June 15, 2023

Update on the energy sector and agriculture: federal revenue forgone from tax provisions

OFFICE OF THE PARLIAMENTARY BUDGET OFFICER
BUREAU DU DIRECTEUR PARLEMENTAIRE DU BUDGET

The Parliamentary Budget Officer (PBO) supports Parliament by providing economic and financial analysis for the purposes of raising the quality of parliamentary debate and promoting greater budget transparency and accountability.

This report is a supplement to the PBO's report entitled "Energy sector and agriculture: federal revenue forgone from tax provisions." It examines the cost of tax provisions specific to fossil fuel development and the lost revenue from exemptions to the carbon levy for agriculture.

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Highlights

Oil, gas and coal mining corporations have reduced exploration and development activities– new annual expenses averaged $19 billion from 2015 to 2021 compared to $32 billion from 2005 to 2014. Beginning in 2020, new annual resource-related expenses declined significantly, dropping to $9.8 billion in 2020 and $13.3 billion in 2021.

Our prior report indicated that resource specific expense claims by oil, gas and coal mining corporations reduced their annual federal tax revenue by $1.9 billion, on average, from 2015 to 2019. Total resource-related deductions for 2020 and 2021 were $1.9 billion and $1.8 billion, respectively.

Carbon levy exemption for agriculture is estimated to be worth $595 million in 2023 as the levy reaches $65 per ton of CO2 equivalent. This will rise dramatically as the levy increases to $170 per tonne. In the absence of substitution effects, the exemption is estimated to rise to $1.6 billion by 2030. Compared to our previous report, the estimated value of the carbon levy exemption for agriculture is marginally higher by 2030.

Since 2015, Export Development Canada invested more than $75 billion in business facilitated in the oil and gas sector. Of this investment, $15.4 billion was in international business facilitated for the oil and gas sector.

Lending to Canadian oil and gas producers represents approximately 1% of Business Development Bank of Canada's (BDC) total portfolio. This translates to approximately $2.4 billion in lending from 2015 to 2022. BDC’s support in the international unabated fossil fuel energy sector is effectively zero.

Summary

On December 7, 2021, the PBO published a report entitled "Energy sector and agriculture: federal revenue forgone from tax provisions" to identify the cost of tax provisions specific to fossil fuel development and the lost revenue from exemptions to the carbon levy for agriculture.[1] On January 18, 2022, the PBO published additional analyses examining Export Development Canada's "business facilitated" for the oil and gas sector and the economic contribution of the oil and gas sector in Canada.[2] As a supplement to the aforementioned reports, this document provides an update using the most recent data (up to 2021) and addresses new questions posed by Senator Rosa Galvez and Member of Parliament Mike Morrice.

Table S-1 provides an estimate of the federal fiscal impact of the tax provisions covered in our 2021 report[3] from 2015 to 2021 for corporations engaged in the oil, gas and coal mining sector. This cost has declined from its 2019 level but remains comparable with previous years. Consistent with our previous findings, Canadian development expenses have the largest annual revenue impact.

Table S-1

Federal fiscal impact of select income tax provisions for corporations engaged in the oil, gas, and coal mining sector ($ millions)

Year	2015	2016	2017	2018	2019	2020	2021
Total resource-related deductions	1,865	1,494	1,791	1,812	2,450	1,941	1,834

Sources:
Office of the Parliamentary Budget Officer; Statistics Canada T2-LEAP database.

It is estimated the foregone revenue from the carbon levy exemption[4] to agriculture will reach $595 million as of 2023 and $1,562 million as of 2030 (Table S-2).

Table S-2
Estimated foregone revenue from the carbon levy exemption to agriculture ($ millions)

Year	2021	2023	2030
Carbon levy exemption for the agriculture sector	366	595	1,562

Source:
Office of the Parliamentary Budget Officer.

Notes:
Excludes farms whose gross revenue was less than $10,000 in 2021. Projected emissions increase in line with Environment and Climate Change Canada. For calculating averages, the number of farms remain unchanged at 2021 levels.[5] The estimate in Table S-2 does not account for the behavioural response by farmers from the increasing carbon levy.[6]

Our projection is slightly higher than our prior publication. This is mainly due to historical data adjustments and a higher projection of the use of fuels used by agricultural machinery. The magnitude of the potential response by farmers is underscored by estimates that in the rest of the economy, a carbon levy of $170 per tonne is expected to achieve the bulk of the reduction to 31 per cent below 2005 levels by 2030.[7]

At COP26, Canada signed the Statement on International Public Support for the Clean Energy Transition committing countries to not introduce new support for the international unabated fossil fuel energy sector by the end of 2022.[8] On December 8, 2022, the Government of Canada released policy guidelines on its implementation of this commitment. With the announcement of ending new direct public support for the international unabated fossil fuel energy sector, government agencies are anticipated to move away from investment in oil and gas.

Recent data suggests that Canada's commitment already had an impact as EDC's support for the oil and gas sector declined in 2021 and 2022 compared to 2018 and 2019. Table S-3 indicates the level of support that EDC provided to the international oil and gas sector.

Table S-3

Export Development Canada: International business facilitated in the oil and gas sector ($ millions)

Year	2015	2016	2017	2018	2019	2020	2021	2022
Export Development Canada (EDC)	2,210	4,110	3,010	2,680	2,020	350	270	740

Sources:
Office of the Parliamentary Budget Officer; Export Development Canada.

BDC's support in the international unabated fossil fuel energy sector is effectively zero.

Background

1.1. Review of the Oil and Gas sector

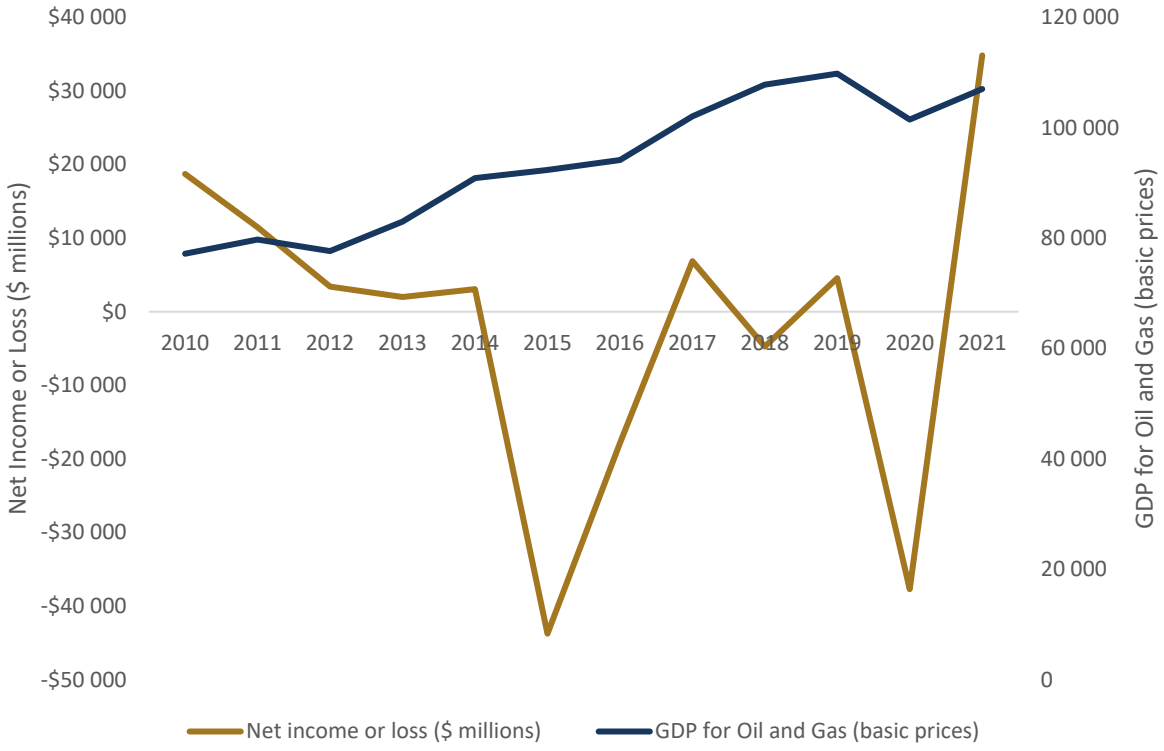
Since 2014, corporations in the oil and gas sector have experienced declining profits. This was due to a sharp decline in global oil prices in late 2014, ongoing excess global supply, transportation bottlenecks and weaker energy demand during the global pandemic.

The oil and gas sector experienced a particularly difficult period in 2020 due to the price war between Saudi Arabia and Russia coupled with the COVID-19 pandemic reducing the demand for oil.[9] Prices declined from January to April of 2020, however by February 2021 both West Texas Intermediate (WTI) and Western Canada Select (WCS) had fully recovered. Prices continued to surge in 2021 as global economies reopened.[10]

In the first few months of 2022, the sector was impacted by economic uncertainty, geopolitical concerns, supply constraints and inflationary pressures.[11] The uncertainty caused by the Russian invasion of Ukraine in early 2022 further increased global demand for Canadian energy.

Figure 1-1

Net Income (or loss) by oil and gas extraction and support services (left axis) and Gross Domestic Product for the oil and gas sector at basic prices (right axis) between 2010 to 2021



Textual description:
This table demonstrates GDP for oil and gas (at basic prices) which has been increasing from 2010 to 2021. Conversely, it shows net income (or loss) for oil and gas extraction and support services which has been extremely volatile over the same period.

Sources:
Office of the Parliamentary Budget Officer; Statistics Canada Table 33-10-0500-01.

Note:
GDP at basic prices of the oil and gas extraction industry and support activities as defined by NAICS codes 211 and 21311.

Investment in Oil and Gas

The PBO examined EDC's investment or "business facilitated" for the oil and gas sector disaggregated by each type of transaction.

Table 1-1

Export Development Canada: Business facilitated in the oil and gas sector by transaction type ($ millions)

Year	Financing	Guarantees	Insurance	Total
2015	3,815	1,021	3,561	**8,397**
2016	6,933	827	4,192	**11,952**
2017	5,595	869	3,960	**10,425**
2018	6,078	1,374	4,998	**12,450**
2019	4,684	1,098	4,812	**10,594**
2020	2,051	2,140	3,907	**8,098**
2021	1,120	860	2,410	**4,400**
2022	1,350	910	6,470	**8,730**

Sources:
Office of the Parliamentary Budget Officer; Export Development Canada.

Notes:
Prior to 2021, EDC categorized its data by "Supply Chain Sector Codes". As such, the 2015-2020 and 2021 forward data sets are not homogeneous. In July 2021, Export Development Canada (EDC) committed to achieve net-zero emissions by 2050 across their business lines and in their own global operations.

At COP26, Canada signed the Statement on International Public Support for the Clean Energy Transition ending new support for the international unabated fossil fuel energy sector by the end of 2022.[12]

On December 8, 2022, the Government of Canada further announced their implementation of this commitment through guidelines. Of these guidelines, this included "end new, direct public financing for international unabated fossil fuel investments and projects via Government of Canada departments, agencies and Crown corporations, and federal support programs."[13]

EDC announced it commitment to no longer provide new direct financing to international fossil fuel companies and international projects as of

January 1, 2023, in line with Canada's commitment at COP26.[14] Table 1-2 demonstrates the decline in international support in the unabated fossil fuel energy.

Table 1-2
Export Development Canada: International business facilitated in the oil and gas sector ($ millions)

Year	2015	2016	2017	2018	2019	2020	2021	2022
Total	2,210	4,110	3,010	2,680	2,020	350	270	740

Sources:
Office of the Parliamentary Budget Officer; Export Development Canada.

Notes:
The portion of international business facilitated for the oil and gas sector by EDC between the years of 2015 to 2022. This is related to the support for the international unabated fossil fuel energy sector.[15]

The PBO also examined Business Development Bank of Canada's (BDC) investment in the oil and gas sector. BDC is a complementary lender that focuses on SMEs and provides financing to entrepreneurs on commercial terms. Therefore, their portfolio does not generate a fiscal cost to the government as BDC is self-sustaining.

BDC's lending to Canadian oil and gas ("O&G") producers represents approximately 1% of their portfolio. This translates to an estimated $2.4 billion in lending from 2015 to 2022.[16] These transactions are completed primarily through participation in syndicated transactions with Canadian banks.

With respect to the international unabated fossil fuel energy sector, BDC's investment is effectively zero. BDC supports Canadian oil and gas producers with Canadian assets and does not finance foreign oil and gas producers.

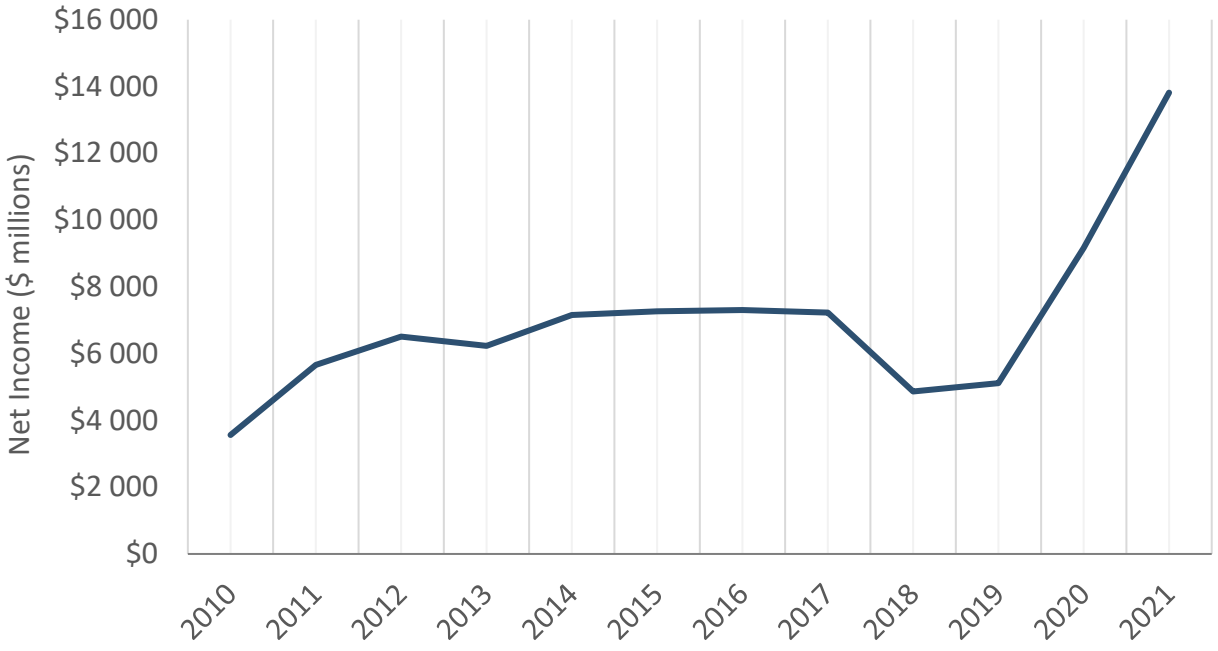
1.2. Review of the Agriculture Sector

Between 2014 and 2017, total net farm income[17] was stable, with a slightly positive rise year over year, on average. In 2018, there was a large decline in profits due to sharply higher total operating expenses.

However, in 2020 and 2021, net farm income saw a strong growth in receipts that more than offset higher expenses. The average value of the Farm Product Price Index grew 20.3 per cent in 2021 compared to 2020, the largest growth in nearly 50 years.[18]

In 2021, primary agriculture[19] contributed $31.9 billion, or 1.6 per cent, to Canada's GDP. The Covid-19 pandemic presented new challenges to the agriculture industry; however, increased global demand, lower oil and fertilizer prices and higher prices contributed to higher profit margins.

Figure 1-2
Net Farm Income 2010 to 2021



Textual description:

Year	Net Farm Income ($ millions)
2010	3,563
2011	5,662
2012	6,509
2013	6,231
2014	7,156
2015	7,265
2016	7,306
2017	7,231
2018	4,866
2019	5,115
2020	9,163
2021	13,816

Sources:
Office of the Parliamentary Budget Officer; Statistics Canada Table 32-10-0052-0.

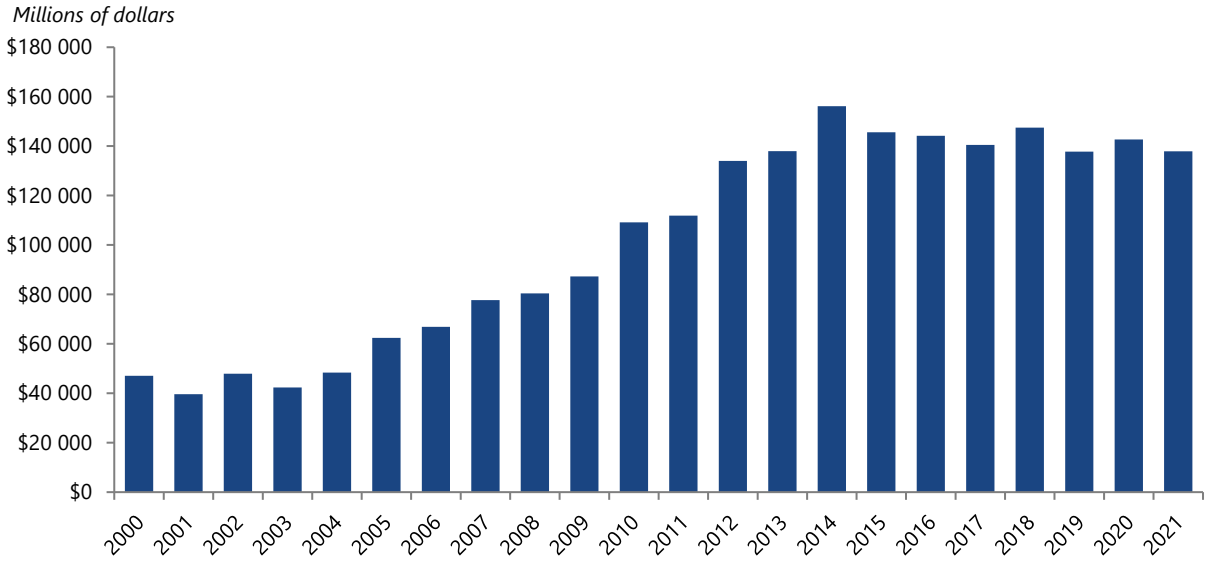
1. Federal Tax Provisions

1.1 Income Tax Provisions

Between 2015 and 2021, the total cumulative resource-related expense pools remained at historically elevated levels (Figure 1-3). Due to declining profits (as shown in Figure 1-1), corporations had historically fewer opportunities to use expense pools to reduce their taxable income.

Figure 1-3

Cumulative resource-related expense accounts by oil, gas and coal mining corporations



Textual description:

This bar chart shows the cumulative resource-related expense accounts by oil, gas and coal mining corporations between 2000 and 2021. These values correspond to the total CEE, CDE and COGPE expense pools at the end of the year. This chart demonstrates that over the past two decades the cumulative expense accounts have increased. In 2000, cumulative expenses were $47 billion and have risen to $138 billion in 2021.

Sources:

Office of the Parliamentary Budget Officer; Statistics Canada T2-LEAP database.

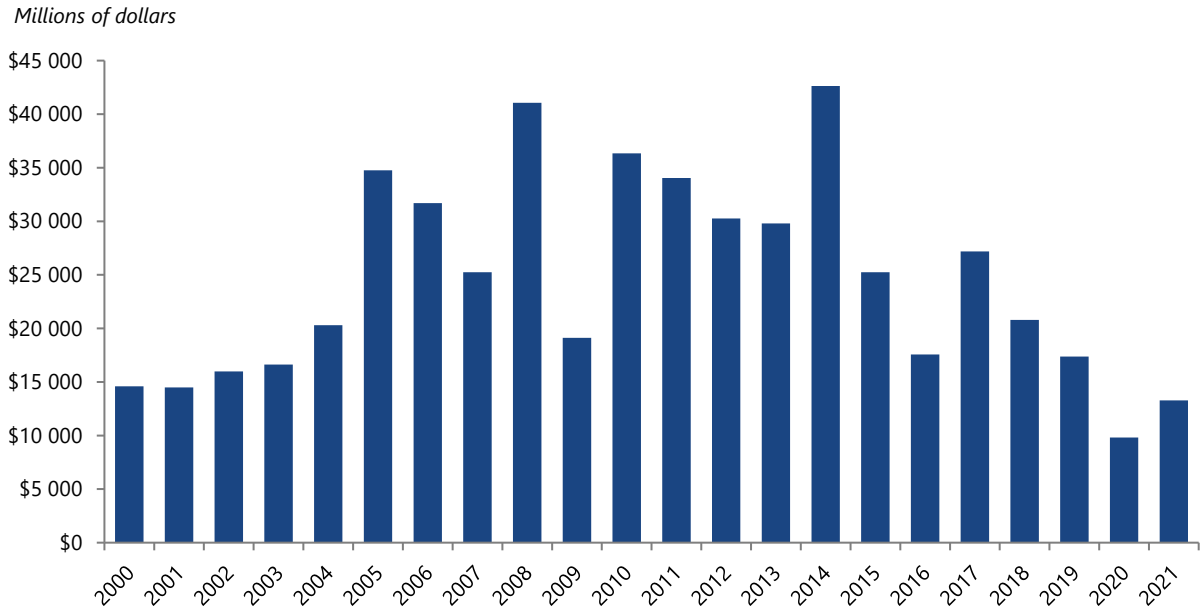
Note:

Values correspond to total CEE, CDE and COGPE expense pools at year end.

Oil, gas and coal mining corporations have reduced exploration and development activities– new annual expenses averaged $19 billion from 2015 to 2021 compared to $32 billion from 2005 to 2014 (Figure 1-4). Beginning in 2020, new annual resource-related expenses declined significantly during the pandemic, dropping to $9.8 billion in 2020 and $13.3 billion in 2021.

Figure 1-4

Annual resource-related expenses by oil, gas and coal mining corporations



Textual description:
This bar chart shows the annual resource-related expenses by oil, gas and coal mining corporations between 2000 and 2021. This chart demonstrates that over the past two decades there has been a lot of volatility in the annual expenses for oil and gas companies. In 2000, expenses were $15 billion, they reached a peak in 2014 where expenses reached $43 billion but dropped to $13 billion in 2021.

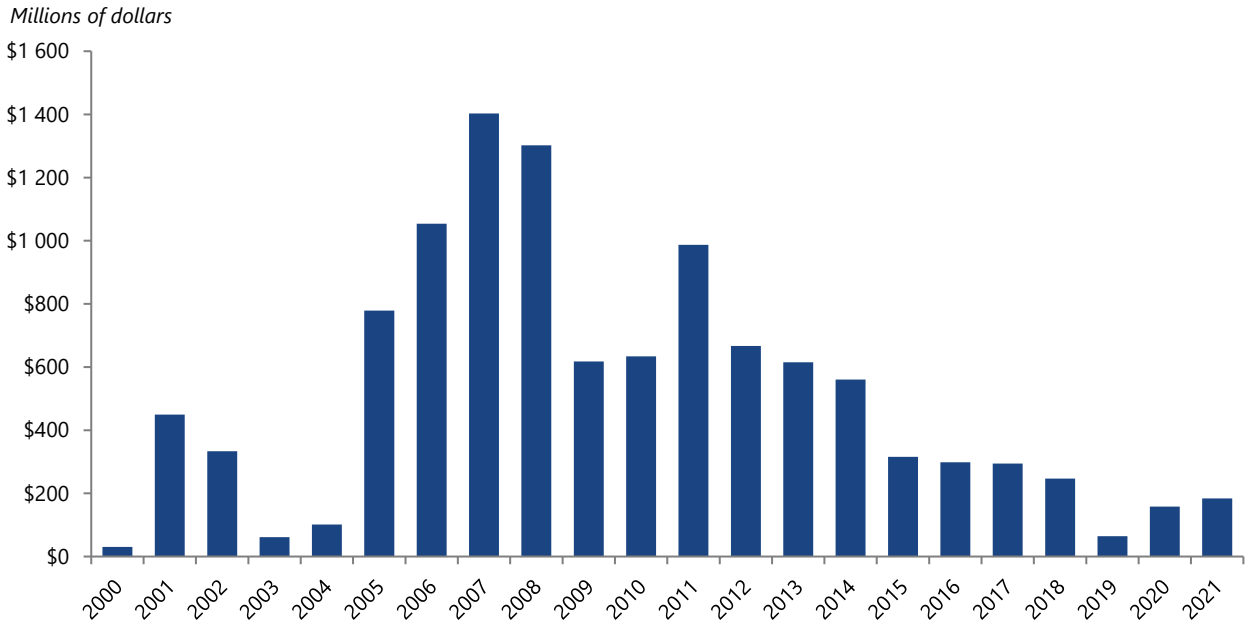
Sources:
Office of the Parliamentary Budget Officer; Statistics Canada T2-LEAP database.

The value of exploration and development expenses renounced to investors via flow-through share agreements have declined significantly over the past 15 years (Figure 1-5). This is partly due to lower investment levels in the

sector (Figure 1-4) as well as policy actions that restrict access to the flow-through share mechanism for fossil fuel-related activities.

Figure 1-5

Renounced expenses via flow-through share agreements, oil, gas and coal mining corporations



Textual description:

This bar chart shows the renounced expenses via flow-through share agreements, oil, gas and coal mining corporations between 2000 and 2021.

This chart demonstrates that over the past two decades there has been a lot of volatility in renounced expenses via flow-through share agreements for oil and gas companies. In 2006, expenses were $1 billion and have slowly declined. In 2021, renounced expenses were $184 million.

Sources:

Office of the Parliamentary Budget Officer; Statistics Canada T2-LEAP database.

1.2 Exempting agricultural activities from the carbon levy

Greenhouse gas emissions from agricultural activities in Canada amounted to 10.2 per cent (68.6 Mt CO2 eq) of all emissions in 2021. Emissions have

continued its slow upward trend since 1990, rising from 49 Mt to 69 Mt by 2021. Agricultural activities produce GHG emissions largely from biological processes inherent in animal and crop production (Table 1-3), in contrast with most other sectors in which emissions are largely energy related. Biological emissions are exempt from carbon pricing.[20]

Table 1-3
Total GHG emissions in the agricultural sector broken down by activity (Million tonnes [Mt])

Year	2017	2018	2019	2020	2021
Animal Production	34.8	35	34.9	34.8	34.9
Crop Production	17.3	18.5	18.7	20.7	19.4
On-Farm Fuel Use	14.4	15	15.3	14.3	14.3

Sources:
Office of the Parliamentary Budget Officer; National Inventory Report 2021.

The federal exemption for agriculture shields a small but significant source of emissions. Since provinces also do not price emissions from agriculture, and direct non-fuel emissions are not yet covered, almost 10 per cent of Canada's total emissions are largely exempt.

In our previous report, we attempted to identify the fuel consumed for operating machinery and equipment on farms in regions covered by the carbon levy. This report updates our analysis to include data up until 2021.

Table 1-4
Gross receipts and income by farms (2021)

Farm income ranges	Number of farms reporting	Share of total gross farm receipts	Net operating income
$10,000 to $24,999	21,940	0.4%	-4,784
$25,000 to $49,999	21,250	0.8%	-769
$50,000 to $99,999	22,885	1.7%	9,019
$100,000 to $249,999	27,920	4.6%	31,285
$250,000 to $499,999	19,100	7.1%	77,434
$500,000 to $999,999	17,305	12.6%	168,791
$1,000,000 to $1,999,999	11,935	17.1%	370,024
$2,000,000 and over	9,470	55.7%	1,159,180

Sources:
Parliamentary budget officer; Statistics Canada Table 32-10-0136-01.

Note:
Share of total gross farm receipts refers to the share of total operating revenues for each revenue class.

In 2021, the top 25 per cent of farms accounted for 85.5 per cent of farm revenue. Half of all farms were either losing money or barely profitable (column 4 of Table 1-4). Compared to 2019, farms with revenues under $50,000 had negative net operating income, on average, whereas farms above $50,000 generated profits. Therefore, the bottom 30 per cent of farms increased their losses, on average, whereas the top 25 per cent of farms saw a gain of 35 per cent in net operating income, on average, in 2021 compared to 2019.

Fuel-use in agriculture

GHG Emissions from fuel-use in agriculture largely come from motor gasoline and diesel fuel for machinery and equipment (Table 1-5). Compared to 2019, consumption declined in each fuel type except for

natural gas which saw a 3 per cent increase (1,109 GL in 2019, 1,143 GL in 2021).

Table 1-5
Fuel use in Agriculture (2021)

Fuel Type	Consumption (Millions of litres)	Emissions (Mt)
Natural Gas*	1,143	2.18
Kerosene and stove oil	7	0.02
Light fuel oil	47	0.12
Heavy fuel oil	0	0
Gas plant natural gas liquids (NGL's)	371	0.62
Motor gasoline	1,495	3.29
Diesel fuel oil	3,889	10.40

Sources:
Statistics Canada Table 25-10-0030-01; Supply and demand of primary and secondary energy was estimated by the OPBO.

Notes:
*All fuels are in the units of megalitres except for natural gas which is in gigalitres.
All farms, in all regions. Includes hunting and trapping. All fuels delivered to First Nations are exempt from the carbon levy.

To determine which parts of Canada's agricultural sector would be most impacted by ending the exemption, we compare the fuel expenditure per dollar of revenue generated for each sub-sector (Table 1-6). Crop production is more fossil-fuel intensive than animal production, with some crops having 5 per cent of revenue go to paying for fuel.

Table 1-6
Fuel expense relative to revenue (%), 2021

Farm Type	Percent
Total Crop Production	**3.5%**
Greenhouse, nursery, and floriculture production	1.7%
Fruit and tree nut farming	2.3%
Other vegetable (except potato) and melon farming	2.4%
Potato farming	3.0%
Oilseed and grain farming	3.8%
Other crop farming	4.7%
Total Animal Production	**2.1%**
Poultry and egg production	0.9%
Hog and pig farming	1.2%
Dairy cattle and milk production	2.5%
Beef cattle ranching and farming, including feedlots	2.5%
Other animal production	3.5%
All Farm Type	**2.9%**

Sources:
Office of the Parliamentary Budget Officer; Statistics Canada Table 32-10-0136-01.

The Carbon Levy

The federal carbon backstop reached $65 per ton of CO2 equivalent in 2023 and will continue to increase by $15 annually until 2030 when it reaches $170 per ton. For perspective, applying the carbon price to all projected fossil fuels used in agriculture would hypothetically generate revenues of $0.9 billion in 2023, which would continue to rise significantly until 2030.

However, determining the financial impact of rising carbon prices requires taking into consideration the specific fossil fuel uses of various types of farming operations and the potential substitution to other forms of energy over time. More insight can be gained by looking at farm purchases of

diesel and gasoline to gauge which farms would contribute the bulk of levy revenues (Table 1-7). This accounts for some of the heterogeneity across farms and distinguishes small operations from the large industrial ones that increasingly dominate the sector.

Table 1-7
Average hypothetical expanded carbon levy per farm with a $65 carbon levy (2023)

Gross Receipts	Crops	Livestock
Under $10,000	**n.a.**	**n.a.**
$10,000 to $24,999	$464	$638
$25,000 to $49,999	$659	$918
$50,000 to $99,999	$954	$1,394
$100,000 to $249,999	$1,802	$2,263
$250,000 to $499,999	$3,587	$3,228
$500,000 to $999,999	$6,404	$4,129
$1,000,000 to $1,999,999	$10,767	$6,109
$2,000,000 and over	$25,589	$18,558
Average	***$4,393***	***$3,222***

Source:
Office of the Parliamentary Budget Officer.

Notes:
These results use gasoline and diesel purchases by farms in Ontario, Manitoba, Alberta, and Saskatchewan. The chart is hypothetical since levies on those fuels are neither the current policy, nor proposed policy. For each category of gross receipts, the composition of heating and motor fuels is conjectured to be similar – potentially biasing this approximation to the extent the composition varies systematically across farm size. Since little change in on-farm fuel use is projected for 2023, only the magnitude of the levy changes in the projection. Lack of data precluded an estimate for the smallest farm operators.

This calculation is useful to show the value of the exemption for farm operations. It also underscores that the impact depends on the scale of the farm. In the next section we explore the foregone revenue to government from the levy exemption.

2. Revenue Impacts

We estimate the federal revenue impact of tax provisions relating to fossil fuel development and for exemptions from the federal carbon levy.

2.1 Income Tax Provisions

PBO estimates the fiscal cost of income tax provisions relating to fossil fuel development using administrative (T2) corporate income tax data.[21] We use T2 corporate tax data up to the 2021 tax year, the most recent available complete set of filings.[22]

We identify and aggregate resource-related expenditures by taxable oil, gas and coal mining corporations that were deducted from net income.[23] We add these expenditures back into taxable income and simulated our T2 corporate tax model to estimate the change in federal corporate tax revenue.

Table 2-1 provides an estimate of the fiscal cost of resource-related deductions by corporations in the oil, gas and coal mining sector from 2015 to 2021.

Table 2-1

Revenue impact of resource-related deductions from net income by corporations in the oil, gas and coal sector

Gross Receipts	2015	2016	2017	2018	2019	2020	2021
Canadian exploration expenses	177	139	345	111	96	25	218
Canadian development expenses	1,281	958	1,059	1,222	1,846	1,474	1,251
Canadian oil and gas property expenses	342	383	367	459	469	417	349
Foreign exploration and development expenses	65	13	21	20	38	25	16
Total	**1,865**	**1,494**	**1,791**	**1,812**	**2,450**	**1,941**	**1,834**

Sources:
Office of the Parliamentary Budget Officer; Statistics Canada T2-LEAP database.

Note:
Totals may not add due to rounding.

For flow-through shares, we identify corporations in the oil, gas and coal mining sector that renounced exploration and development expenses via flow-through share agreements.[24] Table 2-2 provides an estimate of the revenue impact of renounced exploration and development expenses via flow though share agreements by corporations in the oil, gas and coal mining sector from 2015 to 2021.

Table 2-2

Revenue impact of renounced exploration and development expenses via flow though share agreements by corporations in the oil, gas and coal sector

Gross Receipts	2015	2016	2017	2018	2019	2020	2021
Canadian exploration expenses	27	19	17	29	4	15	8
Canadian development expenses	14	21	15	10	8	9	6
Total	**40**	**40**	**32**	**38**	**11**	**24**	**15**

Sources:
Office of the Parliamentary Budget Officer; Statistics Canada T2-LEAP database.

Notes:
These estimates account for application of the mineral exploration tax credit on certain eligible coal mining expenditures.
Totals may not add due to rounding.

Potential changes to the tax treatment of resource-related expenses could result in the reclassification of such expenses[25] and interactions with provincial royalty regimes. These factors could cause the fiscal cost of policy changes to differ from the revenue impacts provided in this report.

Table 2-3 provides the revenue impact of the accelerated CCA treatment for certain property acquired for use in facilities in Canada that liquefy natural gas. The accelerated CCA treatment changed the annual depreciation schedule of LNG capital assets such that the revenue impact is front-loaded but eventually becomes zero over the medium-term.[26]

Table 2-3
Revenue impact of accelerated capital cost allowance for liquified natural gas equipment

Gross Receipts	2015	2016	2017	2018	2019	2020	2021
CCA classes 1 and 47	0.8	4.0	4.1	3.8	3.2	2.7	2.6

Sources:
Office of the Parliamentary Budget Officer; Statistics Canada T2-LEAP database.

Note:
This accelerated capital cost allowance for LNG capital assets expires for LNG capital property acquired after 2025.

2.2 Value of exempting agricultural activities from the federal carbon levy

Section 1.2 presented results regarding the distribution of the carbon levy exemption (for diesel fuel and gasoline). Those fuels represent 80 per cent of fuel-based emissions from regions where farms are exempted from the federal levy.

Foregone revenue to the federal government due to the exemption was estimated to be $366 million in 2021 and could rise to $1.6 billion in 2030 in the absence of substitution effects (Table 2-4). While the average per farm is significant, it is skewed due a relatively small number of larger farms for which the exemption represents higher amounts.

Table 2-4
Estimated value of carbon levy exemption for agriculture

Total Levy ($ millions)	2021	2023	2030
Total Carbon Levy	366	595	1,562

Average Levy ($ thousands)	2021	2023	2030
Average levy for all farms	2.4	3.9	10.3
Average levy for the subset of crop production	2.7	4.4	11.5
Average levy for the subset of animal production	2.0	3.2	8.5

Source:
Office of the Parliamentary Budget Officer.

Notes:
Excludes farms whose gross revenue was less than $10,000 in 2021. Emissions increase in line with ECCC projections. The number of farms remain unchanged at 2021 levels.

It is necessary to note that the calculation of the foregone revenue omits behavioural responses by farmers. Having no behavioural response implies that the estimate is an upper bound of foregone revenue. Additionally, the above estimate does not account for potential changes to removing the exemption due to international competition (e.g., Dobson, 2021).[27]

Notes

[1] Energy sector and agriculture: federal revenue forgone from tax provisions.

[2] Additional information - Energy sector and agriculture: federal revenue forgone from tax provisions.

[3] The tax provisions included are: Canadian exploration expenses, Canadian development expenses, Canadian oil and gas property expenses and Foreign exploration and development expenses.

[4] In December 2016, the government announced the Pan-Canadian Framework on Clean Growth and Climate Change (PCF). Under the PCF, the federal government implemented the carbon tax. The carbon levy exemption for agriculture came into effect in 2019 at $20 per tonne of carbon dioxide equivalent. As of 2023, it reached $65 and will continue to rise until it reaches $170 in 2030. See Agriculture and Climate Change Policy: Financial Impacts of Carbon Pricing on Canadian Farms, 2018.

[5] These results merit some further caution in their interpretation. Energy intensive industrial sectors in the rest of the economy that are exposed to international markets were put under the Output-Based Pricing System to avoid eroding their competitiveness. Future similar measures for agriculture would lower the foregone revenue.

[6] It is expected that as the carbon levy increases, emissions will decline. This can be seen in the total emissions declining from 2019 to 2021. As emissions decline, this results in a decline in the expected revenues received by the government. Therefore, foregone revenues could be lower.

[7] ECCC (2021) projects that the $170 carbon levy, when combined with other policies, will bring Canada's emissions to at least 31% below 2005

levels by 2030. See Departmental Results Report 2020 to 2021, Department of Environment.

[8] Statement on International Public Support for the Clean Energy Transition - UN Climate Change Conference (COP26) at the SEC – Glasgow 2021.

[9] Economic and Fiscal Outlook — March 2023;

Economic and Fiscal Outlook – October 2022;

Economic and Fiscal Monitor - February 2020;

The oil and gas sector in Canada: A year after the start of the pandemic.

[10] The limits imposed by the Organization of the Petroleum Exporting Countries Plus (OPEC+) also had an upward pressure on prices.

[11] On February 24, 2022, Russia invaded Ukraine causing uncertainty in the supply of oil and gas for European access. The Consumer Price Index rose 6.8% on an annual average basis in 2022, which was a record 40-year high.

[12] Statement on International Public Support for the Clean Energy Transition - UN Climate Change Conference (COP26) at the SEC – Glasgow 2021.

[13] Government of Canada Delivers on Key International Climate Commitment to End New Public Support for the International Unabated Fossil Fuel Energy Sector.

[14] EDC confirms support for Canada's Glasgow Statement implementation guidelines.

[15] Historical EDC data does not distinguish between abated and unabated, as the term is yet to be clearly defined. EDC provided data relating to support to international companies and international projects.

[16] BDC's Annual Report.

[17] Total net farm income is realized net income adjusted for changes in the farmer-owned inventories of crops and livestock. It represents the return to owner's equity, unpaid farm labour, management and risk.

[18] The Daily — Farm income, 2021.

[19] Primary agriculture is defined as work that is performed within the boundaries of a farm, nursery or greenhouse. It is made up of crop production, animal production and food and beverage. See Overview of Canada's agriculture and agri-food sector.

[20] On-farm fuel use may be subject to proposed carbon pricing policies. Only a part of that (14.3 Mt) was related to emissions from fossil fuel use, of which, about 11.2 are from operating machinery and equipment while the other 3.0 Mt are from heating buildings and drying crops. The other non-fuel emissions consist primarily of methane from livestock, and nitrous oxide from crops. See Agriculture and Climate Change Policy: Financial Impacts of Carbon Pricing on Canadian Farms, 2018.

[21] The data comprises the tax filings of all corporations that file a tax return in Canada. We access these data through a memorandum of understanding with Statistics Canada. More information regarding PBO's approach to corporate income tax modelling can be found on the PBO's website.

[22] We identify corporations engaged in oil, gas and coal mining activities using a 6-digit NAICS code derived by Statistics Canada from self-reported industry classification descriptions in the T2 filings.

[23] We adjust our estimate of resource-related expenses to account for the accounting definition of exploration and development expenses provided on Schedule 1 of the T2 form.

[24] Lines 243, 244, 343 and 344 on Schedule 12 of the T2 return.

[25] For example, our analysis does not assume a counterfactual where some resource-related expenses could be reclassified as operating or capital expenses.

[26] Canada Gazette – Regulations Amending the Income Tax Regulations (Accelerated Capital Cost Allowance for Facilities Used to Liquefy Natural Gas).

[27] The Output-based Pricing System was designed to provide incentives for energy-intensive trade exposed (EITE) firms to reduce emissions while minimizing the impact on their competitiveness (PBO, 2020, and references therein). Some accommodation could be made for agriculture to maintain competitiveness while still providing incentives to reduce emissions. This would have the effect of reducing the estimated foregone revenue.

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