The Conference Board of Canada

Economic Impacts of a Greenhouse Gas Emissions Cap on the Oil and Gas Sector

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Key findings

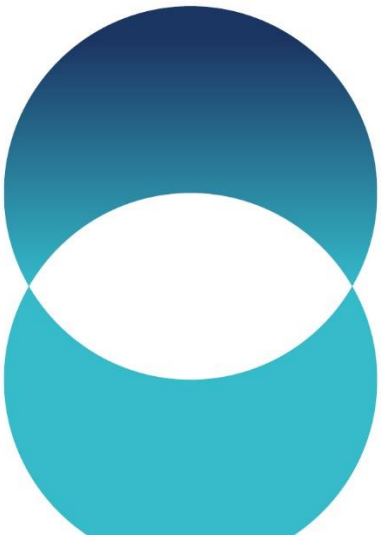
- The new cap-and-trade trade system proposed by the Government of Canada to reduce greenhouse gas (GHG) emissions in the upstream oil and gas sector may have significant impacts on the Canadian and Alberta economies if the pace of emissions abatement fails to meet the federal government's expectations by 2030.

- Three scenarios are modelled around different levels of GHG emissions abatement being achieved in the oil and gas sector. In each scenario, emissions reductions through new investments and efficiencies are not sufficient to meet the proposed upper legal bound of 134 Mt of GHG emissions by 2030 and would therefore require production cuts (relative to the baseline production forecast in 2030 and beyond) to achieve the emissions target.

- The three scenarios vary by the degree to which methane emissions in the oil and gas sector are reduced from 2012 levels. Specifically, we model methane emssions reductions of 75 per cent (the federal target), 60 per cent, and 45 per cent by 2030. The 75 per cent methane reduction is assessed as the most likely trajectory as it is feasible to achieve with existing technologies. A 45 per cent methane emissions reduction from 2012 levels has already been achieved. It is very likely that methane emissions will decline further this decade.

- The oil and gas productions cuts forecasted lead to a one-time, permanent decline in total Canadian real GDP of between 0.9 per cent (most likely outcome) to 1.6 per cent (least likely outcome) relative to the baseline in 2030. This is equivalent to a loss of $22.8 to $40.4 billion in 2012 dollars. The cost of reducing emissions through oil production cuts is between $1,800 and $2,100 per tonne of forgone GHG emissions in nominal terms. In Alberta, real GDP would fall by between $16.3 and $28.5 billion—or by 3.8 per cent and 6.7 per cent, respectively.

- Government revenues would also feel the pinch of lower oil and gas output. In 2030, federal government revenues would fall by between $4.4 and $7.9 billion in nominal terms, while total provincial and territorial government revenues would contract by between $7.0 and $12.5 billion. In Alberta, provincial government revenues would contract by between $4.0 and $7.1 billion in the 2030-31 fiscal year with lower royalties accounting for just over 60 per cent of the decline.



Introduction

In December 2023, the Government of Canada announced plans to implement a national cap-and-trade system to help reduce greenhouse gas (GHG) emissions in the oil and gas sector under the *Canadian Environmental Protection Act, 1999* (CEPA) to achieve the goal of net-zero emissions by 2050.[1] Under the proposed regulations, the federal government will establish an emissions cap with permits specific to the oil and gas sector, and impose an upper legal bound on GHG emissions in the oil and gas sector by 2030 which permits the purchase of a limited number of other compliance instruments to offset emissions above the cap, and up to the legal bound. The regulations assume that the new emissions cap is technically achievable through sector efficiency gains, investment in emissions abatement technology, investment in methane abatement, and the new emissions allowances, without the need to cut oil and gas production.[2]

Under the federal government's proposed regulations, upstream oil and gas facilities (which make up approximately 85 per cent of the total oil and gas sector) are assumed to meet an emissions cap equal to between 106 and 112 Mt CO_2e by 2030. However, these firms have some degree of compliance flexibility and are allowed to purchase up to 25 Mt in other emissions allowances to produce emissions above the emissions cap, up to a proposed legal upper bound of between 131 and 137 Mt by 2030 — about 20 to 23 per cent below 2019 levels.

This upper bound was developed using Canada Energy Regulator's (CER) Canada Net-Zero Forecast, in which emissions intensities[3] are set at 2019 levels and remain constant for any given production level. Without any abatement under these assumptions, GHG emissions in the upstream oil and gas sector are expected to rise from 171 Mt in 2019 to 199 Mt in 2030. To reduce emissions to the legal upper bound, the federal government assumes that 29 Mt is achieved through emissions reduction technologies, such as carbon capture and storage (CCS) and solvents, and 37 Mt is achieved through methane reductions. This would bring total oil and gas emissions down to 134 Mt by 2030. (See Table 1.) However, in the case where at least some emissions targets are not met, the oil and gas sector will have to cut production, resulting in a significant negative shock to the Canadian and Alberta economies.

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[1] Environment and Climate Change Canada, 2023, *A Regulatory Framework to Cap Oil and Gas Sector Greenhouse Gas Emissions*, Gatineau: Government of Canada.

[2] In the Government of Canada's proposed regulations, "technically achievable" emissions reductions were "based on an assessment of the abatement technologies that can feasibly be deployed within the sector by 2030, considering the status of available technologies, the availability of equipment and labour, as well as timelines for permitting and approvals. The estimates were informed by information from industry and other interested parties." ECCC, *A Regulatory Framework,* 12.

[3] Emissions intensity is defined as the volume of GHG emissions per unit of real Gross Domestic Product (GDP).

Table 1: Federal Government estimates of baseline GHG emissions and technically achievable reductions by 2030

Mt CO2e in 2030

	2019 Production Levels Scenario	CER Canada Net-Zero Production Scenario
2030 GHG baseline emissions[(a)]	174	199
Technically achievable non-methane emissions reductions	-27	-29
Technically achievable methane emissions reductions	-33	-37
Total estimated 2030 GHG emissions (with abatement)	114	134
The 2030 emissions cap and legal upper bound	106 to 112[(b)]	131 to 137[(c)]

(a) Total emissions without abatement. Estimated by assuming 2019 emissions intensities remain constant for the given production level.
(b) The allowance level was set at a level slightly below the estimated GHG emissions with abatement for the 2019 Production Levels Scenario
(c) Includes allowances and use of compliance flexibility units.
Source: Environment and Climate Change Canada, Conference Board of Canada

In this report, we estimate the potential economic impact of production cuts in the upstream oil and gas sector that could be required to meet the upper legal bound of GHG emission of 134 Mt by 2030 if federal emissions abatement targets are not achieved. We present three scenarios, which vary by the amount of methane reduction the sector is able to achieve by 2030. In Scenario 1, methane emissions are reduced by 75 per cent relative to 2012 volumes, which is in line with the federal government's new regulations, while in Scenarios 2 and 3, methane emissions reductions of only 60 per cent and 45 per cent, respectively, are achieved.

Under all three scenarios, non-methane emissions abatement is based on recent historical trends of efficiency gains and the pace of abatement technology adoption rather than the federal government's assessment. This implies just over 10 Mt of non-methane emissions reductions by the upstream oil and gas sector, around one third of the 29 Mt in GHG reductions proposed by the Government of Canada, by 2030. Under these assumptions, the oil and gas sector will have to cut production to meet the upper legal bound of GHG emissions in 2030, resulting in significant negative shocks to the Canadian and Alberta economies.

Assumptions

In each of the three scenarios in this analysis upstream oil and gas facilities are assumed to:

- continue to reduce the GHG intensity of their production between now and 2030;
- fully utilize the 25Mt of compliance flexibility embedded in the emissions cap by purchasing other offsets; and,

- reduce production if sector emissions are greater than the legal upper bound of 134 Mt CO2e in order to comply with the emissions cap.[4]

In order to be consistent with the production projections underpinning the design of the oil and gas sector emissions cap, oil and gas production forecasts are based on the Canada Energy Regulator's (CER) Canada's Energy Future 2023 *Canada Net Zero Scenario*.[5] These projections imply an increase of 18.5 per cent in oil production and 12.5 per cent in gas production from 2019 to 2030.

We present three scenarios, which vary by the amount of methane reductions which the upstream oil and gas sector is able to achieve by 2030. The greater the amount of methane reductions the less production needs to decline to comply with the emissions cap. (See Table 2.) In Scenario 1, methane emissions are reduced by 75 per cent relative to 2012 levels by 2030, in line with the Federal Government's updated methane emissions regulations. Production cuts in this scenario therefore reflect only the difference between our projections and ECCC's projections of non-methane GHG emissions.[6]

In Scenario 2, the upstream oil and gas sector reduce methane emissions by 60 per cent, in line with existing efforts and investments in the sector to comply with previous federal and provincial government regulations.[7]

Scenario 3 assumes the upstream oil and gas sector reduces methane emissions by 45 per cent in 2025, broadly in line with Alberta's existing provincial target. However, as of 2021, methane emissions nationally were already 36 per cent below 2012 levels and all the requirements to comply with the federal methane regulations came into force at the start of 2023. This scenario therefore implies there are no further reductions in methane emission in the sector.

The most likely path for methane emissions is the 75 per cent reduction from 2012 levels assumed in Scenario 1. ECCC estimates that the marginal investments required to comply

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[4] For simplicity, these production cuts are assumed to occur uniformly across the upstream oil and gas sector. To the extent that non-conventional production, which has a higher GHG emissions intensity is cut first, this approach will over-estimate the national production cuts required. Offsetting this in terms of the Alberta-specific impact, non-conventional oil production is concentrated in Alberta so including conventional oil and gas production reduces the share of the production cuts which occur in Alberta. In addition, in practice the legal upper bound is expected to decrease over time to reach net zero by 2050, in this analysis the cap is held constant at 2030 levels.

[5] While the CER production projections were used to define the GHG emissions assumptions for each scenario, we used The Conference Board of Canada's own oil and gas sector forecast to conduct the analysis. If The Conference Board of Canada's production forecast were used in place of CER's projections, then the GHG emissions gap presented in Table 2 would be 2.2 Mt greater in each scenario. However, the resulting GDP impact per Mt of GHG emissions under each production projection would be relatively unchanged.

[6] Canada Gazette, Part 1, Volume 157, Number 50: Regulations Amending the Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)

[7] Regulations for the reduction of methane releases in the upstream oil and gas sector: frequently asked questions - Canada.ca

with the updated draft methane regulations will cost a little over $70 per tonne on average and leverage currently available technology.[8] Even the most expensive methane reduction measures cost on average $125 per tonne. It is therefore likely that most firms will implement these methane reduction measures, rather than choose to reduce production. Scenarios 2 and 3 represent the downside risk that the updated methane regulations are much more costly to implement, or much less effective than expected.

Table 2: Scenarios, GHG Assumptions for 2030

	Methane assumption*	Methane efficiency gains** Mt CO2e	Other GHGs assumptions	Other GHG efficiency gains** Mt CO2e	GHG emissions gap***
Scenario 1	Firms achieve a 75% reduction in methane emissions by 2030	37.6	Efficiency gains based on historical trend (2005-2019) in non-methane GHG emissions intensity	10.5	16.9
Scenario 2	Firms achieve a 60% reduction in methane emissions by 2030	29.1			25.4
Scenario 3	Firms achieve a 45% reduction in methane emissions by 2030	20.7			33.8

* Methane reduction percentages are relative to 2012 levels
** Implied reduction in GHG emissions relative to projected 2030 production levels at 2019 emissions intensities
*** Emissions reductions requiring production cuts relative to legal upper bound in 2030 (134Mt CO2e)
Sources: Conference Board of Canada, Canada Energy Regulator, Environment and Climate Change Canada

The estimated efficiency gains which result in a reduction of non-methane GHG emissions of 10.5 Mt CO2e are the same for each of the three scenarios and are based on the observed trend in emissions intensity between 2005 and 2019, based on the 2023 National Inventory Report, estimated separately for conventional, oil sands and natural gas production. This figure represents the efficiency gains we can be very confident in achieving, around half of which are accounted for by newly installed or under construction carbon capture, utilization and storage projects in the oil and gas sector and the rest of which reflects other efficiency gains, for example the increased use of solvents.[9]

Our estimate of non-methane GHG emissions efficiencies achieved by 2023 is significantly lower than the 29 Mt of efficiency gains projected by the ECCC. Achieving the ECCC estimate of non-methane GHG emissions reduction would require that most of CCUS investments which are planned but not yet under construction – around 14 Mt CO2e according to the IEA – is realized and delivered on time, alongside other investments in

[8] Canada Gazette, Part 1, Volume 157, Number 50: Regulations Amending the Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)
[9] CCUS pipeline calculations based on CCUS Projects Explorer – Data Tools - IEA

emissions reductions. To date, only 3Mt of this pipeline of CCUS capacity has a final investment decision date.[10]

The proposed oil and gas sector emissions cap includes a degree of compliance flexibility, where covered facilities have the option to use other compliance instruments to offset up to 25Mt CO2e of GHG emissions. Eligible compliance units include i) domestic offset credits, ii) contributions to a decarbonization fund and iii) internationally transferred mitigation outcomes (ITMOs). In all three scenarios, firms fully utilize these instruments to offset 25Mt of GHG emissions at a cost of $50 per tonne which reduces profits in the oil and gas sector. We assume that half of the offsets are domestic and half are international, with the purchase of domestic offsets representing a redistribution of profits between sectors within the Canadian economy.

To achieve the upper legal bound of 134 Mt of GHG emissions in each scenario under the assumptions described above, upstream oil and gas firms are forced to cut production relative to the baseline scenario. This assumes that either the costs of complying with updated federal regulations are higher and/or the benefits of doing so are lower than value of the lost production. Of these production cuts, the vast majority will occur in Alberta. Using a GHG emissions intensity weighted share of oil and gas production, the province would be responsible for 79 per cent of the national oil and gas production cuts. While all three scenarios imply a reduction in oil and gas sector production in 2030 relative to the baseline projections, in Scenario 1 — the most likely trajectory for emissions in which the 75 per cent methane reduction target is achieved — oil & gas production is still projected to be nearly 5 per cent higher in 2030 than in 2019.

Results

The oil production cuts represent a significant change from the Conference Board's autumn editions of the Canadian and Provincial Long-Term Outlooks. The cuts to oil production are assumed to affect mostly exports, such that they result in few downstream impacts on domestic refining or other manufacturing. The model simulations are produced over the 2030 to 2040 forecast horizon, incorporating varying assumptions on the oil production cuts required to achieve the 2030 emissions cap. Through the economic linkages represented in our economic models, we can quantify the effects of a reduction in oil production on a wide range of economic variables. This exercise is done by comparing each variable of interest in the three shock scenarios to those in the control scenario. The results are presented as the range of outcomes between the 75 percent and 45 per cent methane reduction scenarios, or Scenarios 1 and 3, respectively.

Given the dynamic nature of the models, the impact of reduced oil production is felt throughout the economy. Industries that are closely tied to oil production are directly

[10] The IEA CCUS pipeline includes the actual or planned year of final investment decision. This is the point in the project planning process where the decision of whether to proceed with the investment is taken, after which contracts with suppliers are signed and capital is provisioned.

affected – in particular, mining services. Exports of oil are also affected, having an impact on transportation and other industries. In addition to these direct and indirect impacts, the economic models capture induced impacts. For instance, oil production is capital intensive, such that the immediate effect of a cut to oil production is reflected in a loss in corporate profits. This will impact investment in the energy sector, but also across other industries due to supply chain impacts and other knock-on effects. Employment is also reduced in the energy and other sectors as the impact on the economy broadens. Reduced employment will have repercussions on income, tax revenues, consumer spending, which, in turn, will have further knock-on effects on other output categories, investment and so forth.

National Results

The shocks modelled through oil and gas sector production cuts are assumed to be permanent, such that oil and gas production never returns to the levels in the baseline scenario. On an expenditure basis, total real Gross Domestic Product (GDP) declines by between $22.8 in the 75 per cent scenario and $40.4 billion (real 2012 dollars) in the 45 per cent scenario in 2030—or by between 0.9 and 1.6 per cent. Over the 11 years between 2030 and 2040, GDP is $22.5 to $39.3 billion (0.8 to 1.4 per cent) lower per year on average. (See Table 3.) To illustrate the magnitude of these impacts, under the most likely scenario (75% methane reduction), the cumulative reduction in GDP over the 11-year forecast would be $247 billion in real (2012) dollar terms, or $597 billion in nominal terms between 2030 and 2040.

Table 3: Key Results, Canada, Deviation from Baseline Forecast in 2030

	Scenario 1: 75% methane reduction	Scenario 2: 60% methane reduction	Scenario 3: 45% methane reduction
GDP (%)	-0.9	-1.3	-1.6
GDP (2012$b)	-22.8	-32.1	-40.4
Oil and Gas Extraction	-14.3	-20.3	-25.7
Household consumption	-7.1	-10.1	-12.9
Business investment	-7.5	-10.4	-13.0
Exports	-11.8	-16.8	-21.3
Imports	-3.8	-5.5	-7.0
Unemployment rate (percentage)	0.3	0.5	0.6
Employment (%)	-0.4	-0.5	-0.7
Wages and salaries (%)	-0.6	-0.9	-1.1
Federal Government Revenue (%)	-0.8	-1.1	-1.4
Total P/T Government Revenues (%)	-0.9	-1.3	-1.6
Federal Government Revenue* ($b)	-4.4	-6.2	-7.9
Total P/T Government Revenue* ($b)	-7.0	-9.9	-12.5
Federal Government Balance* ($b)	-4.8	-6.8	-8.6
Total P/T Government Balance* ($b)	-6.8	-9.6	-12.2

* Government finances are reported in nominal terms in this table and throughout the report.
Note: Total P/T Government Revenue and Balance refers to Total Provincial and Territorial Revenues and Balances.

Source: Conference Board of Canada

Real GDP in the oil and gas sector alone is reduced by between $14.2 and $25.7 billion, or roughly 11 to 20 per cent from the baseline scenario (both in 2030, and on average per year between 2030 and 2040) depending on the level of methane reductions achieved.

Consumer expenditures contribute $7.1 to $12.9 billion to the decline in total real GDP in 2030—a 0.5 to 0.9 per cent drop—but more important are the declines in exports and business investment, at $7.5 to $13.0 billion and $11.9 to $21.3 billion, respectively. The reduced consumer and investment spending contributes to a significant reduction in imports, which counters the decline in total GDP by $3.8 to $7.0 billion in 2030 and dampens the impact on the trade balance. On average, consumption and business investment are, respectively, $10.1 to $17.9 billion and $8.3 to $14.4 billion lower each year between 2030 and 2040.

In general, each Mt of GHG emissions that needs to be reduced through production cuts in the oil and gas sector will result in a decline of real GDP of $1.2 to $1.3 billion. In nominal terms, each tonne of emissions reduced through production cuts will reduce GDP by $1,800 to $2,100 and combined federal and provincial government revenues by between $600 and $700 per tonne of CO2e emissions.

Total employment in the three scenarios declines by between 82,000 (0.4 per cent) and 151,000 (0.7 per cent) in 2030, boosting the unemployment rate by 0.3 to 0.6 percentage points despite a modest reduction in labour force participation rates. On average between 2030 to 2040, the unemployment rate is 0.3 to 0.6 percentage points higher each year. Employment in primary industries, such as forestry, fishing and trapping and mining, declines by 23,000 to 42,000, although nearly all of these could be attributed to the mining sector. Manufacturing is also hit, with 5,000 to 10,000 jobs lost in 2030, while commercial services employment declines by 28,000 to 52,000. In addition, slackness in the labour market contributes to a 0.6 to 1.1 per cent reduction in nominal wages in 2030.

While the oil and gas sector production cuts are assumed to be permanent, the impact on the economy is somewhat mitigated over time. A negative shock to the economy results in a negative output gap, which lowers inflation and prompts the Bank of Canada to lower interest rates. The Canadian dollar also depreciates as a result of the shock. Over time, lower rates and price competitiveness help reduce the initial negative shock on exports, consumer spending and business investment but these automatic mitigating factors do not suffice to bring the economy back to potential even by 2040. Most fiscal policy levers in the models are exogenous, meaning that nominal expenditures on programs (excluding debt financing and employment insurance) are not adjusted as a result of the shock.

Government accounts

Reductions in labour income, consumer spending and corporate profits are the main contributors to a 0.8 to 1.4 per cent decline—or $4.4 to $7.9 billion in nominal terms—in federal government revenues in 2030. On average, federal government revenues are $7.7 to $13.8 billion per year lower on average in nominal terms between 2030 and 2040. Federal government expenditures are bolstered by increased expenditures on social

programs, in particular employment insurance. The federal balance deteriorates but the impact on debt financing costs is muted over most of the forecast horizon because of lower interest rates. Overall, the federal government balance deteriorates by $4.8 to $8.6 billion in 2030, or $6.7 to $11.7 billion per year between 2030 and 2040, in nominal terms.

Provincial and territorial government revenue is reduced by $7.0 to $12.5 billion in 2030, or $10.4 to $18.6 per year between 2030 and 2040, in nominal terms. Of this, $3.2 to $5.8 billion is due to a reduction in royalties, which decline in line with the cuts to oil and gas production.

Alberta

Based on a GHG emissions intensity weighted share of oil and gas production, Alberta would be responsible for the vast majority—79 per cent—of national production cuts. As in the national scenario, the decrease in production is permanent, with oil and gas production not returning to baseline levels by the end of the scenario period. Due to Alberta's greater share of Canada's oil and gas sector, the production cuts have a larger impact in the province compared to the rest of the country. On an output basis, total real GDP in Alberta declines by between $16.3 to $28.5 billion—or 3.8 and 6.7 per cent—relative to the baseline in 2030. On average, Alberta's GDP declines by between $18.9 and $31.5 billion per year between 2030 and 2040 in real (2012$) terms. The vast majority of this contraction comes from Alberta's mining and oil and gas extraction sector, which sees a decline in real GDP by between $12.7 and $22.8 billion, or 11.7 to 21.0 per cent relative to the baseline scenario, depending on the level of methane reductions reached. (See Table 4).

Table 4: Key Results, Alberta, Deviation from Baseline Forecast in 2030 and FY2030/31

	Scenario 1: 75% methane reduction	Scenario 2: 60% methane reduction	Scenario 3: 45% methane reduction
GDP (%)	-3.8	-5.4	-6.7
GDP (2012$b)	-16.3	-22.7	-28.5
Mining and Oil and Gas Extraction	-12.7	-18.1	-22.8
Unemployment rate (percentage)	0.5	0.7	0.9
Employment (%)	-1.9	-2.6	-3.2
Government revenue (%)	-4.5	-6.3	-7.9
Government revenue* ($b)	-4.0	-5.6	-7.1

* Government finances are reported in nominal terms in this table and throughout the report.
Source: Conference Board of Canada

Total employment in the province declines by between 54,000 and 91,500, boosting the unemployment rate in 2030 by 0.5 to 0.9 percentage points. On average between 2030 and 2040, employment in Alberta is between 66,300 and 102,600 lower per year and the unemployment rate is 0.5 to 0.8 percentage points higher. Alberta government revenues are between $4.0 and $7.1 billion lower in the 2030-31 fiscal year, or $7.2 to $12.6 billion lower on average between 2030 and 2040. In 2030-31 lower royalties account for just over 60 per

cent of the decline in Alberta government revenues, though this share declines over time. While output and employment in Alberta do not recover to baseline levels by the end of the simulation period, just like Canada overall, the negative impacts are mitigated slightly by lower interest rates and a depreciation of the Canadian dollar.

Conclusion

According to the Government of Canada's proposed cap-and-trade regulation to reduce GHG emissions in the oil and gas sector, the combination of projected feasible reductions in methane emissions, non-methane emissions, and up to 25 Mt in compliance flexibility would allow the sector to reduce emissions to a legal upper bound of 134 Mt by 2030 without cutting production. However, if methane abatement targets are not met and sector efficiency gains and non-methane emissions abatement technology adoption are lower than federal government targets, the oil and gas sector would have to reduce production. This would result in a significant negative shock to the Canadian and Alberta economies.

We present three scenarios, in which non-methane abatement follows recent historical trends rather than the federal government target and vary by the amount of methane reduction the sector can achieve by 2030: 75 per cent, 60 per cent, and 45 per cent below 2012 levels. Under the most likely scenario—a 75 per cent reduction in methane emissions—oil and gas sector production cuts would lead to a decline in Canadian real (2012$) GDP of $22.8 billion—or 0.9 per cent—relative to the baseline in 2030. This contraction increases to $40.4 billion—or 1.3 per cent—below the baseline forecast in the scenario in which there are no further reductions in methane emissions from current levels (i.e., the 45 per cent reduction scenario).

Overall, for each Mt of GHG emissions that needs to be reduced through production cuts, Canadian real GDP will decline by between $1.2 to $1.3 billion, or $1,200 to $1,300 per tonne of CO2e emissions. Due to Alberta making up the lion's share of the national oil and gas sector, production cuts will have a greater impact on the province compared to the rest of the country. Real GDP in the province would fall by between $16.3 billion in the 75 per cent scenario to $28.5 billion—or by between 3.8 and 6.7 per cent—relative to the baseline in 2030. Finally, government balance sheets would also take a hit. In 2030, federal government revenues would decline by between $4.4 (0.8 per cent) and $7.9 billion (1.4 per cent) in nominal terms, while Government of Alberta revenues would fall by between $4.0 (4.5 percent) and $7.1 billion (7.9 per cent).

Appendix: Methodology

This report considers four macroeconomic scenarios that cover the period 2030-2040—a baseline scenario and three alternative scenarios. The baseline scenario reflects the long-term Canadian economic outlook forecast by The Conference Board of Canada as of November 2023. The three alternative scenarios are model-based results informed by simulation of the Conference Board's large-scale models of the Canadian and provincial economies. Comparing the alternative scenarios to the baseline scenario can therefore allow us to quantify the economic impact of the loss of oil and gas sector output in Canada. This report considers four macroeconomic scenarios that cover the period 2030-2040—a baseline scenario and three alternative scenarios. The baseline scenario reflects the long-term Canadian economic outlook forecast by The Conference Board of Canada as of November 2023.

The Conference Board of Canada's Medium-Term Forecasting Model (MTFM) was used to conduct the analysis on the Canadian economy. Comparing the alternative scenarios to the baseline scenario can therefore allow us to quantify the economic impact of the loss of oil and gas sector output in Canada. The MTFM is a quarterly macroeconomic model that emphasizes factors that are important for forecasting the medium-term prospects for the economy. These factors include a detailed consideration of population and its age structure, a disaggregated modelling of prices, employment, and investment expenditures. The government sector is also treated in detail in MTFM and reflects the most recent institutional environment. Projections of potential output allow the model to be used for long-term analysis.

There are roughly 1,700 variables in the model, of which 600 are behavioural equations. The variables refer to many of the variables in the National Income and Expenditure Accounts as well as related indicators for productivity, wages, prices, financial markets, international capital flows and exchange rates. Over 900 of these variables form a single simultaneous block in the model, reflecting the significant interdependence of its various sectors. The most important of the 600 exogenous variables in the model are foreign economic indicators and variables relating to government expenditures and revenues and demographic characteristics of the population.

To quantify the impact of the oil and gas production cut on the Alberta economy, the Conference Board of Canada's Provincial Medium-Term Forecasting Model (PMTFM) was used. Specifically, the Alberta sub-model is used in this analysis. The PMTFM is a quarterly, bottom-up econometric model of the 10 provincial economies and three territories combined. The model defines real GDP at basic prices and at market prices by province.

PMTFM includes over 1,200 equations, of which roughly half are behavioral or stochastic, while the others are accounting or definitional equations. Most of the exogenous variables in the model are national indicators. For each province, there are a number of simultaneous blocks of equations, including final domestic demand (personal consumption, government spending, residential and non-residential business investment), production by industry,

income, prices, and labour market blocks. The provincial model also has an endogenous provincial population block in which net interprovincial migration plays a key role in determining overall population growth.

The model is freely estimated but is based on the neoclassical Keynesian synthesis. Prices respond to aggregate demand conditions as well as intermediate material costs, international and interprovincial import prices and changes in the indirect tax structure. Potential output and the output gap are fully integrated in the models; thus, the gap and speed of gap closure are explicitly introduced into most price equations to represent supply-side feedback. Potential output and total factor productivity are derived from a Cobb-Douglas production function modelled in terms of capital and labour.

In this model, provincial expenditures determine industrial output through the use of full input-output framework. Provincial real GDP by industry establishes labour market conditions that, in turn, influence population (through interprovincial migration), prices and income. The labour market block includes employment, labour force, unemployment and the unemployment rate. Employment is divided into 11 sector categories and is determined by labour productivity and the current level of output.

Appendix-Table of Results

National Key Indicators: (45% Methane)

Level difference shock minus control

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Real gross domestic product (millions $ 2012)	-40,396	-40,961	-40,750	-39,774	-38,974	-38,471	-38,251	-38,243	-38,399	-38,679	-39,066
Gross domestic product (millions)	-62,219	-72,144	-80,642	-87,079	-92,505	-97,705	-102,962	-108,378	-114,019	-119,900	-126,005
Unemployment rate (per cent)	0.58	0.60	0.62	0.59	0.57	0.56	0.56	0.56	0.56	0.57	0.58
Consumer price index	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03
Average residential mortgage rate (per cent)	-0.08	-0.26	-0.39	-0.46	-0.49	-0.49	-0.47	-0.44	-0.40	-0.36	-0.32
Exchange rate (USDCAD)	0.00	0.01	0.02	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.00
Overnight rate (per cent)	-0.13	-0.39	-0.53	-0.59	-0.60	-0.57	-0.53	-0.48	-0.43	-0.38	-0.33
Interest rate on bankers acceptances (per cent)	-0.13	-0.39	-0.53	-0.59	-0.60	-0.57	-0.53	-0.48	-0.43	-0.38	-0.33
Government of Canada bonds - 1 year (per cent)	-0.09	-0.30	-0.46	-0.54	-0.58	-0.57	-0.54	-0.50	-0.45	-0.40	-0.35
Government of Canada bonds - 2 year (per cent)	-0.09	-0.31	-0.46	-0.54	-0.57	-0.56	-0.54	-0.50	-0.45	-0.40	-0.36
Government of Canada bonds - 3 year (per cent)	-0.09	-0.30	-0.45	-0.53	-0.56	-0.56	-0.54	-0.50	-0.45	-0.40	-0.36
Government of Canada bonds - 5 year (per cent)	-0.08	-0.27	-0.42	-0.51	-0.55	-0.55	-0.54	-0.50	-0.46	-0.41	-0.37
Government of Canada bonds - 7 year (per cent)	-0.07	-0.25	-0.39	-0.49	-0.53	-0.54	-0.53	-0.50	-0.46	-0.42	-0.38
Government of Canada bonds - 10 year (per cent)	-0.06	-0.23	-0.37	-0.47	-0.52	-0.53	-0.52	-0.50	-0.46	-0.42	-0.38
Government of Canada bonds - long term (per cent)	-0.05	-0.21	-0.34	-0.44	-0.50	-0.52	-0.52	-0.50	-0.47	-0.43	-0.39
Housing starts (000s)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average resale home price ($)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Index of consumer confidence (2014=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pension assets at market value, CPP	-444	-1,272	-2,276	-3,353	-4,463	-5,634	-6,884	-8,224	-9,664	-11,212	-12,874
Oil Price (WTI US$)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GHG emission, all sectors (kt CO2 eq)	-37,297	-36,606	-35,492	-34,367	-33,557	-32,980	-32,591	-32,337	-32,230	-32,300	-32,504
GHG emission, oil and gas (kt CO2 eq)	-33,832	-33,770	-33,254	-32,663	-32,108	-31,592	-31,111	-30,663	-30,286	-30,034	-29,871
Federal Government Balance (Millions $)	-8,579	-8,625	-8,796	-9,099	-9,744	-10,638	-11,743	-13,014	-14,427	-15,966	-17,619
Provincial and Territorial Governments Balance (Millions $)	-12,167	-13,035	-14,266	-15,496	-16,841	-18,424	-20,240	-22,258	-24,451	-26,810	-29,331
Federal Government Revenue (Millions $)	-7,865	-9,688	-11,163	-12,269	-13,207	-14,081	-14,937	-15,796	-16,671	-17,570	-18,492
Provincial and Territorial Governments Revenue (Millions $)	-12,533	-14,285	-15,880	-17,010	-17,891	-18,743	-19,626	-20,550	-21,510	-22,506	-23,537

National Key Indicators (60% Methane)

Level difference shock minus control

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Real gross domestic product (millions $ 2012)	-32,069	-32,535	-32,393	-31,652	-31,051	-30,685	-30,542	-30,568	-30,724	-30,980	-31,320
Gross domestic product (millions)	-49,355	-57,184	-63,887	-68,968	-73,252	-77,358	-81,510	-85,786	-90,240	-94,881	-99,699
Unemployment rate (per cent)	0.45	0.47	0.48	0.47	0.45	0.44	0.44	0.44	0.45	0.45	0.46
Consumer price index	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02
Average residential mortgage rate (per cent)	-0.06	-0.20	-0.31	-0.36	-0.39	-0.38	-0.37	-0.34	-0.31	-0.28	-0.25
Exchange rate (USDCAD)	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.00
Overnight rate (per cent)	-0.10	-0.30	-0.42	-0.47	-0.47	-0.45	-0.41	-0.37	-0.33	-0.29	-0.25
Interest rate on bankers acceptances (per cent)	-0.10	-0.30	-0.42	-0.46	-0.47	-0.45	-0.41	-0.37	-0.33	-0.29	-0.26
Government of Canada bonds - 1 year (per cent)	-0.07	-0.24	-0.36	-0.43	-0.45	-0.45	-0.42	-0.39	-0.35	-0.31	-0.27
Government of Canada bonds - 2 year (per cent)	-0.07	-0.24	-0.36	-0.42	-0.45	-0.44	-0.42	-0.39	-0.35	-0.31	-0.27
Government of Canada bonds - 3 year (per cent)	-0.07	-0.24	-0.35	-0.42	-0.44	-0.44	-0.42	-0.39	-0.35	-0.31	-0.28
Government of Canada bonds - 5 year (per cent)	-0.06	-0.21	-0.33	-0.40	-0.43	-0.43	-0.42	-0.39	-0.36	-0.32	-0.28
Government of Canada bonds - 7 year (per cent)	-0.06	-0.20	-0.31	-0.38	-0.42	-0.43	-0.41	-0.39	-0.36	-0.33	-0.29
Government of Canada bonds - 10 year (per cent)	-0.05	-0.18	-0.29	-0.37	-0.41	-0.42	-0.41	-0.39	-0.36	-0.33	-0.29
Government of Canada bonds - long term (per cent)	-0.04	-0.16	-0.27	-0.35	-0.39	-0.41	-0.41	-0.39	-0.37	-0.33	-0.30
Housing starts (000s)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average resale home price ($)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Index of consumer confidence (2014=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pension assets at market value, CPP	-348	-998	-1,789	-2,638	-3,513	-4,439	-5,428	-6,489	-7,630	-8,858	-10,178
Oil Price (WTI US$)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GHG emission, all sectors (kt CO2 eq)	-28,088	-27,591	-27,115	-26,685	-26,475	-26,196	-25,762	-25,567	-25,456	-25,437	-25,546
GHG emission, oil and gas (kt CO2 eq)	-25,363	-25,356	-25,346	-25,330	-25,315	-25,077	-24,565	-24,212	-23,881	-23,603	-23,417
Federal Government Balance (Millions $)	-6,789	-6,840	-6,990	-7,246	-7,773	-8,495	-9,384	-10,404	-11,535	-12,765	-14,085
Provincial and Territorial Governments Balance (Millions $)	-9,626	-10,325	-11,314	-12,304	-13,385	-14,655	-16,108	-17,721	-19,473	-21,355	-23,366
Federal Government Revenue (Millions $)	-6,232	-7,672	-8,836	-9,709	-10,448	-11,137	-11,811	-12,487	-13,176	-13,883	-14,609
Provincial and Territorial Governments Revenue (Millions $)	-9,311	-11,295	-12,555	-13,447	-14,142	-14,815	-15,512	-16,242	-17,000	-17,787	-18,602

National Key Indicators (75% Methane)

Level difference shock minus control

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Real gross domestic product (millions $ 2012)	-22,804	-23,162	-23,101	-22,626	-22,248	-22,035	-21,979	-22,042	-22,198	-22,424	-22,710
Gross domestic product (millions)	-35,042	-40,553	-45,275	-48,865	-51,897	-54,802	-57,736	-60,756	-63,896	-67,165	-70,554
Unemployment rate (per cent)	0.31	0.33	0.34	0.33	0.32	0.31	0.31	0.31	0.32	0.32	0.33
Consumer price index	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Average residential mortgage rate (per cent)	-0.04	-0.14	-0.21	-0.25	-0.27	-0.26	-0.25	-0.23	-0.21	-0.19	-0.17
Exchange rate (USDCAD)	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Overnight rate (per cent)	-0.07	-0.21	-0.29	-0.32	-0.32	-0.31	-0.28	-0.26	-0.23	-0.20	-0.17
Interest rate on bankers acceptances (per cent)	-0.07	-0.21	-0.29	-0.32	-0.32	-0.31	-0.28	-0.26	-0.23	-0.20	-0.17
Government of Canada bonds - 1 year (per cent)	-0.05	-0.16	-0.25	-0.30	-0.31	-0.31	-0.29	-0.27	-0.24	-0.21	-0.18
Government of Canada bonds - 2 year (per cent)	-0.05	-0.17	-0.25	-0.29	-0.31	-0.30	-0.29	-0.26	-0.24	-0.21	-0.18
Government of Canada bonds - 3 year (per cent)	-0.05	-0.16	-0.24	-0.29	-0.31	-0.30	-0.29	-0.26	-0.24	-0.21	-0.19
Government of Canada bonds - 5 year (per cent)	-0.04	-0.15	-0.23	-0.28	-0.30	-0.30	-0.29	-0.27	-0.24	-0.22	-0.19
Government of Canada bonds - 7 year (per cent)	-0.04	-0.14	-0.21	-0.26	-0.29	-0.29	-0.29	-0.27	-0.25	-0.22	-0.20
Government of Canada bonds - 10 year (per cent)	-0.04	-0.13	-0.20	-0.25	-0.28	-0.29	-0.28	-0.27	-0.25	-0.22	-0.20
Government of Canada bonds - long term (per cent)	-0.03	-0.11	-0.19	-0.24	-0.27	-0.28	-0.28	-0.27	-0.25	-0.23	-0.20
Housing starts (000s)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average resale home price ($)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Index of consumer confidence (2014=100)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pension assets at market value, CPP	-241	-694	-1,246	-1,840	-2,455	-3,107	-3,804	-4,555	-5,363	-6,233	-7,171
Oil Price (WTI US$)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GHG emission, all sectors (kt CO2 eq)	-18,794	-18,454	-18,130	-17,839	-17,703	-17,677	-17,738	-17,858	-17,960	-17,964	-18,048
GHG emission, oil and gas (kt CO2 eq)	-16,893	-16,889	-16,883	-16,873	-16,863	-16,858	-16,855	-16,855	-16,796	-16,609	-16,479
Federal Government Balance (Millions $)	-4,797	-4,852	-4,978	-5,180	-5,573	-6,102	-6,748	-7,486	-8,302	-9,187	-10,134
Provincial and Territorial Governments Balance (Millions $)	-6,799	-7,309	-8,027	-8,746	-9,529	-10,445	-11,490	-12,648	-13,903	-15,250	-16,687
Federal Government Revenue (Millions $)	-4,415	-5,431	-6,253	-6,869	-7,391	-7,876	-8,350	-8,825	-9,309	-9,805	-10,313
Provincial and Territorial Governments Revenue (Millions $)	-6,994	-7,972	-8,862	-9,493	-9,984	-10,460	-10,953	-11,469	-12,004	-12,558	-13,132

Alberta Key Indicators - (45% Methane)

Shock minus control

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
GDP at market prices (millions of 2012 $)	-28,486	-30,021	-30,892	-31,786	-32,446	-32,699	-32,700	-32,494	-32,138	-31,671	-31,130
GDP at market prices (2012 $, percent difference)	-6.7	-7.0	-7.0	-7.1	-7.1	-7.1	-6.9	-6.8	-6.6	-6.4	-6.2
GDP at basic prices, mining and oil and gas extraction (millions of 2012 $)	-22,844	-22,895	-22,962	-23,013	-23,020	-22,973	-22,890	-22,774	-22,635	-22,479	-22,314
GDP at basic prices, mining and oil and gas extraction (2012 $, percent difference)	-21.0	-21.0	-20.9	-20.7	-20.5	-20.3	-20.0	-19.8	-19.5	-19.3	-19.1
Total population	-1,723	-10,308	-20,923	-31,557	-42,169	-52,595	-62,602	-72,039	-80,798	-88,814	-96,049
Population of labour force age	-1,423	-8,526	-17,324	-26,139	-34,936	-43,579	-51,883	-59,719	-66,990	-73,650	-79,665
Participation rate (level difference in rate, percentage points)	-1.5	-1.6	-1.5	-1.4	-1.3	-1.2	-1.0	-0.9	-0.7	-0.6	-0.4
Labour force	-69,168	-77,580	-80,563	-83,868	-86,177	-86,475	-85,628	-83,791	-81,295	-78,297	-74,982
Employment	-91,542	-101,914	-105,052	-108,576	-110,756	-110,255	-108,231	-104,895	-100,690	-95,835	-90,573
Employment (percent difference)	-3.2	-3.5	-3.6	-3.6	-3.7	-3.6	-3.5	-3.3	-3.1	-2.9	-2.7
Unemployed	22,374	24,334	24,489	24,709	24,580	23,779	22,603	21,104	19,396	17,538	15,591
Unemployed (per cent difference)	12.6	13.4	13.1	12.9	12.5	11.8	10.9	9.9	8.9	7.8	6.8
Unemployment rate (level difference in rate, percentage points)	0.9	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.7	0.7	0.6
Total compensation of employees (millions of current $)	-10,825	-16,386	-21,319	-26,261	-31,051	-35,486	-39,631	-43,476	-47,054	-50,395	-53,521
Total compensation of employees (current $, percent difference)	-4.1	-6.0	-7.5	-8.8	-10.0	-10.9	-11.7	-12.3	-12.8	-13.2	-13.4
Primary household income (current $, percent difference)	-3.6	-5.5	-7.0	-8.4	-9.6	-10.6	-11.5	-12.1	-12.7	-13.1	-13.3
Household disposable income (current $, percent difference)	-3.5	-5.1	-6.5	-7.8	-8.9	-9.8	-10.6	-11.2	-11.6	-12.0	-12.2
Household savings rate (level difference in rate, percentage points)	-1.0	-0.6	-0.3	-0.1	0.2	0.4	0.7	0.9	1.1	1.3	1.5
Retail sales (current $, percent difference)	-3.8	-6.1	-7.7	-9.1	-10.4	-11.6	-12.6	-13.4	-14.1	-14.7	-15.1
Housing starts	-1,754	-3,357	-3,675	-3,691	-3,623	-3,457	-3,241	-3,009	-2,773	-2,533	-2,291
Gross operating surplus (millions of current $)	-30,708	-34,074	-39,001	-43,329	-46,537	-49,076	-51,255	-53,071	-54,595	-55,897	-57,013
Gross operating surplus (millions of current $, percent difference)	-18.2	-19.4	-21.4	-23.1	-24.3	-25.1	-25.7	-26.0	-26.2	-26.3	-26.3
Net operating surplus (millions of current $)	-26,627	-25,424	-27,851	-30,258	-31,736	-32,803	-33,807	-34,714	-35,551	-36,335	-37,064
Net operating surplus (millions of current $, percent difference)	-29.0	-26.4	-27.7	-29.1	-30.2	-30.7	-31.1	-31.5	-31.8	-31.9	-32.1
Transfers from corporations to general government (millions of current $)	-2,168	-4,083	-5,656	-7,251	-8,847	-10,384	-11,862	-13,280	-14,641	-15,950	-17,214
Transfers from households to general governments (millions of current $)	-648	-1,038	-1,403	-1,778	-2,151	-2,506	-2,846	-3,171	-3,481	-3,778	-4,063

Alberta Key Indicators (60% Methane)

Shock minus control

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
GDP at market prices (millions of 2012 $)	-22,702	-24,084	-24,908	-25,739	-26,362	-26,637	-26,697	-26,578	-26,329	-25,983	-25,570
GDP at market prices (2012 $, percent difference)	-5.4	-5.6	-5.7	-5.8	-5.8	-5.8	-5.7	-5.6	-5.4	-5.2	-5.1
GDP at basic prices, mining and oil and gas extraction (millions of 2012 $)	-18,060	-18,120	-18,191	-18,247	-18,266	-18,239	-18,181	-18,095	-17,988	-17,867	-17,737
GDP at basic prices, mining and oil and gas extraction (2012 $, percent difference)	-16.6	-16.6	-16.5	-16.4	-16.3	-16.1	-15.9	-15.7	-15.5	-15.3	-15.2
Total population	-1,383	-8,303	-16,942	-25,679	-34,468	-43,158	-51,546	-59,500	-66,925	-73,758	-79,967
Population of labour force age	-1,142	-6,868	-14,028	-21,271	-28,556	-35,760	-42,721	-49,325	-55,487	-61,165	-66,326
Participation rate (level difference in rate, percentage points)	-1.2	-1.3	-1.2	-1.2	-1.1	-1.0	-0.9	-0.8	-0.6	-0.5	-0.4
Labour force	-55,698	-63,192	-66,228	-69,448	-71,768	-72,370	-71,979	-70,738	-68,919	-66,661	-64,118
Employment	-73,785	-83,101	-86,459	-90,024	-92,368	-92,415	-91,137	-88,726	-85,553	-81,806	-77,690
Employment (percent difference)	-2.6	-2.9	-2.9	-3.0	-3.1	-3.0	-2.9	-2.8	-2.7	-2.5	-2.3
Unemployed	18,087	19,909	20,231	20,576	20,600	20,044	19,157	17,988	16,634	15,145	13,572
Unemployed (per cent difference)	10.1	10.9	10.8	10.7	10.5	9.9	9.2	8.4	7.6	6.8	5.9
Unemployment rate (level difference in rate, percentage points)	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.5
Total compensation of employees (millions of current $)	-8,709	-13,273	-17,338	-21,414	-25,360	-29,004	-32,398	-35,531	-38,429	-41,114	-43,605
Total compensation of employees (current $, percent difference)	-3.3	-4.8	-6.1	-7.2	-8.2	-8.9	-9.6	-10.1	-10.5	-10.7	-10.9
Primary household income (current $, percent difference)	-2.9	-4.4	-5.7	-6.8	-7.8	-8.7	-9.3	-9.9	-10.3	-10.6	-10.8
Household disposable income (current $, percent difference)	-2.8	-4.1	-5.2	-6.3	-7.2	-8.0	-8.6	-9.1	-9.5	-9.8	-9.9
Household savings rate (level difference in rate, percentage points)	-0.8	-0.4	-0.2	-0.1	0.2	0.4	0.6	0.7	0.9	1.1	1.2
Retail sales (current $, percent difference)	-3.1	-5.0	-6.3	-7.4	-8.6	-9.5	-10.4	-11.1	-11.6	-12.0	-12.4
Housing starts	-1,422	-2,758	-3,050	-3,087	-3,047	-2,920	-2,748	-2,560	-2,367	-2,170	-1,970
Gross operating surplus (millions of current $)	-24,407	-27,223	-31,317	-34,947	-37,621	-39,710	-41,489	-42,956	-44,171	-45,191	-46,046
Gross operating surplus (millions of current $, percent difference)	-14.4	-15.5	-17.2	-18.6	-19.7	-20.3	-20.8	-21.1	-21.2	-21.2	-21.2
Net operating surplus (millions of current $)	-21,092	-20,128	-22,085	-24,045	-25,215	-26,023	-26,775	-27,439	-28,035	-28,577	-29,061
Net operating surplus (millions of current $, percent difference)	-22.9	-20.9	-22.0	-23.1	-24.0	-24.4	-24.6	-24.9	-25.1	-25.1	-25.2
Transfers from corporations to general government (millions of current $)	-1,737	-3,288	-4,570	-5,872	-7,174	-8,425	-9,626	-10,773	-11,868	-12,915	-13,919
Transfers from households to general governments (millions of current $)	-519	-836	-1,133	-1,439	-1,743	-2,032	-2,308	-2,570	-2,819	-3,056	-3,282

Alberta Key Indicators (75% Methane)

Shock minus control

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
GDP at market prices (millions of 2012 $)	-16,272	-17,463	-18,217	-18,952	-19,510	-19,790	-19,896	-19,857	-19,712	-19,489	-19,209
GDP at market prices (2012 $, percent difference)	-3.8	-4.1	-4.2	-4.2	-4.3	-4.3	-4.2	-4.1	-4.0	-3.9	-3.8
GDP at basic prices, mining and oil and gas extraction (millions of 2012 $)	-12,741	-12,810	-12,883	-12,943	-12,972	-12,965	-12,933	-12,879	-12,807	-12,724	-12,633
GDP at basic prices, mining and oil and gas extraction (2012 $, percent difference)	-11.7	-11.7	-11.7	-11.6	-11.5	-11.4	-11.3	-11.2	-11.1	-10.9	-10.8
Total population	-1,008	-6,083	-12,518	-19,126	-25,847	-32,551	-39,071	-45,297	-51,150	-56,576	-61,545
Population of labour force age	-832	-5,032	-10,365	-15,842	-21,413	-26,971	-32,382	-37,551	-42,408	-46,917	-51,046
Participation rate (level difference in rate, percentage points)	-0.9	-1.0	-0.9	-0.9	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3
Labour force	-40,756	-47,109	-50,092	-53,083	-55,285	-56,115	-56,136	-55,468	-54,326	-52,824	-51,081
Employment	-54,048	-62,027	-65,485	-68,918	-71,278	-71,797	-71,230	-69,744	-67,626	-65,036	-62,132
Employment (percent difference)	-1.9	-2.1	-2.2	-2.3	-2.4	-2.3	-2.3	-2.2	-2.1	-2.0	-1.9
Unemployed	13,292	14,918	15,393	15,836	15,994	15,682	15,095	14,276	13,301	12,212	11,051
Unemployed (per cent difference)	7.5	8.2	8.3	8.3	8.1	7.8	7.3	6.7	6.1	5.5	4.8
Unemployment rate (level difference in rate, percentage points)	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4
Total compensation of employees (millions of current $)	-6,349	-9,768	-12,827	-15,891	-18,845	-21,559	-24,067	-26,360	-28,457	-30,374	-32,124
Total compensation of employees (current $, percent difference)	-2.4	-3.6	-4.5	-5.3	-6.1	-6.6	-7.1	-7.5	-7.7	-7.9	-8.1
Primary household income (current $, percent difference)	-2.1	-3.2	-4.2	-5.0	-5.8	-6.4	-6.9	-7.3	-7.6	-7.8	-7.9
Household disposable income (current $, percent difference)	-2.0	-3.0	-3.9	-4.7	-5.3	-5.9	-6.4	-6.7	-7.0	-7.2	-7.3
Household savings rate (level difference in rate, percentage points)	-0.5	-0.3	-0.1	0.0	0.1	0.3	0.4	0.6	0.7	0.8	0.9
Retail sales (current $, percent difference)	-2.3	-3.7	-4.7	-5.6	-6.4	-7.2	-7.8	-8.3	-8.7	-9.0	-9.2
Housing starts	-1,049	-2,070	-2,325	-2,381	-2,370	-2,286	-2,162	-2,022	-1,877	-1,728	-1,576
Gross operating surplus (millions of current $)	-17,392	-19,562	-22,666	-25,445	-27,478	-29,039	-30,349	-31,408	-32,263	-32,959	-33,518
Gross operating surplus (millions of current $, percent difference)	-10.3	-11.1	-12.4	-13.6	-14.4	-14.9	-15.2	-15.4	-15.5	-15.5	-15.4
Net operating surplus (millions of current $)	-14,916	-14,184	-15,562	-16,965	-17,761	-18,269	-18,729	-19,115	-19,441	-19,718	-19,941
Net operating surplus (millions of current $, percent difference)	-16.2	-14.7	-15.5	-16.3	-16.9	-17.1	-17.2	-17.4	-17.4	-17.3	-17.3
Transfers from corporations to general government (millions of current $)	-1,261	-2,402	-3,353	-4,319	-5,283	-6,205	-7,084	-7,918	-8,707	-9,454	-10,161
Transfers from households to general governments (millions of current $)	-377	-611	-832	-1,058	-1,283	-1,495	-1,696	-1,886	-2,065	-2,233	-2,392

Where insights meet impact

The Conference Board of Canada

conferenceboard.ca