Calgary

Spring 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. The results and report are available to the general public.

The timing of the release of The City's Spring Economic Outlook is late April every year. The timing is the result of several dependencies. For example, it typically follows and incorporates insights from a spring release of the Government of Alberta budget. The late April timing also ensures that a complete set of historical values, including those for the previous year and the first quarter of the current year, are incorporated into the forecast. Many of these values are attributable to several external agencies that complete their work in mid-April every year.

Purpose

The Spring 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

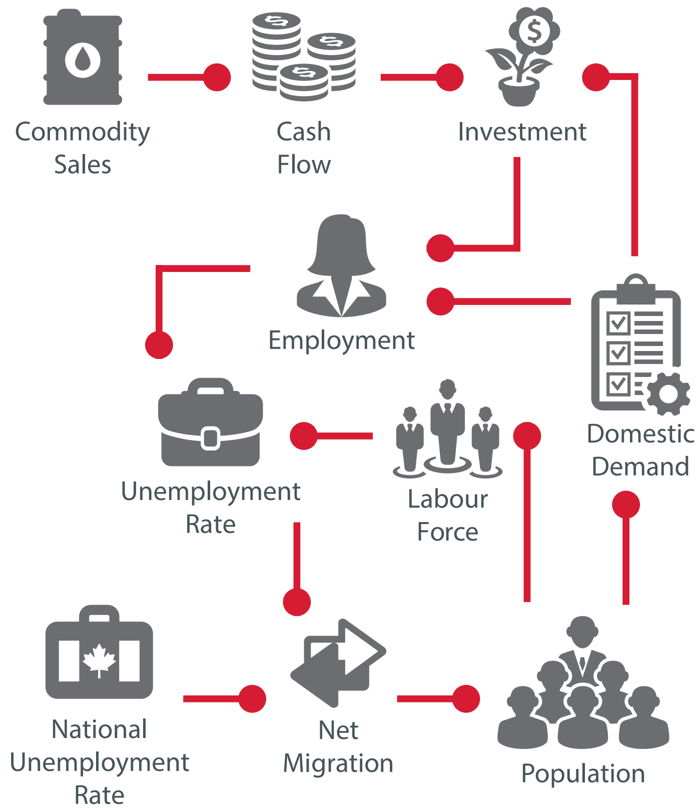
There are two areas or economies of interest. The first is the local (or city of Calgary) economy. The second is the regional economy (Calgary Economic Region or CER).

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. That's unlike all the CER or City forecast estimates that 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 Spring 2023 Economic Outlook uses assumptions about changes in the path for the 2023 to 2028 period as follows:

- An economic slowdown in the U.S., China, and the world with recessions in some regions;
- 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 Spring 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. Lower but positive local and regional economic growth in 2023, not a recession, driven in large part by strong energy sector cash-flows

Alberta's crude oil exports doubled over the last 11 years to 3.489 million barrels a day in 2022 from 1.747 million barrels a day in 2011. That's a blistering average annual 6.5 per cent growth rate. Pipeline exports represented 86 to 91 per cent of annual exports over that period. Robust Alberta crude oil production has supported strong export growth. Specifically, Canadian crude oil production's average annual growth rate was 4.5 per cent over those 11 years compared with 5.5 per cent for Alberta. Alberta's 2022 crude oil production represented 83 per cent of Canadian production, up modestly from 2021 (82 per cent) and significantly from 2011 (74 per cent).

From 2023 through 2028, crude oil export growth should continue. However, the export growth rate should decelerate. That's under both the 'current policies' scenario (2.0 per cent) and 'evolving policies' scenario (1.5 per cent) developed by the Canada Energy Regulator in 2021[1]. Recently, the Minister of Natural Resources requested an additional scenario consistent with Canada achieving net-zero emissions by 2050[2]. The 'current policies' scenario assumes business as usual. The 'evolving policies' scenario assumes less global demand for fossil fuels and increased use of low-carbon technologies.

In 2022, the average price of Canadian crude oil exports exceeded U.S.$80 per barrel for the first time since 2013. The Fall 2022 Economic Outlook correctly forecasted record export value in 2022, which ended up at $150.4 billion. That's a 49 per cent increase from $100.8 billion in 2021. High prices and export volumes were a boon for industry cash flows. For the forecast horizon, the average annual price for Western Canadian Select (WCS) and West Texas Intermediate (WTI) should lie between the highs of 2011-2014 and the lows of 2015-17. With more substantial export volumes but lower prices, Canadian crude oil exports should yield over $100 billion in 2023. Overall, Alberta had a $374 billion economy in 2021 – making multi-billion dollar cash flows from crude oil export growth supportive. Trans Mountain pipeline expansion becoming operational in 2023 should improve export market access for the forecast period and lower the price discount between WCS and WTI.

Alberta's natural gas production declined at an annual average rate of 1.9 per cent from 2001 (14.45 billion cubic feet a day) to 2021 (9.82 billion cubic feet a day). Simultaneously, natural gas demand increased at an average annual rate of 3.4 per cent. Most of the demand growth was for oil sands production, with an average yearly growth rate of 9.2 per cent and rapidly approaching one out of every three units of provincial use. Electricity generation is the next significant source representing about one out of every four units of Alberta natural gas demand. Apart from demand growth, the other reason for declining export volumes (annual average of -5.9 per cent between 2001 and 2021) is increasing production in the U.S., Canada's only export market by pipelines. Additional export markets for liquified natural gas (LNG) and the growing perception of natural gas as a clean burning fossil fuel should halt export decline. It offers upside opportunities beyond those in the forecast estimates.

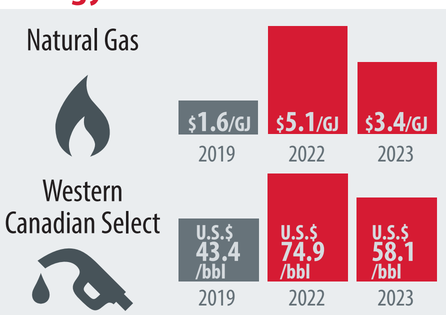
In 2023, additional pipeline capacity should materialize when the North Corridor expansion to the primary Nova Gas Transmission Limited (NGTL) system comes in-service. With demand growth exceeding supply growth, there is upward pressure on prices. The benchmark Alberta natural gas price at the Alberta Energy Company (AECO) hub should average $3.4/GJ in 2023 before gradually increasing to $4.3/GJ by 2028 as supply expands. The price differential between AECO-C and Henry Hub (the North American benchmark) should ease as pipeline capacity improves.

The exchange rate should average U.S.$0.76 per CAD$ between 2023 and 2026. Exchange rate stability relative to the 2019 to 2022

1 Further information on the two core scenarios in Canada's Energy Future 2021 report, the 'evolving policies' scenario and the 'current policies' scenario, and the assumptions that underpin those scenarios can be found here.

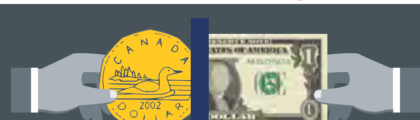
2 Further information on the additional scenario requested by the Minister of Natural Resources can be found here.

Energy Prices



The Western Canadian Select **oil price** and the AECO-C **natural gas price** would decline slightly from decade-long highs but remain strong enough to attract capital investment.

Canada/U.S. Exchange Rate



U.S.$ for 1 C$

2028	**0.77**	2022	**0.77**
2023	**0.74**	2021	**0.80**

The weakness of the **loonie** should continue into 2023 because U.S. Fed interest rate increases would increase the demand for the U.S.$ in 2023 before the loonie gains strength later in the forecast horizon.

GDP Growth Comparison

In 2023, the **real GDP growth rate** for the regional economy would be behind the global economy but strong enough to stay ahead of the provincial, Canadian, and U.S. economies.

Calgary CER	**2.6%**
Alberta	2.5%
Canada	0.8%
U.S.	1.3%
World	2.8%

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.

2. Housing, non-residential and business fixed investment levels should decline in 2023 after the 2022 surge as businesses exercise caution in the face of uncertainty

Aggregate CER investment levels should decline in nominal and real terms after the surge in 2022 as businesses exercise caution in the face of economic slowdowns in Canada and the U.S. In comparison, Alberta investment levels should increase in nominal terms because of an uptick in oil and gas investment but decline in real terms.

A key driver is higher financing costs for new investment projects – now at their highest since 2008. It is due to significant Bank of Canada interest rate hikes. The hikes took the prime lending rate from a 2021 average of 2.5 per cent to a 2022 average of 4.2 per cent. It should increase into early 2023, averaging 6.1 per cent before decreasing in late 2023 and through 2024 (average prime lending rate of 5.4 per cent in 2024) as the Bank of Canada shifts to monetary easing after successfully cooling inflation.

Historically, declining investments were an early warning signal for a potential swing in economic fortunes. Specifically, a forward-looking annual survey of investment intentions by the Canadian government indicated significant declines for Alberta, especially for the oil and gas industry, from 2014 to 2015 and again from 2019 to 2020 and foreshadowed the last two CER recessions. However, it is an imperfect predictor because there have been periods of investment decline that did not lead to recessions. In those cases, the key feature was the need to resolve capital investment and labour supply imbalances, which is consistent with the current situation.

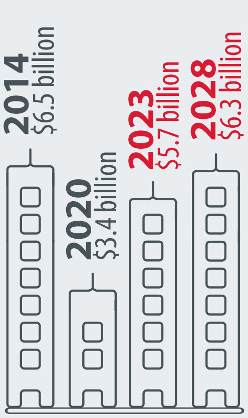
Investment should decline in 2023 at a negative double-digit pace (contrary to the Fall 2022 Economic Outlook expectations - a notable update) but recover in 2024 as the business community should receive a confidence boost from the CER's ability to skirt negative economic growth in 2023. A recovery with positive growth should follow between 2024 and 2028, albeit at a decelerating pace. The two industries expected to experience the most significant investment decline in 2023 are transportation and education, driven by higher prices for transportation equipment and a slowdown in post-secondary education investments. Manufacturing is one of the two industries that would be the most resilient with real investment growth, which will recover after a three-year slump that halved investment levels. The other industry is the professional, scientific, and technical services industry which should experience a focus on expanded capacity as well as the 'tech' sector.

Housing investment should decline in 2023 primarily because of higher interest rates. Total housing starts reached a record high of 14,800 units in 2022. Builders responded positively to solid demand growth in 2022. For 2023 and beyond, the challenge of homebuyer affordability will encourage multi-family units. It should limit the reduction in the total number of housing starts in the city of Calgary to 13,100 in 2023. Between 2024 and 2028, the annual average number of dwellings started should decline to 10,300 units after exceptional levels for 2021 to 2023, barring any policy incentives encouraging higher levels.

House price appreciation should slow in 2023, given the housing market's weakness. Between 2024 and 2028, average house price appreciation should average 2.6 per cent, while the benchmark house price appreciation averages 2.3 per cent as both converge because of an expected rebalancing of housing-type sales and pricing.

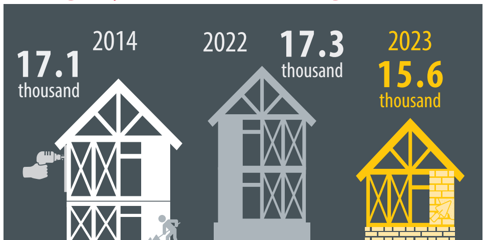
In 2022, the value of building investment intentions in Calgary over the coming year or two was robust at $5.7 billion. It has sustained economic growth into Q1 2023. Two of every three investment dollars in new buildings get directed at residential properties. For 2023, like other investment categories, total building construction investment intentions should slow due to higher borrowing rates which dissuade investment activity. However, the construction inflation is expected to keep investment needed for targeted additional units steady at $5.7 billion. Building construction investment intentions should gradually increase between 2024 and 2028, averaging $6.0 billion annually, as solid population growth and slightly lower borrowing costs emerge over the forecast horizon.

Calgary Building Permits



The forecast for **building permits** in 2023 is $5.7 billion. It is the same as that recorded in 2022, indicating that inflation-adjusted building investment intentions are lower in 2023.

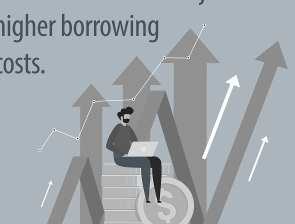
Calgary (CMA) Housing Starts



Housing starts in the Calgary Census Metropolitan Area (CMA) would fall from the highest level on record in 2022 to the third highest level in 2023 before a moderate deceleration into 2024 as affordability wanes.

Prime Business Loan Rate

The **prime business loan rate** increased aggressively in 2022. The expected annual average rate for 2023 is the highest level in two decades. Consumers and businesses need to adjust for higher borrowing costs.



2021
2.5%

2022
4.2%

2023
6.1%

2028
4.5%

3. Strong population and labour force growth would help address high job vacancies with economy-wide earnings boosting consumption and offsetting investment decline

The City of Calgary's estimate for the local population as of April 1, 2023, is 1,389,200. The annual rate of population increase was about 40,600 people or 3.0 per cent, which is an acceleration from 2.0 per cent in 2022. The implication is that population growth has created the platform for a 3.0 per cent growth in personal consumption spending before accounting for inflation. Personal consumption spending is the main contributor to local GDP growth representing about three out of every five dollars of economic activity in Calgary.

The 'real' growth in personal consumption spending should lag behind population growth because of high inflation. Although Calgary's population increased at a record pace between April 2022 and April 2023, the annual inflation rate was at a 40-year high. High inflation dissuades expenditures on large ticket items and should reduce inflation-adjusted consumer spending.

Calgary's population should increase by 108,400 people between 2023 and 2028. The number of elementary and pre-elementary school-aged children (zero to nine years) should achieve a forecast horizon peak of 162,600 in 2024 before declining to 161,700 by 2028. It is due to declining birth rates in Calgary. In contrast, the number of high school youth and graduates eligible for post-secondary education (aged 15 to 19) should increase from 78,300 in 2023 to 87,800 in 2028. That's an annual average 2.3 per cent growth rate. It suggests benefits from a focus on Calgary youths.

By 2028, the number of seniors aged 65 to 79 should increase by 39,800 from 141,600 in 2023. That's a rapid annual average growth rate of 5.1 per cent attributable to the baby boomers. It means that Calgary will continue to experience population aging. By 2028, the average age in Calgary should rise to 39.9 years, compared to 38.6 years in 2023. Similarly, the proportion of seniors (65 years and older) in the total population should increase to 15.5 per cent by 2028, compared to 13.1 per cent in 2023. It will increase the share of the retiring population and put downward pressure on the effective size of the labour force.

The Fall 2022 Economic Outlook forecasted that the CER labour force should hit one million people sometime in 2023. That expectation is sustained. The size of the CER workforce should rise to a full-year average of 1,027,800 people in 2023. Significant net migration, especially of people aged 35 to 49 years, has been crucial for labour force growth. However, for the first time, the cohort aged 65 to 69 would experience more additions than any other cohort over the five years from 2023 to 2028. As a result, the labour force participation rate would decline from 71 per cent in 2023 to 70 per cent by 2028.

Job creation should slow to 3.1 per cent in 2023 after a blistering 7.3 per cent pace in 2022. That represents an addition of 28,600 net new jobs in the CER in 2023. The slowdown in job creation is the result of a shift from getting workers to getting the right match between job seekers and employers. More workers alongside real wage growth should increase economy-wide earnings and boost consumer spending in 2023. In line with investment growth, the two industries that should experience the fastest pace of job growth are the manufacturing and the professional, scientific, and technical services industries. The growth in manufacturing industry jobs is from a small base (3.9 per cent of CER workers in 2022), which would make it less prominent in upcoming labour force survey releases. Between 2024 and 2028, the average annual rate of job growth should decelerate to 2.2 per cent.

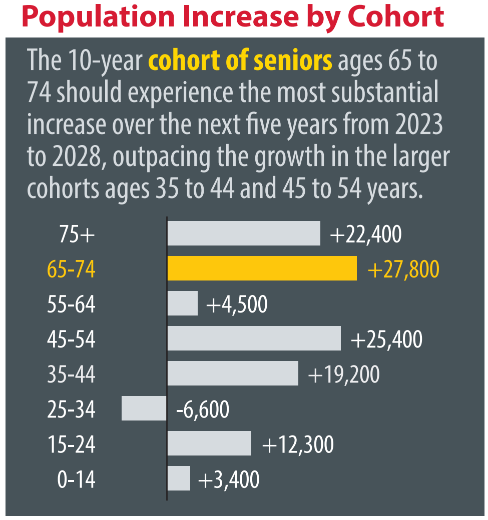
The average annual unemployment rate should stay above 6.0 per cent until 2026. That's because job growth over the next few years would only slightly exceed labour force growth. As a result, the CER unemployment rate should exceed the Canadian average without new policy developments that encourage faster job growth.

4. Divergence across four inflation categories in 2023 – declining average house prices, decelerating consumer price inflation, positive wage inflation, and significant construction inflation

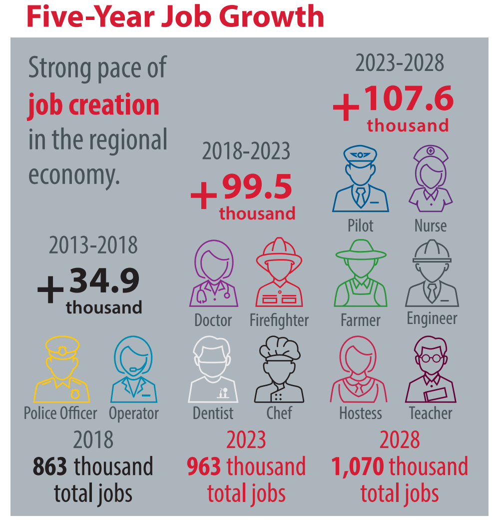
There are five generally accepted significant drivers of global inflation from 2020 to 2022:

Five-Year Population Growth

Population Increase by Cohort



Five-Year Job Growth



1. a shift in demand toward goods and away from services as fewer people held their jobs with COVID-19 pandemic restrictions, and many of those that did work needed fewer services and more durable goods including home office equipment
2. aggregate stimulus through about U.S.$16.9 trillion in fiscal measures globally as households ran down savings and stimulus transfers, leading to a surge in aggregate demand post-pandemic
3. supply chain bottlenecks due to lockdowns and mobility restrictions led to severe disruptions in various supply chains and short-term supply shortages
4. a shock to labour supply with layoffs and the adverse result of labour force participation staying below pre-pandemic levels in many jurisdictions long after restrictions got lifted
5. supply shocks to energy and food because of the Russian invasion of Ukraine – Russia and Ukraine export major commodities (e.g., 30 per cent of global wheat exports).

The top two are demand-pull factors, while the others are cost-push factors. With the goal of achieving a soft landing, the Bank of Canada has used interest rate hikes and quantitative tightening to cool demand-pull inflation. However, it has been insufficient to address cost-push inflation. Nevertheless, evidence shows that the cost-push factors driving inflation have eased. The Global Supply Chain Pressure Index, or GSCPI, declined from a record peak of +4.32 (supply chain challenges four times worse than average) in December 2021 to -1.06 (better than average) by March 2023.

For Calgary consumers, slower increases in the cost of living in 2023 are a relief from the sharp increase in 2022. Specifically, after a 7.2 per cent increase in 2022, the average annual growth in consumer price inflation should decelerate to 3.8 per cent in 2023. The sources of 2023 consumer price inflation in order of the magnitude of their expected contribution to inflation are:

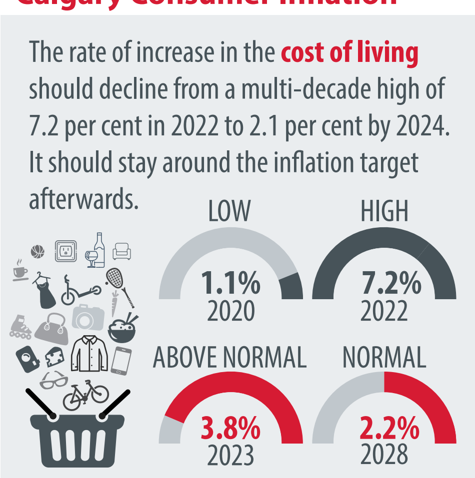
- Positive food inflation (16 per cent of the consumer basket): production increases by other countries will not fully offset disruptions due to the Russia/Ukraine conflict (both are important suppliers of agricultural commodities).
- Positive shelter inflation (26 per cent of the consumer basket): higher mortgage costs will drive up homeownership costs. Prices in the rental market would also strengthen, given the inadequate supply.
- Negative transportation inflation (18 per cent of the consumer basket): gasoline and diesel prices should decline 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.

Strong consumer price inflation (7.2 per cent) and house price inflation (4.9 per cent) in 2022 should decelerate. In 2023, consumer price inflation should average 3.8 per cent as transportation inflation reverses course. Also, house prices should decline (-3.0 per cent).

For businesses, there would be significant upward pressure on labour costs as Alberta wage inflation stays high at 3.5 per cent in 2023. Wage growth would decelerate in 2024, to 2.4 per cent, as labour supply keeps up with demand. The municipal government is not immune to a competitive labour market, which would lead to additional operating cost pressures putting upward pressure on taxes.

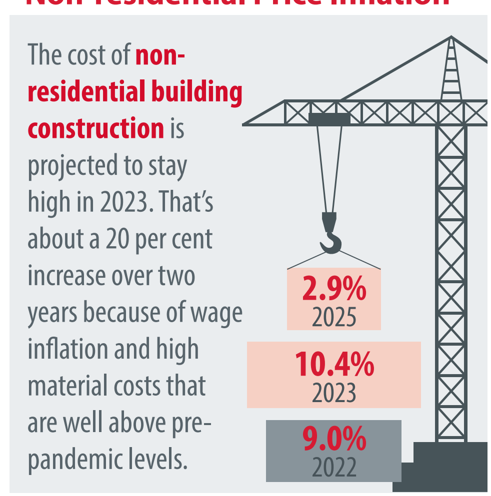
One useful measure of the cost of private sector capital investment and government investment is non-residential building construction inflation. The sustained increase in prices for non-residential building construction is anticipated to increase to 10.4 per cent in 2023, reflecting the increase in wages, rising energy and financing costs, and sustained high prices for some underlying construction commodities like steel, iron, and wood above pre-COVID-19 levels. Increased costs, particularly for inputs like steel, have driven up non-residential construction costs in Calgary. Steel-finished building materials like rebar, framing and commercial plumbing pipes face significant impacts. Rising energy costs and interest rates have also factored into increasing building costs. Due to fixed price contracts with multi-year terms, not all of the cost increases of recent years show up in current data, and those increases will continue to make their way into contracts in 2023.

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	Though the average growth of the world economy is expected to be higher for the current service plans and budget cycle than the previous one, global growth is projected to fall from 3.4 per cent in 2022 to 2.9 per cent in 2023. The war in Ukraine and increasing financing costs continue to weigh on economic activity. It will impact consumer confidence and spending in Calgary.
The United States			
Real Gross Domestic Product Growth (%)	1.9	1.4	Slowing momentum in the U.S. economy will weigh on demand for Canadian exports in this cycle. Canada's energy exports, however, are expected to outperform non-energy exports.
Canada			
Real Gross Domestic Product Growth (%)	1.4	1.3	Canada's economic growth is expected to be limited in 2023, before gradually picking up in 2024. The average rate of economic growth in Canada will be slightly lower in the current service plans and budget cycle than the previous one, sustaining interprovincial trade.
Prime Business Loan Rate (%)	3.3	5.3	Interest rates will stay elevated in the current cycle due to the Bank of Canada's efforts to control inflation. This will curb investment incentives and household spending and increase The City's borrowing costs.
Exchange Rate (U.S.$ for 1C$)	0.77	0.76	The exchange rate between U.S. and Canadian dollars is expected to remain stable in the current cycle. This should support trade as trading partners benefit from increased price certainty.
Alberta			
Real Gross Domestic Product Growth (%)	0.4	2.2	Alberta's economy expects higher growth rates in the 2023-2026 cycle than in the previous one. The City benefits from the Province's much improved fiscal situation and strong economic activity.
Total Employment Growth (%)	1.2	2.1	Strong employment growth in Alberta indicates a tight labour market in the province. Employers in Calgary will have a more challenging time finding workers and competing against the rest of Alberta.
Unemployment Rate (%)	8.1	5.8	A lower unemployment rate in the 2023-2026 cycle leads to reduced demand for social assistance programs from The City as the number of unemployed persons reduces.
Housing Starts ('000 units)	29.9	32.9	Strong residential investment will contribute to the economic growth within the province, as relative affordability and international migration keep demand robust in this cycle.
Inflation Rate - CPI (%)	3.1	2.4	With the monetary policies tightening by the Bank of Canada, inflation is expected to moderate in the current cycle. This should reduce pressure on City expenditures.
West Texas Intermediate - WTI (U.S.$/bbl)	64.8	77.0	Oil prices will remain elevated in this cycle compared to the previous one. Volatility is expected, which prompts The City to explore countercyclical fiscal policy options to help moderate the impact of economic fluctuations.
Western Canadian Select - WCS (U.S.$/bbl)	50.1	59.5	Expanded access to markets and improved refinery capacity for Alberta heavy crude would sustain a lower price difference between WCS and WTI for this service plans and budget cycle.
Alberta Natural Gas Price - AECO/NIT ($/GJ)	3.1	3.8	Higher natural gas prices in this cycle will increase operational costs for businesses and 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	0.6	Price growth for finished products should subside from the surge in 2021 and 2022, resulting in a lower average in the 2023-2026 cycle than the previous one. This should reduce some inflationary pressures for The City.
Raw Materials Price Index (%)	11.3	-1.9	Raw material prices are expected to decline in this cycle from the price spike experienced in the previous two years, which should moderate cost pressures for businesses.
Alberta Average Annual Wage Rate Growth (%)	1.6	2.7	Higher wage growth in the current cycle will raise incomes and improve affordability. However, it will also increase the cost of labour, contributing to an inflationary spiral 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 (%)	1.1	2.8	Solid growth is expected for the Calgary Economic Region in this service plans and budget cycle, supporting recovery in the non-residential tax base.
Total Employment ('000 people)	882.7	996.7	Job growth will expand the consumer base and increase demand for housing and services in the region.
Total Employment Growth (%)	2.1	2.5	The job growth rate will remain strong in this cycle, continuing to create solid demand for City services and infrastructure.
Unemployment Rate (%)	8.4	6.2	A falling unemployment rate in this cycle will increase the competition for skilled workers and reduce demand for social services that support the unemployed. A tighter labour market also indicates increasing pressures on labour costs for The City.
Calgary Census Metropolitan Area (CMA)			
Housing Starts ('000 units)	13.4	13.4	Housing investments in the Calgary area are expected to be slightly lower in the coming budget cycle as growth in Calgary's neighbouring municipalities remains strong. The City faces competition from surrounding areas in attracting housing demand and investments.
Inflation Rate - CPI (%)	3.2	2.5	Increases in consumer prices are expected to decelerate in this cycle after the spike in 2021 and 2022. This will help Calgarians mitigate the pressures from rising cost of living. More stability in the cost of goods and services helps limit the risks of cost overruns and budget adjustments.
Non-Residential Building Price Inflation (%)	3.9	4.9	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 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, indicating a larger residential tax base and increased demand for City infrastructure and services.
Real Estate			
Residential Market			
Housing Starts ('000 units)	11.5	11.1	Slightly lower but stable residential construction activity in the current cycle will 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	1.4	Home affordability in Calgary will remain challenging for new housing market entrants as housing prices continue to grow in the current cycle, though at a lower rate. 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	1.7	Benchmark home price growth should also moderate in this cycle. Housing prices are expected to stabilize as the sales of housing units rebalance to standard features in 2023.
Total Building Permits ($billions)	4.9	5.8	Stable growth in residential and non-residential construction, increases in the price of real estate, and 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 weaker global economy due to the Russia/Ukraine conflict and higher global prices, global financial market volatility, and global commodity demand and prices.

1

Global GDP Outlook

The forecast risks remain **tilted to the downside** on the global GDP growth, but **adverse risks have moderated** since the Fall 2022 Economic Outlook. On the upside, China's economy should improve in 2023 with the lift of its zero-COVID policy. European economic growth has been more resilient than expected. Three factors that increase downside risk. First, uncertainties remain with the war in Ukraine. Second, higher global financing costs could worsen the debt burdens. Third, persistent inflation could hamper global economic progress beyond currently anticipated levels.

2

Global Commodity Prices and Outlook

The war in Ukraine continues to disrupt global commodity supply, especially agricultural and energy commodities. The global supply chain should improve while demand for most commodities should moderate due to the slowdown of global economic growth. China's economic recovery from lifting its COVID-19 restrictions should support the demand for crude oil and agricultural products in the global market in 2023 beyond currently anticipated levels, which **poses an upside risk to commodity prices for Calgary and Canada**.

3

Policy Divergence and Financial Market Volatility

With elevated global inflation, many central banks continue to tighten their monetary policies to cool inflation down. The full impact is unlikely to be realized quickly, which creates **the risk of monetary policy divergence as some countries implement further policy rate increases when others are more patient**. Global financial markets remain highly sensitive to inflation news. Investment growth should remain subdued with high debt levels after significant pandemic-related government spending, lower economic growth, and higher borrowing costs. **These factors point to global financial market volatility**.

Risks from policy differences across Canada or policies targeting average conditions in Canada:

Significant factors that could alter actual economic performance include – the downside pressure on household wealth, upward wage pressures, and environmental policy divergence that creates business investment uncertainty.

4

Household Wealth and Consumer Spending

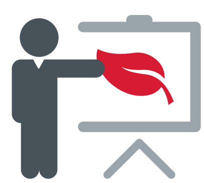
Higher interest rates and lower real income **continue to put downward pressure on Canadian households' wealth and spending patterns**. The increase in borrowing costs worsens household debt burden, with higher mortgage interest payments and costs of financing big-ticket items. Real income growth for Canadians has been paltry in recent years. Significant inflation will take all of 2023 to moderate. Given the toll of multi-year high inflation, it could risk subduing consumer spending on goods and services beyond normal levels.

5

Wages and Labour Market Balance

The labour supply challenge continues for Canadian businesses, especially for labour with desired skills and experience. This situation should put **upward pressure on wages throughout Canada beyond currently anticipated levels**. It would benefit workers after years of real wage declines. Three factors have contributed to the labour shortage – an aging workforce, mismatched skillsets, and the interruption of immigration during the pandemic. Immigration levels have rebounded significantly since the borders reopened, which should partly mitigate the labour market imbalance.

6



Environmental Policy Coherence vis-à-vis Divergence

The risk continues from heightened tensions between federal and provincial governments on environmental policy and the pace of policy implementation. The proposed Clean Electricity Regulation is a good example. Environmental policy divergence between municipal, provincial, and federal governments **will create uncertainty and restrain business investment**. Uncoordinated incentives will drag down the efficiency of the green transition and make the future of environmental policy across governments ambiguous, unlike the rally behind the Inflation Reduction Act south of the border.

Risks from potential changes in Alberta provincial government policies:

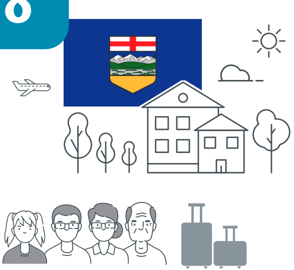
Significant factors that could alter actual economic performance include three uncertainties – oil and natural gas prices and exports, migration levels and the impact on the labour market, and the pace of inflation deceleration.

7

Oil and Natural Gas Prices and Exports

A slower global economic outlook and ongoing geopolitical tensions have created uncertainty and price volatility for the energy market. Completing the Trans Mountain Expansion (TMX) in 2023 should boost Alberta's crude oil transportation capacity. For the forecast horizon, it could reduce the differential between West Texas Intermediate (WTI) and Western Canadian Select (WCS). A lower discount would support **even higher oil and gas industry cashflows generating positive forecast risk**.

8



The Level of Net Migration

Alberta is expected to experience strong net migration in 2023. The trend should continue for the forecast horizon, driven by a surge in international migration. All categories of migrants are higher, including newcomers from Ukraine, temporary foreign workers and international students. Robust interprovincial net migration also supports population growth. Higher net migration levels beyond those incorporated in the forecast should **further boost Alberta's population growth, support consumption and residential investment in the provincial and CER economies and help mitigate the labour market tightness**.

9

The Speed of Inflation Deceleration to Normal Levels

Inflation should subside gradually in 2023 due to the slowdown in energy prices, easing supply chain disruptions, and aggressive interest rate hikes by the Bank of Canada over the past year. Inflation in goods should moderate faster than service inflation, as inflation in services is affected by the pass-through impact of labour costs. Ordinarily, inflation should return to its pre-pandemic levels by 2024. However, there is **uncertainty in the pace of inflation deceleration which could mean higher inflation for longer than anticipated**.

Risks from local and regional private and public-sector influences:

The potential for a lower level of private (non-residential) investment, a significant workforce and consumer market boost from immigration, and uncertainty associated with wage pressures.

10

Business Environment and Investment Levels

Although Calgary should continue its robust economic growth, the business environment faces multiple challenges. Construction costs increased significantly over the past year. Higher interest rates and competition for credit will increase financing costs for businesses. **There are downside risks if the level of business investment caution persists**. It would mean that many Calgary businesses are overly cautious in expanding their investment due to high construction and borrowing costs.

11

Workforce and Consumer Market Size Arising from Immigration

The forecasted growth in population is 108,400 people from 2023 to 2028. The population aged 35 to 49 should increase by 33,900. That's three out of every ten new Calgarians in that age group. Most of the lift would come from interprovincial and international immigration. These individuals would expand the workforce and generate income to boost consumer spending and overall economic activity. If economic conditions elsewhere in Canada remain lower than in Calgary for longer, **there is an upside risk to the level of net migration to Calgary**. It would strengthen economic growth.

12

Real Disposable Income

The average annual rate of wage growth during the 2019 to 2022 service plans and budget cycle was 1.6 per cent. Higher wage growth would arise in the 2023 to 2026 cycle. Wage growth increases economic uncertainty. On the one hand, households' incomes would increase. On the other hand, the labour costs for businesses and governments would also increase. Wage pressure will soon weigh on labour contracts. **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

Despite several challenges facing Calgary's economy, Calgary should experience positive economic growth in 2023. By the end of 2022, municipal, provincial and federal authorities had removed all restrictions related to the COVID-19 pandemic, oil prices remained strong, and migration to Calgary had picked up speed. However, Calgarians also faced high inflation, which impacted the cost of living and affordability. In addition, significant interest rate increases by the Bank of Canada to combat inflation also increased the cost of doing business.

While the rate of economic growth in Calgary should slow in 2023, it should remain resilient as the positive factors contributing to growth outweigh the negative. Consumption of goods and services by households will receive a boost from solid population growth and be a primary driver of Calgary's economy. In addition, international trade will add to economic growth as robust energy prices support Calgary's major exporting industries. Government investment and purchases should also grow moderately in 2023.

The factor primarily responsible for slower economic growth in 2023 is a reduction in the level of investment. Given higher interest rates, residential and non-residential business investment should decline in 2023. However, investment should return to a positive growth path in 2024 and the remainder of the forecast period.

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

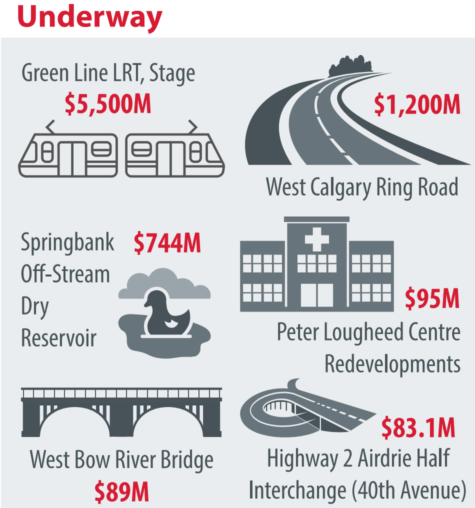
Investment – Investment Intentions and Prospects

Two multi-billion major capital projects in Calgary should commence in 2023. Significant investments will go into phase one of the Green Line Light Rail Transit (LRT), with a total projected value of $5.5 billion. In addition, the Future Energy Park Renewable Natural Gas and Ethanol Project, estimated at $1.2 billion, is also scheduled to commence in 2023. The Future Energy Park Renewable Natural Gas and Ethanol Project is one of North America's largest carbon-negative renewable natural gas and ethanol projects. The project is estimated to support 800 jobs during construction and 50 operational positions. 16 additional projects are investing or will invest be-tween $100 million and $1.2 billion in Calgary. The analysis excludes the April 25 Calgary Event Centre announcement because of a mid-April data cutoff.

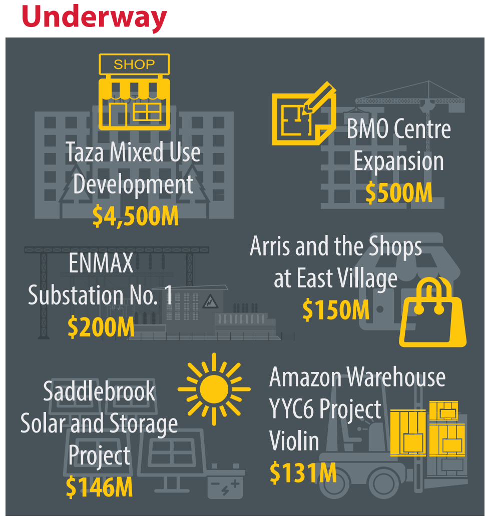
The recently released provincial budget highlights a focus on investments in health care, public transit, and economic development capacity-building initiatives. For example, the Alberta Budget 2023 Capital Plan allocated $5 million in new grant funding to allow The City of Calgary to proceed with engineering work for extending the LRT Blue Line north to enable connections with the Calgary International Airport. In addition, the Calgary Cancer Centre should open in 2024. This $1.4 billion centre will have 160 inpatient beds and provide a wide range of services for cancer patients. The budget also makes a financial commitment to planning the North Calgary/Airdrie Regional Health Centre.

In 2023, overall investment in the CER should decrease significantly from 2022. Nevertheless, two industries should experience investment growth – the professional, scientific, and technical services industry and manufacturing. Firms in the oil and gas industry with head offices in Calgary should benefit from the completion of the Trans Mountain Expansion later in 2023. The resulting increase in pipeline capacity this year and into the future should help reduce the discount on heavy oils and transportation costs for heavy oil, increasing revenue.

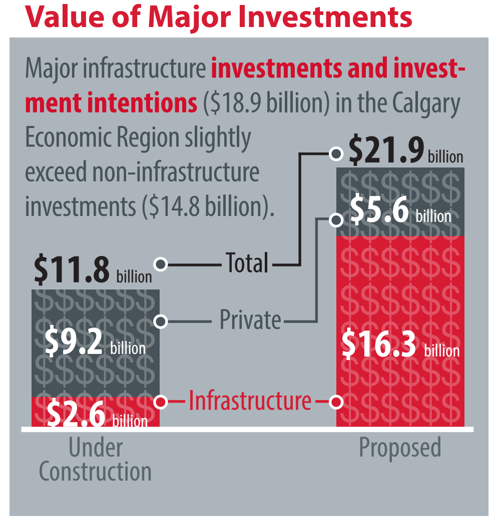
Top Infrastructure Investments Underway



Top Private Investments Underway



Value of Major Investments



Non-Residential Construction Price Inflation – Impact on City Costs

Increased costs, particularly for inputs like steel, have driven up non-residential construction costs in Calgary. Steel-finished building materials like rebar, framing and commercial plumbing pipes face significant impacts. Rising energy costs and interest rates have also factored into increasing building costs. Due to fixed price contracts with multi-year terms, not all the cost increases of recent years show up in current data, and those increases will continue to make their way into contracts in 2023.

Softer wholesale prices for steel construction materials should make their way to market later this year, but wage pressures will likely offset that relief as record non-residential construction activities in British Columbia and Ontario compete with Alberta for workers in 2023 and for some time beyond. Beyond 2023, construction costs should increase at a pace slightly higher than pre-pandemic as a result of sustained higher interest rates.

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

The residential real estate market had been on a tear in the first half of 2022 before pulling back in the later half of the year. Despite historical employment and population gains, the culprit was the Bank of Canada's higher overnight policy rate to combat high inflation. Total housing starts reached a historic high of 14,800 in 2022. The average annual number of housing starts between 1990 and 2022 was 9,300. Over the last ten years, the historical average was 10,600 housing starts. So, despite the higher interest rate environment, builders responded positively to more substantial net migration and employment growth in 2022.

For 2023 and beyond, the challenge of homebuyer affordability will sustain the shift in the distribution of housing starts toward multi-family units. The share of multi-family housing starts was at a record high of 64.0 per cent in 2022. A higher share of multi-family dwelling units should persist for the forecast period between 2023 and 2028. The primary driver is that homebuyers have signalled an appetite for more affordable housing products, favouring multi-family units over single-family units, whether rented or purchased. As a result, the total housing starts should decrease to 13,100 in 2023 and return to an annual average of 10,300 housing starts between 2024 and 2028.

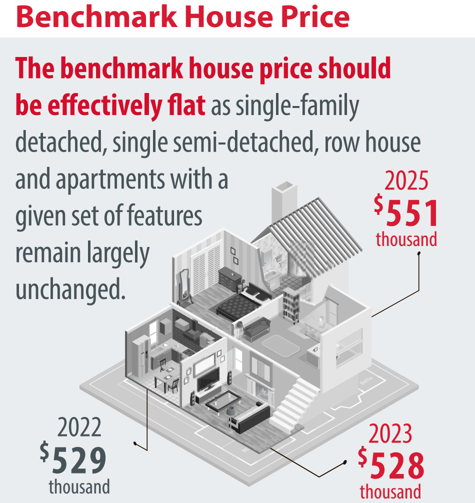
Residential building construction permits reflect building construction investment intentions. In 2022, the total value of residential building construction investment intentions was $4.0 billion, just shy of the $4.1 billion all-time high recorded in 2014. Strong net migration and employment growth aided growth in residential construction investment in 2022. Even after adjusting for inflation, residential building construction investment intentions in 2022 exceeded annual values between 2015 and 2021. The total building construction investment intentions in 2022 was $5.7 billion, with $3 out of every $4 going to residential investment.

For 2023, total building construction investment intentions should remain steady at $5.7 billion as residential investment holds steady despite higher construction inflation and interest rates, while other investment categories decline. Nevertheless, building construction investment intentions should gradually increase between 2024 and 2028, averaging $6.0 billion annually, as solid population growth and slightly lower borrowing costs emerge over the forecast horizon.

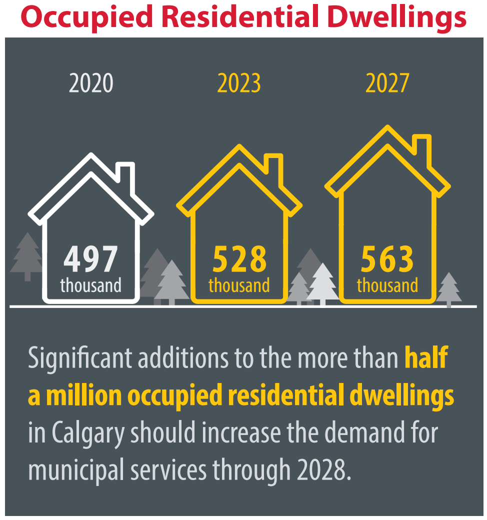
The average house price growth slowed to 4.9 per cent in 2022 from 7.6 per cent in 2021, subdued by a higher interest rate despite solid population and employment growth. The shift to relatively more affordable housing-structure purchases, which experienced slower price appreciation, also explains some of the slower growth. For the benchmark house price, which is less sensitive to sales volume, price growth slowed marginally from 12.8 per cent in 2021 to 12.4 per cent in 2022.

House price appreciation should slow down further in 2023 as higher interest rates continue to weigh on household debt obligations and also because of an increase in new housing supply. Given the assumption of lower borrowing costs in 2024 and beyond relative to 2023, average house price appreciation should average 2.6 per cent between 2024 and 2028, while the benchmark house price appreciation averages 2.3 per cent. The convergence between average and benchmark house price growth is due to an expected rebalancing of housing-type sales and pricing.

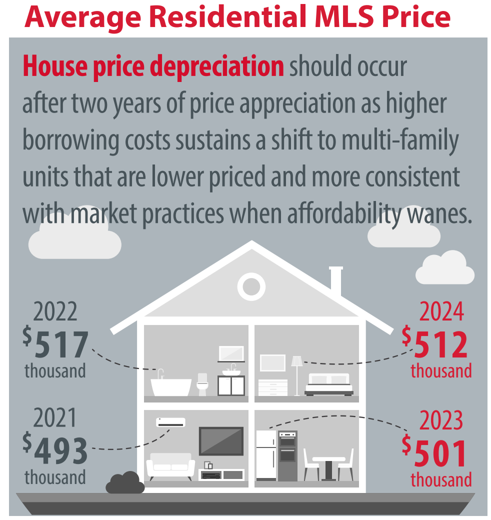
Benchmark House Price



Occupied Residential Dwellings



Average Residential MLS Price



The Contribution of Private Consumption and Upward Pressure on Municipal Services

The Implications of a Growing and Changing Population

As of April 1, 2023, Calgary's population is estimated at 1,389,200, representing a population growth rate of 3.0 per cent since April 2022. This estimated addition of 40,600 residents to Calgary's population would represent the most significant annual increase in population in Calgary's history, exceeding the population increase of 38,500 witnessed in 2014. Most of the growth is attributable to net migration of 33,100, as international migrants and newcomers from other parts of Canada flocked to Calgary. More details are available in the textbox that focuses on net migration.

Going forward, population growth is expected to subside from the extraordinary surge of 2022-2023 but remain steady. Between 2024 and 2028, Calgary's population should grow at an annual average rate of 1.5 per cent and reach 1,497,600 in 2028. Net migration should be the primary source of population growth, accounting for 67 per cent of the total population increase through 2028. Continued population growth will support Calgary's economy as new residents consume goods and services as well as create demand for new housing construction. However, the increasing population will also place upward pressure on the demand for services provided by The City.

Natural increase, accounting for the total number of births minus deaths in the city, is declining. While excess deaths related to the COVID-19 pandemic lowered Calgary's natural increase substantially between 2021 and 2023, the rate of natural increase is unlikely to return to pre-pandemic levels. An aging population and a declining trend in the total fertility rate are the causes of steadily increasing deaths and decreasing births for 2024 to 2028.

By 2028, the average age in Calgary is expected to rise to 39.9 years, compared to 38.6 years in 2023. Similarly, the proportion of seniors (65 years and older) in the total population should increase to 15.5 per cent by 2028, compared to 13.1 per cent in 2023. In contrast, the share of children and youth ages 0-19 should fall to 22.5 per cent in 2028 compared to 23.3 per cent in 2023. The shifting demographics in Calgary will affect demand for the different types of municipal services used by various segments of the population over the next several years.

The Path of Consumer Price Increases and the Pressure on Municipal Spending

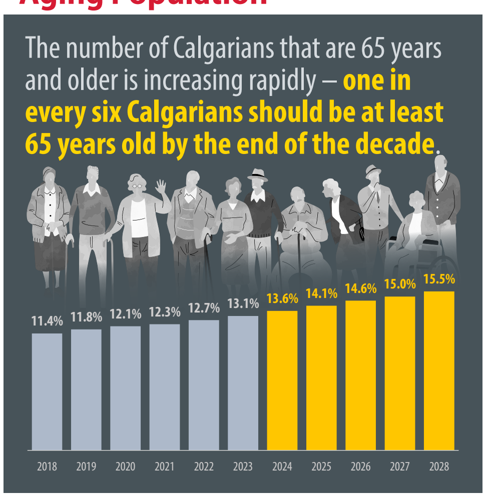
Consumer Price Inflation in the Calgary Census Metropolitan Area (CMA)

The annual rate of consumer price inflation for the Calgary CMA reached 7.2 per cent in 2022, marking the highest annual inflation rate since 1982. A combination of demand-side and supply-side factors contributed to the extraordinary price increases in 2022. Demand for goods and services swelled as the economy recovered rapidly from the COVID-19 pandemic. However, many supply chain constraints that originated during the pandemic persisted in 2022. The Russian invasion of Ukraine and unfavourable weather events around the globe further increased prices for commodities and imported goods.

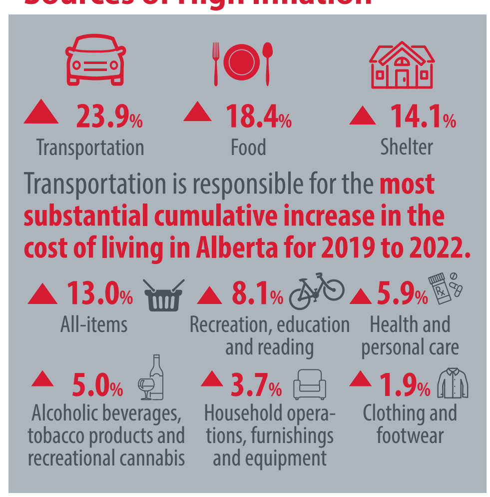
Inflation should ease throughout 2023. In response to the high inflation of 2022, the Bank of Canada increased its policy interest rate by 425 basis points between March 2022 and January 2023. The effects of the increased interest rate on reducing demand for goods and services, and, in turn, demand-pull inflation, should materialize in 2023. Supply chain bottlenecks that account for cost-push inflation will resolve gradually. A retreat of global oil prices from their peak in 2022 should also support lower inflation for transportation costs. Thus, inflation in the Calgary CMA should fall to an annual average of 3.8 per cent in 2023 before reaching 2.1 per cent in 2024 and remaining at or just above the 2 per cent inflation target for the remainder of the forecast period.

Net Migration and Population

Aging Population



Sources of High Inflation



Textbox 1 The 2022 Net Migration Surge and Forecasted Path Beyond 2023

The Contribution of Net Migration to Population Growth in Calgary

Net migration to the city is estimated to have reached 33,100 in the year ending April 1, 2023, which would be a record for Calgary. It is a dramatic increase compared to the estimated net migration of 6,100 for 2021 and 19,700 for 2022.

Net migration measures the population change from people relocating to and from a given place. It is the total number of people moving in minus the total number of people moving out. There are two categories of net migration - international and domestic. International net migration accounts for the net outcome of immigration to, emigration from, and changes in non-permanent residents in Calgary relative to other countries. Domestic net migration reflects migration between Calgary and other parts of Canada. Increases in both international and domestic migration contributed to the recent surge in net migration.

In Calgary's Economic Outlook, 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. Thus, the estimate of net migration to the city reflects movements between April 1 of the previous year and April 1 of the current year. However, unlike city estimates, population figures for the CER and CMA are sourced from Statistics Canada estimates, which describe the population as of July 1. Due to this timing discrepancy, the city's net migration figures are not directly comparable to those for the CER and CMA.

Drivers of the Unusual Recent Migration Surge

After a slowdown during the pandemic, permanent immigration to Calgary returned to more typical levels in late 2021. Immigration should continue its increasing trend over the next few years in line with new immigration targets announced by the federal government in November 2022. However, a reason for the exceptionally high international migration observed for 2022-23 is a temporary increase in non-permanent residents. An estimated 8,000 Ukrainians came to Calgary since the Russian invasion of Ukraine in February 2022 through March 2023, taking advantage of the federal government's Canada-Ukraine Authorization for Emergency Travel. This program allows Ukrainians to temporarily stay in Canada for up to 3 years with the ability to work and study while they are here.

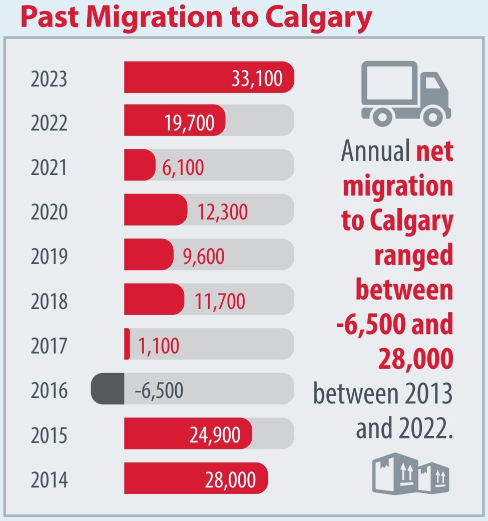
Domestic net migration to Calgary has also increased. One factor attracting migration into Calgary from other parts of Canada that has recently come into focus is housing affordability. According to the Canada Real Estate Association, in February 2023, Calgary's benchmark house price was 27.6 per cent less than the national average. The difference was even more extreme for some cities in Canada: the benchmark price in Calgary was 52.5 per cent lower than in Toronto and 53.9 per cent lower than in Vancouver. A robust economic recovery in Calgary also supports increased migration.

The Role of Interprovincial Migration and the Forecasted Path Beyond 2023

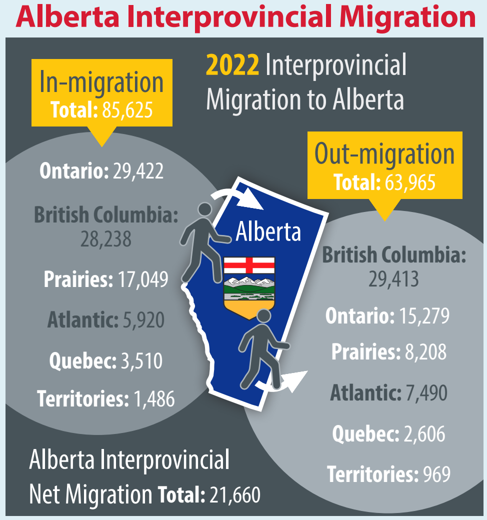
At the provincial level, data from Statistics Canada shows the destinations and origins of domestic migrants to and from Alberta in 2021-2022. The highest number of migrants to Alberta from other parts of Canada came from Ontario, with 29,422 moving to Alberta. In turn, 15,279 people moved from Alberta to Ontario, resulting in a positive net movement of 14,143. On the other hand, Alberta saw a slight net population loss to British Columbia, with 28,238 in-migrants but 29,413 out-migrants. The overall net inflow to Alberta from other provinces in 2021-2022 was 21,600, compared to the net international migration of 59,998.

The current surge in net migration should be short-lived and subside by 2024, given that Calgary should have a higher unemployment rate than the national average. Specifically, net migration should stabilize at a level slightly higher than historical averages. Between 2024 and 2028, annual net migration to Calgary should average around 14,500. Positive economic growth in Calgary and increasing rates of immigration to Canada in line with higher annual federal government immigration targets for 2024, 2025 and beyond should continue to support a strong level of net migration.

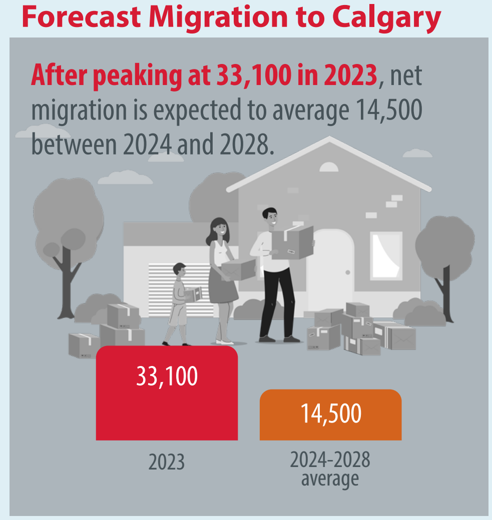
Past Migration to Calgary



Alberta Interprovincial Migration



Forecast Migration to Calgary



Forecast

The Broader Regional Economy (Calgary Economic Region)

Positive Regional Economic Growth Supported by Solid Population Growth

Real GDP in the Calgary Economic Region (CER) is estimated to have increased by 5.0 per cent in 2022, buoyed by the lifting of pandemic-related restrictions and high oil prices. With two consecutive years of growth in 2021 and 2022, the CER's cumulative GDP growth rate of 8.6 per cent keeps it slightly below the pre-pandemic high in 2019. Estimated GDP growth in Alberta for 2022 reached 4.7 per cent, after more robust growth in 2021 (4.9 per cent), leading to cumulative GDP growth of 9.8 per cent. Alberta has experienced more robust growth than the CER over two years, primarily due to solid oil and gas sector growth. Alberta's GDP surpassed its 2019 level by an estimated 0.9 per cent in 2022.

Despite global economic headwinds, the CER should experience continued economic growth in 2023 and exceed growth in the rest of Alberta and Canada. Real GDP in the CER should increase by 2.6 per cent and rise above the pre-pandemic high in 2023. In comparison, Alberta's GDP should increase by 2.5 per cent. More substantial population growth in the CER compared to other parts of Alberta would contribute to higher GDP growth. This pattern would align with the long-term historical trend of economic and population growth becoming more concentrated in the urban areas of Alberta.

The CER and Alberta economies should outperform the rest of Canada in 2023. Specifically, the Canadian real GDP should grow by only 0.8 per cent in 2023. On average, Canadians will face challenges from higher interest rates and a slowing in the growth of global demand for Canadian exports. In contrast, Calgarians and Albertans should weather the storm better due to strong energy prices and high net migration, including migration from other parts of Canada.

In 2024 and for the remainder of the forecast period, the CER should continue to have more robust economic and population growth than Alberta and Canada as urbanization trends continue. However, the labour force participation rate should decline with an aging population leading to a deceleration in the annual rate of job growth and delaying the achievement of an unemployment rate below 6 per cent until 2026.

Growth in Major Exporting Industries will also Support Economic Expansion

Exports are a significant contributor to the economies of both the CER and the province of Alberta - they are, however, concentrated in a few industries. From 2014 to 2018, 58 per cent of Alberta's exports came from the mining, quarrying, oil and gas extraction industry. In addition, parts of other exporting industries in Alberta, such as transportation and warehousing and wholesale trade, are strongly linked to oil and gas exports, further increasing the importance of oil and gas in Alberta's export growth.

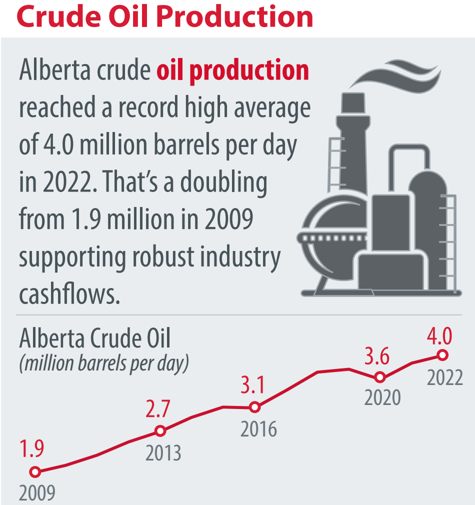
These exporting industries are also significant in the Calgary regional economy, with many major oil and gas and transportation firms headquartered in Calgary. In 2023, mining, quarrying and oil and gas-related activity in the CER should decrease by 3.7 per cent. As employment in export industries attracts workers to migrate to Calgary, it supports the demand for all industries and benefits the overall economy of the CER.

Lower Rate of Economic Expansion is Primarily due to Lower Investment

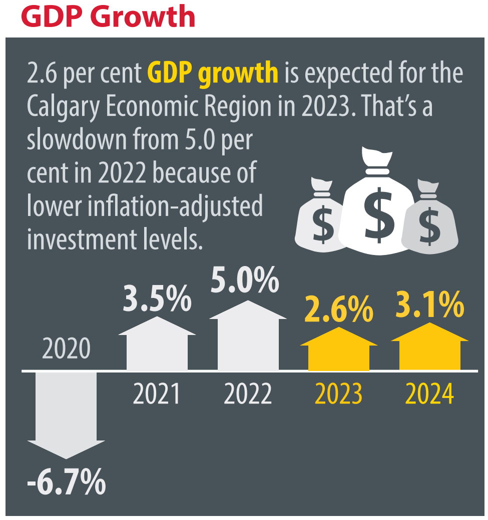
Reduced Investment Levels should Restrain Growth

Pre-identified major project investments ($5.0 million or more) underway in Spring 2023 for the CER across ten sectors should cost about $11.8 billion to complete. Another $21.9 billion in major project investments should commence in 2023 or by 2025. The pre-identified total short-to-medium-term investment in these major projects is $33.7 billion (down from $36.2 billion in Fall 2022). Although proposed investments are higher than investments underway, the

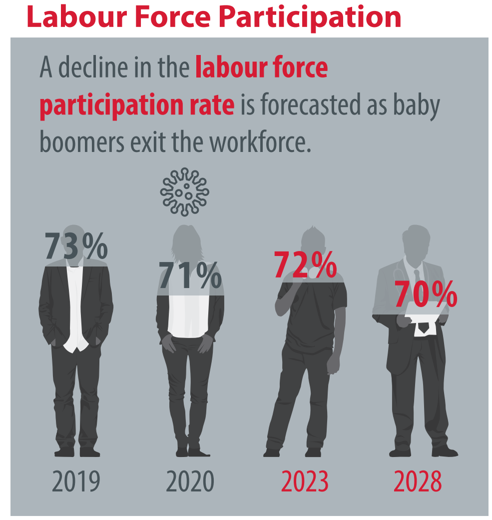
Crude Oil Production



GDP Growth



Labour Force Participation



reduction in the value of investment intentions has helped inform the expectation of lower investments in the CER in 'real' and current 2023 dollars.

The CER should continue to experience investment strength in some sectors. The CER would be home to more than half of Alberta's private sector investments in four categories – mixed-use property (88 per cent), commercial property (81 per cent), infrastructure (63 per cent), and residential investments (54 per cent). Compared with Fall 2022, the CER's share of proposed and under construction residential investments in Alberta has increased, but tourism or recreational investments have declined. Renewed strength in residential investment is due to strong population growth. For the four categories where the CER outperforms the rest of Alberta, CER projects underway in 2023 or to commence by 2025 would cost $27.8 billion in investment dollars. In other words, these four categories explain 82 per cent of projected investments. For these four categories, investment intentions are lower for commercial property and infrastructure but have strengthened for mixed-use and residential property investments.

Municipal, provincial, and federal infrastructure investments, including partnerships with the private sector, underway or proposed, in and around the CER should cost about $18.9 billion (down from $19.2 billion in Fall 2022). The West Calgary Ring Road project is the only multi-billion-dollar investment currently under construction. Proposed infrastructure investments include the Green Line LRT (Stage 1), the Edmonton-Calgary High-Speed Rail Line, and the Calgary-Banff Rail Link with touchpoints in the CER.

Investment activity in Alberta should strengthen over the next few years. There are 647 major projects on the books (up from 603 in the Fall 2022 Outlook). Most (361) were already underway by March 2023, and 286 should commence later in 2023 or by 2025. In addition, 103 of the 647 projects are yet to provide their complete cost estimates to the Government of Alberta. Capital projects already underway are expected to cost $85.0 billion (up from $80.0 billion in the Fall 2022 Outlook). Projects beginning later in 2023 or by 2025 would cost $90.4 billion (up from $82.0 billion in the Fall 2022 Outlook). It's an upward revision of investment intentions (from $162.0 billion to $175.4 billion). It helped inform the expectation of a positive increase in investments for Alberta in current 2023 dollars.

Oil and gas and pipeline projects account for 41 per cent of projects underway or proposed in Alberta. Most of these projects would occur outside the CER. The exception is Calgary's $1.2 billion Energy Park Renewable Natural Gas and Ethanol Project. It should be North America's largest carbon negative renewable natural gas and ethanol project slated for construction between 2023 and 2025.

Businesses with headquarters in the CER will initiate most of the other oil and gas and pipeline projects. The two most substantial proposed private sector investments for oil and gas remain the Pathways Alliance Carbon Capture Storage Hub – Phase 1 in Bonnyville for $16.5 billion and the Suncor Base Mine Extension Project in Wood Buffalo for $4.4 billion. For pipelines, two multi-billion-dollar investments are under construction – the Trans Mountain Pipeline Expansion ($30.9 billion up from the $21.4 billion estimate in Fall 2022) and the Key Access Pipeline System ($1.6 billion).

Government Spending on Infrastructure should Help Limit Investment Decline

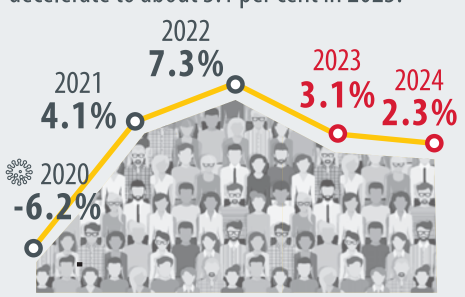
Government purchases and capital investment (not including transfers) directly contribute to GDP. They should support economic growth in the CER in 2023. Specifically, in its 2023 Budget, the Government of Alberta outlined plans to increase total operating expense by 4.0 per cent in the 2023-24 fiscal year. Expenditure increases above the projected Alberta average CPI increase of 3.4 per cent for 2023 should contribute to growth in real GDP.

However, operating expenses by the federal government are budgeted to decrease by 3.2 per cent in 2023-24. While federal government purchases are a less significant component of total government purchases in Calgary, the decrease will offset provincial expenditure increases so that the combined effect of provincial and federal government operating expenditures on real growth will be minimal.

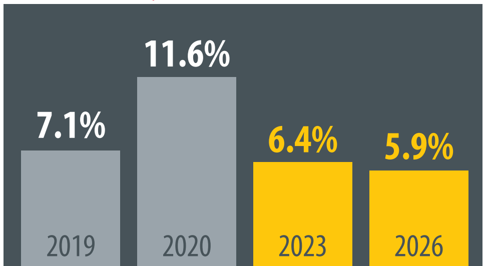
Unlike operating expenditures, increased government investment spending should contribute significantly to Calgary's economic growth in 2023. Province-wide capital spending by the Government of Alberta is budgeted to increase by 24.2 per cent in 2023-24. Major projects contributing to solid government capital spending in 2023 include the Green Line LRT, Calgary Cancer Centre, Deerfoot Trail upgrades, and the West Calgary Ring Road.

Annual Job Growth

After a COVID-19-driven job decline in 2020, **annual job growth rebounded significantly and is down decelerating**. After the 7.3 per cent high for 2022, it should decelerate to about 3.1 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.

Major Investment ($5M or more)

Forecast

Commodity Prices - Local, Regional, & Provincial Economy Impact

Firm Energy Commodity Prices in 2023

A Lower Crude Oil Price Differential Alongside Higher Production should Sustain Private Sector Cashflows

Oil demand in China and oil production in Russia are the leading oil market uncertainties heading into 2023. However, oil demand should increase in 2023. There are two notable reasons. First, economic activity should pick up in China as it relaxed its COVID-19 restrictions that were in place for most of 2022. Second, and beyond China, jet fuel demand will drive oil demand as global travel momentum sustains aviation industry growth. Commercial flights have surpassed pre-pandemic levels, with the seven-day rolling flight count exceeding 2019 levels starting in February 2023. Overall, increased global mobility and economic activity from China lifting its COVID restrictions should boost global oil demand, putting upward pressure on prices.

On the supply side, the global oil supply will increase in 2023, but the pace of growth should slow down relative to 2022. The forecasted setback to the pace of growth is attributable to two primary factors. The first is lower Russian crude oil production due to the European Union (E.U.) embargo on seaborne crude oil imports from Russia and the imposition of a U.S.$60 per barrel price cap on Russian crude oil by the G7, E.U., and Australia. Nevertheless, Russia will work actively to sustain production by exploring new oil export destinations. The second is efforts by the 13 nations in the Organization of the Oil Exporting Countries (OPEC) or the additional 10 partner countries that together form the 23-member OPEC+ group to reduce their crude oil production targets through the end of 2023. Some relief should come from North America, where oil produced in the U.S. and Canada should increase. In addition, growth in supply from countries outside OPEC should offset any risks to a drop in OPEC+ supply (Russia is part of the OPEC+ group).

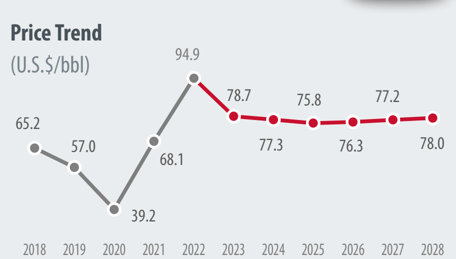
Overall in 2023, global supply growth (1.6 per cent) should slightly outpace demand growth (1.4 per cent), leading to a buildup of inventory and falling prices in 2023. Global oil inventory should rise by 600,000 barrels per day in 2023. The North American benchmark crude oil price – the West Texas Intermediate (WTI) – should average U.S.$78.7 per barrel in 2023. It should decline by 2 per cent in 2024, averaging U.S.$77.3 per barrel, before dropping further to an average of U.S.$76.8 per barrel between 2025 and 2028. The Alberta benchmark crude oil price – the Western Canadian Select (WCS) – should also decline in 2023 to an average of U.S.$58.1 per barrel, down from U.S.$74.9 per barrel in 2022. Unlike WTI prices, WCS prices should increase in 2024 to an annual average of U.S.$60.7 per barrel.

The expected improvement in 2024 WCS prices relative to 2023, despite the expected annual decline in 2024 WTI prices, is attributable to a more favourable differential for Alberta's benchmark crude oil. Specifically, the spread between WTI and WCS oil prices should narrow late in 2023 as additional pipeline capacity comes online. The last couple of years saw the WTI-WCS differential widen as natural gas prices spiked, raising the costs of refining Canadian heavy oil, making it less economical and reducing demand. In addition, pipeline constraints and the release of heavy oil barrels from the U.S. Strategic Petroleum Reserves led to a widening of the differential. These factors that weighed heavily on the price differential should improve in 2023 and favour Canadian heavy oil.

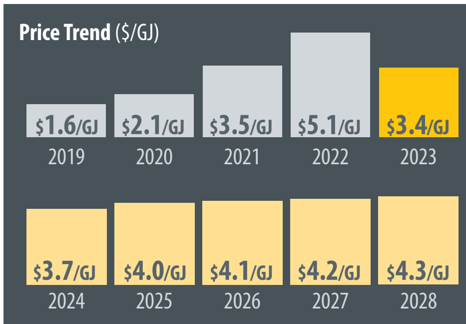
The completion of the Trans Mountain Expansion later in 2023 should offer an additional 590,000 barrels per day in export capacity. In addition, the combination of lower natural gas prices and improving U.S. refinery demand will likely lead to an improvement in the WTI-WCS differential, averaging U.S.$20.6 in 2023 and falling further to U.S.$16.6 in 2024.

West Texas Intermediate (WTI)

Crude oil prices, including the **West Texas Intermediate (WTI) price, are expected to decline** from 2022 highs but remain elevated through to 2028.



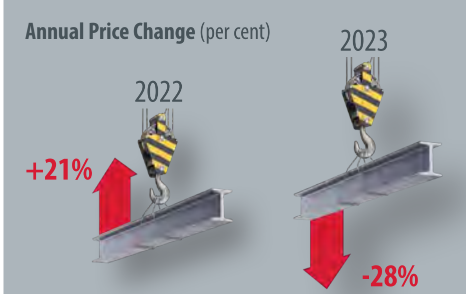
Natural Gas (AECO-C)



Elevated natural gas prices in 2023 to 2026 relative to 2019-22 due to lower supply, capacity constraints, and net zero emission targets.

Iron and Steel

Iron and steel prices are headed for a downward correction in 2023 after two consecutive years of strong post-pandemic growth.



Noticeably Lower Natural Gas Production Levels and Prices

AECO-C natural gas price averaged $5.1 per gigajoule in 2022, as Russia's invasion of Ukraine and the subsequent sanctions severely constrained supply. The spike in natural gas prices contributed to a $2.0 billion increase in natural gas royalties for the Government of Alberta in 2022.

In 2023, global natural gas supply should pick up as the Freeport LNG export facility in Texas is expected to resume full-scale operations following a fire and shut down in June 2022. The full reopening of the Freeport LNG export facility should add 2 billion cubic feet per day (Bcf/d) of natural gas supply to the U.S. market.

Natural gas prices should taper off in 2023 because North America's production should outpace demand. Demand growth should slow because the U.S. Energy Information Administration (EIA) anticipates less demand from combined cycle natural gas power plants that use natural gas to generate electric power. Specifically, the EIA expects a shift to more renewable energy sources and a decline in manufacturing activity. Another reason for a slowdown in demand growth is relatively warmer winter weather, which reduces the demand for space heating.

Natural gas prices should decline to an annual average of $3.4 in 2023 from $ 5.1 per gigajoule in 2022 as natural gas production in Canada and the U.S. outpaces demand. Nevertheless, natural gas prices should remain above pre-pandemic levels for the forecast period. AECO-C natural gas prices should rise to $3.7 per gigajoule in 2024 and average about $4.1 per gigajoule between 2025 and 2028. The Government of Alberta's natural gas royalties should decline by $1.8 billion in 2023 from 2022 due to lower natural gas prices.

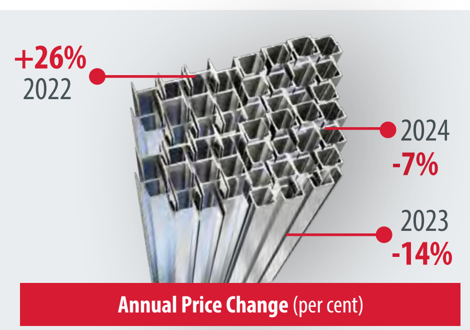
Construction Commodities – Slower Demand Expansion & Supply Chain Improvements

Iron and Steel: Iron ore prices started dropping in July 2022. As a result, price decreases have begun making their way down the value chain. Steel prices should wane in 2023 and 2024. However, prices for other finished iron products used in construction will lag behind by 8 to 12 months. Beyond 2024 and further into the forecast horizon, higher interest rates and a slower pace of global economic expansion will soften the steel demand, resulting in a softer price path.

Aluminum: Aluminum is a critical metal in de-carbonizing - it is light and strong - making it preferred for use in gas and electric vehicles. In addition, it is conductive, so it is useful in electrical infrastructure like solar panels and high-voltage electricity transmission. Increased Chinese production made up for lost Ukrainian output in 2022 due to the war – however, the high price and, in some cases, limited availability of electricity limit global aluminum production. Prices for aluminum have dropped by 25 per cent since peaking in March 2022 but are still about 35 per cent higher than pre-pandemic. Going forward, higher interest rates should dampen demand for this metal. On balance, average prices for 2023 should hover where they were at the end of 2022. That's an average drop of around 14.4 per cent in terms of the full-year impact. However, the longer-term outlook for this metal is steadily increasing demand, which implies consistent price growth.

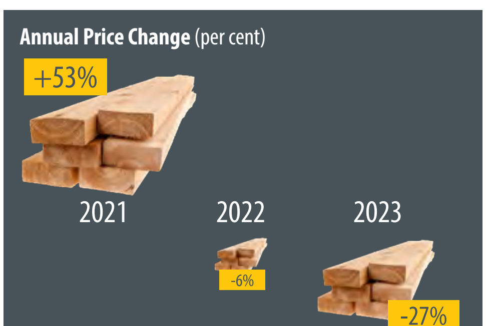
Wood: Lumber prices spiked during the pandemic in historic fashion. Over a few months, prices doubled and almost tripled. The primary reason for that was supply chain bottlenecks and increased costs. More recently, prices have fallen a bit but remain elevated. The decline in prices is due to the resolution of supply chain bottlenecks. However, energy costs contributing to the high cost of lum-

Aluminum



Downward price corrections for aluminum in 2023-24, with headwinds from high interest rates and geopolitical uncertainty.

Wood



Wood prices should adjust downward in 2023-24 after the 2021-22 spike as housing construction activities cool down in both U.S. and Canada.

Asphalt

There is a **2023 asphalt price retreat** driven by lower oil prices, it would be insufficient to moderate prices from the significant price spike in 2022.

ber production remain elevated, putting upward pressure on prices. More details on how high energy utility costs are driving up prices are available in Textbox 2. The outlook is for higher interest rates to dampen demand and soften prices. Prices should remain elevated relative to pre-pandemic levels because of increased production costs.

Asphalt: Over the last few years, oil prices have increased despite increased oil production. Further, carbon taxes are hitting asphalt installation hard as the costs to deliver, heat and lay asphalt are rising significantly and permanently. In 2023, softening oil prices are helping temper future asphalt price increases. As we advance, the forecast assumption is that contractors can reduce their carbon footprint by using cleaner electricity or buying offsets. If not, by the end of the forecast horizon, asphalt prices should be 20 per cent higher than today because of carbon tax increases.

Operational Commodity Prices – Relatively Stable except Energy-related Ones

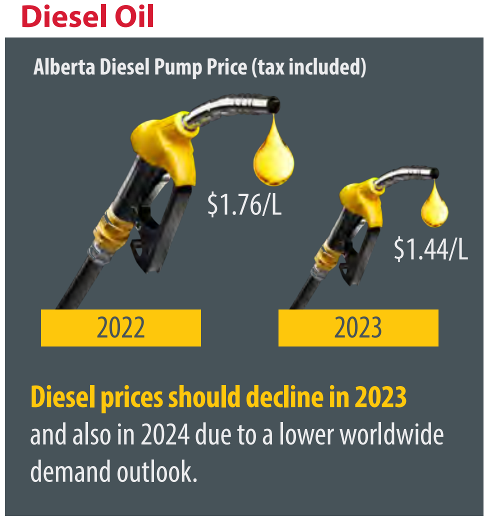
Rubber: The global market for rubber is now relatively balanced. However, there have been issues recently with supply restrictions and demand limitations. The forecast assumption is that supply should grow in lockstep as demand increases post-pandemic. Softening oil prices and moderating liquified natural gas (LNG) prices in 2023 compared to 2022 are driving down prices for synthetic rubber and impacting the margins of natural rubber producers. 2023 prices are hovering in the lower band of recent historical norms. The outlook is for price growth to remain muted in this highly competitive market.

Diesel Oil: Prices are highly volatile and respond to international events like the ongoing Russia/Ukraine conflict. Rising interest rates should restrict demand for consumer goods, thereby reducing demand for and the price of diesel. However, increasing carbon taxes are preventing retail diesel prices from falling. Refinery capacity is the real wildcard in 2023. Should refiners require unexpected maintenance, diesel prices could spike above $1.80 this summer, possibly hitting $2.20. Such an event would hurt consumers still reeling from inflation caused by last summer's refinery outages. Barring refining issues, diesel prices should moderate in 2023 and 2024 and settle at about 15 per cent higher than just before the pandemic by July 2024. The daily and monthly price path would be highly volatile. Yet, it should average annual price increases of 3.0 per cent between 2025 and 2028.

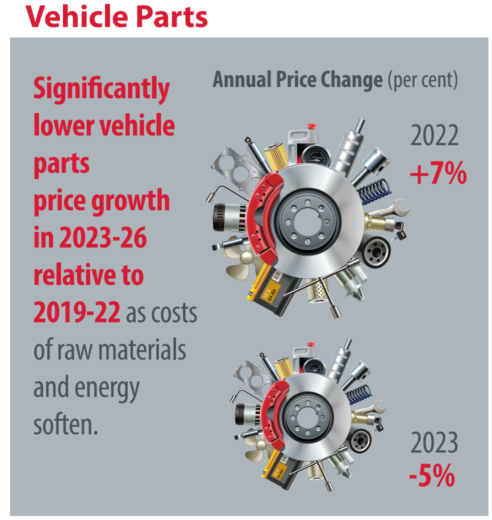
Vehicle Parts: This market is evolving as anticipated last year. When interest rates increase, new vehicles become much more expensive than used ones. As a result, demand for parts needed to keep vehicles on the road longer tends to rise when interest rates increase. However, the supply of new vehicles has been limited for several years due to shortages of critical electronics. As a result, rising interest rates are unlikely to shift the new/used balance in today's car markets. In 2023, softening prices for raw materials and easing energy costs should flow slowly through to parts prices, with the market reversing some of the price increases in 2022. Over the forecast horizon, there should be modest price changes in the automotive parts markets.

Rubber

Diesel Oil



Vehicle Parts



Textbox 2 Utility Costs and Primary Drivers of Higher Residential Utility Costs

Utility Cost Increases Led Inflation between December 2020 and December 2022

Between December 2020 and December 2022, natural gas and electricity ranked first and third for the most significant consumer price increases across all items in the consumer basket for Albertans. Natural gas prices increased 54.8 per cent, while electricity prices increased 46.5 per cent for the same unit of energy.

Major Components of a Typical Residential Utility Bill

According to the Alberta Utilities Commission (AUC), the typical residential electric utility bill in Alberta has cost roughly split across components as follows:

- about half for delivery charges, approved by the AUC, for electricity transmission and distribution
- about a quarter for the energy charge for electricity consumed
- about a quarter for other charges, namely: utility administration fees, local access fees (also known as franchise fees), GST, and the Balancing Pool allocation

The distribution of natural gas payments across these three components differs slightly for the average residential natural gas bill for the representative Alberta ratepayer:

- about a third for delivery charges and related rate riders
- about a third for the energy charge for natural gas consumed
- about a third for other charges, namely: utility administration fees, the federal carbon tax, municipal franchise fee, and GST

Primary Drivers for the 'Energy Charge'

The default variable energy charge for a residential ratepayer in Calgary is the ENMAX regulated rate option (RRO) for electricity or the Direct Energy gas cost flow-through rate (GCFR) for natural gas. Both indices almost tripled between 2020 and 2022. They have undeniably contributed to higher utility bills.

Two factors mitigate the impact of higher commodity prices on the overall utility bill. First, the energy charge is less than 100 per cent of the utility costs and the other cost elements increased at a slower rate. Second, many utility consumers had fixed contract arrangements that mitigated cost increases.

'Delivery Charges' Drivers

Electricity and natural gas get sent over long distances via transmission and then de-energized or de-pressurized for distribution to end users. Services provided by distribution companies include connecting customers, investments in building and operating distribution infrastructure, meter reading, and customer service. The AUC regulates distribution charges under performance-based regulation (PBR).

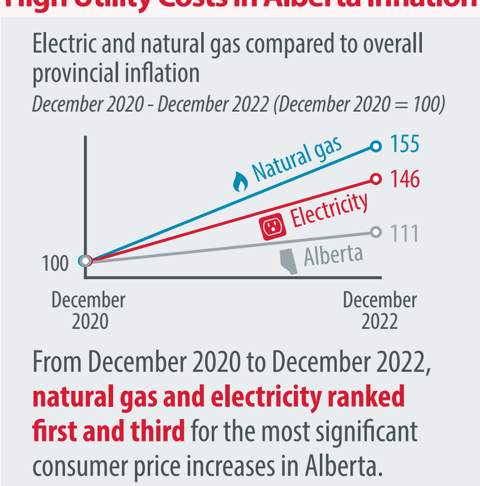
Transmission and distribution charges include a regulator-approved profit margin called a return on equity (ROE). Since 2009, the regulator has set ROE using economic and financial evidence filed by parties in Generic Cost of Capital (GCOC) proceedings. Many utilities routinely exceed the approved ROE, as many did in 2021 (the most recent year with full returns across utilities). The AUC approved an ROE of 8.5 per cent for 2023. Alberta utilities are all seeking higher ROE levels for 2024 and beyond. These returns are regulator approved because utilities do not operate in fully competitive markets, creating opportunities for excess returns when consumers face affordability challenges.

Embedding the profit margin into the delivery charge compensates utilities for business risk. Customer base erosion is typically the most significant risk a utility faces. It is unlikely in Alberta, given sustained province-wide population and economic growth and utility providers operating in clearly delineated geographical zones.

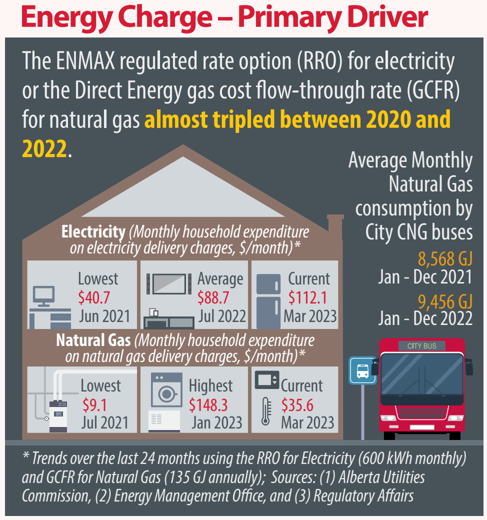
Other Utility Charges have had a Limited Impact on Higher Utility Costs

Other charges for utilities through municipal franchise fees, the federal GST and carbon tax are formula driven and have increased with higher prices and consumption levels. The Balancing Pool allocation (for electricity) and utility administration fees are mostly unchanged.

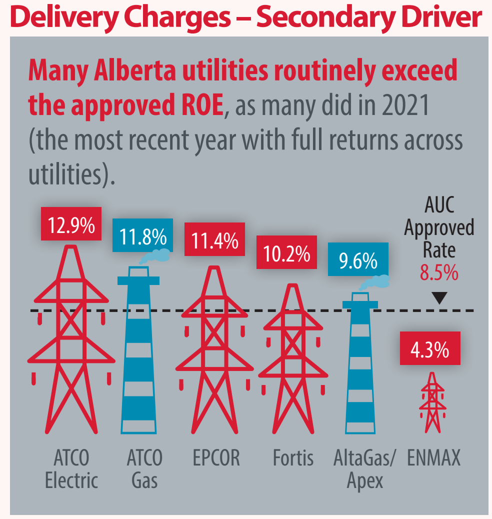
High Utility Costs in Alberta Inflation



Energy Charge – Primary Driver



Delivery Charges – Secondary Driver



Assumptions

Economic Conditions in Alberta

Shift from Residential to Non-residential Investment as a Driver of Alberta's Growth

Households in Alberta remain highly indebted heading into 2023. High indebtedness, with elevated interest rates and inflationary pressure, increases the likelihood of a slowdown in consumer spending and business investments. However, despite these factors and slow economic growth forecasts for Canada, Alberta is likely to fare better on the back of a booming oil and gas sector. The WCS-WTI discount should narrow from 2022 through 2023 and 2024 as demand for heavy oil rises and infrastructure investments to increase pipeline capacity rise. Alberta's population should also rise at a pace not seen since 2006, boosting labour force growth and supporting economic activity. These factors should counter some headwinds in consumer spending and business investment.

Residential investment should decline by 3.6 per cent in 2023. The boost to residential investment from an increasing population and substantial net migration numbers would be more than offset by inflationary cost pressures from rising interest rates.

Housing starts should, however, fall from 36,500 in 2022 to 34,700 in 2023, as higher borrowing costs continue to erode affordability and demand. Housing starts should decline to an average of 32,400 for the rest of the forecast period primarily because of the impact of a higher interest rate environment relative to the previous 15 years.

Unlike residential investment, non-residential investments in the public sector should receive a significant boost, including targeted investments to tackle critical shortages in health care, non-trade construction, energy, technology, business, and the aviation sector.

Alberta's real GDP should grow by 2.5 per cent in 2023, as soaring energy prices and government revenue last year provide some support to a slowdown in household spending and investment in 2023. As we advance, Alberta's GDP should slow to 2.3 per cent in 2024 and an average of 1.9 per cent between 2025 and 2028.

With energy prices still expected to remain above pre-pandemic levels, modest surpluses should materialize over the upcoming 2023-24 fiscal year. Alberta's 2023 budget statement also introduces stricter fiscal discipline measures - a balanced budget mandate and constraints on operational spending growth. In the coming years, a vibrant energy sector and fiscal discipline by the government will support Alberta's economy in this volatile economic environment.

Policy Focus has Moved to Reforms Aimed at Increasing Labour Supply to Boost Growth

Alberta's population grew by 2.2 per cent in 2022, significantly improving from the 0.6 per cent population growth in 2021. Robust population growth was primarily driven by historically high interprovincial migration as the cost of living in other provinces rose.

Rapid population growth should extend into 2023, with Alberta's population expected to grow by 2.9 per cent. The combination of a second consecutive year of rapid population growth and a higher overall level of economic activity relative to other provinces should translate into a reasonably stable employment growth of 3.0 per cent in 2023.

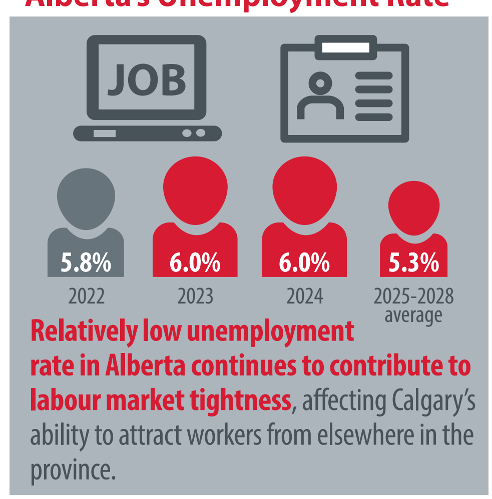
Strong employment growth in 2023 is attributable to robust job growth expectations for several industries in the services sector. The notables are Health Care and Social Assistance; Professional, Scientific, and Technical Services; Managerial Services; and Accommodation and Food Services. Employment growth should decelerate to 1.9 per cent in 2024 before averaging 1.7 per cent between 2025 and 2028.

Despite robust job growth expectations, the unemployment rate should rise from 5.8 per cent in 2022 to 6.0 per cent in 2023 and 2024. That's because population and labour force growth would occur at a faster clip. Significant improvement in the unemployment rate should occur between 2025 and 2028, when it should average 5.3 per cent.

Alberta's Real GDP Growth

Alberta's Employment Growth

Alberta's Unemployment Rate



Labour market tightness has remained an issue of concern over the last few years, partly due to an aging population and a halting of immigration during the pandemic years. An essential step in alleviating labour shortages involves raising labour force participation and positioning future labour supply to meet labour demands. The recently released provincial budget for 2023 makes significant commitments to address these labour shortage challenges in vital economic sectors. The budget extended the Alberta at Work initiative, a program designed to prepare for the future labour market. The province this year also aims to expand workforce planning to areas with the most shortage, such as new funding of $95 million to address healthcare shortages. There were additional commitments ($111 million) for post-secondary enrolment expansion in the construction, energy, technology, business and aviation sectors.

Alberta CPI Inflation on Course to Decelerate as Wage Inflation Accelerates in 2023

To tackle high inflation in 2022, the Bank of Canada raised the overnight rate by 400 basis points. At the beginning of 2023, it also implemented a 25-basis point increase in the policy rate. Subsequently, in March and April 2023, the Bank of Canada decided to hold its target for the overnight rate at 4.5 per cent due to eight consecutive months of decelerating inflation from July 2022 through February 2023 (year-over-year inflation peaked nationally at 8.1 per cent in June 2022).

Alberta's annual inflation rate should decelerate to 3.4 per cent in 2023 from 6.4 per cent in 2022. Alberta's annual inflation rate is also expected to fall further to 2.1 per cent in 2024. For 2024 and beyond, three factors explain the reduction in inflation:

- Modest economic growth because of lower demand for goods and services
- Relatively lower energy prices and the impact on household and business costs
- Reduced pressures to increase wages because of increased labour supply and strong labour force participation

These factors should translate into weaker real wage, cost and demand growth. Alberta's average annual wage growth should decrease to 3.5 per cent in 2023 before falling to 2.4 per cent in 2024 and averaging 2.3 per cent for 2025 to 2028.

Global supply chain disruptions should also ease as we advance because China has dropped its zero-COVID policy, reducing cost-push inflation. More details on how cost-push inflation impacts retail costs are available in Textbox 3.

The Economic Performance in Alberta will Lead the Country in 2023 Like It Did in 2022

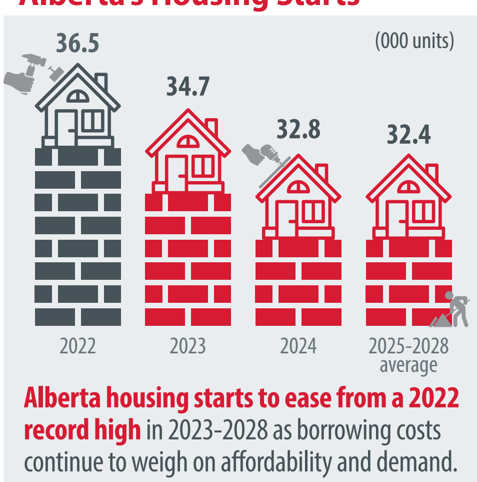
Despite concerns of a mild recession for Canada in 2023, Alberta should fare better than most provinces. Alberta and Saskatchewan led other provinces in economic growth in 2022 as crude oil exports and prices soared. Specifically, Canadian crude oil exports increased by almost 50 per cent from 2021. Strong crude oil export values should carry into 2023.

Surveys from private sector forecasters indicate Alberta and Saskatchewan will lead the country in economic growth for 2023, driven by relatively high commodity prices, interprovincial migration and a healthy fiscal position[3]. However, a few survey results indicate fears of a recession in the United States, potentially impacting Alberta's oil exports. Ontario and British Columbia should have the slowest economic growth across Canadian provinces as both grapple with high provincial government debt levels and a potential slowdown in real estate activity and retail sales. The surveys from private sector forecasters rank 2023 real GDP growth across Canadian provinces as follows:

- Saskatchewan *(1.7 per cent)*
- Alberta *(1.5 per cent)*
- Newfoundland and Labrador *(1.2 per cent)*
- Prince Edward Island *(1.0 per cent)*
- Manitoba *(0.9 per cent)*
- Nova Scotia *(0.6 per cent)*
- New Brunswick *(0.4 per cent)*
- Quebec *(0.2 per cent)*
- Ontario *(0.2 per cent)*
- British Columbia *(0.2 per cent)*

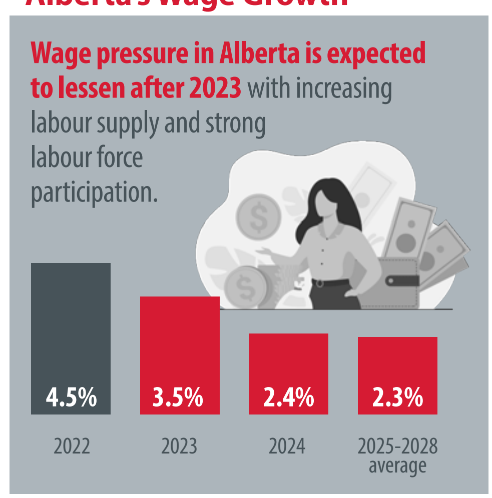
3 Private Sector forecasts in this survey comprise the Royal Bank of Canada, Scotiabank, Desjardins, The Conference Board of Canada, National Bank of Canada, Toronto Dominion Bank, Deloitte, and Bank of Montreal.

Alberta's Housing Starts



Alberta's Consumer Price Index

Alberta's Wage Growth



Textbox 3 Retail Costs and the Three Channels for Cost-push Inflation

There are two sources of inflation. Increases in the cost of production, called cost-push inflation, and increases in demand, called demand-pull inflation. There are three aspects to cost-push inflation, which are impacting the retail costs that Canadians are facing today.

Initiation: Inflation Due to Price Increases for Underlying Commodities Arising from Market Forces

At points along the supply chain between the mining of raw materials and the final consumer, there are opportunities for price-setting decisions that affect the final consumer. Those setting prices may have a goal to expand their operations and need some money to buy machines or they might want more profit but either way the price increase passes on through the supply chain eventually being paid by the final consumer.

Accumulation: Inflation Due to Price-setting Practices across Multiple Steps in the Production Process

Some products are critical cornerstones of the economy. They get used not just by consumers but in mining, transportation, manufacturing, warehousing, and retail operations. Gasoline and diesel are good examples of these cornerstone products.

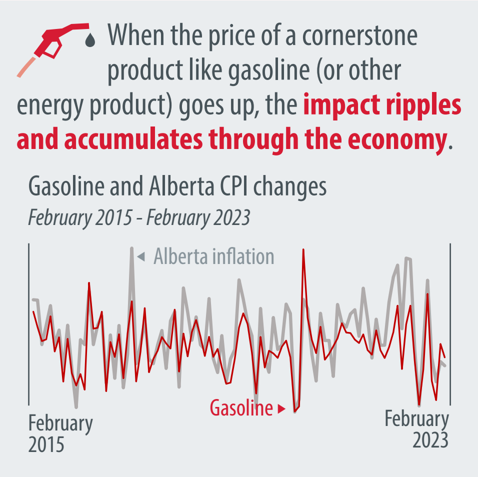
When the price of a cornerstone product goes up, the impact ripples and accumulates through the economy. First, the costs to mine go up, increasing the price a manufacturer must pay. Second, the cost to ship these raw materials to mining locations and from mining locations to manufacturers also increases. Third, manufacturing costs also increase because these cornerstone products are essential inputs for manufacturers. All three increases get passed on to wholesalers, who then must add their own cost increases to the costs to recoup from retailers. Finally, retailers have higher costs because of their energy usage. The final consumer feels the impact of all the cost increases along the supply chain. A significant share of consumer inflation is the direct or indirect result of a energy price increases.

Magnification: Inflation Due to Cost-plus Pricing Behaviour and Rules Applied in Retail Sales

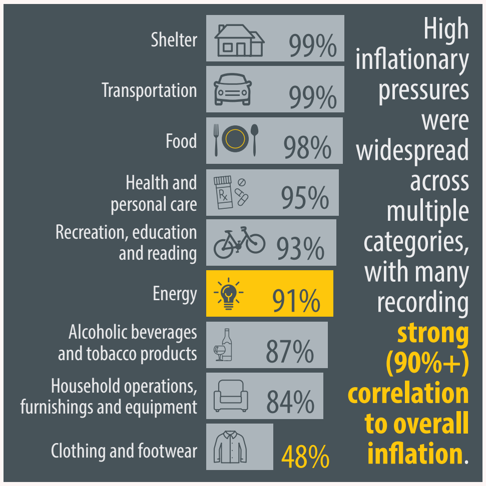
Inherent pricing rules employed by wholesalers and retailers can work to magnify inflation. Resellers of products generally price their products on a cost-plus basis. They typically look at the price they pay and add a certain per cent to arrive at their final price. For example, when a retailer pays a wholesaler $100 and adds a 10 per cent mark-up, their sale item will retail for $110. Assuming retail operating costs are $5, the retail profit is $5. When energy prices go up by $100, the wholesale price increases to $200. When the same 10 per cent retail mark-up gets applied, retail prices automatically go up to $220. Consumers see prices increase by $110, not the $100 increase in energy costs related to getting the product into the hands of the wholesaler. The retailer gets the extra $5-$10 would cover higher energy costs for the retailer, and the other $5 is additional profit not attributable to new value creation.

Cost-plus pricing schemes operate to magnify consumer inflation and increase profits. The higher the mark-up, or "margin," the greater the impact. Some companies have significant retail margins – 30 per cent, 40 per cent, and even 100 per cent are not uncommon retail margins in Canada. For companies with a retail margin of 100 per cent, retail prices go up by twice as much when wholesale prices go up. For every $100 increase in wholesale costs, retail prices go up by $200!

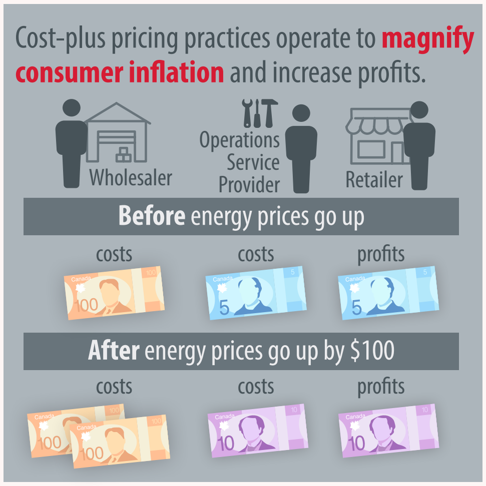
Similar Changes in Gasoline Prices and Overall Inflation



Many Sources of Current Inflation Trends



Cost-plus Prices Drives Inflation Higher



Assumptions

Economic Conditions in Canada

Fiscal Policy Targets Labour Supply Increases to Lift the Economy

Real GDP growth in Canada decelerated in 2022 (3.6 per cent), following significant growth in 2021 (5.0 per cent). Four factors drove economic growth in 2022 – residential investment, non-residential construction, exports of commodity products, and inventory build-up. Noticeably, consumer spending was higher in Q2 2022 but declined in Q3 2022 as higher prices brought cautiousness to consumers – making consumer spending a headwind. It is a concern because household consumption represents a significant share of Canadian economic activity (55.5 per cent in 2021).

The Canadian economy should grow by 0.8 per cent in 2023 – a significant slowdown from 2022. There will be a focus on depleting inventory and employers will find the tight labour market challenging. As a sign that the economy was potentially overheating in 2022, the unemployment rate achieved a low of 4.9 per cent in June and July 2022 (the lowest since consistent record keeping from January 1976). Without government action, population aging and baby boomer retirements will sustain labour shortages in critical industries, including construction. The federal government has intervened with policy to boost labour supply through its November 2022 announcement of 'an Immigration Plan to Grow the Economy.' Immigration in 2022 (431,645 persons) was at a record high, exceeding the previous record in 2021 (405,999 persons). The immigration boost is an important driver of the expectation of positive economic growth in 2023 with more consumer spending.

After navigating these consumer spending, inventory depletion and labour shortage headwinds in 2023, real GDP growth should pick up pace in 2024 (1.2 per cent) before accelerating to 1.9 per cent in 2026. Inflows of immigrants should help fill job vacancies in the labour market and push up both production and consumption in the country.

Monetary Policy is on Course to Restore Credibility to Inflation Targeting by 2024

Inflation accelerated in the first half of 2022, driven by higher energy and food prices. Higher mortgage rates and rent prices also contributed to shelter price inflation. Pent-up demand for non-durable goods and services after two years of slow recovery in the service industries also pushed up prices. By the second half of 2022, after several months of interest rate hikes by the Bank of Canada, demand growth and price growth softened. CPI inflation declined from its peak of 8.1 per cent in June 2022 to 6.3 per cent in December 2022. By March 2023, consumer price inflation in Canada declined further to 4.3 per cent, indicating the Bank of Canada's tightening monetary policies started to work.

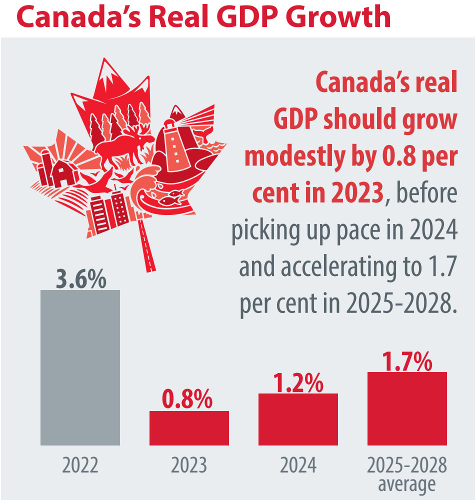
From 2023 through 2028, the Canadian dollar should remain stable between U.S.$0.74 and U.S.$0.77 for every CAD$1. That's a turnaround from U.S.$0.71 for every CAD$1 in May 2020 when the COVID-19 pandemic and the collapse in crude oil prices reduced the value of trade with the U.S. and the demand for the Canadian dollar. Returning to a stronger and stable exchange rate would be driven by robust Canadian export activity that would also allow lower prices for imported goods and offer relief for consumer price inflation.

Annual consumer price inflation should decline to 3.6 per cent in 2023 before moving within the range of the policy rate target by 2024 at 2.2 per cent and staying there through 2028. After several years of combating ultra-high inflation, it would mean success for the Bank of Canada. It should help restore some central bank credibility.

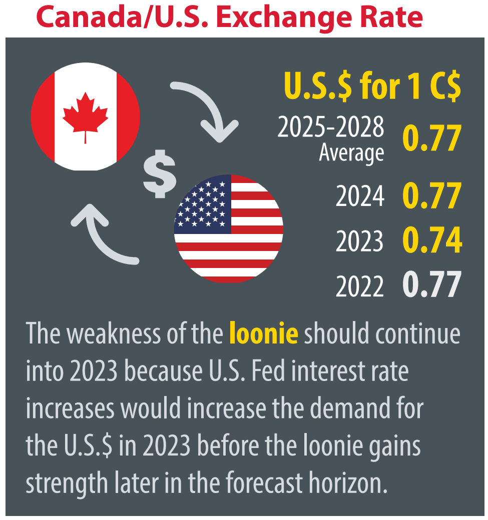
Adjustments to Higher Interest Rates and Canada and U.S. Interest Rate Divergence

Between March 2022 and January 2023, the BoC's target for the overnight rate increased from 0.25 to 4.5 per cent. Similarly, the Federal Reserve Bank of the U.S. (the Fed) raised its target range for the Federal Funds rate from 0 to 0.25 per cent in January 2022 to between 4.75 and 5.0 per cent in March 2023. It has triggled economy-wide adjustments to a higher interest rate environment. More details on higher interest rates and the impact on housing affordability are available in Textbox 4. For 2023, the BoC has signalled a conditional pause to interest rate hikes starting in March 2023, citing an unfavourable level of GDP in Q4 2022. The Fed, however, is yet to commit to a pause on interest rate hikes, thereby increasing the risk of interest rate divergence relative to Canada. The interest rate divergence would increase the attractiveness of the U.S. dollar vis-à-vis the Canadian dollar, causing a weaker Canadian currency against the U.S. dollar.

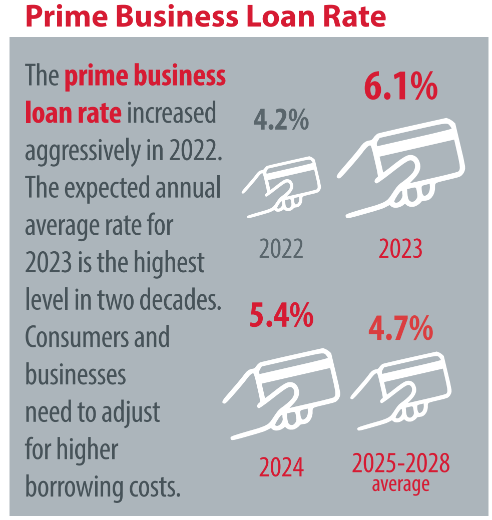
Canada's Real GDP Growth



Canada/U.S. Exchange Rate



Prime Business Loan Rate



Textbox 4 Housing Costs and the Impact of Recent Monetary Policy Actions

Impact of Monetary Policy Actions on the Cost of Borrowing

The National Bank of Canada recently reported that housing affordability has improved in Canada after a record-long sequence of declining home affordability. That was until the Bank of Canada's efforts to combat inflation by raising the overnight rate, negatively impacting affordability. The target overnight rate of the Bank of Canada increased from 0.25 per cent in March 2022 to 4.50 per cent in March 2023. With this action, borrowing money has become more expensive, and the demand for housing has decreased. Also, the future path of house prices is a decline in the short-term (see Table 1).

Selected Affordability Ratios for Assessing the Impact of Lower House Prices

The decline in house prices does not necessarily translate to improved affordability. High interest rates can harm affordability in several ways, including increasing monthly mortgage payments, reducing borrowing capacity, and leading to a slowdown in economic growth.

The Government of Canada's Mortgage Qualifier Tool was used to analyze affordability in Calgary. Specifically, the analysis focused on two housing affordability ratios – the Gross Debt Service (GDS) ratio and the Total Debt Service (TDS) ratio. The GDS ratio measures the share of monthly heating costs, property tax, and mortgage payments relative to gross monthly income. The TDS ratio measures the share of GDS costs, monthly credit card or line of credit payments, monthly car payments, and other debt payments relative to gross monthly income.

Analytical Results for the Level of Income Needed to Support Home Ownership in Calgary

An assessment of the ability of Calgarians to afford home ownership at different income levels for 2023 through 2028, using these ratios, generated two important results.

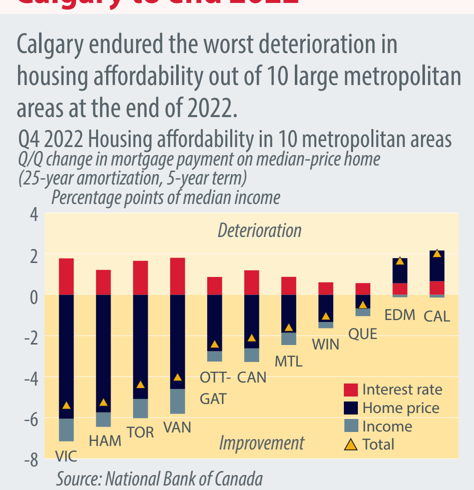
The first result is that housing affordability should improve from 2023 to 2025. Using the average home price in Calgary of around $580,000, the analysis indicated that a household would need a minimum annual income of $120,000 in 2023 to qualify for a mortgage to buy that average home. That's a significant level of income and well above the average and median income levels for Calgary households. However, affordability should improve by 2025, with the minimum required annual income reducing to $105,000 for the average house.

The second result is that housing affordability will remain challenging for those households with income below six figures. For those with household income levels of at least $100,000, the ability to afford the average Calgary home should become attainable sometime in 2024. That income level should become potential homeowners' new 'sweet spot.' Those with annual incomes below $100,000 would be too far off acceptable GDS and TDS thresholds for the average home – it will compel them to explore lower-priced housing options or the rental market.

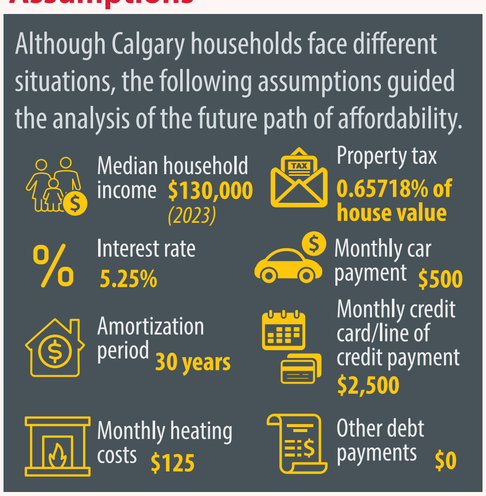
In summary, the Bank of Canada's efforts using monetary policy to combat inflation has led to lower housing market prices and adversely affected affordability. However, there is hope that the declining trend will stop in 2024 and improve by 2025.

This textbox is a contribution from three University of Calgary students. It is an outcome of an ongoing collaboration between The City of Calgary and the University of Calgary. Students enrolled in Economics 588/611.88 (Digital Economics Capstone) have the opportunity to work with industry in applying econometrics to develop a solution for an economic resource allocation problem. For the Winter 2023 term, these students worked with City of Calgary staff to explore the effects of monetary policy tightening on housing affordability in Calgary. This textbox articulates some key findings. Many thanks to the following students for their participation in this insightful project: Sina Taheria (Haskayne School of Business, University of Calgary), Talha Azad (Department of Economics, University of Calgary), and Sebin Kim (Department of Economics, University of Calgary).

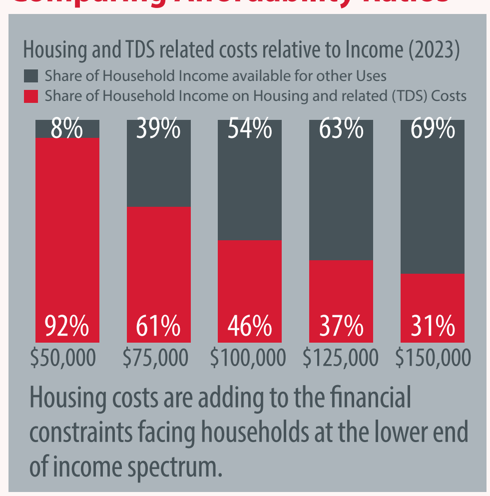
Affordability Deterioration in Calgary to end 2022



Household Carrying Cost Assumptions



Comparing Affordability Ratios



Assumptions

The United States Economy

Near-term Real GDP Growth Driven by Contribution of the Goods-producing Sector

Real GDP growth in the U.S. slowed in 2022 after a strong recovery in 2021 from the 2020 pandemic recession. The Information Technology sector led the K-shaped recovery in the U.S. in 2021; however, it lost steam by the end of 2022 with massive layoffs in big tech companies.

The U.S. economy is forecasted to grow at 1.3 per cent in 2023. This is partly due to the contribution of the goods-producing sector to GDP increasing relative to the services-producing sector. For 2023 and beyond, the Made-in-America policy will continue to be a factor alongside efforts to repatriate sensitive elements of the supply chain. After decades of job declines in manufacturing between the 1980s and 2000s, total employment in this industry increased to a fourteen-year high of 13 million people in March 2023.

There is a possibility of a short recession in Q4 2023 and Q1 2024 that will not result in negative annual growth. The risk is higher if uncertainty around the ability to lift the U.S. debt ceiling increases. Once inflation is under control and the Federal Reserve Bank of the U.S. (the Fed) stops raising interest rates, real GDP growth in the U.S. should decelerate slightly in 2024 (0.8 per cent) before accelerating to 1.9 per cent in 2025. The goods-producing sector will be one of the significant growth drivers, with job creation expected in the mining, construction and manufacturing industries.

Inflation Reduction Act to Help Sustain Demand for Goods, Services, and Workers

The unemployment rate in the U.S. declined quickly post-pandemic. It has remained below 4.0 per cent since December 2021. Healthy job growth in the tech sector and manufacturing and construction industries absorbed millions of job seekers. The demand for workers remains exceptionally robust – total unfilled job vacancies in the U.S. spiked from 7 million in 2019 to 11 million in 2022.

Recently, high inflation and higher interest rates put downward pressure on the demand for some goods and services. In response, tech companies are lowering their workforce quickly after increasing it to meet the surge in COVID-19 (work from home) and post-COVID-19 demand. However, overall workforce demand remains very high. The tight labour market resulted in a higher average hourly wage increase for all employees from 3.3 per cent in 2019 to 5.3 per cent in 2022. CPI inflation in the U.S. averaged 8.0 per cent in 2022, fueled by demand-pull factors – higher wages, higher house prices, and higher activity in the hospitality industry.

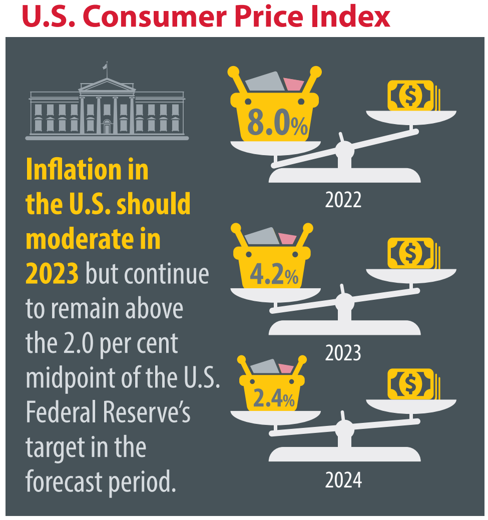
For the foreseeable future, the overall labour market should remain tight. One of the primary motivations for sustained labour market tightness is the introduction of demand creation measures outlined in the U.S. Inflation Reduction Act (IRA). It will continue to fuel demand-pull factors and keep the annual average CPI inflation rate above the 2.0 per cent midpoint of the Federal Reserve's target. The annual inflation rate should average 4.2 per cent in 2023, decelerating to 2.4 per cent in 2024 and between 2.0 and 2.3 per cent from 2025 to 2028.

Unlike Fiscal Policy, Monetary Policy should Shift to a Pause

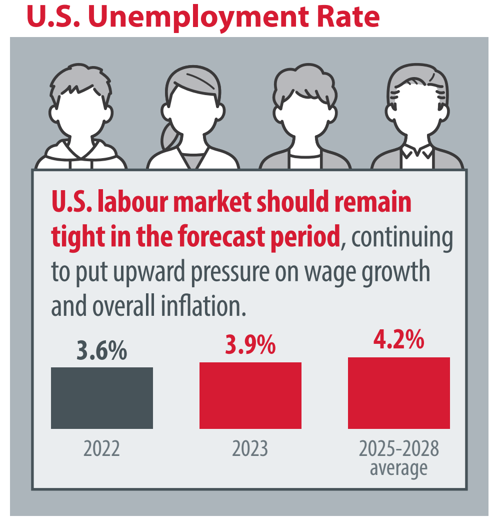
As a result of the actions of the Fed, the effective federal funds rate increased from 0.8 per cent in February 2022 to 4.8 per cent in March 2023. In addition, the Fed commenced a quantitative tightening (QT) process that saw the Fed shrinking its balance sheet, reducing its total assets from the peak of $8.9 trillion in April 2022 to $8.6 trillion in April 2023.

U.S. Real GDP Growth

U.S. Consumer Price Index



U.S. Unemployment Rate



Assumptions

The World Economy

The Pace of World Economic Growth Remains Below the Post-1980 average

The two largest economies in the world - the U.S. and China account for more than four out of every ten dollars of world economic output. The U.S., the largest economy, is classified as an advanced economy because of high per capita income, modern financial institutions, and diversified industry. China, the second largest economy in the world, is categorized as an emerging and developing economy. For 2023, both economies should slowdown with adverse consequences for the world economy.

The International Monetary Fund (IMF) provides four world economic outlook updates each year in January, April, July and October. The pace of world economic growth was below average in 2022 primarily because of four factors - the War in Ukraine, the COVID-19-related lockdowns in China, monetary tightening (especially higher interest rates) across global central banks, and the withdrawal of fiscal stimulus. The optimism in January 2022 gave way to pessimism, reflected in three consecutive downgrades of global real GDP growth for 2023 to 2.7 per cent by October 2022. China's re-emergence from COVID-19-related lockdowns will aid the expected global growth increase in 2023 to 2.8 per cent. Subsequently, global economic growth should average 3.1 per cent over the forecast horizon (2024-2028). It is below the average post-1980 growth rate of 4.4 per cent.

The Continued Shift in World Output from Advanced to Emerging and Developing Countries

The growth rate across all emerging and developing countries should average 3.9 per cent in 2023 before increasing to 4.2 per cent in 2024. For all 41 countries classified as 'advanced' by the IMF, their expected average 2023 real GDP growth rate is 1.3 per cent, increasing to 1.4 per cent in 2024.

A substantial amount of world economic output has shifted from advanced economies to emerging and developing economies over the last 40 years. In the 1980s, the average share of the world's economic output (or gross domestic product) attributable to advanced economies was 63 per cent. Between 2013 and 2022, the share of world economic output attributable to advanced economies declined to 43 per cent (look out for a textbox on this phenomenon in the Fall 2023 Economic Outlook). As a result, emerging and developing countries now consistently account for over half of global economic output.

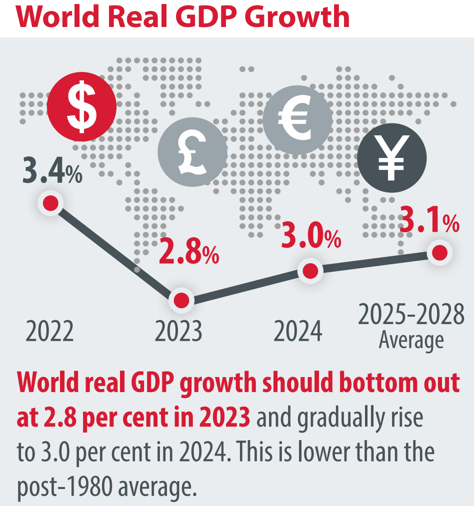
The Global Inflation Rate should Start Decelerating in 2023

The surge in demand as economies emerged from COVID-19 was exacerbated by supply chain-related disruptions and led to a 8.7 per cent inflation rate in 2022 - the highest since 1996. While the rate of increase in the demand globally for goods and services has slowed, prices of goods and services should remain elevated in 2023. The silver lining is that inflation in 2023 should be lower than in 2022. The rounds of interest rate hikes by central banks across the globe in 2022 to combat inflation should help tame inflation to 7.0 per cent in 2023. Global inflation should return to 3.5 per cent over the forecast horizon by 2028.

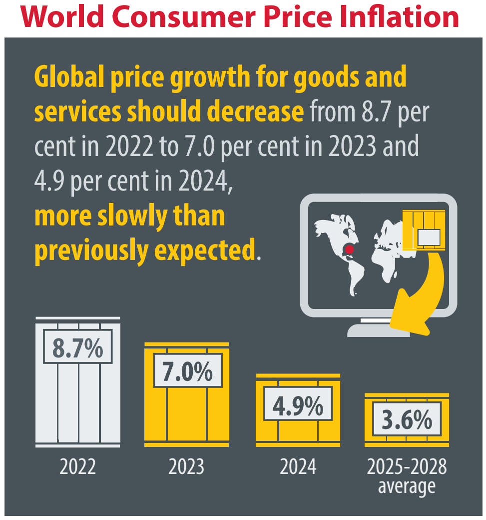
The Growth in Global Trade Continues Despite Wave of Protectionist Sentiment

Despite the recent wave of protectionist sentiment globally, the annual average growth for global trade over the last ten years is 3.1 per cent. Between 2009 and 2022, global trade activity increased except for contractions in 2009 (-10.3 per cent) and 2020 (-7.8 per cent) because of global recessions. For 2023, global trade growth should decelerate to 2.4 per cent because of efforts to combat inflation that would slow regional consumption and investment, thereby reducing imports and exports. Global trade should increase to a higher average growth rate of 3.5 per cent between 2024 and 2028 due to a stable monetary policy regime.

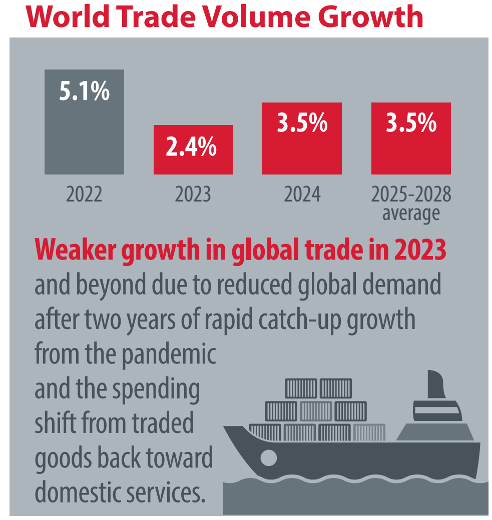
World Real GDP Growth



World Consumer Price Inflation



World Trade Volume Growth



Forecast Tables Glossary

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: April 2023						FORECAST					
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
ASSUMPTIONS											
World											
Real Gross Domestic Product Growth (%)†	3.6	2.8	-3.0	6.2	3.4	2.8	3.0	3.2	3.2	3.1	3.0
The United States											
Real Gross Domestic Product Growth (%)	2.9	2.3	-2.8	5.9	2.1	1.3	0.8	1.9	1.8	1.9	2.0
Canada											
Real Gross Domestic Product Growth (%)	2.9	2.0	-5.1	5.0	3.6	0.8	1.2	1.5	1.9	1.8	1.7
Prime Business Loan Rate (%)	3.6	4.0	2.7	2.5	4.2	6.1	5.4	4.8	4.7	4.6	4.5
Exchange Rate (U.S.$ for 1C$)	0.77	0.75	0.75	0.80	0.77	0.74	0.77	0.76	0.77	0.77	0.77
Alberta											
Real Gross Domestic Product Growth (%)	2.0	0.1	-8.1	4.9	4.7	2.5	2.3	2.3	1.7	1.8	1.9
Total Employment Growth (%)	2.7	1.2	-7.1	5.4	5.2	3.0	1.9	1.9	1.6	1.6	1.6
Unemployment Rate (%)	6.5	6.8	11.3	8.6	5.8	6.0	6.0	5.7	5.4	5.2	5.0
Housing Starts ('000 Units)††	26.1	27.3	24.0	31.9	36.5	34.7	32.8	32.0	32.2	32.3	32.9
Inflation Rate - CPI (%)	2.4	1.8	1.1	3.2	6.4	3.4	2.1	2.0	2.0	2.1	2.1
Crude Oil Price - WTI (U.S.$/bbl)*	65.2	57.0	39.2	68.1	94.9	78.7	77.3	75.8	76.3	77.2	78.0
Western Canadian Select - WCS (U.S.$/bbl)*	38.6	43.4	27.6	54.4	74.9	58.1	60.7	58.9	60.3	62.9	64.4
Alberta Natural Gas Price - AECO/NIT ($/GJ)	1.5	1.6	2.1	3.5	5.1	3.4	3.7	4.0	4.1	4.2	4.3
Industrial Product Price Index (%)	3.9	-0.1	-0.4	13.9	12.8	-0.2	0.0	1.3	1.4	1.4	1.4
Raw Materials Price Index (%)	9.2	-2.5	-8.2	32.4	23.6	-7.5	-1.0	0.3	0.7	0.8	0.8
Alberta Average Wage Rate Increase for All Industries (%)**	0.1	0.8	-0.2	1.2	4.5	3.5	2.4	2.3	2.4	2.2	2.2
FORECAST											
Calgary Economic Region (CER)											
Real Gross Domestic Product Growth (%)✧	0.2	2.5	-6.7	3.5	5.0	2.6	3.1	3.1	2.4	2.3	2.3
Total Employment ('000 people)	863.0	891.1	835.6	870.1	933.9	962.5	984.8	1,009.3	1,030.0	1,050.2	1,070.1
Total Employment Growth (%)	1.4	3.3	-6.2	4.1	7.3	3.1	2.3	2.5	2.1	2.0	1.9
Unemployment Rate (%)	7.5	7.1	11.6	9.0	6.0	6.4	6.4	6.1	5.9	5.7	5.6
Calgary Census Metropolitan Area (CMA)											
Housing Starts ('000 units) ✧✧	11.0	11.9	9.2	15.0	17.3	15.6	12.8	12.7	12.4	12.3	12.3
Inflation Rate - CPI (%)	2.4	1.4	1.1	3.2	7.2	3.8	2.1	2.0	2.0	2.1	2.2
Non-Residential Building Construction Inflation (%)	2.1	2.0	0.5	4.0	9.0	10.4	3.4	2.9	2.9	0.9	0.0

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
REAL ESTATE											
Residential Market											
Housing Starts ('000 units)*	9.4	10.6	7.9	12.7	14.8	13.1	10.4	10.5	10.3	10.2	10.2
Average Residential MLS Sale Price Growth (%)**	-1.2	-4.2	-0.1	7.6	4.9	-3.0	2.2	3.2	3.0	2.2	2.4
Benchmark House Price Growth (%)**	-0.1	-3.8	-0.9	12.8	12.4	-0.3	1.7	2.7	2.7	2.0	2.3
Total Building Permits ($billions)	4.5	5.0	3.4	5.6	5.7	5.7	6.0	5.5	6.0	6.2	6.3

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: April 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	-0.8	27.6	21.4	-28.2	-13.1	-1.0	2.1	1.8	2.8
Aluminum Products	11.4	0.8	-9.3	29.6	26.3	-14.4	-6.8	5.5	6.6	5.3	3.9
Wood	7.6	-3.0	24.3	53.0	-6.4	-27.4	-6.1	-6.5	-4.0	-0.9	-0.3
Asphalt*	26.8	6.3	-9.5	4.5	66.2	-10.5	1.5	7.9	2.5	4.8	-1.0
OPERATIONAL COMMODITIES											
Rubber	-20.3	6.7	0.5	15.2	-7.2	1.7	-0.7	-0.8	0.6	2.1	3.0
Diesel Oil	19.4	-7.7	-15.4	25.7	41.9	-18.1	-5.0	2.7	3.0	3.2	3.1
Vehicle Parts	2.7	2.0	1.1	2.3	7.0	-4.9	2.1	0.6	1.4	-0.4	0.6

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, 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

The Government of Canada's ambition by setting higher targets in the new immigration levels plan of 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.

Baby Boomer

As defined by Statistics Canada, a "baby boomer" is a person who was born between 1946 and 1965. This timeframe is characterized by a high birth rate in Canada between the end of World War II in 1945 and the emergence of the birth control pill in the early 1960s.

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), Tsuu T'ina Nation 145 (Sarcee 145) (Indian reserve), Turner Valley (Town).

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.

Commodities

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

Current Policies Scenario

Canada's Energy Future 2021 (EF2021) report published by the Canada Energy Regulator includes two core scenarios: the Evolving Policies Scenario and the Current Policies Scenario. The central premise to these scenarios is based on the level of future climate action, both globally and domestically. The Evolving and Current Policies scenarios provide projections for all energy commodities and all Canadian provinces and territories. The core premise of the Current Policies Scenario is that there is generally no additional action to reduce GHGs beyond those policies in place today, implying relatively higher global demand for fossil fuels and less adoption of low-carbon technologies.

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

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 (CDs) created as a standard geographic unit for analysis of regional economic activity.

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

Effective Federal Funds 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.

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

Evolving Policies Scenario
Canada's Energy Future 2021 (EF2021) report published by the Canada Energy Regulator includes two core scenarios: the Evolving Policies Scenario and the Current Policies Scenario. The central premise to these scenarios is based on the level of future climate action, both globally and domestically. The Evolving and Current Policies scenarios provide projections for all energy commodities and all Canadian provinces and territories. The primary scenario in EF2021 is the Evolving Policies Scenario. The core premise of the scenario is that action to reduce the GHG intensity of our energy system continues to increase at a pace similar to recent history, in both Canada and the world. Relative to a scenario with less action to reduce GHG emissions, this evolution implies less global demand for fossil fuels, and greater adoption of low-carbon technologies.

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 2022. Some of the largest economies that are EU member states include Germany, France, Italy, Spain, and the Netherlands.

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 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 re-sale market.

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

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

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.

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, 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").

Glossary

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.

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.

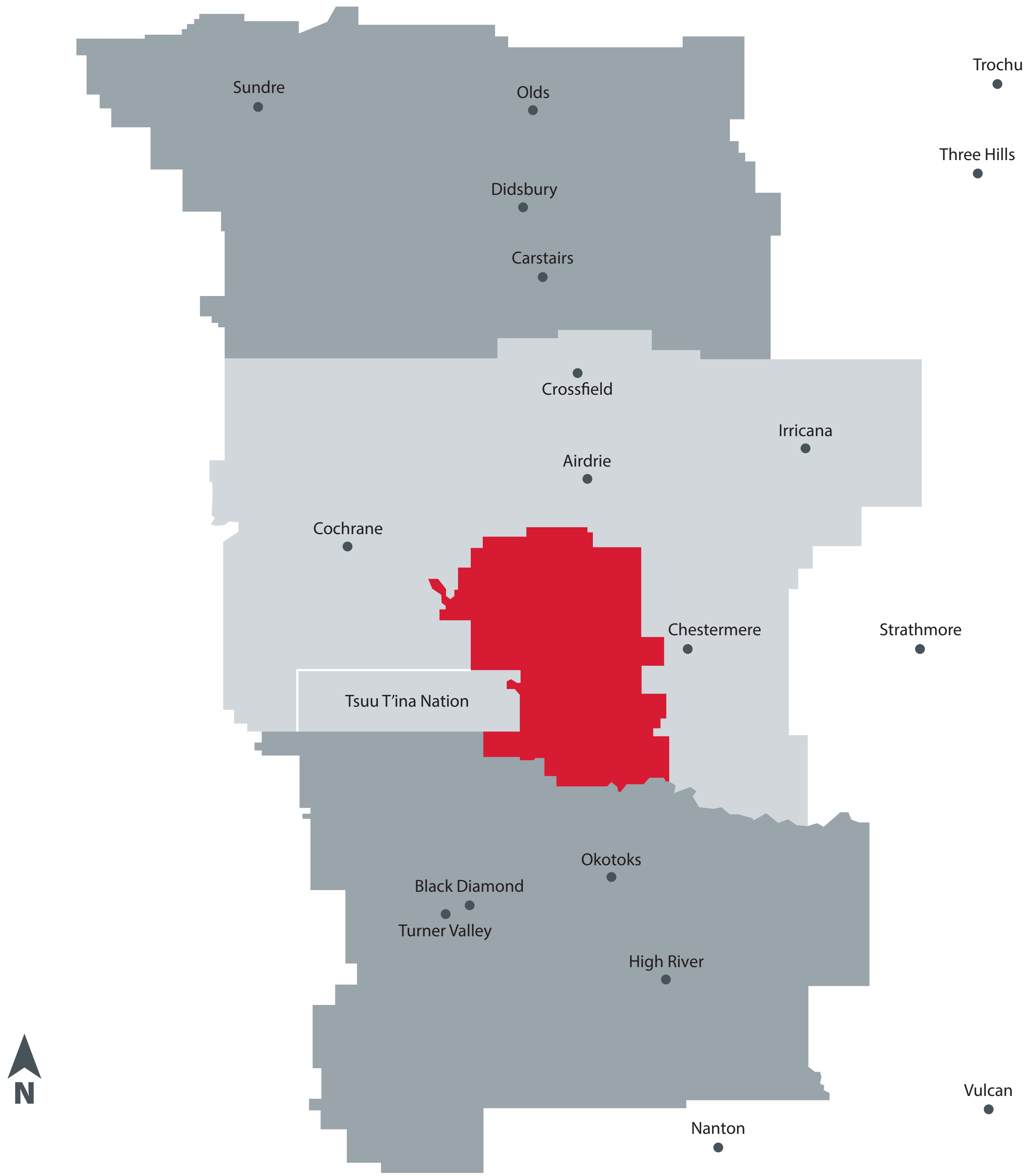
Working Age Population

Describes people aged 15 to 64.

WTI

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

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

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.