permits above $6.0 billion between 2024 and 2028. The residential building construction investment is expected to reach $4.2 billion in 2023, accounting for 73.5 per cent of total building construction intentions. Investment in residential construction is expected to average $3.7 billion or 57.3 per cent of total expected building construction investment per year within the forecast horizon. The residential forecast is expected to remain above the decade-average of $3.3 billion per year.

The decrease in the share of residential housing investment over the forecast horizon stems from the redistribution of housing type purchases caused by affordability concerns. A higher share of multi-family dwelling units should persist for the forecast period between 2023 and 2028.

In 2023, Calgary is expected to experience a mild drop in the total number of housing starts from a year ago. In 2022, the total number of housing starts in the city of Calgary was over 14,700, the highest figure since 1972. We expect housing starts to fall in 2023 to 14,200 despite the significantly above average population growth. Though the expected level in 2023 is above the decade-average of 11,000 housing starts, the elevated interest rate position by the Bank of Canada will aid in driving housing starts back to the decade-average historical level within the forecast horizon of 2024-2028.

The Bank of Canada's efforts to tackle inflation have seen the overnight policy rate add 0.75 percentage points within the first eight months of 2023. The consequence of the accumulated rate hikes is expected to slow house price appreciation in 2023. The average resale house price is expected to slow to 1.9 per cent while the benchmark house price is expected to slow to 3.8 per cent. Prices across all housing types are still expected to appreciate, but at a decelerating rate under an elevated borrowing cost environment. House price growth is expected to average 3.0 per cent and 2.8 per cent for average resale house price and benchmark, respectively, over the forecast horizon of 2024-2028.

Consumer Price Inflation in the Calgary Census Metropolitan Area (CMA)

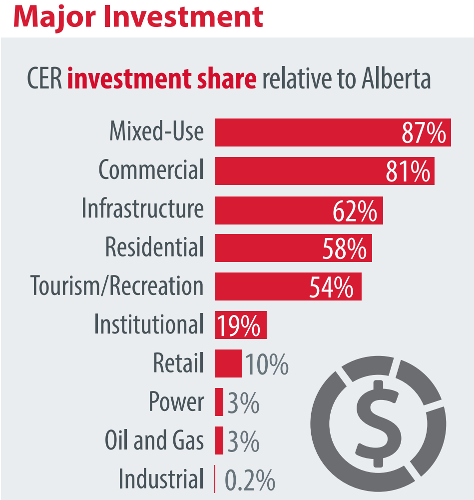
Lower energy prices have slowed down inflation. Inflationary pressure, however, remains broad

Inflation within the Calgary CMA decelerated to 2.0 per cent in June 2023, marking the first time that inflation has fallen to or below the 2.0 per cent target level since March 2021. Year-to-date inflation (as of September 2023) stood at 4.0 per cent. The most significant factor of the inflation deceleration has been the decrease in energy prices and the resulting fall in transportation costs.

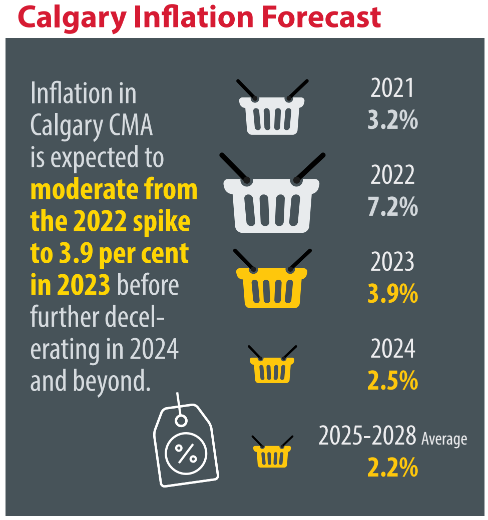
However, there are persistent inflationary pressures. Food prices remain one of the most significant factors in Calgary's inflation. Shelter cost increases linked to mortgage interest payments and rent still linger. In addition, base year effects from a year ago (i.e., the spike in energy prices following the start of the war between Russia and Ukraine) contributed to some of the deceleration that the Calgary CMA witnessed in the middle of 2023. On the other hand, core inflation across Alberta which measures price increases excluding food and energy, has fallen for most of the year, with a September 2023 measurement of 2.5 per cent for the province overall.

While the monthly inflation for the rest of the year is not expected to stay around 2.0 per cent, price growth will slow down annually. Inflation is expected to fall to 3.9 and 2.5 per cent in 2023 and 2024, respectively, as the effect of the Bank of Canada's policy rate hikes continues to work its way throughout the economy. A slowdown in population growth is also expected to support lower inflation beyond 2025.

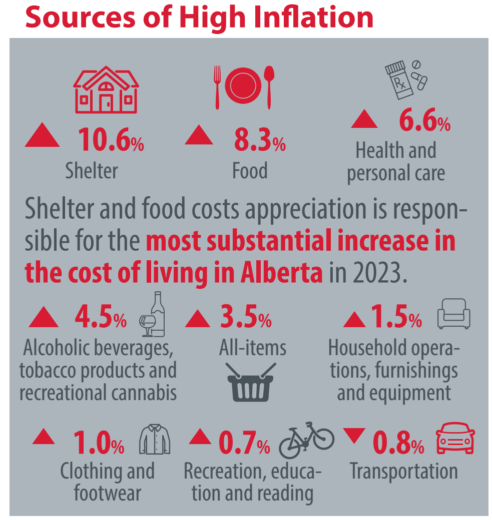
Major Investment



Calgary Inflation Forecast



Sources of High Inflation



Forecast

The Broader Regional Economy (Calgary Economic Region)

Calgary is Expected to Outpace Alberta in Economic Expansion for the First Time Since the Pandemic

Real GDP in the Calgary Economic Region is forecast to grow by 3.1 per cent in 2023, outpacing Alberta's growth rate for the first time since 2020. Alberta had outperformed the CER in growth since the pandemic, primarily due to significant growth in oil and gas investments and surging energy prices. For context, oil and gas investments in Alberta were estimated to grow by approximately 21.0 per cent in 2022.

In The City's Spring 2023 Economic Outlook, the CER was forecast to grow by 2.6 per cent in 2023. The Fall Outlook shows an upward adjustment in this forecast by 0.5 percentage points, primarily reflecting a more positive view of domestic demand from strong population growth in the province, a softer growth landing within the U.S. economy, competitive Canadian crude oil prices, and a strong labour market in Calgary.

The first half of 2023 has seen robust participation rates and employment growth in the labour market. Regional employment by September 2023 stood at 983,400, having experienced seven consecutive months of growth. Total employment growth in CER is expected to be approximately 26,100 in 2023. The solid job growth is expected to translate into demand for goods and services, softening some effects of the elevated interest rates.

Growth in the CER and the province is expected to outpace Canada, as relative housing affordability and lower living costs drive interprovincial migration and attract a sizeable share of international immigrants. Over the forecast period, stable energy prices and tighter oil price spreads should also be a significant economic advantage for the region.

The economy is expected to further expand in 2024, growing by 3.7 per cent, as some of the challenges in 2023 begin to wear off. The anticipated recovery of regional investments is one contributing factor to a faster growth rate in 2024. After a 15.0 per cent projected decline in investments in 2023 due to the high cost of doing business, investments are expected to pick up in 2024, growing by 9.0 per cent as monetary policy loosens. As investments and population growth within the CER begin to slow down and stabilize beyond 2024, economic growth is expected to stabilize, averaging 2.6 per cent between 2025 and 2028.

Population Growth and Relative Affordability will Drive Demand and Economic Expansion

The city of Calgary's population is set to rise by 3.0 per cent in 2023, the most significant expansion since 2014. This growth is expected to support economic activity, including hiring, spending, and housing demand. Relative affordability also supports net migration, reducing some headwinds the Bank of Canada's monetary policy tightening might have otherwise had. Population growth is expected to moderate to 1.8 per cent in 2024, averaging 1.5 per cent for the rest of the forecast period.

The rise in population is expected to offset some of the adverse effects of elevated interest rates on consumer and business demand. Consumption within CER is expected to grow by 2.7 per cent this year. This will slow down to 0.9 per cent in 2024, before gradually picking up and averaging 2.0 per cent between 2025 to 2028.

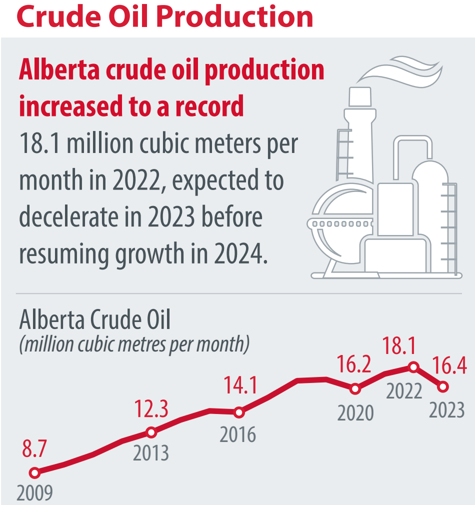
Population growth outside of CER is also expected to provide a boost to external demand. Canada's population is expected to rise by 3.1 per cent this year. After an initial projection of 0.8 per cent economic growth at the start of the year, Canada's economic growth projection has been revised to 1.4 per cent, reflecting robust demand throughout the year's first half.

CER exports are expected to rise by 5.2 per cent this year, outpacing imports. The mining, quarrying, and oil and gas extraction industries are expected to primarily drive exports of the region. Population growth, combined with a fall in global energy prices this year, is fueling energy demand. The manufacturing industry is also expected to support exports as decreased energy prices reduce production costs, easing some additional expenses needed to meet foreign and domestic demand.

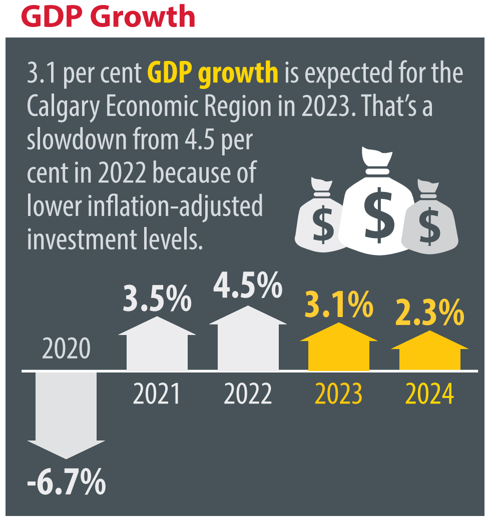
Despite the Projected Economic Expansion, Living Standards Are on the Decline

Despite robust economic expansion this year, CER is expected to see a declining standard of living as reflected by real GDP per capita.

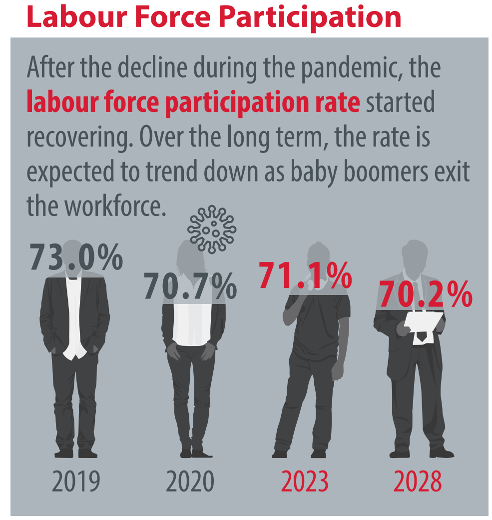
Crude Oil Production



GDP Growth



Labour Force Participation



A surging population fueled by aggressive immigration policies and relative affordability has helped cushion demand from the effects of rising interest rates. However, the projected expansion does not necessarily mean all is well for Calgarians.

After an 8.3 per cent fall in 2020 due to the COVID-19 pandemic, real GDP per capita bounced back, growing by 2.5 and 1.4 per cent in 2021 and 2022, respectively. When adjusted for population growth, the CER's economy should decline by 0.1 per cent in 2023. This comes at a time when the projected increase in population outpaces economic growth.

However, population growth is insufficient to explain the decline in living standards. The fall in investments amidst economic uncertainty is also a contributing factor. Despite the growth in living standards in 2021 and 2022, real GDP per capita is yet to recover to pre-pandemic levels. Real GDP per capita is expected to recover gradually over the forecast horizon, returning to its pre-pandemic levels by 2028.

Calgary's Labour Market is Starting to Show Signs of Easing in the Second Half of 2023

After a booming year in 2022 and solid job gains at the start of 2023, the CER labour market has started to show signs of weakening. This is in line with the tightening business conditions, due to the rapid rise in interest rates and the slowdown in job creation compared to last year. The number of job gains through the first three quarters of 2023 (+24,000) is roughly just a third of the job gains experienced within the same timeframe the year prior (+65,000). Job vacancy rates, which measure the number of job openings as a ratio to total labour demand, have fallen to their lowest levels since the second quarter of 2021 within the CER. The CER's job vacancy rate fell for the third consecutive time to 3.7 per cent in Q2 2023. In addition, wage growth within the region has stagnated, despite gains in other regions within Canada. These trends point towards the labour market starting to cool off.

Despite these signs of easing, the unemployment rate within the CER is not expected to rise significantly in 2023. The unemployment rate for the CER is expected to increase marginally to 6.2 per cent in 2023, as an easing labour market in the second half of the year reverses some of the gains made in the first half. After experiencing a 7.3 per cent growth rate in 2022, employment growth is expected to slow down to 2.8 per cent in 2023.

In addition, hiring challenges continue to exist in the local labour market. According to the Business Council of Alberta, more than half (61 per cent) of employers within the province continue to report difficulty finding qualified workers in 2023.

The unemployment rate is expected to be 6.3 per cent in 2024 as high interest rates continue to tighten business conditions amid the surge in the working-age population. Beyond 2024, it is expected to decline to an average of 5.8 per cent for the rest of the forecast horizon. Participation rates within the region are also expected to fall within the forecast period.

The CER is Expected to Experience Significant Labour Shortages in Key Industries despite Record-high Net Migration

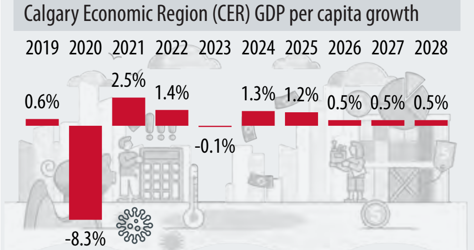
The rise in net migration is not expected to provide immediate solutions to labour shortages across key industries. Labour market tightness has already been a difficult challenge within the region due to Calgary's aging population and a declining trend in total fertility rates. In addition, recent high in-migration has resulted in an increased need for housing supply. Calgary's shifting demographic is expected to translate into some labour supply challenges over the next decade. The CER is expected to experience, on average, an annual deficit of 20,000 workers between 2023 and 2028, with a peak shortage of 40,000 expected in 2028.

The construction and accommodation and food services industries are projected to face some challenges in finding workers to fill job vacancies. These shortages have been exacerbated by the sudden rise in housing demand due to net migration and also by skills mismatches. As of the second quarter of 2023, nearly a third of the total job vacancies within the province were in the construction and accommodation and food services industries. Most jobs within these two industries require a high school or trade diploma. However, the majority of immigrants moving into the province have a bachelor's degree or higher. This educational mismatch between job openings and unemployed immigrants partly explains why job vacancy issues persist despite the rapid increase in net migration.

Living Standards

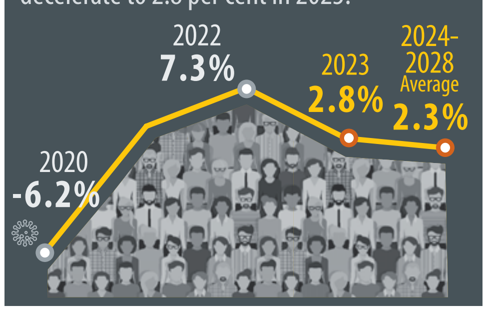
Despite the projected economic expansion, the **living standards** measured by real GDP per capita in Calgary expect **a mild decline in 2023** before gradually returning to its pre-pandemic levels by 2028.

Calgary Economic Region (CER) GDP per capita growth

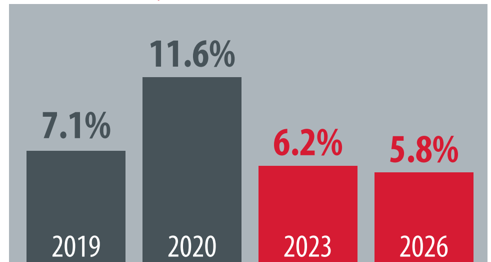


Annual Job Growth

After a COVID-19-driven job decline in 2020, **annual job growth rebounded significantly but is now decelerating**. After the 7.3 per cent high for 2022, it should decelerate to 2.8 per cent in 2023.



Unemployment Rate



The **unemployment rate** should deteriorate in 2023 before finally getting below 6.0 per cent later in the forecast horizon.

Textbox 1 Persistent Fiscal Gap Affecting Municipalities Nationwide and the Role of Alternative Revenue Sources to Close the Gap[1]

Municipal Responsibilities Have Been Expanded Over a Century

Municipalities in Canada serve the local citizens who demand certain services; generally, the larger the population, the more the types of services. As creations of their provinces, municipalities are assigned responsibilities of a truly local nature. They are required to support, cooperate, and participate in providing provincial services within municipal boundaries.

There are many cities in Canada, and each one offers a slightly different bundle of services to citizens. The primary drivers of the differences across jurisdictions are 1) Expanded services due to citizen expectations in a major urban centre. As municipalities grow, they tend to be called upon to do more and more for their citizens, as they are the order of government closest to local citizens. 2) Reduced services due to regionalization. As municipalities age, some services are taken over by provincial or federal governments and provided regionally.

Municipal responsibilities have been expanding over the years. The most notable emerging municipal priority for the 21st century is climate action[2]. Most major Canadian cities, including Toronto, Calgary, and Vancouver, have declared a climate emergency, joining the global force to fight climate change.

In addition to expanded responsibilities, there are two drivers of significant increases in municipal expenditures: (a) population growth and urbanization that increase the number of people who need municipal goods and services, and (b) inflation that increases the costs municipalities must incur to deliver goods and services. The pressure from growth and inflation is intense for big cities like Calgary, as increasing demand for additional municipal infrastructure investment and program services needs more funding.

1 This textbox is an introduction to the Council report "Attachment 3-C2023-0960 Municipal Fiscal Gap".

2 The origin of present-day climate action is the historic 2015 Paris Agreement, limiting global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. Canada was one of the 195 countries that acceded to climate action.

However, Municipalities Have Limited Revenue Sources

Not all the demand for additional infrastructure and services can be funded with the current revenue sources, as municipalities have limited funding sources and constrained budgeting.

In Canada, by virtue of the distribution of powers established by the Constitution Act in 1867, the federal and provincial governments have an independent capacity to levy taxes to finance the public services they provide for their citizens. They can also run either surpluses or deficits depending on the economic situation. However, municipal governments like Calgary are creatures of their provinces and have no similar powers. They have limited own-source revenues and cannot run deficits.

The Result Is a Municipal Vertical Fiscal Imbalance That Profoundly Impacts Municipal Financial Sustainability

The result is that Canadian municipalities have a vertical fiscal imbalance with the federal and provincial governments, the inability of municipalities to meet their growing expenditure responsibilities because their ability to raise revenues by increasing taxes and user fees is limited, and the revenue sources to which municipalities have access are constrained by provincial governments. Vertical fiscal imbalance is represented by the **net-borrowing**[3] fiscal positions at a certain level of government, exclusive of intergovernmental transfers between levels of government. From 2007 to 2021 in Canada (Exhibits 1-3):

- The federal government in Canada consistently had more money coming in than it spent each year, except in 2020 during the pandemic. It had an accumulated **net-lending**[4] position of $907 billion in 15 years, representing 27 per cent of its own-source expenditures.
- The 13 provincial and territorial governments could not cover all their expenses with the money they collected. They had an accu

3, 4 Net-lending or net-borrowing position is calculated as a level of government own-source revenues over expenditures, plus the consumption of fixed capital and less non-financial capital acquisitions.

Exhibit 1

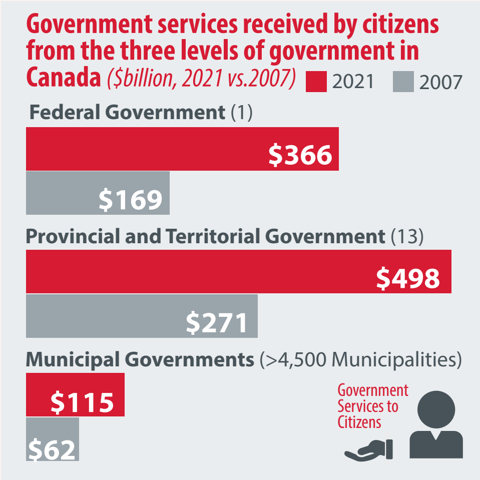


Exhibit 2

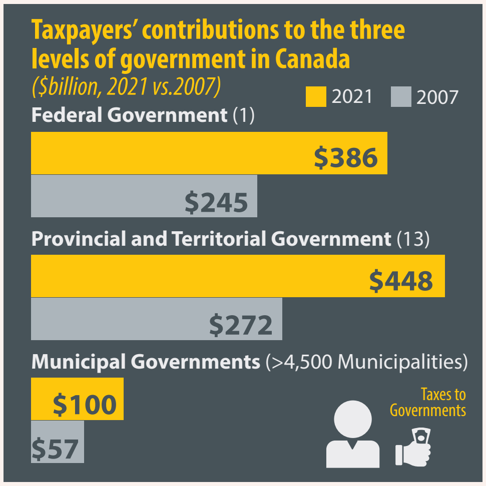
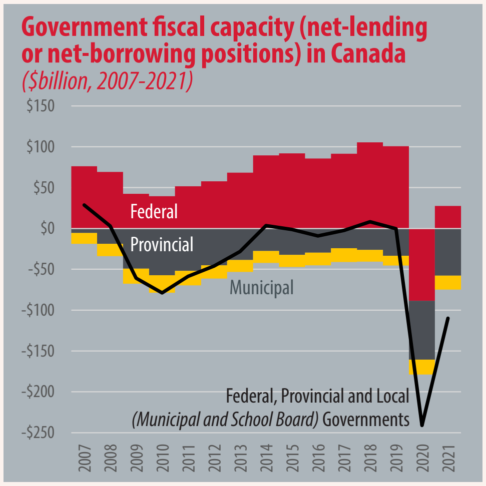


Exhibit 3



mulated **net-borrowing** position of $570 billion in 15 years, representing 10 per cent of their own-source expenditures.

- The more than 4,500 municipal governments could not cover all their expenses with the money they collected either. They had an accumulated **net-borrowing** position of $241 billion in 15 years, representing 18 per cent of their own-source expenditures.

How tax dollars flow in Canada

Residents in Canada pay taxes to the federal, provincial, and municipal governments and receive government services in return. One important way the Canadian federal system works is that the federal government gives money to provincial governments, which share some of it with municipalities. The provincial governments give money to their municipalities to close the municipal funding gaps (Exhibit 4).

To address their fiscal gaps, provinces can sometimes change the rules so that certain government services they traditionally provide are explicitly or implicitly passed to municipalities without sufficient funding or revenue streams attached, which is what we call "downloading".

Growth potential of different government revenues in Canada

The top five sources of tax revenues in Canada[5] include 1) personal income tax, 2) corporate income tax, 3) real property tax, 4) provincial general sales tax, and 5) federal goods and services tax (Exhibit 5). The federal and provincial governments collect taxes from all five main sources. However, municipalities have no access to tax sources other than real property taxes.

Different growth potentials exist for different tax revenues driven by economic activities, population growth, and inflation (Exhibit 6). Big cities like Calgary have broad tax bases outside real estate markets that only contribute to federal and provincial government revenues. They have been under increased pressure from taxpayers to limit real property tax growth when the need for more funding for expanded expenditure responsibilities has ticked higher.

The benefits of alternative revenue tools for municipalities

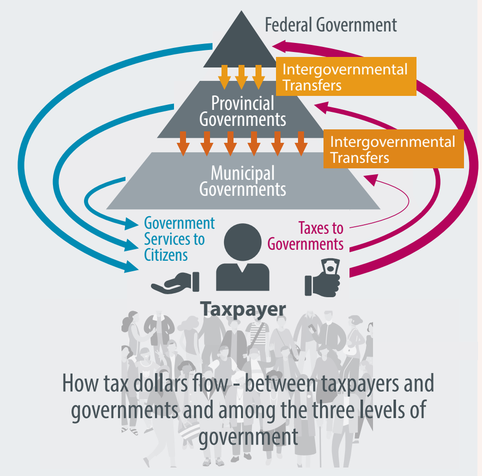
To solve municipal revenue problems, provinces should grant cities access to alternative tax sources, especially those that grow automatically with the economy. Access to tax sources other than real property taxes does not necessarily mean that municipal governments should create new types of taxes on top of existing taxes levied by the federal and provincial governments. Instead, municipalities would, in most cases, share the tax bases and benefits of economic growth with the other orders of government, as there is only one taxpayer. Creating a mix of taxes at the municipal level is important:

- A mix of taxes would give municipalities more autonomy and flexibility to meet the local demand for municipal services and infrastructure investment. A mix of taxes would allow timely responses to the changing economic and demographic situations. A real property tax is unsuitable for funding income-redistributive services like social housing and social services. Other taxes based on the ability to pay are more appropriate.
- A mix of taxes would be more appropriate to fund tax relief programs and build automatic stabilizers into the municipal tax system. For example, during recent recessions, citizens sought social assistance and tax relief from municipalities. In response, many cities used one-time savings and dipped into reserves to provide temporary property tax reliefs. Other revenue tools are more appropriate to fill the gap.
- A mix of taxes would also offset distortions in local tax systems. For example, increases in real property taxes discourage investment in new housing units because of the higher cost of owning houses. On the other hand, income taxes encourage residential investment because of the capital gains exemption for principal residences and cost deduction for rental houses. By having a few different tax sources to rely on, the distortions in one tax would counteract the distortions in other taxes.

In response to the economic justification, economic analysis has identified a set of 12 criteria to inform the selection of new revenue tools. They are 1) Revenue Collection, 2) Equity and Fairness, 3) Reliable Government Revenues, 4) Adaptability, 5) Economic Growth and Efficiency, 6) Tax Neutrality, 7) Behaviour Modifying, 8) Effective Tax Administration, 9) Simplicity (Certain, Simple, and Convenient Payment Rules), 10) Transparency, 11) Accountability to Taxpayers, and 12) Information Security. For the evaluation of 39 potential revenue tools using these criteria, please see the full report "Municipal Fiscal Gap".

5 A similar pattern exists in Alberta, except the absence of general sales tax is made up by the royalty revenues.

Exhibit 4



How tax dollars flow - between taxpayers and governments and among the three levels of government

Exhibit 5

Primary revenue sources for all three levels of government in Canada *(percentage share of accumulated revenue in 2007-2021)*

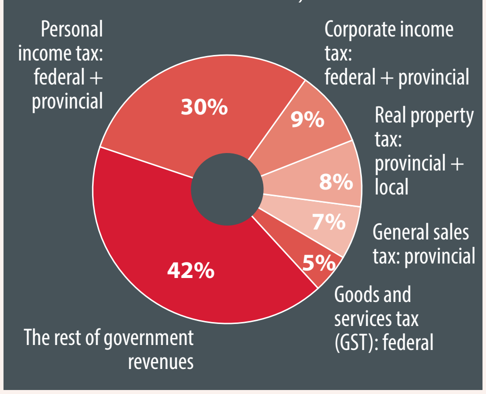
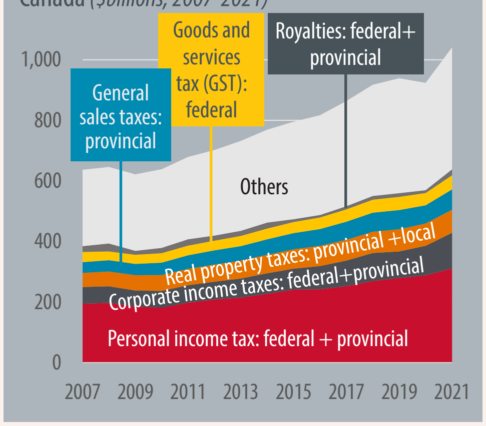


Exhibit 6

Government revenues by types of sources in Canada *($billions, 2007-2021)*



Forecast

Commodity Prices - Local, Regional, & Provincial Economy Impact

Crude Oil Prices Softened from 2022 Spike, to Stay Volatile in 2023

2023 has been a volatile year for global oil markets. The newly erupted Israel-Hamas war could cause more uncertainty and volatility in energy prices. WTI oil prices increased at the beginning of 2023, with the relaxation of COVID-19 restrictions in China raising expectations of global oil demand. This, however, was soon offset by burgeoning oil inventories, bringing prices down. On 2023 April 3, the 23 members of the Organization of the Oil Exporting Countries plus (OPEC+) group announced plans to cut crude oil production by 1.2 million barrels per day through the end of the year. However, the optimism that this production cut would boost oil prices was short-lived, as nagging concerns over weakening global economic conditions coupled with jitters over the effects of rising interest rates on the global banking sector and persistent inflation weighed oil prices down in May. On 2023 June 4, OPEC+ announced that the production cuts announced on April 3 would be extended until the end of 2024, though WTI prices languished over continued concerns of a global economic slowdown. WTI prices finally seemed to gain some upward momentum following a 1 million barrel per day production cut by Saudi Arabia in July, followed by a 2023 September 5 announcement that these voluntary production cuts by Saudi Arabia will be extended until the end of 2023.

This year's production cuts have tightened the global oil market supply and are expected to lower inventories and provide support for WTI prices. However, uncertainty over demand, including worries over global economic growth, particularly in China, and high interest rates to combat inflation remains, creating doubts over demand.

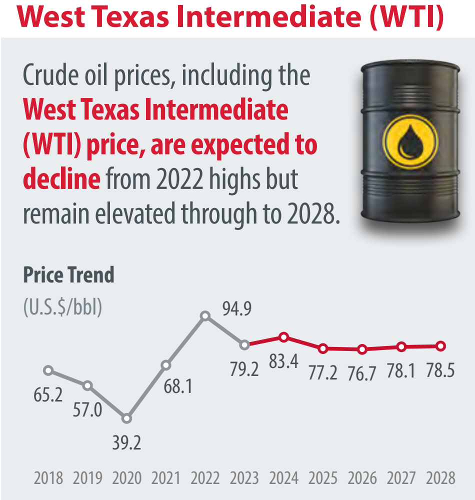
WTI prices should average U.S.$79.2 per barrel in 2023 and increase by 5.4 per cent in 2024, averaging U.S.$83.4 per barrel for the year. Between 2025 and 2028, WTI prices are expected to average U.S.$77.6 per barrel. WCS is expected to follow a similar pattern, averaging U.S.$64.9 per barrel in 2023 before increasing to U.S.$66.1 in 2024. From 2025 to 2028, WCS prices are expected to average U.S.$63.8 per barrel.

A recurring constraint for western Canadian oil is limited export pipeline capacity, which, in part, creates a discount on WCS relative to WTI. The WCS price discount to WTI is expected to narrow over the forecast period. Factors that have helped to narrow the WTI-WCS price differential include supply disruptions in Alberta (such as larger-than-normal seasonal maintenance at oil sands facilities and mild disruptions during wildfires this spring) and a seasonal pickup in U.S. refinery demand. With more oil sands production coming back online at the end of 2023, the WTI-WCS differential is expected to widen in the very near term. The completion of the Trans Mountain Expansion, expected by the second quarter of 2024, will increase Alberta's crude oil export capacity by approximately 590,000 barrels per day, and is expected to help narrow the WTI-WCS differential from 2024 onwards.

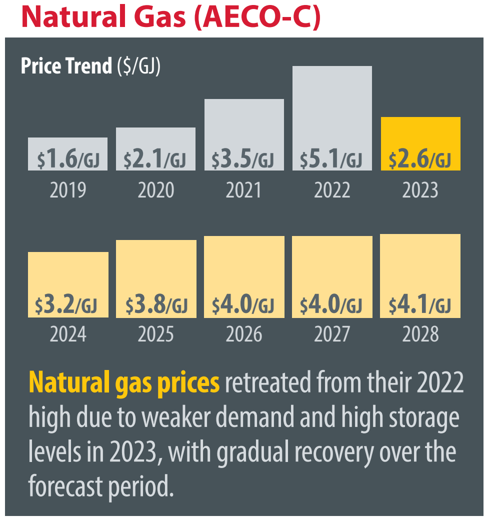
Natural Gas Prices Declined due to Weak Demand and High Storage Levels

Natural gas prices in 2022 were strong due to lower supply attributable to the war between Russia and Ukraine and a frigid start to the 2022/2023 winter heating season. Natural gas prices promptly reversed course at the start of 2023, as an unusually warm winter across the continent caused natural gas storage levels to soar to five-year highs. In the United States, strong production levels and liquefied natural gas (LNG) export disruptions have also helped to keep prices low. Natural gas storage levels have remained well above average throughout 2023, which has aided the curtailment of natural gas prices this year.

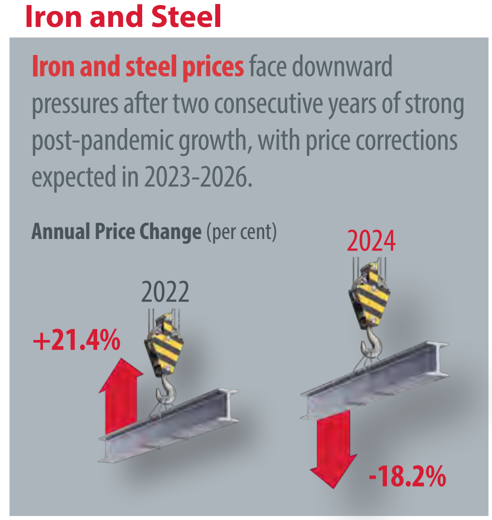
West Texas Intermediate (WTI)



Natural Gas (AECO-C)



Iron and Steel



In Alberta, factors compounding regional natural gas price weakness in 2023 have included oversupply, weak demand, and capacity constraints related to aged infrastructure. Despite the low natural gas prices, the primary fuel source for electricity generation in Alberta, record high power prices have been observed in Alberta in 2022 and 2023. More details are available in the textbox focusing on Alberta electricity prices. These depressed AECO-C prices are expected to continue into 2024 due to elevated storage levels on the continent before recovering to an average of $4.0/GJ over the 2025 to 2028 period. Domestic projects, including the expansion of the Nova Gas Transmission Line system and the Costal GasLink pipeline to Kitimat, British Columbia, are expected to lend longer term support to AECO-C prices.

Construction Commodities – Slower Demand Expansion & Supply Chain Improvements

Construction commodity prices have been volatile. The changes in commodity prices typically induce substitution towards cheaper or away from higher priced commodities and cause pass-through effects on production and construction costs. The ongoing uncertainty in the global commodity market should intensify with more restrictions on international trade to support national supply chain resilience. It will impact the movement of capital and goods and the global supply chain. This should contribute to additional volatility in commodity prices in the forecast period.

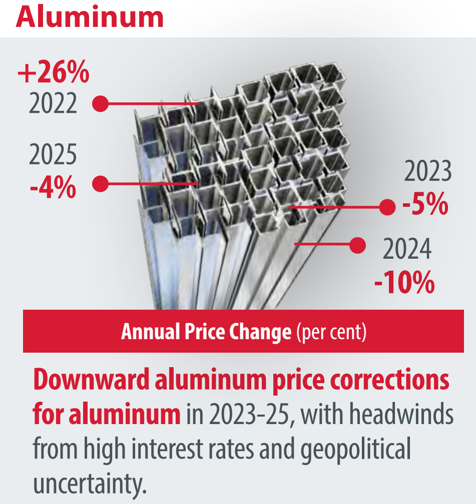
Prices for primary metals and wood have declined significantly from their peak reached in the middle of 2022. This has contributed to a lower growth rate of construction costs. Despite the moderation of commodity inflation pressures, construction costs should remain significantly higher than their pre-COVID levels in 2023.

Iron and Steel: Downward pressure on iron ore prices ceased in May 2023 following a new Russian offensive operation, which created more uncertainty on the end date of the war between Russia and Ukraine. Initially, in a fight to survive, Ukrainian objectives shifted to recovering all lands lost to Russia, perhaps including the Crimean Peninsula, which Russia took in 2014. While this conflict continues, Ukrainian production remains sequestered. Prices have stabilized at an unsustainable level and will likely remain elevated as long as the conflict continues. As a primary material in non-residential construction, iron and steel price escalation dramatically impacts construction costs in Calgary. If the war lasts longer or there are more geopolitical conflicts, additional upward pressures should be expected on steel prices in the forecast period.

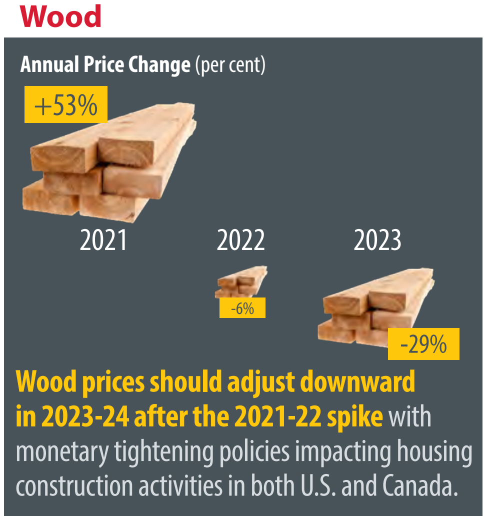
Aluminum: The U.S. imposed a 200 per cent tariff on Russian metal in March 2023. This effectively imposed a ban on Russian aluminum imports, with Russia producing about 6 per cent of global aluminum. Though the move was unilateral, several other nations and corporations have taken restrictions on doing business with Russia on their own, and the combined impact is reducing aluminum supply. As a result, the price reductions that were expected earlier in 2023 were not as substantial as anticipated. The outlook calls for continued decreases in prices when the geopolitical conflicts subside, as global production will exceed demand over the forecast horizon following the ceasing of hostilities. The expectation is a more stable aluminum market towards the end of the forecast period.

Wood: Canadian lumber markets have experienced significant disruptions. Wood prices spiked dramatically in 2021 during the pandemic, as the supply of finished wood products decreased due to the production slowdown and transportation bottlenecks. Prices subsided in 2022 with the lifting of pandemic restrictions. In 2023, elevated interest rates have tempered the demand for wood products. The Bank of Canada's monetary tightening policies have started impacting home buyers, but they were not the only ones affected. Home builders typically produce some houses "on spec,"

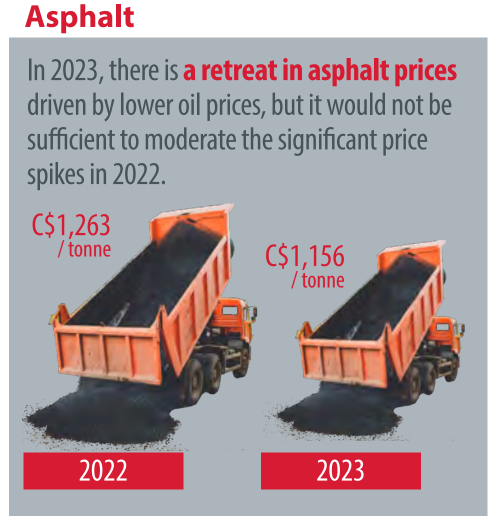
Aluminum



Wood



Asphalt



meaning they will start some construction in anticipation that a buyer will come along shortly after the house is completed, but that requires the builder to borrow money first. With rising interest rates, the number of houses built "on spec" is down, driving demand for wood down. Wood prices have fallen significantly (almost 30 per cent) in 2023 due to lower consumer and builder demand in response to high interest rates. Prices are still almost 25 per cent higher than where they were just before the pandemic. If the Bank of Canada maintains high interest rates for longer, then wood prices are expected to trend lower over the next two years.

Asphalt: Asphalt is a secondary commodity produced by refining crude oil. Therefore, asphalt prices rise and fall with oil prices. Carbon taxes impact this industry significantly because asphalt production requires carbon dioxide emissions, with environmental taxes hitting asphalt prices hard. Carbon taxes are having a significant impact on asphalt prices. It now looks like improvements in carbon control will not be able to offset increases in oil prices and the outlook calls for steady increases in asphalt prices over the forecast horizon.

Operational Commodity Prices – Relatively Stable except Energy-related Ones

Rubber: As an operational commodity, rubber has major applications in the automotive, manufacturing, consumer goods and medical industries. Rubber markets continue to be balanced. As automotive manufacturers concentrate their production on high-priced autos where they make the most profit, average consumers have few options but to maintain their existing vehicles longer instead of replacing them, reducing tire demand and impacting prices. 2023 saw a continued decline in rubber prices despite some recovery in input material prices. In 2024, the increase in material costs is expected to overtake the effect of the decline in demand and rubber prices should resume their upward trend.

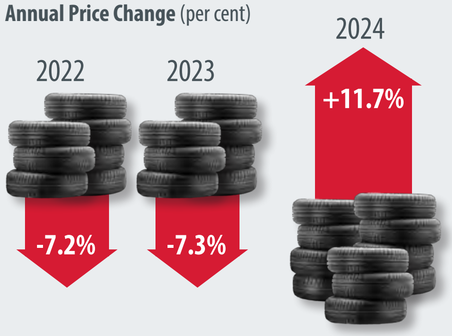
Diesel Oil: Diesel is the preferred fuel for engines when higher power output is needed, like in most construction vehicles. Diesel fuel prices spiked in 2022 as the pandemic ended and demand for construction and transportation resumed. The surge also reflected the pent-up demand of household spending on goods, services, vacations, and house improvements. Diesel prices moderated in 2023 with the pent-up demand easing. Refineries did not require unplanned maintenance this summer and provided stability to supply. Future oil and carbon tax pricing that affect diesel prices are expected to be stable. Prices should stabilize around the current prices for the next three years. Therefore, we anticipate prices rising at historically average rates.

Vehicle Parts: The global automotive sector is going through a period of wide-ranging and transformative change, particularly a shift in sales and a tightening of environmental regulations. Softening prices for raw materials and some softening in energy costs are impacting vehicle parts manufacturers positively. Unions, however, have been successful in increasing wages in this sector and more manufacturers are now engaged in negotiations. Those rising wages are filtering into parts prices, resulting in modest price increases next year. The relative stability of the exchange rate between the U.S. and Canadian dollars should continue to support Canadian exports of vehicle parts. However, special parts made in foreign countries could experience significant price increases in 2023. Overall, reduced energy costs should offset increased wages, and parts prices should stabilize at their new level, with 2026 prices averaging about 20 per cent higher than pre-pandemic levels.

Rubber

Rubber prices should experience a decline in 2023 due to weak demand before recovering with increasing input material costs in 2024.

Annual Price Change (per cent)



Diesel Oil

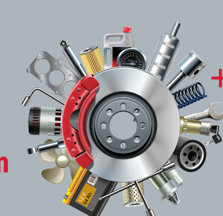
Alberta Diesel Pump Price (tax included)

Diesel prices should decline in 2023 due to a lower worldwide demand outlook.

Vehicle Parts

Vehicle parts are the only commodity that should experience price growth in 2023, because global supply is expected to struggle to keep up with strong global demand.

Annual Price Change (per cent)


2022
+7.0%


2023
+3.4%

Textbox 2 Calgary Stampede Attendance and the Local Economy[6, 7]

The importance of the Calgary Stampede to the local economy cannot be overstated. For over 100 years, the Calgary Stampede has been an annual rodeo and exhibition that has attracted millions of attendees worldwide. Those living abroad who have heard of Calgary often associate this city with the Calgary Stampede, as the two are indelibly intertwined. Given its prominence, this textbox examines the interconnection between the Calgary Stampede and the local economy and explores what economic factors might affect annual attendance for this event.

1987 was selected as the starting year as some macroeconomic data were only available for the region from 1987 onwards, and 2019 was selected as the last year for the econometric analysis conducted in this report. The rationale behind choosing this cutoff year is that the 2020 Calgary Stampede was cancelled due to the pandemic, and the 2021 and 2022 events suffered lingering effects from the pandemic, potentially altering the results. In this analysis, the variable of interest for the model is the total Calgary Stampede attendance. A forward and backward stepwise regression approach was undertaken to select significant predictor variables to best predict this dependent variable. An ordinary least squares multivariate regression method was employed to find the best combination of independent variables for the linear regression model.

Notwithstanding the method of selecting relevant predictor variables, some variables consistently settled as statistically significant to the model. A forward and backward stepwise regression provided highly similar results in terms of predictor variables of the model. Similarly, regardless of the variables included in the regression, certain variables repeatedly ended up as statistically significant to explain the total attendance at the Calgary Stampede over the years. These robust independent variables include the total precipitation and average temperature during the specific Stampede days each year and Alberta's total population and unemployment rates.

According to the regression equation, every additional millimetre of rain occurring during Stampede results, on average, in a decrease in attendance of 1,005 individuals. Meanwhile, an extra centigrade in the average temperature recorded throughout Stampede results, on average, in an additional 10,880 individuals attending the event. It is important to note that Stampede has not experienced issues with extreme heat yet, this could potentially change the relationship of average temperature in the future. The Calgary Stampede is an outdoor event for the most part, so the weather is bound to affect the total attendance. Naturally, individuals are more reluctant to attend Stampede on a rainy day and are more inclined to go on a sunny day.

Furthermore, according to the econometric results, every additional percentage rate of unemployment in Alberta (on the year Stampede is taking place) derives, on average, 11,340 fewer individuals attending Stampede. If too many individuals in the province's labour force cannot land a job despite looking for one, the economy is not doing well. Instinctively, a weak labour market should result in people being more cautious of their spending, thus avoiding expenditures on events like the Stampede. Furthermore, since Stampede grounds are located in Calgary, Alberta, an increase in the province's population should also increase the events attendance. The regression results support this hypothesis. It shows that an increase of a thousand population in Alberta will, on average, cause a 29-person increase in the total Stampede attendance.

Observers may believe that other indicators, like the exchange rate between the U.S. and Canadian dollars, could influence Stampede attendance as a weaker Canadian dollar would make the event cheaper for U.S. visitors. However, according to our results, that is not the case. The coefficient on the exchange rate is negative and statistically insignificant. Therefore, indicators such as the exchange rates are not the driving factors of the Calgary Stampede attendance.

6 The Calgary Stampede kindly provided a wide variety of data related to the 'greatest outdoor show on Earth'. A special thank you for Cassandra Cummings and Marsha Gordon in their provision of data pertaining to the Calgary Stampede. Tarp auction results were provided from 1979 onwards, including the individual winning bid amounts, sponsor name, and chuckwagon racer name. Historical weather data was acquired from the Government of Canada's historical climate data website. Most of the remaining data, which included total population, gross domestic product, employment, unemployment rate, total investment, and consumer price inflation for Calgary, Alberta, and Canada, WTI, and exchange rates, were acquired from Statistics Canada, the Bank of Canada, Bloomberg, and other sources.

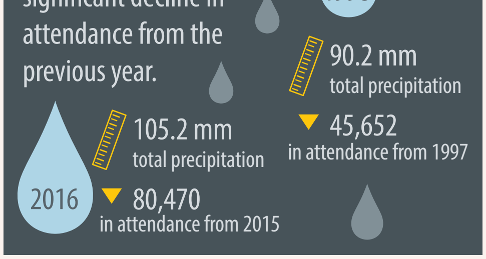
7 This textbox is a contribution from our Student Economist, David Espinosa Ribadeneira (Department of Economics, University of Calgary, currently on an exchange at the University of Amsterdam), with whom we had the pleasure to work during the summer of 2023.

Stampede Attendance

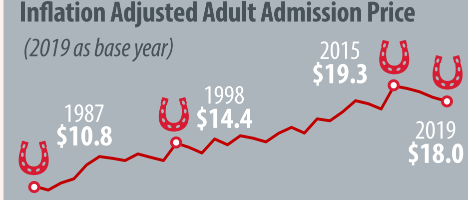
Stampede attendance increased over the past century, with 2020 event cancelled due to the pandemic. The record Stampede attendance occurred in 2012, with a whopping 1,409,371 visitors attending the 10-day event.

Rain and Stampede Attendance

Rain has been a key deterrent to Stampede attendance. Since 1987, the two Calgary Stampedes with the highest amount of precipitation were 2016 and 1998. Both events saw a significant decline in attendance from the previous year.



Admission Prices and Inflation



Adult Stampede admission ticket prices increased from $5 in 1987 to $18 in 2019. Using 2019 as the base year and adjusting for inflation, the 1987 admission price is $10.8, reflecting a 67 per cent inflation-adjusted price increase over the past three decades.

Textbox 3 Calgary Stampede Tarp Auctions - Barometer of Calgary's Economy?[8]

The Transformation of the Retail Trade Industry

The retail trade industry has transformed significantly since 1979 due to technological developments. The advent and spread of the Internet, the development of secure online payment systems, and the continual ease of accessibility to technological devices with the ability to connect to the Internet truly transformed this industry. Within this timeframe, many formerly prominent corporations failed to adapt quickly or sufficiently enough to the technological transformation surrounding them. Examples of such corporations include Sears, Blockbuster, and Eaton's. The Internet also paved the way for the emergence of e-commerce giants like Amazon to redefine the way in which customers buy items. Nowadays, individuals can buy almost any item from the comfort of their homes and receive their purchase shortly. Numerous retailers adapted by setting up online shopping pages, but not all were successful. The growth of social media platforms also contributed to the development of e-commerce, with many companies cutting out the middleman and trendy start-ups coming into existence. A negative trendline exists for the retail trade industry's composition of the total chuckwagon auctions at each Calgary Stampede from 1979 to 2019. It indicates that, as the years go by, retail trade loses substantial influence on the tarp auctions. The continual decline in the significance of retail trade firms at the auctions suggests that the local retail businesses have likely suffered due to technological developments and the resulting increased competition.

Tarp auction results an indicator of the state of Alberta's energy industry?

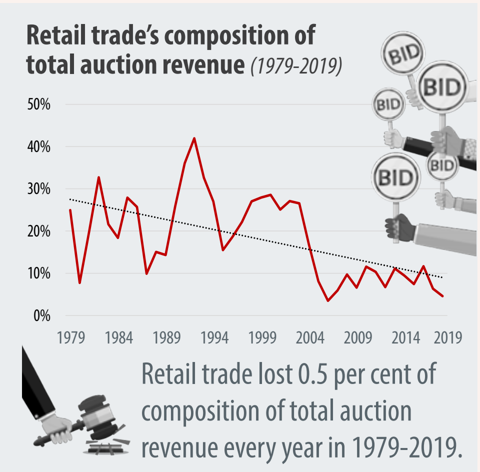
The tarp auction is a sale for companies, groups or individuals to compete through a bidding process to win the rights to advertise on a chuckwagon rider's tarp during the Calgary Stampede. It is a method of raising money to sponsor the chuckwagon races. The media sometimes refers to the tarp auction results as an indicator of the state of Alberta's energy industry. Crude oil prices directly impact energy companies' revenues and, therefore, would be a significant driver of Alberta's energy industry. Despite economic diversification over the years, the energy industry is still one of the most important sectors in Alberta's economy. Higher oil prices result in greater total auction inflow. A strong positive correlation of 0.81 exists between the total amount of money collected by the Calgary Stampede tarp auctions and the WTI oil prices from 1982 to 2019. Either energy companies have been directly responsible for most of the bids, or the spinoff of the energy sector activities has impacted the rest of the economy and indirectly related to the auction results. Either way, the strong positive correlation between the two indicators means that based on the data, referring to the tarp auction results as an indicator of Alberta's energy industry is generally valid.

Popularity at the cost of its essence

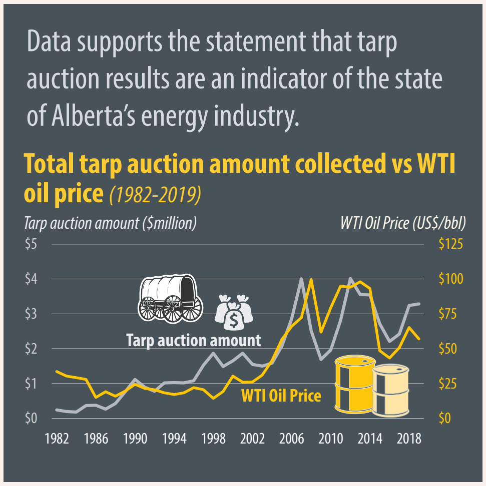
The roots of the Calgary Stampede were indistinctly tied to agriculture. Since the first event over 100 years ago, many cities have developed in Alberta out of initially rural regions. Although the 'greatest outdoor show on Earth' still has an agricultural showcase, other events like the rodeo, grandstand shows, exhibitions and concerts add more colours to the festival. Interestingly, between 1979 and 1984, many of the tarp auction winners included local farmers and ranchers, for instance, Leonard Friesen Cattle (1979-1982), Highfield Stock Farms (1979), Elbow Valley Stables (1979-1980, 1984), and Elkwater Ranch (1979-1980). Nowadays, it is almost inconceivable to find local farmers or ranchers with winning bids in the most recent tarp auctions. However, their fading from these recent auctions does not necessarily indicate their operations have ceased in the region. A much more plausible theory is that smaller companies, in general, have been priced out of winning one of these auctions. The average amount to win at the auction and sponsor a chuckwagon was \$2,016 in 1979. Four decades later, in 2019, the average price skyrocketed to \$91,236. After accounting for inflation, the average bid in 1979 was \$7,205 in 2019 dollars, which implies the average bid to win at a tarp auction grew by 1,116 per cent over the four decades. Rather than local farmers and ranchers necessarily ceasing to operate in the region, it seems that as the prominence of the Calgary Stampede enhances, smaller companies are priced out of bidding at these auctions.

8 The cutoff year is 2019 for the analysis in the textbox. The rationale behind selecting this cutoff year is that the 2020 Calgary Stampede was cancelled due to the pandemic, and the 2021 and 2022 events suffered lingering effects from the pandemic (potentially altering the results). Work for this project was completed by the Student Economist David Espinosa Ribadeneira, along with support from Kenneth Wyllie.

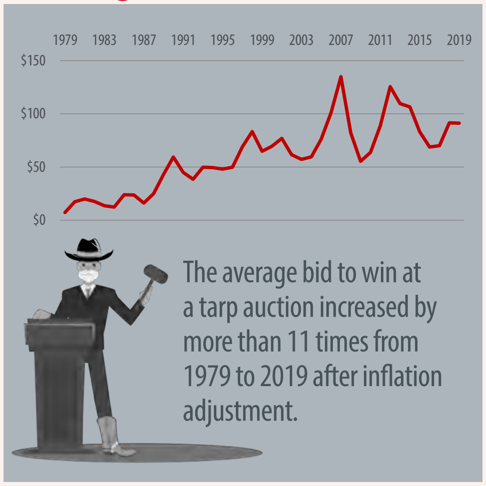
Retail Trade Share of Total Auction Revenue



Tarp Auction and WTI Oil Prices



Inflation-adjusted Tarp Auction Winning Bid



Assumptions

Economic Conditions in Alberta

Alberta's Economy Continues to Expand Despite Weather-related Events

The impact of higher interest rates has been working through the economy in Alberta. Headwinds more specific to the Alberta economy include drought conditions affecting crop yields and mild disruptions to oil and gas activities in the province caused by wildfires in the spring. However, strong population growth, a robust labour market, and strength in oil prices are expected to help cushion the effects of higher interest rates on Alberta's GDP. After strong economic recovery in 2021 and 2022, Alberta GDP growth is expected to moderate to 2.9 per cent in 2023. Going forward, real GDP growth for Alberta is expected to average 2.0 per cent from 2024 to 2028.

Stronger oil prices have been a boon for provincial government coffers, helping offset unanticipated wildfire and disaster management expenses. For the first quarter fiscal update of the 2023 provincial budget, released at the end of August 2023, Alberta forecasted a $2.4 billion surplus for the 2023-24 fiscal year. Although there were some disruptions to Alberta oil production during this past wildfire season, this interruption was less severe than the 2016 wildfire season and, as a result, will have a lesser impact on GDP.

Strong Population Growth Supports Labour Supply and Eases Labour Market Tightness

After a significant rise in population last year, driven partly by the federal government's immigration targets, Alberta's population is projected to rise even further this year. Canada's plan to add 500,000 immigrants per year by 2025 was put in place to address an aging population, a lower birth rate, and ongoing labour shortages across Canada. The result has been a significant surge in population in the province and Calgary region.

Statistics Canada has reported that as of 2023 July 1, Alberta's population is nearly 4.7 million, up an exceptional 4.1 per cent (or 184,400) from the same time last year. This is a significant increase from the 2.2 per cent growth recorded in 2022. Statistics Canada also highlighted that the net interprovincial gain of 56,245 persons over the past year is not only the highest annual net interprovincial gain for Alberta, but the highest ever recorded for any Canadian province or territory in at least 51 years.

Most of Alberta's population increase has been from net international migration, which is also forecast to hit a historic high in 2023. This net international migration is expected to be supported by unprecedented inflows of non-permanent residents, which include international students, temporary foreign workers, and refugee claimants. The main source provinces of net interprovincial migration into Alberta continue to be British Columbia and Ontario, likely due to the relatively more robust Alberta economy and possibly because of greater housing affordability. Nonetheless, accompanying this record-setting increase in population will include greater demand for housing, infrastructure, and public services.

Thanks to strong economic growth, Alberta has experienced employment growth that has outpaced the national average. Despite the population and labour force gains, employment has largely kept pace, with many full-time positions filled across a broad cross-section of industries. This has helped to bring Alberta unemployment rates below pre-pandemic (i.e., 2018-2019) levels. Alberta's employment growth rate in 2023 is now expected to be 3.2 per cent, up from a forecast of 3.0 per cent in the Spring Outlook. The influx of migrants into Alberta has brought much-needed relief to tight labour market conditions.

However, there has been a slight deceleration in Alberta job growth over the summer of 2023, hinting that labour demand may have peaked. A cooldown in business investment and household spending is expected due to the higher interest rate environment and associated higher borrowing costs. Alberta employment is anticipated to grow at a more modest 1.8 per cent in 2024, and then average 1.7 per cent over the rest of the forecast period.

Alberta CPI to Subside Gradually and Real Wage Growth to Moderate

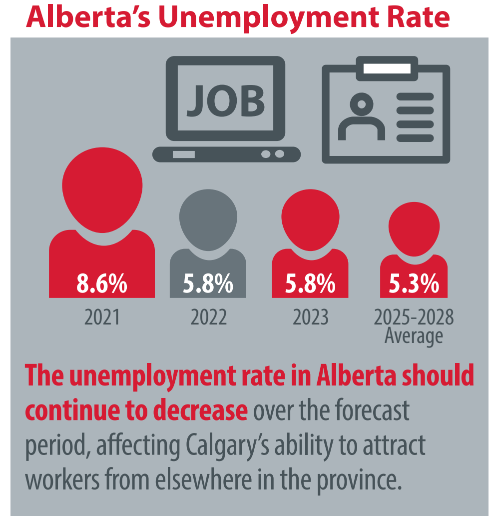
Alberta's annual consumer price inflation rate is expected to slow to 3.4 per cent in 2023, down from 6.4 per cent in 2022. Multiple factors are contributing to the cost pressure moderation in the province.

- The pullback in energy prices has been passing through to Albertan's transportation costs and other consumer goods.

Alberta's Real GDP Growth

Alberta's Employment Growth

Alberta's Unemployment Rate



- The growth of construction costs is expected to subside from their mid-2022 peak, with the raw materials price index and industrial product price index in Canada trending down.
- Improvement in the supply chain has also helped mitigate cost pressures for durable and semi-durable goods.
- The Bank of Canada's monetary tightening actions have started working through the economy.

Considering the Bank of Canada's hawkish approach to tackling inflation, further deceleration of Alberta inflation is expected between 2024 and 2028.

High inflation has been persistent in Alberta due to food costs in the province that are still elevated and increasing shelter costs (rental and owned accommodation). The ability to ease food and shelter inflation will support the goal of moving inflation to the target range gradually in Alberta.

With inflation elevated, real wage growth is expected to increase by a modest 2.5 per cent in 2023. As inflation eases and higher interest rates slow employment growth, Alberta's annual wage growth is expected to fall to 2.4 per cent in 2024, and then average 2.3 per cent from 2025 to 2028.

Growth in Residential and Non-Residential Business Investment

Two contrasting factors have dominated the outlook for Alberta residential demand all year. Firstly, record immigration to the province has increased housing demand. Secondly, labour shortages that have increased building costs and higher borrowing costs that have increased the cost of housing purchases have lowered housing demand. Housing supply remains strong, with a respectable 32,600 housing starts expected for 2023. Strong housing investment and supply is expected to contribute to Alberta's GDP outperformance relative to the rest of Canada in 2023. However, the 32,600 Alberta housing starts may be insufficient to keep pace with population growth, likely resulting in continued increases in housing costs.

Non-residential investments of at least $5 million tracked by the provincial government identify $85.5 billion in projects under construction and another $89.3 billion in proposed projects. A sizeable proportion of these proposed projects ($34.5 billion) are in oil and gas. In terms of project value, some of the largest projects in Alberta that are presently under construction include the Trans Mountain Pipeline Expansion ($30.9 billion), TELUS infrastructure upgrades ($16.0 billion), the 1,200 acre Taza Mixed Use Development on the Tsuut'ina Nation ($4.5 billion), and the Valley Line LRT in Edmonton ($4.1 billion). In addition to the oil and gas industry investments, many of these large-scale projects (e.g., $1.2 billion Genesee Power Plant Natural Gas Conversion) relate to decarbonization goals.

Economic Performance in Alberta should Outperform Other Provinces in 2023

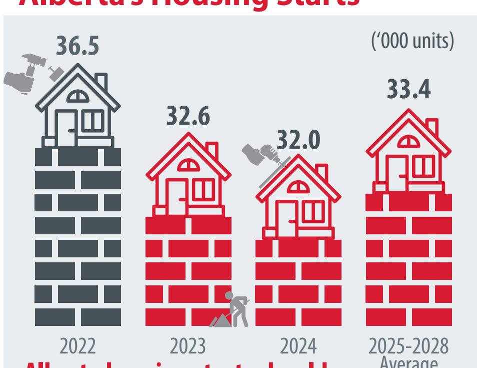
Although Alberta's GDP growth is expected to decelerate in 2023 after the significant growth in 2021 and 2022, it is expected to outperform other Canadian provinces this year. The results of the analysis of many private-sector forecasters corroborate this viewpoint.

Strong population gains should support economic growth in many provinces across the country. Alberta, Prince Edward Island, and Nova Scotia stand to benefit more from robust net migration with relatively favourable housing affordability and lower cost of living. With the U.S. economic growth and imports demand from Canada to slow through 2024, and the soft growth of China's economy weighing on trade, the economic prospects remain modest in B.C., Saskatchewan, and Manitoba. The surveys from private sector forecasters rank 2023 real GDP growth across Canadian provinces as follows[9]:

- Alberta *(2.3 per cent)*
- Prince Edward Island *(1.8 per cent)*
- Nova Scotia *(1.5 per cent)*
- Manitoba *(1.4 per cent)*
- Saskatchewan *(1.4 per cent)*
- Ontario *(1.2 per cent)*
- New Brunswick *(1.1 per cent)*
- British Columbia *(1.0 per cent)*
- Newfoundland and Labrador *(1.0 per cent)*
- Quebec *(0.6 per cent)*

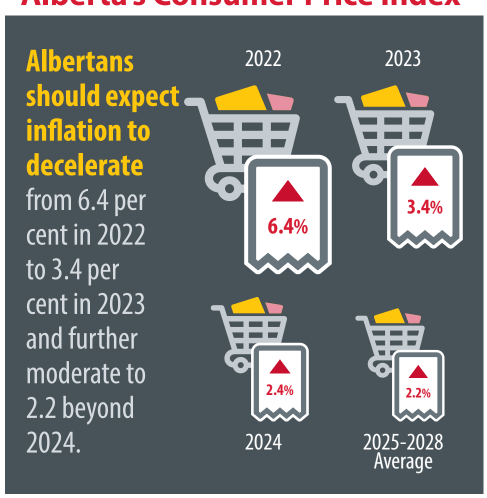
9 Private Sector forecasts in this survey comprise the Royal Bank of Canada, Scotiabank, Desjardins, The Conference Board of Canada, National Bank of Canada, Toronto Dominion Bank, Deloitte, and Bank of Montreal.

Alberta's Housing Starts

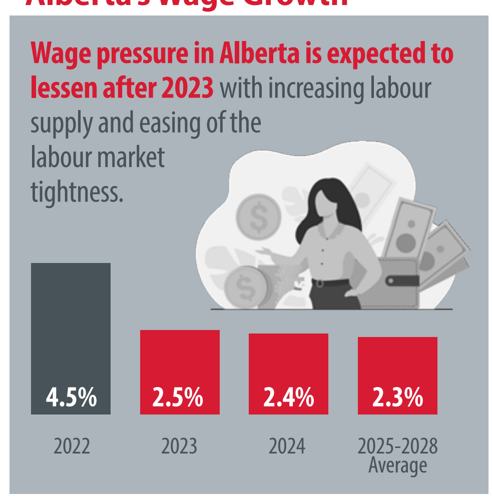


Alberta housing starts should ease from a 2022 record high in 2023-2028 as borrowing costs continue to weigh on affordability and construction costs.

Alberta's Consumer Price Index



Alberta's Wage Growth



Textbox 4 Record High Alberta Electricity Prices and the Impact on Your Utility Bill

Over the past few years, Calgarians and local businesses have been feeling the strain of rising inflation. One of the most noticeable signs of this inflation has come in the form of high utility costs. This textbox explores the reasons behind the record-high electricity prices and why this translates into higher electric utility bills.

Alberta electricity prices have been at record highs, with the annual average price of $162.86/MWh in 2022, the highest in the past 27 years of the history of the Alberta Power Pool and shattering the previous annual record of $133.22/MWh set back in 2000. 2023 Alberta power prices have not faired much better, averaging $151.17/MWh up to September 30. Power pool prices for 2022 and 2023 are more than triple what they were in 2020 and remain significantly higher than pre-pandemic levels. Figure 1 below illustrates the annual average pool price from the creation of the Power Pool in 1996 to present.

The Alberta Power Pool is a sophisticated real-time reverse auction market, with prices set every minute to calculate hourly pool prices. The Alberta Electric System Operator (AESO) is responsible for ordering the necessary generating units online to meet demand. This intersection between demand and supply sets the Alberta pool price. Electricity-generating units are privately held. The majority of generating units (e.g., natural gas-fired, coal-fired, hydroelectric) can set the price at which they are willing to sell their power, while other technologies (e.g., wind and solar) are price takers for their electricity. As market operator, the AESO is responsible for accepting enough power offers from generators (from lowest to highest priced) to meet the provincial demand for electricity. About half of Alberta's electricity demand is as a result of industrial operations, with about 30 per cent residential and 20 per cent commercial demand. During times of normal market operation, the Alberta power pool is designed to have electricity prices reflect the economic fundamentals of the market.

Three broad hypotheses have emerged to understand the exceptional leap in Alberta power prices that began in mid-2021:

1. Environmental legislation

Alberta generates most of its electricity through thermal sources, primarily natural gas. Environmental policies promoting decarbonization have influenced the Alberta power generation sector, and these rising carbon compliance costs have factored into the price. In addition, policy uncertainty surrounding how much longer carbon-generating power plants can operate in Alberta may incentivize these units to attempt to recover more of their fixed costs now by offering their power at a higher price.

2. Concentration of Alberta electric generator ownership

The market for Alberta electricity generation is far from a perfectly competitive one. Presently, only five companies (TransAlta, Capital Power, Heartland, Suncor and ENMAX) are in control of approximately half of Alberta's total installed power generation capacity. In the absence of a perfectly competitive market, price-setting abilities (including the ability to engage in profitable economic withholding) are augmented.

3. Economic withholding

Generally speaking, Alberta electric generators with more than 5 megawatts of installed capacity must offer all their available capacity into the power pool. However, the parties who possess the offer control of these units have discretion for the price at which they sell their power. Some suppliers may hold back all or part of their electricity supply by offering it into the market at a high price, often far above the economical "break-even" price to recover operational costs.

The regulated rate option (RRO) is the default rate for electricity in Alberta, and is highly influenced by the underlying Alberta power pool price. Since 2021, Calgary residences and businesses have been subject to the highest rate of inflation in decades, which has raised affordability concerns as it relates to utility bills. The chart below illustrates that while overall inflation for Calgarians (as measured by Statistics Canada through the Calgary Consumer Price Index) has increased by 16 per cent from January 2021 to July 2023 (inclusive), the RRO has increased by 246 per cent over the same period. Historically, these energy charges form about a quarter of the typical electricity bill in Alberta. Approximately half of a typical utility bill consists of delivery charges, including transmission and distribution costs.

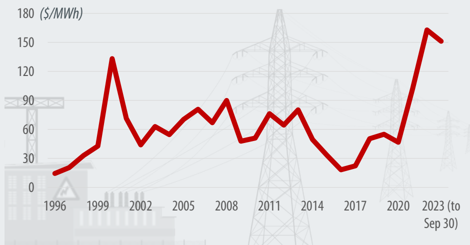
Relief for ratepayers may be on the horizon, as some significant new electricity generation is expected to come online this year and in 2024, including the 900-megawatt Cascade Power Project by Kineticor, which will also offer some competition in a concentrated Alberta power generation market. Industry forecasts and electricity forward markets are also suggesting that electricity prices may fall by 50 per cent or more from their current levels by 2025.

Alberta Electricity Annual Average prices

Power pool prices for 2022 and 2023 are more than triple what they were in 2020 and remain significantly higher than pre-pandemic levels.

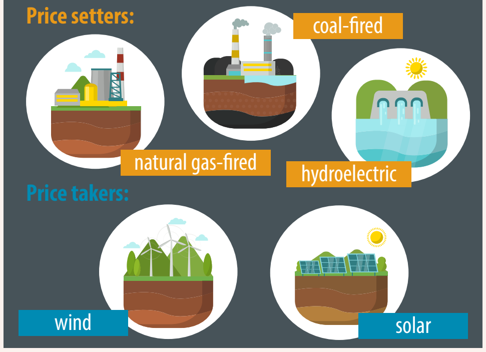
Average Annual Alberta Pool Price

(1996-YTD September 2023)



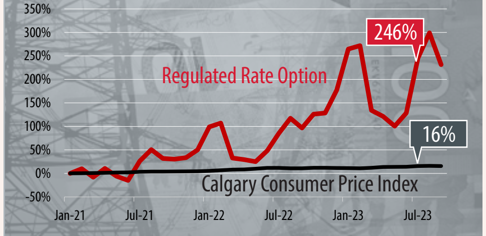
Electricity Generating Units in Alberta Power Pool

The majority of electricity-generating units are the price setters of the Alberta pool price, while other technologies are the price takers.



Growth in RRO and Calgary Inflation

Growth in Regulated Rate Option relative to overall Calgary Consumer Price Index (inflation)



RRO increased significantly more than the Calgary Consumer Price Index from January 2021 to July 2023, but started trending down.

Assumptions

Economic Conditions in Canada

Growth in Canada Lagging behind the U.S.

Economic activity in Canada was strong at the beginning of 2023. Real GDP growth in Q1 2023 reached 2.6 per cent at an annualized rate, driven by increasing consumer spending in durable goods (+7.5 per cent), business investment in non-residential structures (+8.8 per cent) and exports (+10.2 per cent). However, the economic growth began to stall in the second quarter due to an abnormally long and costly wildfire season and a 13-day coast workers' strike in BC that disrupted trade at Canada's busiest ports. Real GDP in Q2 2023 contracted by 0.2 per cent at an annualized rate. It was due to lower consumer spending on durable goods (-2.0 per cent) and declining residential investment (-8.2 per cent).

The labour market suggests that economic growth is decelerating. Total employment growth was 581,000 from January to September 2023, lower than the 842,900 jobs created between January and September 2022. The unemployment rate increased to 5.5 per cent in September 2023, compared to the recent low of 5.0 per cent between December 2022 and April 2023.

Real GDP in Canada is expected to grow by 1.4 per cent in 2023, decelerating to 0.8 per cent in 2024 before averaging 1.8 per cent between 2025 and 2028. The slow growth in 2024 should be caused by lower consumer spending and business investment growth. With inflation and interest rates expected to moderate further after 2024, household spending and residential investment should return to an average growth level, contributing to higher economic growth between 2025 and 2028.

Persistent Inflation from Food and Shelter Costs

Year-over-year consumer price inflation in Canada started accelerating in April 2021 before peaking at 8.1 per cent in August 2022 after sudden energy price spikes, especially gasoline prices, led to higher transportation-related inflation. As energy prices stabilized and started contributing to easing inflation in February, the inflation rate fell to a recent low of 2.8 per cent in June 2023.

Nevertheless, inflation remains high. Sustained high inflation is due to the high cost of food and shelter (rented and owned accommodation). Unlike energy price increases, higher shelter costs are more challenging to subdue because interest rate increases also increase the cost of shelter (through mortgage and rental rate increases). The federal government has made efforts to work with large grocery chains to curb food inflation.

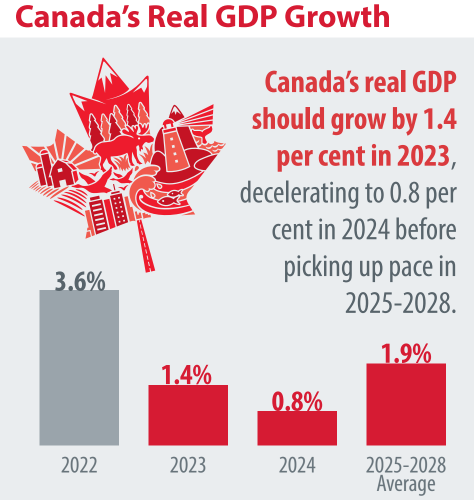
Between 1961 and 2022, Canada had a similar housing starts pattern as the U.S., where the total number of housing starts was correlated to population growth. Over the 62 years, the correlations between total housing starts and total population growth were 56 per cent in Canada and 58 per cent in the U.S., respectively. However, in recent years, a divergence has emerged. From 2017 to 2022, the correlation in Canada has declined slightly (about 50 per cent), but for the U.S. has improved significantly (to 92 per cent). This means that the U.S. built more houses in line with the demand from population growth. Canada's housing investment fell behind its demographic requirement. In the context of large inflows of immigrants post-pandemic, the housing supply shortage in Canada has pushed up housing prices across rental and owned accommodation options (new and resale units). The supply shortage issue may linger for several years, adding to the difficulty for the Bank of Canada to control inflation effectively.

Significantly Higher Borrowing Costs for Households and Businesses

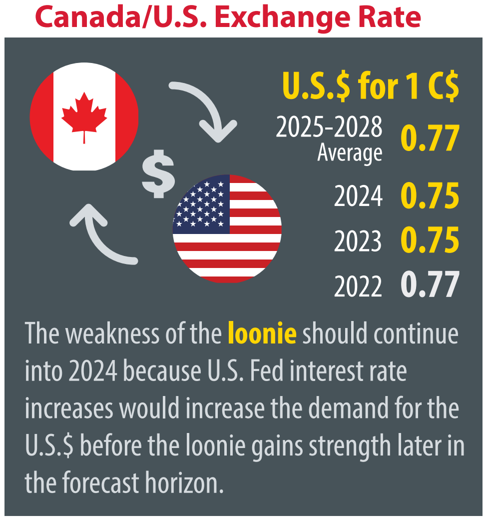
As part of the worldwide effort to combat inflation, the Bank of Canada (BoC) raised the overnight rate by 400 basis points in 2022. The BoC increased its overnight rate by 25 basis points in June and July 2023. The BoC's overnight rate has not been 5.0 per cent (or higher) since March 2001. As a result, the lending rate for the 5-year conventional mortgage term outlined by Canada Mortgage and Housing Corporation (CMHC) increased to 6.17 per cent in August 2023. In its latest commentary (September 2023), the BoC struck a hawkish tone, hinting at possible further monetary tightening. However, higher borrowing costs have dampened the investment intentions in housing and businesses and typically take long periods (as many as 18 months) to work through the economy. As a result, the forecast assumption is that the BoC is expected to keep the current level of overnight rate for the next three quarters before cutting it in late 2024 after inflation falls back to its target range.

The exchange rate should average U.S.$0.76 per CAD$ between 2023 and 2028. Exchange rate stability relative to the 2019 to 2022 average should support trade, as trading partners benefit from increased price certainty.

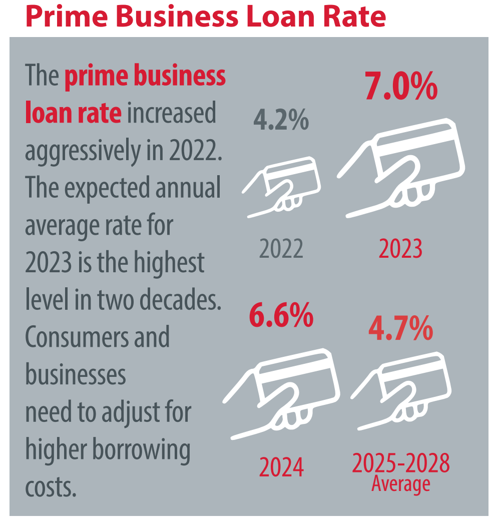
Canada's Real GDP Growth



Canada/U.S. Exchange Rate



Prime Business Loan Rate



Assumptions

The United States Economy

An Upward Revision to U.S. GDP Growth offers support for a Soft-Landing

Real GDP growth in the U.S. was unexpectedly higher in the first half of 2023 than the projections provided by most forecasters. The actual growth at an annualized rate reached 2.2 per cent in Q1 and 2.0 per cent in Q2, compared to the forecast of 1.3 per cent for 2023 in the spring. The drivers behind this year's growth so far came from the growth of consumer spending in durable goods and business investment in non-residential structures in the manufacturing industries in the U.S. The former was supported by households' extra savings accumulated during the pandemic. The latter was driven by the significant incentives to increase manufacturing capacity in the U.S. provided by recent legislation such as the Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act (about $280 billion in incentives) and the Inflation Reduction Act (about $891 billion in spending).

There has been increasing optimism that the U.S. economy will realize a soft landing instead of entering a recession in 2023-2024. Even though consumers are running down their pandemic savings, the $1.4 trillion total personal savings in Q2 2023 is still much higher than the $0.6 trillion in Q2 2022. Non-residential investments in manufacturing and intellectual property products are expected to continue being the main drivers of growth. Despite avoiding it a few times in 2023 already, there is a non-zero probability of a future federal government shutdown that would increase the risk of a recession.

Real GDP growth in the U.S. is expected to reach 1.9 per cent in 2023, slowing down to 0.8 per cent in 2024 before averaging 1.9 per cent per year between 2025 and 2028.

Productivity Growth alongside High Inflation in the U.S.

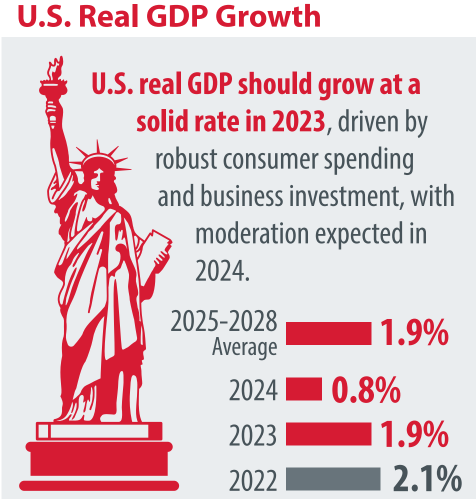
Consumer price inflation in the U.S. has decelerated sharply since the Federal Reserve (Fed) started tightening its monetary policy at the beginning of 2022. CPI inflation is expected to decline from 8.0 per cent in 2022 to 4.1 per cent this year. Higher mortgage rates have lowered the investment intention in the housing market. Housing starts at an annualized rate declined from 1.7 million in Q1 2022 to less than 1.4 million in Q1 2023. It has helped to ease demand-pull inflation. In contrast, the resilient labour market has put upward pressure on inflation. The unemployment rate has stayed consistently below 4.0 per cent, empowering workers to demand higher pay. Various unions threatened or implemented strike actions to demand wage raises.

The good news in battling inflation in the U.S. is that productivity has continued to increase. Labour productivity (output per hour) for all workers increased from 107 (index 2012=100) in Q2 2019 before the pandemic to 114 in Q2 2023. It means that some of the price increase is attributable to higher productivity. Inflation should decline to the central bank target in the absence of another shock like the pandemic or the war between Russia and Ukraine. CPI inflation is expected to fall below 3.0 per cent by 2024 and be around 2.0 per cent in 2026.

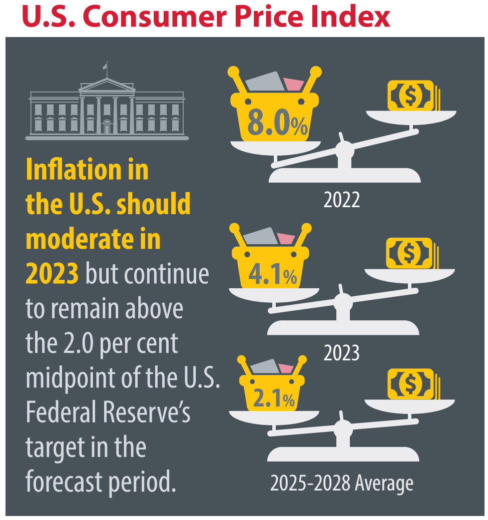
Tightening Monetary Policy Should Soon Come to An End

There is a real possibility of another Fed hike in late 2023 or early 2024. However, after the Federal Funds Effective Rate increased from 0.08 per cent in February 2022 to 5.33 per cent in August 2023 (over sixteen months), the possibility of higher risks to the financial system due to monetary tightening should bring the Fed to an end of this phase of rate increases by early 2024. The U.S. Federal Open Market Committee has projected the Fed Funds Rate should decline from 5.6 per cent in 2023 to 5.1 per cent in 2024, before gradually returning to 2.9 per cent in 2026.

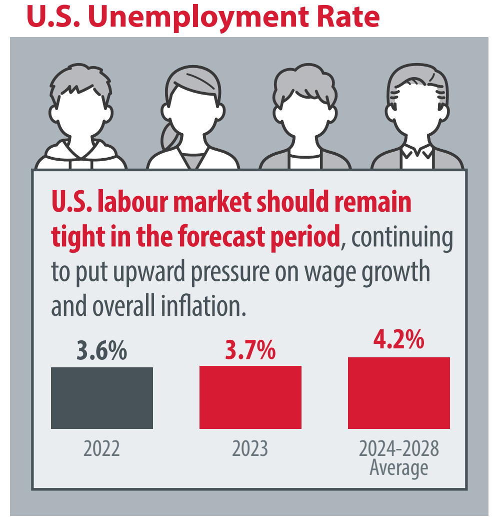
U.S. Real GDP Growth



U.S. Consumer Price Index



U.S. Unemployment Rate



Assumptions

The World Economy

Improvement in 2023 Global Economic Growth but Weaker than Normal Forecast Horizon

The global economic prospects have improved moderately this year compared to the Spring Outlook. The world GDP is expected to increase by 3.0 per cent in 2023 (compared with a 2.8 per cent projection in the Spring). The monetary tightening policies across many countries are weighing on economic activities in the global market. Over the forecast horizon of 2024 – 2028, global economic growth should average 3.1 per cent. It remains weak by historical standards, below the average post-1980 growth rate of 4.4 per cent.

Multiple factors have contributed to the upward revision of the pace of growth. Firstly, global headline inflation is high but continues to moderate in most regions. Secondly, global service sectors have been performing well, contributing to strong labour markets and supporting incomes. Thirdly, global consumption demand has been robust, as consumers have yet to drain the excess savings that they accumulated during the COVID-19 pandemic. These factors have more than offset the weakening in global housing, financial borrowing, and industrial production. The Israel-Hamas war should add more uncertainty to global growth and inflation.

Growth to Decelerate for both Advanced Economies and Emerging and Developing Countries

Challenges to economic growth persist for both the developing and emerging markets and the advanced economies. The continued war between Russia and Ukraine increases the downside risk. China, the second largest economy in the world, is categorized as an emerging and developing economy. China's economic recovery has been weak, with its housing market posing significant headwinds towards GDP growth. The United States, as the largest economy, on the other hand, is expected to see consumer resiliency sustain consumption and public infrastructure projects sustain investments as the higher interest rate environment slows growth for both slightly.

The advanced economies are expected to see GDP decelerate from 2.6 per cent growth in 2022 to 1.5 per cent growth in 2023 and 1.4 per cent in 2024 as tightening monetary policy starts taking full effect. Emerging markets and developing economies are expected to see a modest decline from 4.1 per cent in 2022 to 4.0 per cent in 2023 and 2024.

Global Inflation Has Decelerated but Remains High

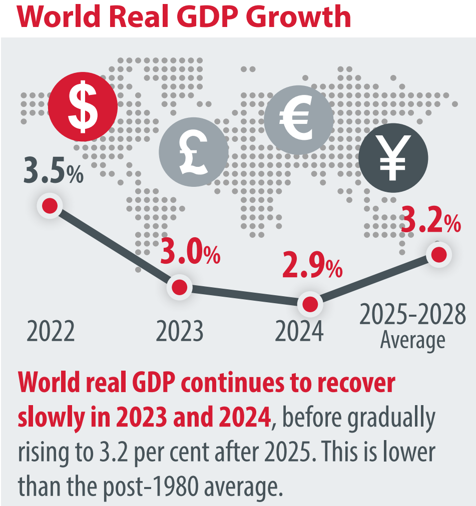
Global inflation is expected to decelerate from 8.7 per cent in 2022 to 6.8 per cent in 2023. The concerted monetary tightening policy efforts by most central banks in 2022 have started to work into the economy in 2023, though at a slower-than-anticipated pace. Although headline inflation has peaked in most economies, core inflation of less volatile items (excluding food and energy) has persisted more than expected. Some economies have yet to see peak core inflation. Prices in the goods sector have decreased, but prices in the services sector should moderate more gradually in the global market.

The pace of inflation in advanced economies is expected to slow from 7.3 per cent in 2022 to 4.6 per cent in 2023, and further to 3.0 per cent in 2024. However, in emerging and developing countries, inflation is expected to decelerate from 9.8 per cent in 2022 to 8.5 per cent in 2023, before edging further downwards in 2024 to 7.8 per cent.

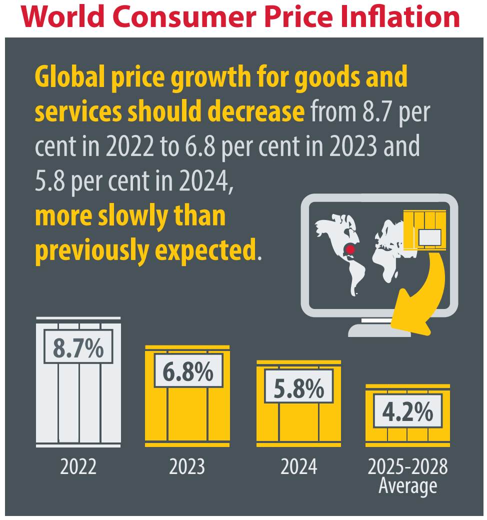
Regionalizing and Internalizing Supply Chains Should Slow Trade

In 2021, global trade had a significant growth of 10.9 per cent as pandemic-related disruptions subsided. Trade growth continued into 2022 at 5.1 per cent, marginally above the 1980-2022 historical trade growth average. However, the tools to combat high inflation experienced in 2022 and into 2023, have aided in the expected slowdown of investment and household demand in 2023, which is expected to slow trade growth in 2023 to 0.9 per cent. Though trade is expected to increase in 2024 to 3.5 per cent, it would remain below the historical average as some reshoring and regionalizing of supply chain production efforts persist in many countries to improve supply chain resiliency.

World Real GDP Growth



World Consumer Price Inflation



World Trade Volume Growth

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: October 2023						FORECAST					
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
ASSUMPTIONS											
World											
Real Gross Domestic Product Growth (%)†	3.3	2.6	-3.1	6.3	3.5	3.0	2.9	3.2	3.2	3.1	3.1
The United States											
Real Gross Domestic Product Growth (%)	2.9	2.3	-2.8	5.9	2.1	1.9	0.8	1.9	1.9	1.9	1.9
Canada											
Real Gross Domestic Product Growth (%)	2.9	2.0	-5.1	5.0	3.6	1.4	0.8	1.8	2.0	1.9	1.9
Prime Business Loan Rate (%)	3.6	4.0	2.7	2.4	4.2	7.0	6.6	4.9	4.6	4.7	4.6
Exchange Rate (U.S.$ for 1C$)	0.77	0.75	0.75	0.80	0.77	0.75	0.75	0.76	0.76	0.77	0.77
Alberta											
Real Gross Domestic Product Growth (%)	2.0	0.1	-8.1	4.9	5.1	2.9	1.9	2.4	1.8	1.9	1.9
Total Employment Growth (%)	2.7	1.2	-7.1	5.4	5.2	3.2	1.8	1.9	1.7	1.6	1.6
Unemployment Rate (%)	6.5	6.8	11.3	8.6	5.8	5.8	5.8	5.5	5.2	5.0	4.9
Housing Starts ('000 Units)††	26.1	27.3	24.0	31.9	36.5	32.6	32.0	33.7	33.6	33.0	33.3
Inflation Rate - CPI (%)	2.4	1.8	1.1	3.2	6.4	3.4	2.4	2.2	2.1	2.2	2.3
Crude Oil Price - WTI (U.S.$/bbl)*	65.2	57.0	39.2	68.1	94.9	79.2	83.4	77.2	76.7	78.1	78.5
Western Canadian Select - WCS (U.S.$/bbl)*	38.6	43.4	27.6	54.4	74.9	64.9	66.1	62.9	62.4	64.2	65.9
Alberta Natural Gas Price - AECO/NIT ($/GJ)	1.5	1.6	2.1	3.5	5.1	2.6	3.2	3.8	4.0	4.0	4.1
Industrial Product Price Index (%)	3.9	-0.1	-0.4	13.9	12.8	-1.8	0.2	1.3	1.5	1.7	1.7
Raw Materials Price Index (%)	9.2	-2.5	-8.2	32.4	23.7	-8.1	-1.0	-0.5	0.5	1.4	1.4
Alberta Average Wage Rate Increase for All Industries (%)**	0.1	0.8	-0.2	1.2	4.5	2.5	2.4	2.2	2.4	2.4	2.4
FORECAST											
Calgary Economic Region (CER)											
Real Gross Domestic Product Growth (%)✧	0.2	2.6	-6.7	3.5	4.5	3.1	3.7	3.3	2.4	2.3	2.3
Total Employment ('000 people)	863.0	891.1	835.6	870.1	933.9	960.0	986.9	1,011.6	1,031.8	1,052.5	1,073.5
Total Employment Growth (%)	1.4	3.3	-6.2	4.1	7.3	2.8	2.8	2.5	2.0	2.0	2.0
Unemployment Rate (%)	7.5	7.1	11.6	9.0	6.0	6.2	6.3	6.0	5.8	5.7	5.6
Calgary Census Metropolitan Area (CMA)											
Housing Starts ('000 units) ✧✧	11.0	11.9	9.2	15.0	17.3	16.6	12.4	13.1	12.4	11.9	11.7
Inflation Rate - CPI (%)	2.4	1.4	1.1	3.2	7.2	3.9	2.5	2.2	2.1	2.3	2.3
Non-Residential Building Construction Inflation (%)	2.1	2.0	0.5	4.0	9.0	6.1	4.9	0.7	1.5	1.7	1.7

Numbers may not add up due to rounding.

Sources for historical data: † International Monetary Fund (IMF) †† Statistics Canada * Bloomberg
** Alberta, Wages & Salaries Per Employee from Conference Board of Canada ✧ Corporate Economics ✧✧ Canada Mortgage and Housing Corporation (CMHC)

Table 2 - Selected Indicators for City of Calgary

City of Calgary

FORECAST COMPLETED: April 2023						FORECAST					
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
DEMOGRAPHY											
Total Population ('000 people)	1,267.3	1,285.7	1,307.0	1,321.6	1,348.6	1,389.2	1,412.9	1,434.2	1,455.5	1,476.6	1,497.6
Total Population Growth (%)	1.7	1.4	1.7	1.1	2.0	3.0	1.7	1.5	1.5	1.5	1.4
Net Migration ('000 people)	11.7	9.6	12.3	6.1	19.7	33.1	15.8	13.7	14.1	14.4	14.7
Household Formation ('000 units)	11.6	6.3	7.7	5.6	10.4	15.6	9.2	8.3	8.3	8.3	8.2

FORECAST COMPLETED: October 2023						FORECAST					
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
REAL ESTATE											
Residential Market											
Housing Starts ('000 units)*	9.4	10.6	7.9	12.7	14.8	14.2	10.5	11.0	10.4	9.9	9.6
Average Residential MLS Sale Price Growth (%)**	-1.2	-4.2	-0.1	7.6	4.9	1.9	1.7	5.2	3.7	2.2	2.2
Benchmark House Price Growth (%)**	-0.1	-3.8	-0.9	12.8	12.4	3.8	1.1	5.0	3.6	2.2	2.2
Total Building Permits ($billions)	4.5	5.0	3.4	5.6	5.7	5.7	6.3	5.9	6.5	6.5	6.6

Numbers may not add up due to rounding.

Sources for historical data: * Canada Mortgage and Housing Corporation (CMHC) ** Calgary Real Estate Board

Table 3 - Selected Commodity Prices

City of Calgary

FORECAST COMPLETED: October 2023						FORECAST					
Unit: per cent	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
CONSTRUCTION COMMODITIES											
Iron and Steel Products	8.7	4.3	-0.9	27.6	21.4	-2.0	-18.2	-7.5	-2.1	3.3	2.5
Aluminum Products	11.4	-2.6	-6.2	29.6	26.3	-4.8	-10.2	-4.4	3.3	5.1	3.8
Wood	7.6	-3.0	24.3	52.7	-6.4	-29.0	-7.5	-3.4	-3.4	-1.6	-0.3
Asphalt*	26.8	6.3	-9.5	4.5	66.2	-8.5	9.0	3.1	5.2	2.6	2.2
OPERATIONAL COMMODITIES											
Rubber	-20.3	6.7	0.5	15.2	-7.2	-7.3	11.7	-4.0	1.9	2.7	2.5
Diesel Oil	19.4	-7.7	-15.4	25.7	41.9	-17.5	4.1	-4.8	1.7	3.1	3.0
Vehicle Parts	2.7	2.0	1.1	2.3	7.0	3.4	1.5	1.3	1.8	0.2	0.0

Numbers may not add up due to rounding.

* Based on Ontario Ministry of Transportation Asphalt Price Index

Table 4 - City of Calgary Population Projection

City of Calgary *(thousands of people)*

FORECAST COMPLETED: April 2023			Estimate *(no Civic Census)*			FORECAST					
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Population *(as of April)*	1,267.3	1,285.7	1,307.0	1,321.6	1,348.6	1,389.2	1,412.9	1,434.2	1,455.5	1,476.6	1,497.6
Total Population Growth Rate (%) *(April-March)*	1.7	1.4	1.7	1.1	2.0	3.0	1.7	1.5	1.5	1.5	1.4
Total Net Migration *(April-March)*	11.7	9.6	12.3	6.1	19.7	33.1	15.8	13.7	14.1	14.4	14.7
Total Births *(April-March)*	15.9	15.3	15.6	15.8	15.3	15.4	15.6	15.5	15.4	15.2	15.1
Total Deaths *(April-March)*	6.6	6.5	6.6	7.4	8.0	7.9	7.7	7.9	8.2	8.5	8.8
Total Natural Increase *(April-March)*	9.3	8.8	9.0	8.4	7.3	7.5	7.9	7.6	7.2	6.7	6.3
Total Households *(as of April)*	482.7	489.1	496.7	502.4	512.8	528.4	537.6	545.9	554.3	562.5	570.7
Total Household Formation *(April-March)*	11.6	6.3	7.7	5.6	10.4	15.6	9.2	8.3	8.3	8.3	8.2

Population by Cohort	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
0-4	79.2	79.7	79.6	79.0	79.0	79.6	79.2	78.8	78.1	78.1	77.9
5-9	80.2	80.0	79.3	81.5	82.0	82.8	83.4	83.6	83.9	83.7	83.8
10-14	71.9	74.6	77.0	77.8	79.8	82.7	84.3	85.5	86.5	87.0	86.8
15-19	69.6	70.9	70.8	72.6	74.9	78.3	79.4	81.6	84.1	85.8	87.8
20-24	77.0	78.2	78.9	79.7	81.0	85.4	86.3	86.2	85.9	87.0	88.2
25-29	100.1	98.1	97.4	97.3	97.4	99.4	99.2	98.9	99.2	99.0	99.3
30-34	114.0	113.0	113.8	114.3	114.8	118.0	116.7	115.1	114.1	113.3	111.5
35-39	107.8	110.8	115.8	114.8	117.9	121.4	123.7	125.2	125.1	125.1	125.7
40-44	96.6	98.2	101.8	102.8	106.3	111.2	115.2	118.2	121.7	124.3	126.1
45-49	90.1	91.3	93.2	93.9	95.8	98.5	100.3	103.0	106.2	109.5	113.1
50-54	85.2	83.9	84.0	86.5	86.8	86.9	89.1	91.3	93.0	95.0	97.7
55-59	82.6	83.2	83.1	83.9	84.2	84.1	83.6	83.9	84.4	85.0	85.4
60-64	69.1	72.1	73.9	74.9	76.9	79.0	80.6	81.1	81.6	82.1	82.3
65-69	50.2	52.5	55.2	56.4	60.2	63.5	66.8	70.1	73.1	75.0	77.1
70-74	34.7	37.8	40.2	41.2	43.4	46.8	50.4	52.4	54.8	58.2	61.1
75-79	23.5	24.9	25.8	26.9	28.8	31.3	32.6	35.6	38.5	40.5	43.2
80-84	17.4	17.6	17.9	18.5	19.4	20.1	21.1	21.9	23.2	24.8	26.6
85-89	11.6	11.8	12.0	12.3	12.3	12.5	12.9	13.4	13.6	14.3	14.7
90-99	6.3	6.8	7.1	7.1	7.2	7.4	7.7	8.1	8.5	8.8	9.1
100+	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total	**1,267.3**	**1,285.7**	**1,307.0**	**1,321.6**	**1,348.6**	**1,389.2**	**1,412.9**	**1,434.2**	**1,455.5**	**1,476.6**	**1,497.6**
Youth (12-17 inclusive)	83.4	85.1	86.7	89.1	91.5	95.8	98.7	100.6	102.4	104.3	105.9
Primary School Age (6-17 inclusive)	177.7	180.7	182.9	186.2	190.4	196.4	199.5	201.8	204.1	206.7	207.8
Working Age (15-64 inclusive)	892.2	899.7	912.7	920.6	936.1	962.2	974.1	984.4	995.1	1,006.1	1,017.0
Seniors 65+	143.9	151.6	158.4	162.7	171.6	181.9	191.8	201.9	211.9	221.8	232.1
Super Seniors 85+	18.1	18.9	19.3	19.8	19.8	20.2	20.9	21.8	22.4	23.4	24.0
Female Super Seniors 85+	11.5	12.0	12.3	12.5	12.6	12.8	13.2	13.6	13.9	14.5	14.8
Average Age	**37.7**	**38.0**	**38.2**	**38.3**	**38.4**	**38.6**	**38.8**	**39.1**	**39.3**	**39.6**	**39.9**

Numbers may not add up due to rounding.

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

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

FORECAST COMPLETED: April 2023						FORECAST					
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Population *(as of July)*	1,483.5	1,514.4	1,543.0	1,558.6	1,608.3	1,661.6	1,702.2	1,736.3	1,767.3	1,798.5	1,830.2
Total Population Growth Rate (%) *(July-June)*	1.7	2.1	1.9	1.0	3.2	3.3	2.4	2.0	1.8	1.8	1.8
Total Net Migration *(July-June)*	14.7	20.9	19.3	7.7	42.2	45.1	31.8	25.5	22.7	23.2	23.9
Net Migration 18-24 *(July-June)*	4.3	5.4	4.8	2.8	8.4	10.8	7.5	5.7	4.9	4.9	5.2
Net Migration 28-40 *(July-June)*	4.1	5.6	6.2	2.6	11.8	15.3	10.8	8.5	7.5	7.6	7.9
Total Births *(July-June)*	17.9	17.3	17.0	16.6	16.9	17.2	17.7	18.0	18.1	18.2	18.3
Total Deaths *(July-June)*	7.4	7.3	7.8	8.7	9.3	9.1	9.0	9.3	9.7	10.2	10.6
Total Natural Increase *(July-June)*	10.5	10.0	9.2	7.9	7.6	8.1	8.8	8.6	8.3	8.0	7.7

Population by Cohort	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
0-4	91.2	90.9	89.8	87.1	87.6	87.4	87.7	88.5	89.7	90.8	92.0
5-9	93.7	93.9	94.0	94.5	97.2	98.9	99.2	98.4	96.6	95.4	94.5
10-14	87.6	90.9	94.0	95.7	98.9	100.8	101.8	102.6	104.1	105.3	106.1
15-19	83.3	84.9	86.5	87.1	91.9	97.3	101.0	104.4	106.9	108.7	109.5
20-24	91.7	93.5	94.7	94.6	97.8	104.2	107.6	109.2	110.0	111.8	114.5
25-29	114.0	112.4	110.3	107.4	110.9	117.1	121.3	124.1	125.9	127.2	128.7
30-34	129.2	129.7	130.9	129.3	131.3	135.0	135.7	135.1	135.4	136.8	138.8
35-39	126.9	131.2	134.6	136.4	139.8	142.7	144.7	146.8	147.7	148.2	149.1
40-44	113.0	116.4	120.2	123.7	129.6	136.1	141.7	145.7	148.7	150.5	151.5
45-49	105.3	107.2	109.3	110.5	113.5	116.7	120.7	125.2	130.0	135.1	140.2
50-54	96.4	96.0	96.7	99.1	102.4	104.5	106.3	108.4	110.2	112.7	115.9
55-59	96.0	97.0	97.2	96.1	95.5	94.4	93.8	94.6	97.3	100.1	102.5
60-64	83.0	86.7	89.3	91.0	92.8	94.0	94.8	94.9	94.1	93.2	92.4
65-69	60.5	64.8	68.9	73.1	78.4	82.5	85.8	88.2	90.0	91.1	92.3
70-74	43.5	47.1	51.0	54.2	56.7	59.9	63.9	67.9	72.2	76.5	80.0
75-79	28.0	30.0	32.0	34.1	37.9	41.7	44.9	48.4	51.5	53.6	56.1
80-84	19.7	20.4	21.1	22.0	23.2	24.9	26.7	28.2	30.1	33.2	36.2
85-89	13.0	13.3	13.6	13.9	14.1	14.5	15.2	15.8	16.6	17.5	18.7
90+	7.6	8.2	8.6	8.8	8.9	9.1	9.5	9.9	10.3	10.8	11.1
Total	**1,483.5**	**1,514.4**	**1,543.0**	**1,558.6**	**1,608.3**	**1,661.6**	**1,702.2**	**1,736.3**	**1,767.3**	**1,798.5**	**1,830.2**

Average Age	**37.8**	**38.1**	**38.4**	**38.7**	**38.8**	**38.9**	**39.1**	**39.3**	**39.6**	**39.8**	**40.0**

Numbers may not add up due to rounding.

Table 6 - Calgary Economic Region (CER) Population Projection

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

FORECAST COMPLETED: April 2023						FORECAST					
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Population *(as of July)*	1,593.2	1,624.9	1,654.0	1,669.8	1,720.6	1,775.2	1,817.3	1,852.4	1,884.3	1,916.4	1,949.0
Total Population Growth Rate (%) *(July-June)*	1.6	2.0	1.8	1.0	3.0	3.2	2.4	1.9	1.7	1.7	1.7
Total Net Migration *(July-June)*	14.7	21.5	19.8	7.8	43.3	46.7	33.4	26.7	23.7	24.2	25.1
Total Births *(July-June)*	18.8	18.3	17.9	17.5	17.8	18.0	18.5	18.7	18.9	19.0	19.1
Total Deaths *(July-June)*	8.1	8.0	8.6	9.6	10.3	10.0	9.8	10.2	10.7	11.1	11.6
Total Natural Increase *(July-June)*	10.6	10.3	9.4	7.9	7.6	8.0	8.7	8.5	8.2	7.8	7.5

Population by Cohort	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
0-4	97.0	96.6	95.5	92.5	93.1	93.0	93.2	93.8	94.6	95.4	96.5
5-9	100.9	100.9	101.1	101.5	104.2	106.0	106.4	105.5	103.6	102.3	101.3
10-14	95.4	98.9	102.1	103.8	107.0	108.9	109.8	110.5	112.1	113.2	113.9
15-19	90.4	92.2	93.8	94.6	99.7	105.3	109.2	112.9	115.5	117.2	118.0
20-24	97.4	99.3	100.6	100.6	103.9	110.2	113.8	115.5	116.8	119.1	122.2
25-29	119.4	118.0	115.9	112.9	116.3	122.7	127.0	129.9	131.8	133.3	135.0
30-34	135.2	135.6	136.8	135.2	137.2	141.2	142.1	141.6	142.1	143.5	145.5
35-39	133.9	138.1	141.3	142.8	145.9	148.6	150.6	152.9	153.9	154.6	155.8
40-44	120.3	123.5	127.3	130.7	136.4	142.8	148.3	152.1	155.0	156.8	157.6
45-49	113.0	114.7	116.6	117.7	120.6	123.7	127.7	132.1	136.7	141.8	146.8
50-54	104.1	103.5	104.3	106.7	110.1	112.2	113.9	115.9	117.5	119.9	123.0
55-59	104.4	105.4	105.4	104.0	103.2	101.9	101.3	102.2	104.9	107.8	110.2
60-64	90.8	94.6	97.3	99.1	100.9	102.1	103.0	102.9	101.9	100.7	99.8
65-69	66.9	71.5	75.9	80.4	86.0	90.4	93.8	96.3	98.1	99.3	100.4
70-74	48.6	52.6	56.6	60.2	62.9	66.3	70.6	75.0	79.6	84.2	87.8
75-79	31.2	33.5	35.7	38.0	42.3	46.4	49.9	53.7	57.1	59.3	62.1
80-84	21.7	22.5	23.3	24.4	25.8	27.7	29.6	31.4	33.5	36.9	40.2
85-89	14.2	14.6	15.0	15.2	15.5	16.0	16.7	17.5	18.4	19.4	20.7
90+	8.3	9.0	9.4	9.6	9.6	9.9	10.3	10.8	11.3	11.7	12.2
Total	**1,593.2**	**1,624.9**	**1,654.0**	**1,669.8**	**1,720.6**	**1,775.2**	**1,817.3**	**1,852.4**	**1,884.3**	**1,916.4**	**1,949.0**

Average Age	**38.0**	**38.3**	**38.5**	**38.9**	**39.0**	**39.1**	**39.3**	**39.5**	**39.8**	**40.0**	**40.2**

Numbers may not add up due to rounding.

Glossary

Advanced Economies

The International Monetary Fund recognizes 41 developed countries and territories as advanced economies: Andorra, Australia, Austria, Belgium, Canada, Croatia, Cyprus, Czechia (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.

An Immigration Plan to Grow the Economy

Announced in November 2022, this is the name of the Government of Canada's immigration plan that involves targeting 465,000 permanent residents in 2023, 485,000 in 2024 and 500,000 in 2025. The plan also brings an increased focus on attracting newcomers to different regions of the country, including small towns and rural communities.

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.

Attached Housing

A property with one floor above ground that shares at least one wall (or a part of a wall) with another home.

Bank of Canada

The Bank of Canada is the central bank of Canada tasked to provide monetary and fiscal stability to the economy.

Business Fixed Investment

Business fixed investment represents the spending by businesses to increase production capacity. It is traditionally decomposed into equipment (such as computers and machines), structures (such as plants, shopping malls, or warehouses), and intellectual property (such as software and research and development).

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), Tsuut'ina Nation 145 (Sarcee 145) (Indian reserve), Turner Valley (Town).

Canada Mortgage and Housing Corporation (CMHC)

The Canada Mortgage and Housing Corporation is a federal crown corporation that serves as Canada's national housing agency. As defined by the National Housing Act, the CMHC's mandate is to "promote housing affordability and choice, to facilitate access to, and competition and efficiency in the provision of, housing finance, to protect the availability of adequate funding for housing at low cost, and generally contribute to the well-being of the housing sector in the national economy."

Canada Net-Zero Scenario

Canada's Energy Future 2023 (EF2023) report published by the Canada Energy Regulator contains three scenarios: the 'Global Net-Zero' scenario, 'Canada Net-zero' scenario, and the 'Current Measures' scenario. In the Canada Net-Zero (CNZ) Scenario, Canada will achieve net-zero emissions by 2050, but the rest of the world will move more slowly to reduce GHG emissions.

Census Metropolitan Area (CMA)

An urban Census metropolitan area (CMA) is an area consisting of one or more neighbouring municipalities situated around a major urban core. A CMA must have a total population of at least 100,000 of which 50,000 or more live in the urban core. As of Statistics Canada's Census of Population, 2021, there are a total of 41 CMAs in Canada.

Commodities

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

Consumer Price Index (CPI)

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

Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act

The CHIPS and Science Act is a US initiative to promote the domestic research and production of semiconductors in the United States. Pledging approximately U.S.$280 billion in funding, this act was signed into law in August 2022.

Current Measures Scenario

Canada's Energy Future 2023 (EF2023) report published by the Canada Energy Regulator contains three scenarios: the 'Global Net-Zero' scenario, 'Canada Net-zero' scenario, and the 'Current Measures' scenario. The Current Measures Scenario assumes limited action to reduce GHG emissions beyond measures in place today. In this scenario, it is not expected to achieve net-zero GHG emissions in Canada by 2050, with limited future global climate action.

Detached Housing

Independent structures that are typically built on land where the land exceeds the footprint of the building on each side of the building.

Developing and Emerging Market Economies

This group of countries (155) 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.

Economic Region

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

Economy

The term economy refers to the institutional structures, rules and arrangements by which people and society choose to employ scarce productive resources that have alternative uses in order to produce various goods over time and to distribute them for consumption, now and in the future, among various people and groups in society. In a free market economy like Canada's, the laws of supply and demand determine what, how and where goods and services should be produced, who should consume them and when. A "strong' or "healthy" economy is usually one that is growing at a good pace.

Employment Rate

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

European Union

A political and economic union of 27 member states that are located primarily in Europe. The IMF expects the European Union to account for approximately 18 per cent of global GDP in 2023. Some of the largest economies that are EU member states include Germany, France, Italy, Spain, and the Netherlands.

Federal Funds Effective Rate

The U.S. federal funds market consists of domestic unsecured borrowings in U.S. dollars by depository institutions from other depository institutions and certain other entities, primarily government-sponsored enterprises. The effective federal funds rate (EFFR) is calculated as a volume-weighted median of overnight federal funds transactions reported in the FR 2420 Report of Selected Money Market Rates.

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.

Federal Reserve

The Federal Reserve System is the central bank of the United States tasked to provide monetary and fiscal stability to the economy.

G7

The international Group of 7 (G7) consists of Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. The G7 comprises of the world's largest advanced economies and liberal democracies. With its members accounting for over half of global net wealth, the G7 is seen as highly influential in global affairs.

Global Net-Zero Scenario

Canada's Energy Future 2023 (EF2023) report published by the Canada Energy Regulator contains three scenarios: the 'Global Net-Zero' scenario, 'Canada Net-zero' scenario, and the 'Current Measures' scenario. In the Global Net-zero Scenario, Canada will achieve net-zero emissions by 2050, and the rest of the world will reduce emissions enough to limit global warming to 1.5 Celsius (°C).

Global Supply Chain Pressure Index (GSCPI)

The Global Supply Chain Pressure Index (GSCPI) was developed by the Federal Reserve Bank of New York and includes 27 monthly variables reflecting events within supply chains and transportation costs in the maritime and air cargo sectors. The index is normalized so that zero indicates an average value. Any deviation is related to a stress level, with the extent of the deviation indicative of the severity. Positive values represent how many standard deviations the index is above the average, implying that supply chains are under pressure. Negative values are shown when supply chains are functioning well and experiencing limited disruptions or pressure. In its normal state, the GSCPI is expected to be below zero. Some events, particularly the onset of a recession, such as the financial crisis of 2008-2009, can remove substantial pressure on supply chains as demand declines. Therefore, low values are not necessarily reflective of good economic prospects. Positive variations of the GSCPI are usually associated with goods and producer price inflation in major consumer markets in North America and Europe.

Goods-producing Sector

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

Gross Domestic Product (GDP)

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

Henry Hub

Henry Hub is a natural gas pipeline in Louisiana that serves as the pricing and delivery location of natural gas futures on the New York Mercantile Exchange (NYMEX).

Housing Markets

Consists of two markets: new house and re-sale markets referred to as MLS (Multiple Listing Service). Each is described by different parameters and followed closely by different statistical bodies: the Planning and Building Department with The City of Calgary and Statistics Canada for new houses and The Canadian Real Estate Association for the 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 190 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.

Industrial Product Price Index (IPPI)

The Industrial Product Price Index (IPPI) measures price changes for major commodities sold by manufacturers. The prices collected are for goods sold at the factory gate. As a result, the prices covered by the IPPI refer not to what a purchaser pays but to what the producer receives.

Inflation Rate

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

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.

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.

NOVA Gas Transmission Ltd. (NGTL)

NGTL is a natural gas gathering and transportation system in Alberta and northeastern British Columbia that is used to transport natural gas produced in the Western Canadian Sedimentary Basis to Canadian and US markets.

Non-Residential Construction Price Inflation

Non-residential construction price inflation measures the overall price escalation seen in the construction of non-residential buildings. This indicator includes the impact of input prices, labour costs, taxes, fluctuating profit margins and the effect of the overall economy on demand for local non-residential construction projects.

OPEC

The Organization of Petroleum Exporting Countries (OPEC) is an organization of 13 oil producing countries (Algeria, Angola, Republic of the 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.

OPEC+

OPEC+ was established in 2016 amid a global economic slowdown and strong production from U.S. shale producers to stabilize oil prices by jointly cutting production among its members. OPEC+

describes the 13 members of OPEC plus 10 oil exporting non-OPEC countries (Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, and Sudan). Russia is the largest and most influential oil producing member of OPEC+ who is not a formal member of OPEC.

Overnight Rate
The overnight interest rate is the rate for overnight (between business days) lending among major banks in Canada. It is typically the lowest of all types of interest rates and influences other interest rates. The Bank of Canada sets the target for the overnight rate as one way to conduct monetary policy. Major banks can deposit money overnight with the Bank of Canada and receive an interest rate equal to the target rate (the "deposit rate") or borrow money from the Bank of Canada at a rate one-quarter of a percentage point higher (the "bank rate").

Quantitative Tightening
A contractionary monetary policy implemented by central banks in order to reduce liquidity or reduce money supply. This is usually done by the central bank reducing its assets on the balance sheets.

Raw Materials Price Index (RMPI)
The Raw Materials Price Index (RMPI) measures price changes for raw materials purchased for further processing by manufacturers. As a purchasers' price index, prices include all charges purchasers incur to bring a commodity to the establishment gate. They include transportation charges, net taxes paid, custom duties, as well as subsidies, if applicable.

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.

Soft Landing
A soft landing is the goal of a central bank when it seeks to raise interest rates just enough to stop an economy from overheating and experiencing high inflation without causing a severe downturn. It is the process of an economy shifting from growth to slow growth to potentially zero growth as it approaches but avoids a recession.

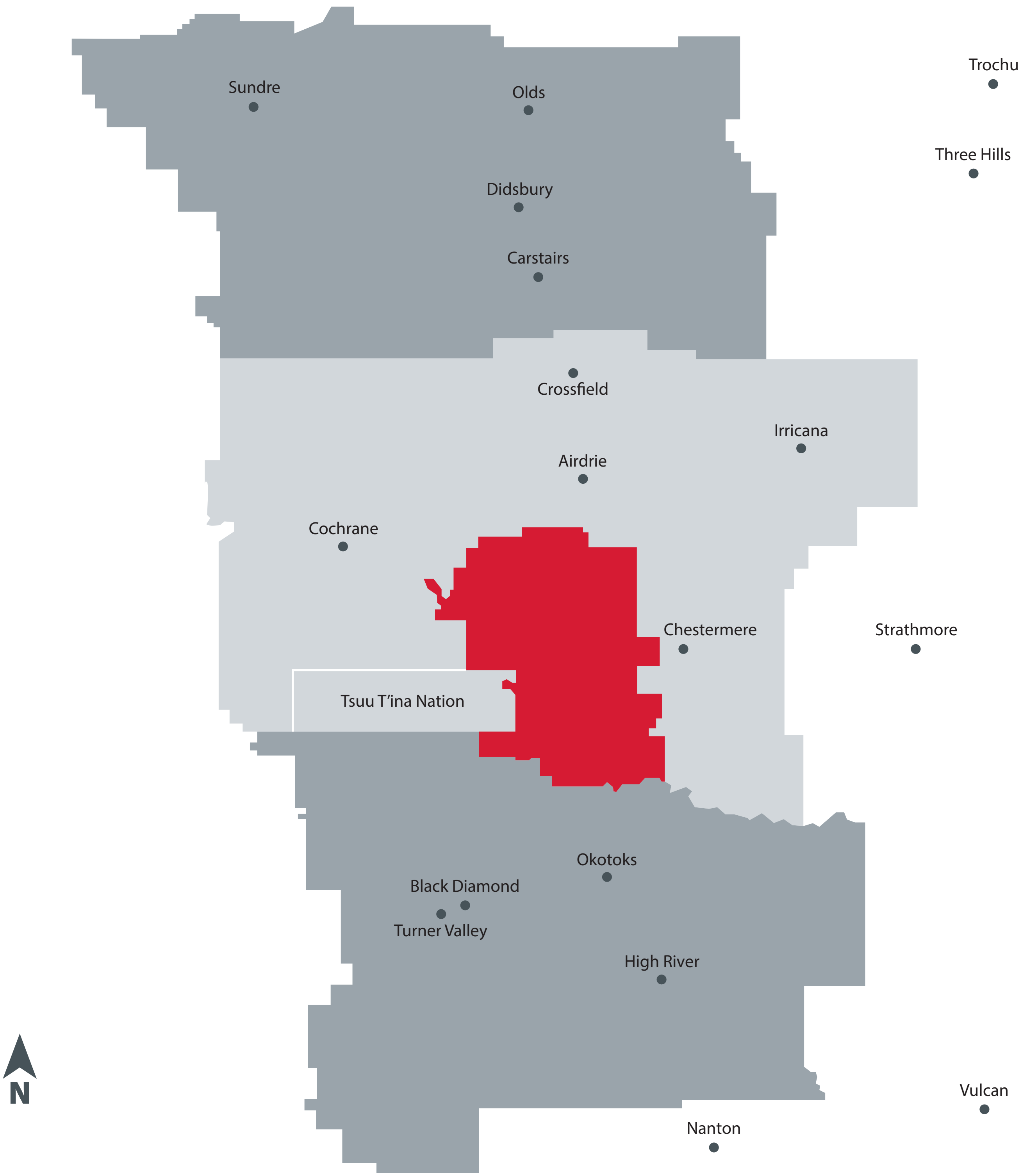
Unemployment Rate
In Canada, the unemployment rate measures the number of unemployed people 15 years of age and over as a percentage of the total labour force (employed and unemployed people) 15 years of age and over.

Western Canadian Select (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 people aged 15 to 64.

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

Calgary Economic Region Map



Legend

+ + Calgary Economic Region

+ Calgary Metropolitan Area

City of Calgary

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:
Bank of Canada, Calgary Real Estate Board (CREB), Canada Mortgage and Housing Corporation (CMHC), Canadian Real Estate Association (CREA), Conference Board of Canada, Federal Reserve Bank of the U.S., Government of Alberta, Government of Canada, International Monetary Fund (IMF), Organization of the Petroleum Exporting Countries (OPEC), Statistics Canada, Stokes Economics, The City of Calgary, U.S. Energy Information Administration (EIA), World Bank, and others.