



BAD CHEQUES

WHEN FOSSIL FUELS FUND
ACADEMIC RESEARCH

GREENPEACE

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*When fossil fuels fund
academic research*

A Greenpeace Canada Report

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EXECUTIVE SUMMARY

In Canada, at a time when climate change has been intensifying heat waves, fires, and floods, taking lives and destroying livelihoods,¹ the fossil fuel industry has been putting millions of dollars into academic research on oil and gas extraction and industry-selected technologies for offsetting emissions.² Given the devastating impact of fossil fuels on climate, having fossil fuel companies fund energy research is comparable to tobacco companies funding medical research.

Universities are valuable sites of innovation and invention, advancing research that serves the public good. However, in recent decades, far more of the funding for universities has been coming from industry.³ Most often, these monies do not go to the institutions at large, to be spent at their discretion, but are directed by the donors toward specific departments and projects (see Sponsored Research). When millions of dollars are earmarked for particular projects and funded by an industry as wealthy and well-connected as fossil fuels, it can significantly impact the direction and scope of research.

Industry money flows to institutions through various channels, including private donations and endowments, investments, and grants. The Natural Sciences & Engineering Research Council (NSERC) is a key source of research funding for students and faculty, and offers government-industry funding partnerships through many of its programs. It is difficult to track the total amount of industry monies flowing into academic research, but NSERC funding provides one way to quantify a portion of the oil and gas funding in universities, and compare it over time to funding for alternative energy.

¹ Government of Canada website. “Canada’s top 10 weather stories of 2022” Accessed at: <https://www.canada.ca/en/environment-climate-change/services/top-ten-weather-stories/2022.html>;

² Tallying NSERC grants alone the donations are multi-millions. See: Natural Sciences Engineering and Research Council of Canada. Interactive dashboard– Oil sands and heavy oil, 2010-2020. <https://www.nserc-crsng.gc.ca/db-tb/index-eng.asp?category=11&province=0>

³ Backgrounder No 3: Corporatization in Post-Secondary Education, Post Secondary Education Our Time to Act. Canadian Union of Public Employees (CUPE). Page 1. January 29, 2019. Accessed at: https://cupe.ca/sites/cupe/files/backgrounder_3_corporatization_eng.pdf

Summary of Key Findings

- The influence of the fossil fuel industry on academic research impedes Canada's ability to increase the knowledge and innovation essential to accelerating the energy transition and thwarting the worst impacts of climate change (Figure 4).
- The massive financial sway of the fossil fuel industry means it can impact the direction and scope of research and use academic research to delay climate action (see A Vested Financial Interest).
- Despite advertising implying the Pathways Alliance is a climate leader, the member companies are channeling their profits to shareholders instead of making investments in energy efficiency.⁴ The prioritization of increasing production over energy efficiency is also reflected in NSERC awards, where funding for production has outpaced funding for efficiency by between two and three times in the past ten years (Figure 3).
- In 2021, after covering production costs, oil companies in Canada made combined oil and gas rent of roughly 72.8 billion dollars⁵—which is more than the GDP of over half the world's countries.⁶
- For the last two decades, private donations, grants, and investments have made up over one-third of all sponsored research (Figure 2).
- In the last ten academic years, 30% of all NSERC awards were in categories that require collaboration with outside partners. Whereas in the area “oil, gas and coal” 75% of awards were in categories that require collaboration.⁷
- In the last decade, NSERC funding for alternative energy has lagged well behind funding for oil and gas projects. In 2021-22, alternative energy funding was less than half that for fossil fuels (\$5.9 million to \$12.5 million respectively). And, in 2022-23, alternative energy funding was still less than 3/4 of that for fossil fuels (Figure 4).

⁴ MacDougall, Scott. Waiting to Launch 2023 mid-year update. Pembina Institute website. September 14, 2023. Accessed at <https://www.pembina.org/pub/Waiting2023MidYear>

⁵ Oil rent: World bank data online—oil rents (% GDP) Canada. Accessed at: <https://data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS?end=2021&locations=CA&start=1970&view=chart>. Gas rent: World bank data online—gas rents (% GDP) Canada. Accessed at: <https://data.worldbank.org/indicator/NY.GDP.NGAS.RT.ZS?locations=CA>. Canada GDP: Statistics Canada. Table 36-10-0434-03 Historical (real-time) releases of gross domestic product (GDP) at basic prices, by industry, monthly.

⁶ World Population Review. GDP by country 2023. Accessed: <https://worldpopulationreview.com/countries/by-gdp>

⁷ NSERC Awards Database, application area: all and Application area: oil, gas and coal. Sorted by program. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/index_eng.asp.

- In the last decade, NSERC Industrial Research Chairs working on oil and gas related projects received \$31,595,650 (an amount that would be matched by industry), while funding for NSERC Industrial Research Chairs working on alternative energy in that same timeframe was a mere \$100,000.⁸
 - In the largest research program at the University of Alberta—Future Energy Systems—more research is being done on the unproven technology⁹ of carbon capture and storage than on solar, wind, or geothermal energy.
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⁸ NSERC Awards database. Oil and gas projects identified within research areas: “oil, gas and coal” and “energy resources (including production, exploration, processing, distribution and use).” Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/index_eng.asp?new

⁹ Widely reported, including: Carter, Angela and Cameron, Laura. “Why Carbon Capture and Storage Is Not a Net-Zero Solution for Canada’s Oil and Gas Sector” International Institute for Sustainable Development. Feb 9, 2023. Accessed at: <https://www.iisd.org/articles/deep-dive/carbon-capture-not-net-zero-solution>

① INTRODUCTION

In Canada, the fossil fuel industry is broadly and deeply embedded in key institutions and sectors of society through their lobbying activities, notably within public agencies and post-secondary educational institutions, but also through public relations firms, law firms and corporate boards of directors. Such prevalence would be alarming for any industry, but the influence of the fossil fuel industry is particularly fraught. For one, the products from this industry (oil and gas) are the biggest drivers of climate change, accounting for 75% of global greenhouse gas (GHG) emissions¹⁰. In addition, fossil fuel companies have massive financial and political clout¹¹, which gives the industry an uncommonly powerful position in society, and makes its omnipresence especially dangerous.

Academic research is one of the channels through which the fossil fuel industry has been able to gain legitimacy: quietly influencing the direction and promotion of research, funding key voices in industry-relevant fields, and benefitting from what effectively amount to government subsidies through federal and provincial grants for industry research despite the fact that it is not in the public interest to advance this industry.

This issue is not unique to Canada. In 2022, academics, scientists, researchers from the Intergovernmental Panel on Climate Change (IPCC), and many others signed an open letter calling on universities in the US and UK to ban fossil fuel funding in climate change, environmental, and energy policy research.¹² The letter stated, “We believe this funding represents an inherent conflict of interest, is antithetical to universities’ core academic and social values, and supports industry greenwashing.”

The fossil fuel industry funding key energy and climate research is letting the fox guard the henhouse. Oil and gas companies are not neutral. They have a vested financial interest in fossil energy, in maintaining the status quo, and in delaying and minimizing climate action. Academic research is meant to be independent and evidence-based. Ideally, it spurs innovation and invention toward positive socio-ecological change. But the fossil fuel industry is harnessing top researchers for their private interests at a time when we urgently need innovation and invention to address critical climate issues and facilitate a just transition away from fossil fuels.

¹⁰ “Causes and Effects of Climate Change.’ United Nations website–Climate Action. Accessed at <https://www.un.org/en/climatechange/science/causes-effects-climate-change>

¹¹ Carrington, Damian. The Guardian online. “Revealed: oil sector’s ‘staggering’ \$3bn-a-day profits for last 50 years” July 21, 2022. <https://www.theguardian.com/environment/2022/jul/21/revealed-oil-sectors-staggering-profits-last-50-years>

¹² Open Letter, Fossil Free Research. 2022. <https://www.fossilfreeresearch.org/letter>

② INDUSTRIAL INFLUENCE

A legacy of delaying climate action

The long, moneyed arm of the fossil fuel industry is not new. Back in 1989, Exxon, Phillips Petroleum Company, and other fossil fuel producers joined with automobile manufacturers to form the Global Climate Coalition (GCC) as an industry response to the 1988 formation of the United Nations' Intergovernmental Panel on Climate Change (IPCC)¹³, with a mission to “coordinate business participation in the international policy debate on the issue of global climate change and global warming.”¹⁴

By 1992 and the Summit in Rio, the GCC was in full force, working to ensure that they were the ones who would oversee fossil fuel reductions. They convinced governments they were the best ones to solve the climate crisis, saying that they had it handled.¹⁵ And, yet, while they have repeatedly claimed they are well placed to take care of climate mitigation,¹⁶ over the period from 1990 to 2021 Canada's oil and gas sector increased their greenhouse gas (GHG) emissions by a whopping 88%.¹⁷

Instead of taking action—reducing emissions, stopping new infrastructure, investing in and transitioning to alternative energy—the fossil fuel industry focussed solely on their short-term bottom line. While oil companies, their shareholders, and CEOs rake in dividends, the rest of society is paying with lives and livelihoods, ecosystems and economies, for the error of trusting industry to take care of the public good.

¹³ Brulle, Robert J. (2023) Advocating inaction: a historical analysis of the Global Climate Coalition, *Environmental Politics*, 32:2, 185-206, DOI: 10.1080/09644016.2022.2058815 Accessed at: <https://cssn.org/wp-content/uploads/2022/04/GCC-Paper.pdf> Page 1.

¹⁴ Global Climate Coalition website Home page, Originally archived March 2, 2001. Retrieved Oct 4, 2023. <https://web.archive.org/web/20010302000601/http://www.globalclimate.org/index.htm>

¹⁵ Westervelt, Amy and Heglar, Mary Annise. “Call the Cops” Hot Take podcast on Crooked Media. Nov. 18, 2022. Accessed at: <https://crooked.com/podcast/call-the-cops/>

¹⁶ Mohammad, Gesbeen. (2022) Big oil v. the world. episode two: doubt. Three-part series. (BBC Two).

¹⁷ Environmental Indicators—Greenhouse gas emissions. Government of Canada website. Accessed at: www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions.html

A vested financial interest

In large part, the fossil fuel industry's wealth enables its wide-ranging power. Oil rent is the term used to describe the amount of unearned profit oil companies make after covering their production costs. In 2021, oil companies in Canada made combined oil and gas rent of roughly 72.8 billion dollars—nearly 200 million dollars a day¹⁸, which is more than the GDP of over half half the world's countries (see Appendix 1 for the calculation).¹⁹ Oil and gas companies are making this incredible profit by plundering shared natural resources that have been proven to be the primary cause of climate change.²⁰

Funding academic research is one of the myriad ways the oil industry in Canada has been given reign over the pace and scale of climate action. Through financial contributions, oil and gas companies can gain influence over the priorities and scope of critical research areas, including energy, climate risk mitigation, and emission reductions. Yet, these companies have proven time and gain that climate action, transitioning away from fossil fuels, and environmental protection are not their priorities.

For example, the Pathways Alliance is an association of six oilsands companies (Cenovus, ConocoPhillips, Canadian Natural Resources, Suncor, Imperial Oil and MEG Energy) that together are responsible for two-thirds of Canada's oil production.²¹ Five of the six Pathways members have been research funding partners with the Natural Sciences and Engineering Research Council of Canada (NSERC) since 2013 (see Table 2), as well as funding universities and academic research through other channels, such as building endowments and department sponsorship.²² Pathways ran a sweeping publicity campaign from 2021 to mid 2023 claiming that together these companies are on a “path to net zero.” Not only are these claims under investigation by the Competition Bureau,²³ the Pembina Institute reported in their “Waiting to Launch 2023 mid-year update” that

¹⁸ Oil rent: World bank data online—oil rents (% GDP) Canada. Accessed at: <https://data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS?end=2021&locations=CA&start=1970&view=chart>. Gas rent: World bank data online—gas rents (% GDP) Canada. Accessed at: <https://data.worldbank.org/indicator/NY.GDP.NGAS.RT.ZS?locations=CA>. Canada GDP: Statistics Canada. Table 36-10-0434-03 Historical (real-time) releases of gross domestic product (GDP) at basic prices, by industry, monthly.

¹⁹ World Population Review website. GDP ranked by country 2023. Accessed at: <https://worldpopulationreview.com/countries/by-gdp>

²⁰ “Causes and Effects of Climate Change” United Nations website—Climate Action. Accessed at <https://www.un.org/en/climatechange/science/causes-effects-climate-change>

²¹ Calculated from: Statistics Canada. Table 25-10-0063-01 Supply and disposition of crude oil and equivalent. Accessed at: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2510006301>. The Stats Can. monthly crude production figures for 2021 (Jan-Dec) total 1,567,801,950 barrels. Therefore Canada's bpd figure is: 4,295,347.81 (from 1,567,801,950 / 365). Finally then, Pathways roughly 2,690,000 bpd = about 63% of Canada's bpd.

²² For example, the \$7 million that Canadian Natural Resources Ltd. donated for engineering facilities at University of Calgary. Accessed at: <https://ucalgary.ca/news/university-celebrates-single-largest-corporate-donation-its-history>; and Imperial Oil's sponsorship of the Institute for Oil Sands Innovation at the University of Alberta. Accessed at: <https://iosi-alberta.ca/>

²³ Nickel, Rod. “Canada's Competition Bureau investigates oil sands group over advertising” Reuters online. May 11, 2023. Accessed at: <https://www.reuters.com/world/americas/canadas-competition-bureau-investigates-oil-sands-group-over-advertising-2023-05-11/>

these companies made “no new investments in reducing emissions,” instead the companies returned 75% of all available cashflow to shareholders in the form of share repurchases and increased dividends.²⁴

In addition, these same five companies rank high on the October 2023 Financial Exclusions list.²⁵ The list documents companies which have been excluded from investment by financial institutions in any of 16 countries (including many countries in Europe, as well as the UK, Australia, New Zealand, and Japan).²⁶ Cenovus, Suncor and ExxonMobil (parent to Imperial) are, respectively, the number one, two, and four companies excluded for climate reasons. Canadian Natural Resources has also been excluded in the climate category, and ConocoPhillips is in the top five companies excluded for human rights issues.²⁷

Getting dividends to shareholders seems to be the main concern of the six largest oil sands companies at a time when extreme weather events are causing social and ecological devastation across Canada and around the world, devastation which, according to a recent study, has been costing an estimated \$16 million (USD) *an hour* for the last 20 years.²⁸

And the Pathways companies are not anomalies. In the three decades since 1992, there have been relentless opportunities for the fossil fuel industry as a whole, or oil and gas companies as individual entities, to make change and minimize the impacts of climate change.²⁹ Yet, instead of taking the lead, transitioning away from fossil fuels, perhaps becoming companies that provide dividends to shareholders through renewable energy projects, fossil fuel companies all over the world have denied climate change and delayed climate action.³⁰ Despite evidence of companies lying, suppressing scientific studies, and increasing carbon emissions while aware of the environmental repercussions, these companies continue to have access to key sites of communication, information, and decision making.

²⁴ MacDougall, Scott. Waiting to Launch 2023 mid-year update. Pembina Institute website. September 14, 2023. Accessed at <https://www.pembina.org/pub/Waiting2023MidYear>

²⁵ Financial Exclusions Tracker is an initiative by: BankTrack, Both ENDS, Fair Finance International, Health Funds for a Smokefree Netherlands, Milieudedefensie (Friends of the Earth Netherlands), PAX, Profundo Research Foundation, Rainforest Action Network, and the Environmental Paper Network.

²⁶ Financial exclusions tracker website. October 2023. Accessed at: <https://financialexclusionstracker.org/>

²⁷ Financial exclusions tracker website. Insights. October 2023. Accessed at: <https://financialexclusionstracker.org/>

²⁸ Carrington, Damian. “Climate crisis costing \$16m an hour in extreme weather damage, study estimates.” The Guardian. Oct 9, 2023. Accessed at: www.theguardian.com/environment/2023/oct/09/climate-crisis-cost-extreme-weather-damage-study

²⁹ See, for example: McMullen, Jane. (2022) Big oil v. the world. Three-part series. (BBC Two)

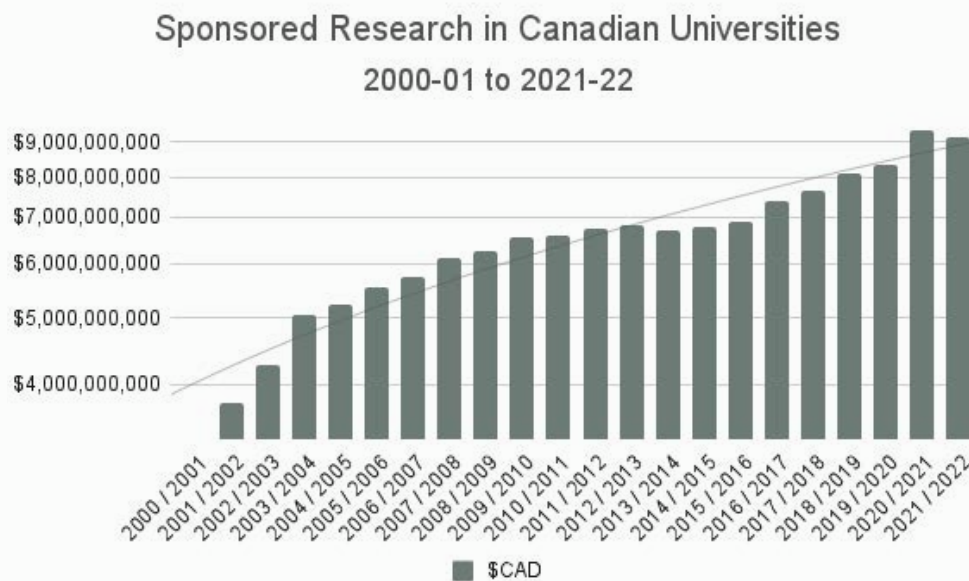
³⁰ Numerous fossil fuel companies have been found complicit in suppressing science and denying doing so, most well known among them is Exxon, see: McMullen, Jane. (2022) Big oil v. the world. Three-part series. (BBC Two); ExxonKnews, website. Accessed at: <https://www.exxonknews.org/> (for example see: <https://www.exxonknews.org/p/breaking-new-docs-reveal-exxon-policy>); and Brulle, Robert J. (2023) Advocating inaction: a historical analysis of the Global Climate Coalition, Environmental Politics, 32:2, 185-206, DOI: 10.1080/09644016.2022.2058815. Accessed at: <https://cssn.org/wp-content/uploads/2022/04/GCC-Paper.pdf>. It’s notable that Richard Kruger, current President and CEO of Suncor started working at Exxon in 1981, and served as President and CEO of Exxon subsidiary Imperial Oil from 2013 to 2019.

③ SPONSORED RESEARCH

In general terms, universities receive funds from three key sources: the government, fees (tuition, etc.), and donations (including grants, endowments, and investments). However, the relative percentages of each of these funding sources has changed dramatically since the mid-1990's. Between 1995 and 2015 the percent of Canadian university operating funds that came from tuition increased significantly, as did the percent of revenue from sources other than the government, which climbed from 2.7% of operating revenue in 1995 to 10% in 2015.³¹

The pace of change in funding makeup has slowed in the past two decades, but the portion of funding from sponsored research in Canada is still high, making up an average of 35% of university operating revenues between 2000/2001 and 2021/2022.³²

Figure 1



Source: Statistics Canada³³

³¹ Backgrounder No 3: Corporatization in Post-Secondary Education, Post Secondary Education Our Time to Act. Canadian Union of Public Employees (CUPE). Page 1. January 29, 2019. Accessed at: https://cupe.ca/sites/cupe/files/backgrounder_3_corporatization_eng.pdf

³² Statistics Canada. Table 37-10-0026-01 Revenue of universities by type of revenues and funds.

³³ Statistics Canada. Table 37-10-0026-01 Revenue of universities by type of revenues and funds (Types of funds: sponsored research).

One key issue with the greater reliance on donations is that most corporate sponsors do not give funds to a university in general. Instead, their funds are earmarked for particular departments and projects. Therefore, the industry-directed funds cannot be spent at the university's discretion, but are used to fund projects that serve the donor's interests. There are myriad reasons it is problematic for an industry to have influence over a public institution, and over public research in particular, including:

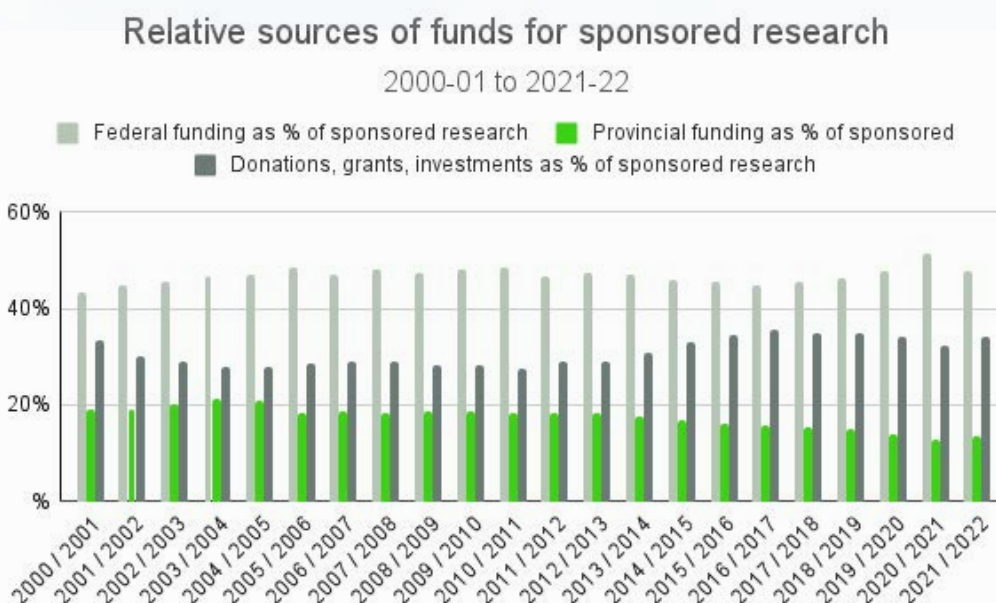
- Industry funding can directly influence the shape and focus of research at recipient institutions by focussing resources and researchers to a certain topic, and monopolizing resources and researchers for years at a time.
- The structure of NSERC industrial partnerships means that industry funding often requires matching monies from governments or the institutions. When government funding doesn't go directly to universities, but to research influenced by industry partners, the money is effectively an industry subsidy, directing public resources into topics of private interest.
- Industry funding for climate related research can discredit other climate research from that department or institution due to the proximity of corporate funding.³⁴ This is comparable to why research institutions, such as the Harvard School of Public Health and Cancer Research UK, turn away tobacco funding.³⁵

³⁴ Taylor, Matthew. "Dozens of academics shun Science Museum over fossil fuel ties" The Guardian. Nov 19, 2021. <https://www.theguardian.com/culture/2021/nov/19/dozens-of-academics-shun-science-museum-over-fossil-fuel-ties>

³⁵ Charatan F. Harvard School of Public Health refuses tobacco funds. BMJ. 2002 Feb 23;324(7335):444. doi: 10.1136/bmj.324.7335.444/d. PMID: 11865849; PMCID: PMC1172051. Accessed at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1172051/>; and Cancer Research UK website– Funding for Researchers–Cancer Research UK Code of Practice on Tobacco Industry Funding to Universities. <https://www.cancerresearchuk.org/funding-for-researchers/applying-for-funding/policies-that-affect-your-grant/code-of-practice-on-tobacco-industry-funding-to-universities>

In the 2021-2022 academic year, 34% of sponsored research in Canada came from private donations, grants, and investments.³⁶ In fact, in the past two decades, an average of one-third of sponsored research came from these private sources (Figure 2).

Figure 2



Source: Statistics Canada³⁷

Corporate money comes to university institutions in a variety of ways, including: facility endowments, donations, grants, research partnerships, and research chairs. It is not possible to do a full assessment of all industry monies flowing into academic research. Some of it is through private grants, donations, and endowments. Even within documented streams, such as Natural Sciences and Engineering Research Council of Canada (NSERC) grants and research chairs, there are overlapping categories and varying ratios of financial commitments. In short,

³⁶ Statistics Canada. Table 37-10-0026-01 Revenue of universities by type of revenues and funds (Types of funds: sponsored research).

³⁷ Statistics Canada. Table 37-10-0026-01 Revenue of universities by type of revenues and funds (Types of funds: sponsored research).

all funding figures in this report represent only a portion of the total funding, and therefore only a portion of the private funds entering our public institutions.

The corporate shaping of academic research becomes particularly threatening when the sponsor is part of an industry as damaging and deep-pocketed as fossil fuels. One clear example is the vast amount of brain power and financial backing that oil and gas companies have received for researching carbon capture and storage (CCS).³⁸ There are different types and applications of CCS, but so far, most large projects designed to suck carbon from the air have been plagued with problems, including high costs and low function.³⁹ No industry should have a decisive role in researching solutions to the very problems that they exacerbate. Despite the fact that the technology is unlikely to be ready soon enough or work at a high enough capacity to sufficiently lessen the effects of current levels of hydrocarbon emissions,⁴⁰ fossil fuel companies have been touting CCS and overpromising its capabilities as a reliable climate solution. They do this knowing that by pretending CCS is an effective solution it will allow them to maintain current production.⁴¹ In addition, Canadian oil and gas companies, who are currently generating record profits, are looking to the government to foot a large part of the bill.⁴²

³⁸ See for example the Spotlight on UofA section of this report. Their Future Energy Systems program has more research titles for CCS than there are for solar, wind, or geothermal energy.

³⁹ Widely reported, including: Carter, Angela and Cameron, Laura. “Why Carbon Capture and Storage Is Not a Net-Zero Solution for Canada’s Oil and Gas Sector” International Institute for Sustainable Development. Feb 9, 2023. Accessed at: <https://www.iisd.org/articles/deep-dive/carbon-capture-not-net-zero-solution>

⁴⁰ Widely reported, including: Carter, Angela and Cameron, Laura. “Why Carbon Capture and Storage Is Not a Net-Zero Solution for Canada’s Oil and Gas Sector” International Institute for Sustainable Development. Feb 9, 2023. Accessed at: <https://www.iisd.org/articles/deep-dive/carbon-capture-not-net-zero-solution>

⁴¹ Sekera, June. “Carbon capture won’t fix our climate problem.” National Observer—Opinion.. March 20, 2023. <https://www.nationalobserver.com/2023/03/20/opinion/carbon-capture-wont-fix-our-climate-problem>

⁴² Scherer, Steve. “Exclusive: Canada oil sands carbon capture project struggles to get key contract,” Reuters online. Sept 5, 2023. Accessed at: www.reuters.com/sustainability/canada-oil-sands-carbon-capture-project-struggles-get-key-contract-2023-09-05/; and Cameron, Laura. “Canadians shouldn’t foot the bill for Big Oil’s costly carbon capture” National Observer. Oct 10, 2023. Accessed at: <https://www.nationalobserver.com/2023/10/10/opinion/canadians-shouldnt-foot-bill-big-oils-costly-carbon-capture>

Natural Sciences & Engineering Research Council (NSERC) Funding

“It is hard to underestimate the importance of the role that NSERC has played as a catalyst and promoter of research linkages between universities and industry.”

—JJim E.C. Carter Former President and Chief Operating Officer Syncrude Canada Ltd., Corporate Director for EPCOR Utilities Inc. and several other Albertan companies⁴³

NSERC is a departmental corporation of the Government of Canada it is funded by Parliament and reports to the government through the Minister of Innovation, Science and Economic Development.⁴⁴ In their words, NSERC “funds visionaries, explorers and innovators who are searching for the scientific and technical breakthroughs that will benefit our country” and they are “Canada’s largest supporter of discovery and innovation.”⁴⁵

NSERC is a significant locus of industry-academic partnerships, with numerous collaborative grant types. Companies partner with NSERC to offer awards to students and faculty (financial and sometimes in kind) through research grants and chairs.

⁴³ NSERC Investments – Oil Sands and Heavy Oil factsheet. Page 3. https://www.nserc-crsng.gc.ca/_doc/NSERC-CRSNG/FactSheets/Oil_Factsheet_EN.pdf

⁴⁴ Government of Canada website—NSERC. Infosource:Sources of Federal Government and Employee Information. https://www.nserc-crsng.gc.ca/ATIP-AIPRP/InfoSource-InfoSource/index_eng.asp

⁴⁵ Government of Canada website—NSERC. Breakthrough answers to timeless questions. https://www.nserc-crsng.gc.ca/NSERC-CRSNG/Index_eng.asp

In recent years, NSERC has been transitioning many of their collaborative programs into a new Research Partnerships program, which will reshape how funding is organized, but so far, there has not been a notable shift in the extent of funding collaboration. Between 2013-14 and 2022-23, 30% of NSERC awards were in research partnerships, meaning award categories where there are contributing funds and resources from other partners, which can be other government agencies, NGO's, or private companies.⁴⁶ In the area "oil, gas and coal" over the same time period, 75% of awards were research partnerships.⁴⁷ Note that additionally the other, non-research partner award categories, such as discovery research and research training, may also include outside contributions.⁴⁸

The influence of industry in NSERC funding is not incidental. In a 2016 letter to Iain Mackenzie, then newly appointed President of the National Research Council Canada, the Minister of Innovation, Science, and Economic Development and the Minister of Science, detailed the mandate of the President, with four points of assessment including, "ensuring effective processes to identify current and forthcoming industrial R&D priorities and collaboration opportunities with firms."⁴⁹

NSERC has a great many funding streams. The following is by no means a full account, but a focus on some of the key opportunities for the fossil fuel industry to collaborate on academic research.

⁴⁶ NSERC Awards Database, application area: Application area: oil, gas and coal. Sorted by program. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/index_eng.asp.

⁴⁷ NSERC Awards Database, application area: Application area: oil, gas and coal. Sorted by program. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/index_eng.asp.

⁴⁸ See for example: Discovery grants. NSERC website. https://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DGCategories-SDCategories_eng.asp

⁴⁹ About. Natural Research Council website. Archived mandate letter Oct 18, 2016. Accessed October, 2023. <https://nrc.canada.ca/en/corporate/about-nrc/archived-mandate-letter-mr-iain-stewart-october-18-2016>

NSERC Grants

NSERC has various types of grants, a number of which provide industry a way to connect with and fund students. These are often funds that come in part from the government and in part from an industry partner or group of partners.

NSERC awards are organized in different ways, including by the area of application (less specific) and research subject (more specific). But there is no single research subject or application area, or a set of these categories, that contains all NSERC funded fossil fuel projects. For example, the research subject “petroleum engineering, oil and gas recovery” does not include a study on “CO₂ Assisted Enhanced Recovery for Unconventional Shale Gas Resources in Western Canada” or one on “Asphaltene Precipitation and Deposition from Conventional Crude Oils” that aims to reduce production losses and high treatment costs from asphaltene deposits. These projects are not in that category because they are not related to engineering. There is one area of application called oil, gas and coal that comes close to containing *only* oil and gas projects, but it accounts for a mere fraction of the total fossil fuel related projects receiving funding.

Therefore, none of the figures in the grants section below capture all the projects or all the funds related to fossil fuel projects. But while the figures do not necessarily reflect the amount of funding for fossil fuels, they can be used to evaluate priority areas, and in some cases geographical and funding trends.

Grants by Location

In the last ten years, nearly 70% of NSERC funding in the application area of “oil, gas and coal” has gone to Alberta universities, with Ontario a distant second, receiving 14% (Appendix 2, Table 5). In fact, funding to Alberta is more than double the total of all other provinces combined.

Given that Alberta receives such a large portion of the NSERC funding that falls under the “oil, gas and coal” designation, it is not surprising that the University of Alberta is the largest recipient in this research area, with nearly 45% of the grants in the last ten years. The University of Calgary is in second place with roughly 13%. The biggest recipient outside of Alberta is the University of Western Ontario with just under 5% of the funding under the oil, gas and coal designation (see Appendix 3 for a full breakdown by institution).

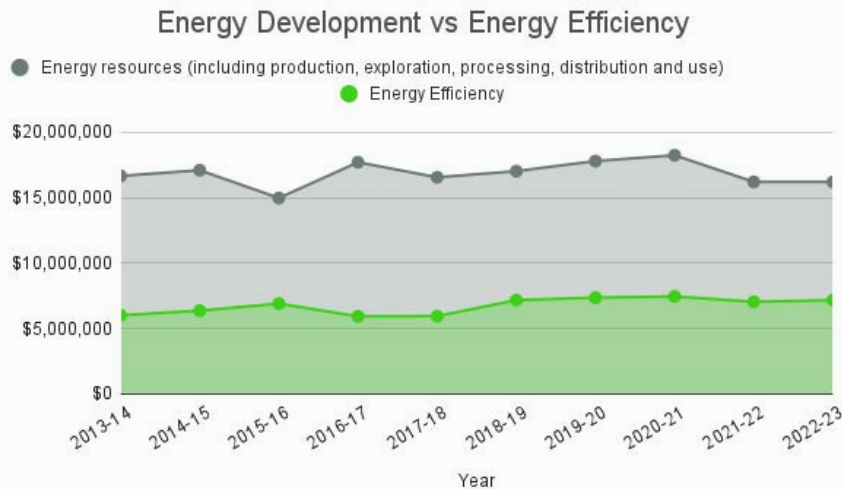
Grants by Research Focus

Energy production and exploration vs energy efficiency

A comparison of two of NSERC’s areas of application, “energy efficiency” and “energy resources (including production, exploration, processing, distribution and use)” show a strong funding preference for research into energy production and exploration over research into energy efficiency. In fact, in a year to year comparison, energy production and exploration ranges from between two to nearly three times higher than funding for research on energy efficiency (Figure 3).

While these award categories may include research outside fossil fuels, the prioritization of production (therefore profit), over efficiency (therefore environment) echos the priorities demonstrated by oil and gas companies in Canada, in particular the Pathways Alliance companies, who, instead of investing in efficiency,⁵⁰ are focussed on short-term profits,⁵¹ and rewarding investors.⁵²

Figure 3



Source: NSERC Awards database⁵³

⁵⁰ MacDougall, Scott. Waiting to Launch 2023 mid-year update. Pembina Institute website. September 14, 2023. Accessed at <https://www.pembina.org/pub/Waiting2023MidYear>

⁵¹ Graney, Emma. “Suncor should return to its oil production roots, focus on ‘fundamentals’ over energy transition, says CEO.” Globe and Mail. August 16, 2023. Accessed at: <https://www.theglobeandmail.com/business/article-suncor-should-return-to-its-oil-production-roots-focus-on-fundamentals/>

⁵² Bose, Sourasis, Kumare, Ankit and Kumar, Arunima. “Here’s how much these oil companies are giving back to shareholders” Reuters. Feb 1, 2023. Accessed at: <https://financialpost.com/commodities/energy/oil-gas/oil-companies-shareholders-profits-buybacks-dividends>

⁵³ NSERC Awards database. Research areas: Energy Efficiency and Energy resources (including production, exploration, processing, distribution and use). Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp

Oil sands and heavy oil

Until 2019-20 NSERC collected research data for a category called “oil sands and heavy oil.” From the academic year 2013-14 until 2019-20. Five of the six companies that have since formed the Pathways Alliance (Canadian Natural Resources, Cenovus, ConocoPhillips, Imperial Oil, and Suncor) funded research in this area, along with many other fossil fuel companies.⁵⁴

In the academic year 2019-20, NSERC funded \$21.02 million in “oil sands and heavy oil,” with a further \$12.01 million coming from oil industry partners.⁵⁵

In that same year, NSERC funded \$157.99 million into the research area “natural resources and energy” which includes, but is not limited to, fossil-fuel related projects*. Industrial partners put \$70.73 million into that research area.⁵⁶ (*In the natural resources and energy category, the industrial partners include forestry, nuclear, and others in addition to fossil fuel companies).

Table 1: NSERC funding for the oil sands and heavy oil

YEAR	NSERC INVESTMENTS IN OIL SANDS AND HEAVY OIL (mil, CAD)	# INDUSTRIAL PARTNERS	INDUSTRIAL CONTRIBUTIONS (mil, CAD)	# NSERC AWARDS	# NSERC RESEARCH CHAIRS
2010-11	\$12.50	42	\$5.50	316	14
2011-12	\$14.40	49	\$7.90	405	17
2012-13	\$11.10	74	\$11.70	322	20
2013-14	\$11.30	59	\$7.00	329	20
2014-15	\$12.50	59	\$9.70	374	19
2015-16	\$14.10	65	\$9.90	421	15
2016-17	\$21.80	69	\$11.90	638	18
2017-18	\$19.80	47	\$10.40	271	6
2018-19	\$22.90	61	\$11.20	624	3
2019-20	\$21.02	52	\$12.01	492	3

Source: NSERC⁵⁷

⁵⁴ NSERC Interactive Dashboard–Overview–Oil Sands and Heavy Oil. Select by year. Accessed at: <https://www.nserc-crsng.gc.ca/db-tb/index-eng.asp?year=2014&province=0&category=11>

⁵⁵ NSERC Interactive Dashboard–Overview–Oil Sands and Heavy Oil. Select by year. Accessed at: <https://www.nserc-crsng.gc.ca/db-tb/index-eng.asp?year=2014&province=0&category=11>

⁵⁶ NSERC Interactive Dashboard– Overview–Natural Resources and Energy. Accessed at: <https://www.nserc-crsng.gc.ca/db-tb/index-eng.asp?year=2020&province=0&category=2>

⁵⁷ Two sources. For 2010/11: NSERC Investments – Oil Sands and Heavy Oil factsheet. https://www.nserc-crsng.gc.ca/_doc/NSERC-CRSNG/FactSheets/Oil_Factsheet_EN.pdf

For 2011/12 to 2019/20: NSERC Interactive Dashboard– Oil Sands and Heavy Oil. <https://www.nserc-crsng.gc.ca/db-tb/index-eng.asp?year=2012&province=0&category=11>

An abbreviated list of NSERC’s industrial partners for oil sand and heavy oil funding follows.

Table 2: NSERC industrial partners in the category “Oil sands and heavy oil”

2016-17	2017-18	2018-19	2019-20
\$11,900,000	\$10,400,400	\$11,200,000	\$12,000,000
Athabasca Oil Sands Corp.	Athabasca Oil Sands Corp.	BP Canada Energy Company	Apex Engineering Inc.
Baker Hughes Incorporated	BP Canada Energy Co.	Canada’s Oil Sands Innovation Alliance	Bureau Veritas
BP Canada Energy Company	Brion Energy	Canadian Natural Resources Ltd.	Canada's Oil Sands Innovation Alliance
Brion Energy	Canada's Oil Sands Innovation Alliance	Cenovus Energy Inc.	Canadian Natural Resources Ltd.
Canada's Oil Sands Innovation Alliance	Canadian Natural Resources	Computer Modelling Grp	Cenovus Energy Inc.
Canadian Natural Resources	Cenovus Energy Inc.	ConocoPhillips Canada	Computer Modelling Grp
Cenovus Energy Inc.	Computer Modelling Grp Ltd	Devon Canada Corp.	ConocoPhillips Canada
Computer Modelling Group Ltd	ConocoPhillips Canada	Emerson	Devon Canada Corp
ConocoPhillips Canada	Devon Canada Corporation	Enersoft	Emerson
Emerson	Emerson	ExxonMobil Research & Engineering Co.	Enersoft
ExxonMobil Research & Engineering Co.	ExxonMobil Research & Engineering Co.	Greenfield Global	Graymont Limited
Husky Energy Inc.	Greenfield Global	Husky Energy Inc.	Husky Energy Inc.
Imperial Oil Limited	Husky Energy Inc.	Imperial Oil Ltd.	Imperial Oil Limited
Laricina Energy Ltd.	Imperial Oil Limited	Nexen	Nexen
Nexen	Kemira Chemicals Canada Inc	RGL Reservoir Management Inc.	NL Innovation Council
Newalta	Nexen	Schlumberger Canada Ltd	Schlumberger Canada Limited

2016-17	2017-18	2018-19	2019-20
\$11,900,000	\$10,400,400	\$11,200,000	\$12,000,000
RGL Reservoir Management	RGL Reservoir Management	Shell Canada Ltd.	Shell Canada Limited
Schlumberger Canada Limited	Schlumberger Canada Ltd	Spartan Controls Ltd.	Spartan Controls Ltd.
Shell Canada Limited	Shell Canada Limited	Suncor Energy Inc.	Suncor Energy Inc.
Statoil Canada Ltd.	Spartan Controls Ltd.	Syncrude Canada Ltd.	Syncrude Canada Ltd.
Suncor Energy Inc.	Suncor Energy Inc.	Teck Resources Ltd.	Teck Resources Limited
Syncrude Canada Ltd.	Syncrude Canada Ltd.	Total E&P Canada Ltd.	Total E&P Canada Ltd.
Total E&P Canada Ltd.	Teck Resources Limited		
Yara International ASA	Total E&P Canada Ltd.		

Source: NSERC⁵⁸ Note: Although the Pathways Alliance did not form until 2021, companies that are now part of the Pathways Alliance are highlighted in green because of their size and the influence they continue to wield (note that Canada's Oil Sands Innovation Alliance now operates as COSIA with Pathways).

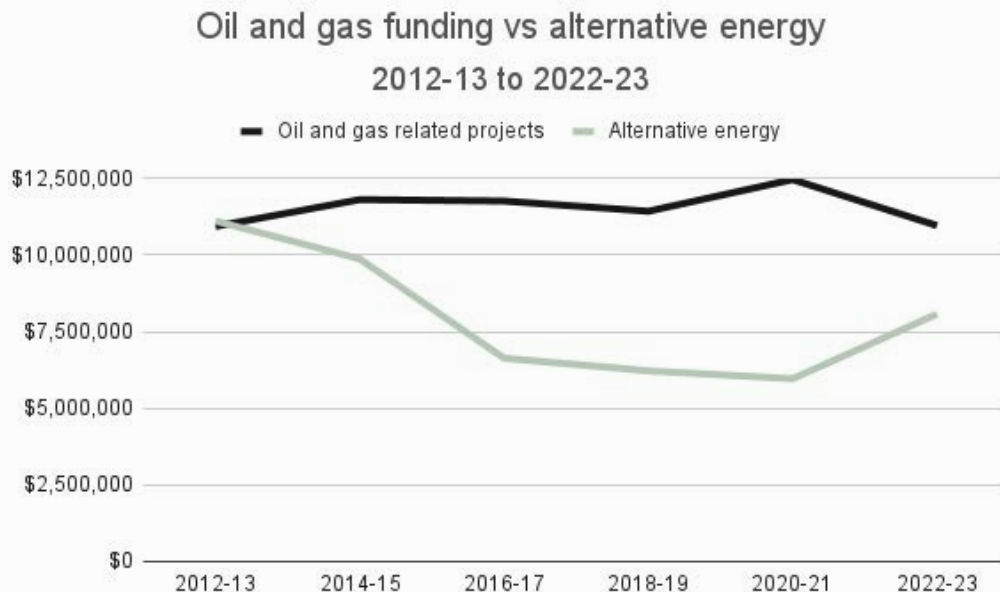
⁵⁸ NSERC Interactive Dashboard– Overview–Oil Sands and Heavy Oil. Accessed at: <https://www.nserc-crsng.gc.ca/db-tb/index-eng.asp?year=2012&province=0&category=11>

Oil and gas projects, general

As noted above, there is no NSERC area of application that captures all fossil fuel projects. Therefore, the figures below are a reasonable estimate of the numbers and value of all projects related to fossil fuels in the two areas: “oil, gas and coal” and “energy resources (including production, exploration, processing, distribution and use)” that are directly related to oil and gas (see full methodology in Appendix 4). Using the methodology in Appendix 4, we can estimate that, on average, just above half (roughly 51%) of the projects in the two categories combined were related directly to fossil fuels. This figure, 51%, is used below to estimate the total value of all projects in these two categories in the specified time frame. The figures for alternative energy are taken directly from the totals in the NSERC awards database.

The comparative funding of these two topics over the last decade paints a depressing picture. At a time when climate science has clearly demonstrated the need to transition away from fossil fuels, and when increasing numbers of people and environments facing droughts,⁵⁹ floods, and fires, all exacerbated by climate change,⁶⁰ funding for academic research in alternative energy was decreasing until 2020-21 and in 2022-23 still lagged well behind funding for fossil fuels (Figure 4).

Figure 4



Source: NSERC Awards database⁶¹

⁵⁹ IPCC Sixth Assessment Report, Working Group III. Page 16, 24, and elsewhere. <https://www.ipcc.ch/report/ar6/wg3/>

⁶⁰ NASA website. “Extreme weather and climate change.” Facts-Extreme Weather. Accessed at: <https://climate.nasa.gov/extreme-weather/>

⁶¹ NSERC Awards database. Area of application: oil, gas and coal and energy resources (including production, exploration, processing, distribution and use. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp

Industrial partners in these oil and gas projects include, among others: Cenovus, Imperial Oil, Suncor, ConocoPhillips, Total E&P Canada Ltd., Shell Canada Ltd., CMG Reservoir Simulation Foundation, Computer Modeling Group, China National Offshore Oil Corporation (CNOOC), Pipeline Research Council International, and TC Energy.

Oil and gas extraction

The IPCC released the Working Group Three section of their Sixth Assessment Report (AR6 WIII) in April 2022. Among other key findings, the report finds that the odds of limiting warming to 1.5°C along the most ambitious pathway are less-than-even, and that operating even the existing fossil fuel infrastructure puts 1.5°C out of reach⁶². This is clear evidence that we need to transition away from fossil fuels if we are to mitigate catastrophic climate change.

Yet, in the last decade (2013-14 to 2022-23), over 28 million dollars of NSERC grants in oil, gas and coal were for projects related specifically to oil and gas *recovery*,⁶³ meaning fossil fuel extraction. In the 2022-23 academic year alone, the University of Alberta received \$965,650 for research focussed on the subject “oil and gas recovery,” with partners that include: Canadian Natural Resources, Suncor Energy, Syncrude Canada, and Alberta Innovates.⁶⁴

As noted above, the research subject “petroleum engineering, oil and gas recovery” does not necessarily contain all projects related to oil and gas recovery. However, the figures can provide a guide on funding and funding trends.

⁶² IPCC Sixth Assessment Report, Working Group III. Page 16, 24, and elsewhere. <https://www.ipcc.ch/report/ar6/wg3/>

⁶³ NSERC Awards database. Research area: all, research subj.: Petroleum engineering oil and gas recovery. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp

⁶⁴ NSERC Awards database. Research area: all, research subj: Petroleum engineering oil and gas recovery. https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp (Sort by award and follow research links to see the partners).

Table 3: NSERC grants for oil and gas recovery 2013/14 to 2022/23

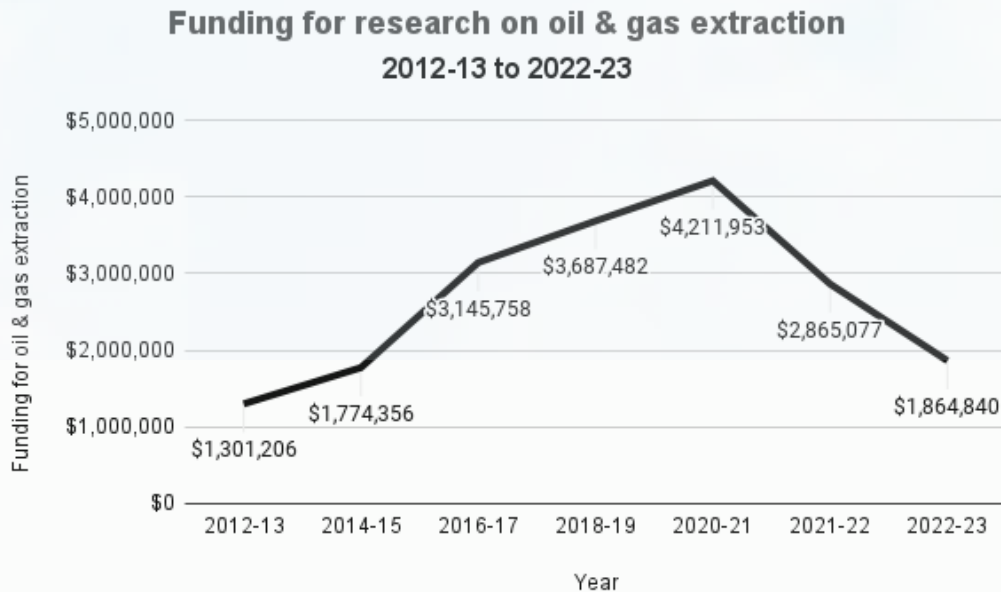
PROVINCE	NUMBER	\$ AMOUNT	% AMOUNT	\$ AVERAGE AWARD
Alberta	241	\$20,826,608	72.68%	\$86,417
British Columbia	6	\$322,927	1.13%	\$53,821
Manitoba	3	\$75,000	0.26%	\$25,000
Newfoundland and Labrador	12	\$302,000	1.05%	\$25,167
Ontario	21	\$6,478,602	22.61%	\$308,505
Québec	5	\$74,044	0.26%	\$14,809
Saskatchewan	22	\$577,933	2.02%	\$26,270
Total	310	\$28,657,114	100.00%	\$92,442

Source: NSERC Awards database⁶⁵

Between 2012-13 and 2020-21, funding for oil and gas recovery climbed to a peak of more than 4.2 million dollars in 2020-21. As recently as 2021-22, the funding amounts in the research subject “petroleum engineering, oil and gas recovery” were higher than for all studies listed under the subject “other sources of energy (solar, wind, etc.)”. In just the last three academic years, the funding for research on oil recovery has totalled almost 9 million dollars (Figure 5).

⁶⁵ NSERC Awards database. Research area: all, research subj.: Petroleum engineering oil and gas recovery. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp

Figure 5



Source: NSERC Awards database⁶⁶

Industrial Research Chairs

Industrial Research Chairs (IRCs) are one of the collaborative NSERC programs that is now transitioning to the new Research Partnerships program, and the program stopped taking new applicants in 2019, which means the last terms will draw to an end in 2024. However, because these chairs have been a key partnership opportunity for industry, the data is informative about industry influence.

IRCs were funded through a combination of industry, government, and university support. There were three types (Senior, Associate, and Executive), all of which were five-year terms, and for two of the types (Senior and Associate), the terms were renewable. The chair's funding provided for salary as well as infrastructure, research instruments and general, related expenses. The host university had to provide an employment term (if the candidate is already faculty, the university has to create a new tenure-track position for another recipient), laboratory, office space, and administrative support. As well, NSERC stated that a financial contribution from the

⁶⁶ NSERC Awards database. Research area: all, research subj.: Petroleum engineering oil and gas recovery. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp

university would strengthen an application.⁶⁷ In short, a chair position required a fair amount of university resources over a minimum of five years.

With Industrial Research Chairs, the partners also had to make a cash commitment over the five years that was “at least equal to NSERC’s commitment during the same period.”⁶⁸ And private sector partners had much to gain: infrastructure, tools, a salaried researcher, and legitimacy for their work. As well, given that chairs were meant to focus on research and on training qualified personnel, private sector partners could be gaining future employees as well. In their project summary, the NSERC Industrial Research Chair in Control of Oil Sands Processes wrote, “[t]his IRC program has contributed tremendously to industry, completing a number of successful projects for partner companies. Some solutions have achieved annual benefits estimated in millions of dollars.”⁶⁹

As with the grant program, the NSERC categories for projects do not contain all or only oil and gas related research chairs. For example, a search for Industrial Research Chairs and Industrial Research Chair for Colleges in the combined areas “oil, gas and coal” and “energy resources (including production, exploration, processing, distribution and use” did not include the *NSERC/Syncrude Industrial Research Chair in Mine Closure*

“Through the Industrial Research Chair program, NSERC gives us the opportunity to collaborate with government and academia to support innovative new research that could help solve the challenges our industry faces so we can continue to develop the oil sands in a responsible and environmentally conscious way.”

—Brian Ferguson ex-President and CEO of Cenovus Energy (2009-2017)

⁶⁷ NSERC website—Industrial Research Chair grants. https://www.nserc-crsng.gc.ca/professors-professeurs/cfs-pcp/irc-pci_eng.asp

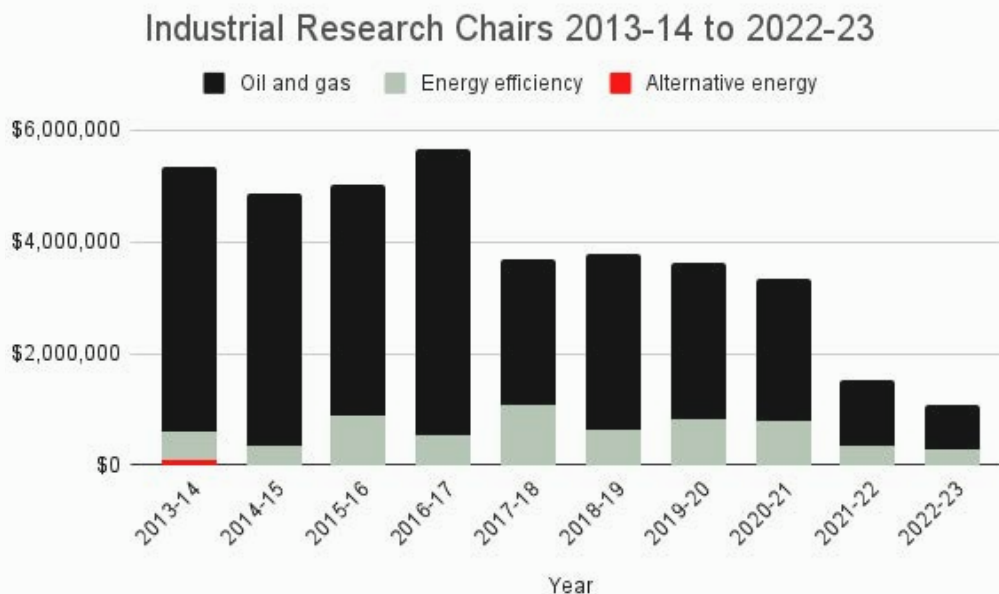
⁶⁸ NSERC website—Industrial Research Chair grants. https://www.nserc-crsng.gc.ca/professors-professeurs/cfs-pcp/irc-pci_eng.asp

⁶⁹ NSERC Chairholders database—Chairholder profile Biao Huang. https://www.nserc-crsng.gc.ca/Chairholders-TitulairesDeChaire/Chairholder-Titulaire_eng.asp?pid=772

*Geochemistry, the NSERC/Total Industrial Research Chair in Hydrodynamic Modelling of Multiphase Processes at Extreme Conditions, and others.*⁷⁰ Equally, the NSERC Chairholders database does not necessarily contain all chairs, for example, it did not contain the *NSERC/Energi Simulation Industrial Research Chair in Reservoir Geomechanics*. Therefore the dollar totals and lists of chairs are likely incomplete. Note as well that Industrial Research Chairs were able to receive other NSERC grants concurrently, including Collaborative Research grants, Discovery grants, and even Canada Research Chairs.

The comparison of funding for Industrial Research Chairs in oil and gas and those in alternative energy is dismally reflective of the misaligned priorities that result when a wealthy, established industry sponsors research. Between 2013-14 and 2022-23 there was, as a low estimate, more than 31 million dollars in funding for oil and gas chairs, and in that same time period a disheartening \$100,000 in funding for alternative energy chairs.⁷¹ Even combining funding for alternative energy and energy efficiency doesn't come close to the funding for oil and gas, totalling together only just over six million dollars (Figure 6). Note that the Industrial Research Chairs program did not take new applicants after 2019, as it is now part of the Research Partnerships program, which is why the funding amounts drop in 2020 and subsequent years.

Figure 6



Source: NSERC Awards database⁷²

⁷⁰ Found via the NSERC Chairholders database in a “detailed search” for all industrial chairs, in all areas, at all universities, and across the country. Accessed at: https://www.nserc-crsng.gc.ca/Chairholders-TitulairesDeChaire/DetailSearch_RechercheDetailler_eng.asp

⁷¹ NSERC Awards database. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp

⁷² NSERC Awards database. https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp

Five of the six Pathways Alliance companies have been active funding partners in the Industrial Research Chair program. In fact, 17 chairs in the past ten years have had at least one of the five companies as a funding partner (Table 4).

Table 4: Pathways companies as funding partners in NSERC Industrial Research Chairs, 2013-14 to 2022-23

CHAIR TITLE	UNIVERSITY	FUNDERS
NSERC ASRL Industrial Research Chair in Applied Sulfur Chemistry	University of Calgary	Suncor Energy
NSERC Chair in Design Engineering	University of Calgary	Suncor Energy
NSERC Industrial Research Chair in Control of Oil Sands Processes	University of Alberta	Genovus Energy Inc., Suncor Energy
NSERC Industrial Research Chair in Heavy Oil Properties and Processing	University of Calgary	Suncor Energy
NSERC Industrial Research Chair in Modelling Fundamentals of Unconventional Resources	University of Calgary	Canadian Natural Resources Ltd, Suncor Energy
NSERC Industrial Research Chair in Oil Sands Engineering	University of Alberta	Canadian Natural Resources Ltd, Suncor Energy
NSERC Industrial Research Chair in Oil Sands Tailings Water Treatment	University of Alberta	Canadian Natural Resources Ltd, Imperial Oil Ltd, Suncor Energy
NSERC Industrial Research Chair in Petroleum Microbiology	University of Calgary	ConocoPhillips Company
NSERC Industrial Research Chair in Petroleum Thermodynamics	University of Alberta	ConocoPhillips Canada Inc.
NSERC Industrial Research Chair in Pipeline Transport Processes	University of Alberta	Canadian Natural Resources Ltd.
NSERC Industrial Research Chair in Solvent Enhanced Recovery Processes	University of Calgary	ConocoPhillips Canada Inc., Suncor Energy
NSERC Industrial Research Chair in Unconventional Oil Recovery	University of Alberta	Suncor Energy
NSERC/Capital Power/Oilsands Industrial Research Chair in Forest Land Reclamation	University of Alberta	Suncor Energy
NSERC/Genovus/Alberta Innovates Associate Industrial Research Chair in Energy and Environmental Systems Engineering	University of Alberta	Genovus Energy Inc., Suncor Energy
NSERC/ConocoPhillips IRC Chair	University of Calgary	ConocoPhillips Canada Resources
NSERC/Energi Simulation Industrial Research Chair in Reservoir Geomechanics	University of Alberta	Genovus Energy Inc., ConocoPhillips Canada Resources, Suncor Energy
NSERC/Imperial Oil/Alberta Ingenuity/AERI Industrial Research Chair in Non-Aqueous Bitumen Extraction	University of Alberta	Imperial Oil Resources Ltd

Canada Research Chairs

The Canada Research Chairs Program (CRCP) isn't solely funded by NSERC, but NSERC is one-third of the tri-agency funding initiative, which also includes the Social Sciences and Humanities Research Council, and the Canadian Institutes of Health Research.⁷³ Started in 2000, the federal government invests roughly \$311 million per year to attract and retain internationally accomplished researchers in engineering and the natural sciences, health sciences, humanities and social sciences.⁷⁴

Research chairs are field-leading scientists and engineers and thus hold sway in academic programs. These researchers can purchase infrastructure, hire personnel, and have an entire team working on their research for over a decade. Canada Research Chairs (CRCs) can be funded concurrently through other grants and awards, which may have industry partners.

For example, in 2023, the deputy director of the University of Alberta's Future Energy Systems, was named a Tier 1 Canada Research Chair in Assessment of Energy Systems. This position comes with 1.4 million dollars (\$200,000 a year for seven years). On the face of it, this Canada Research Chair project is about sustainability: looking to improve energy system efficiency by identifying how to integrate renewable energy, along with carbon capture, utilization and storage.⁷⁵

However, not only is carbon capture a longshot technology, this CRC recipient is also the NSERC/Cenovus/Alberta Innovates Associate Industrial Research Chair in Energy and Environmental Systems Engineering at the University of Alberta.⁷⁶ Since 2012, this person has been the recipient of more than two million dollars in NSERC funding for their Industrial Chair position. Industrial Chair funding requires at least a 50% match by industry, which means they have received at minimum a further two million dollars from industry,⁷⁷ and Cenovus, Suncor and Alberta Innovates have been the key research partners.⁷⁸

⁷³ The Canada Research Chairs website—About us. https://www.chairs-chaires.gc.ca/about_us-a_notre_sujet/index-eng.aspx

⁷⁴ The Canada Research Chairs website—About us. https://www.chairs-chaires.gc.ca/about_us-a_notre_sujet/index-eng.aspx

⁷⁵ Rutherford, Gillian. "New Canada Research Chairs use technology to build a leaner, greener global future" University of Alberta website—FES—News. Sept 1, 2023. Accessed at: <https://www.futureenergysystems.ca/news/post/new-canada-research-chairs-use-technology-to-build-a-leaner-greener-global-future>

⁷⁶ University of Alberta website – About—The Team. <https://www.futureenergysystems.ca/about/the-team>

⁷⁷ NSERC website—Industrial Research Chair grants. https://www.nserc-crsng.gc.ca/professors-professeurs/cfs-pcp/irc-pci_eng.asp

⁷⁸ NSERC Awards database. Kumar, Amit. https://www.nserc-crsng.gc.ca/ase-oro/index_eng.asp?new

Cenovus has a vested interest in carbon capture research and has shown clearly they are not planning to wind down fossil fuel production. In 2021, Cenovus acquired Husky Energy making Cenovus, “the second largest Canadian oil and natural gas producer [and] the second largest Canadian-based refiner and upgrader.”⁷⁹ In 2023, the company applied to extend the lifespan of its Christina Lake oil sands project, the largest in situ oil sands facility in the world, until 2079.⁸⁰ The proposed extension would likely add 54.0 million m³ of production over its approximately 47-year lifespan.⁸¹ Given that 80% of fossil fuel emissions come from downstream combustion, no matter what extraction efficiencies the company might put in place, by not decreasing production, they will not be decreasing emissions in a meaningful way. Further, Alex Pourbaix, who serves as Cenovus President, CEO and Executive Chair of the Board of Directors, has been the main spokesperson for the Pathways Alliance. The Pathways Alliance formed in large part to coordinate efforts on a large carbon capture and storage project. In fact, a large-scale, successful CCS is the kingpin in the net-zero plan for the companies.⁸² It seems doubtful it would be possible for a company with so much stake in CCS to want to support research that looks evenly and honestly at other solutions.

This recipient’s stated goal as a Canada Research Chair is “to develop information which can be used for energy decision-making and policy development.”⁸³ The idea of policy being influenced by research so proximate to industry is deeply troubling, especially given what’s at stake. Fossil fuel companies should not have influence over energy policy or environmental solutions. This kind of proximity to industry casts doubt on the research whether the influence of private interest here is apparent, or actual.

⁷⁹ Our History. Cenovus Energy website. Accessed at: <https://www.cenovus.com/Our-company/Our-history>

⁸⁰ Cenovus Annual Report 2021. Accessed at: https://www.cenovus.com/~/_link.aspx?_id=2097DABD3167437CBAB903FC28CAF5CA&_z=z#annual

⁸¹ Oil Sands Conservation Act Application 1941839. Cenovus Energy Inc. Kirby West Project. 2023. Accessed at: <https://www.aer.ca/regulating-development/project-application/notices/application-1941839>

⁸² Galloway, Matt. (2023, March 23) “Cenovus Energy CEO on carbon capture efforts,” The Current. [Radio Broadcast]. CBC. <https://www.cbc.ca/listen/live-radio/1-63-the-current/clip/15970276-cenovus-energy-ceo-carbon-capture-efforts-surviving-avalanche>

⁸³ Rutherford, Gillian. “New Canada Research Chairs use technology to build a leaner, greener global future” University of Alberta website–FES–News. Sept 1, 2023. Accessed at: <https://www.futureenergysystems.ca/news/post/new-canada-research-chairs-use-technology-to-build-a-leaner-greener-global-future>

④ UNIVERSITY SPOTLIGHT

Given the role of fossil fuels in Alberta's economy, it's not a surprise that the University of Alberta has focussed a great deal of research on oil and gas issues, and has received the most NSERC funding related to fossil fuels. What is both disappointing and alarming is that this focus has not significantly diminished to give way to a more diversified energy sector in the past decade. Instead, the university maintains numerous connections between academic research and the fossil fuel industry.

University of Alberta

According to the University of Alberta (UofA), in 2020, they ranked first in Canada for publications and citations related to energy, and in the top three globally for publications and citations related to hydrocarbon energy.⁸⁴ That means that the work coming out of UofA has global influence, yet so much of the university's research on hydrocarbons is work done in partnership with oil and gas companies.

The largest research program at UofA is Future Energy Systems (FES),⁸⁵ with 161 researchers and over 987 graduate students, post-doctoral fellows, and "highly qualified personnel".⁸⁶ Future Energy Systems is a multi-disciplinary research program launched in 2016 with \$75 million from the Government of Canada's Canada First Research Excellence Fund (CFREF).⁸⁷

The stated mandate of FES is to "help Canada transition to a low net-carbon energy economy."⁸⁸ Yet, two of the four key challenges that FES aims to solve are related to oil production: "How can we

⁸⁴ University of Alberta. "Future Energy Systems Scientific Overview and Midterm Report 2017 - 2020." page 1. Accessed at: <https://www.futureenergysystems.ca/public/download/files/173882>

⁸⁵ Coglon, David. "U of A scientists explore future energy systems" Context Energy Examined, CAPP website. Oct 7, 2020. Accessed at: <https://context.capp.ca/articles/2020/article-u-of-a-future-energy-systems/>

⁸⁶ Future Energy Systems website—About. <https://www.futureenergysystems.ca/>

⁸⁷ Future Energy Systems website—About-Future Energy Systems factsheet. <https://www.futureenergysystems.ca/>

⁸⁸ Future Energy Systems website – About – factsheet. <https://www.futureenergysystems.ca/about>

responsibly develop hydrocarbon energy?” and “How do we mitigate the impacts of existing energy technology?” In fact, looking through their posted research, there are more active studies on carbon capture than there are on solar, wind, or geothermal energy.⁸⁹

The university often invites faculty members and industry partners to research showcases and industry mixers on campus to promote energy research and, alarmingly, in 2020, the FES director established a government-industry advisory panel to provide input to FES projects.⁹⁰

Both the U of A as a whole, and the FES program, partner in various ways with Alberta Innovates. Alberta Innovates funds research by post-graduate students, entrepreneurs and industry.⁹¹ Their mandate comes from the provincial government and the board of Alberta Innovates is appointed by the provincial government.⁹² That is the same government that put a sudden seven-month pause on alternative energy approvals in August 2023.⁹³

Many of the researchers at FES have Natural Sciences and Engineering Research Council (NSERC) grants, or other grants where they are partners with industry.⁹⁴ This is notably the case for the deputy director of FES, as mentioned in the previous chapter.

⁸⁹ Future Energy Systems website – Research. Accessed by research area at: <https://www.futureenergysystems.ca/research>

⁹⁰ Coglion, David. “U of A scientists explore future energy systems” Context Energy Examined, CAPP website. Oct 7, 2020. Accessed at: <https://context.capp.ca/articles/2020/article-u-of-a-future-energy-systems/>

⁹¹ Alberta Innovates website. – About– What we do. <https://albertainnovates.ca/about/what-we-do/>

⁹² Alberta Innovates website. – About– Governance. <https://albertainnovates.ca/about/governance>

⁹³ Nickel, Rod. “Renewables firms hit brakes on Alberta projects after UCP pauses approvals.” CBC online. Aug 21, 2023. Accessed at: <https://www.cbc.ca/news/canada/calgary/renewables-pause-alberta-projects-companies-1.6942597#>

⁹⁴ University of Alberta FES website – Opportunities–Research Proposals–Accelerator fund. <https://www.futureenergysystems.ca/opportunities/research-proposals/accelerator-fund>

Another Canada Research Chair in the FES program is working on improving hydrocarbon production and has received concurrent funding from oil companies including Suncor, Syncrude, and Canadian Natural Resources.⁹⁵

UofA also has the Institute for Oil Sands Innovation (IOSI), which is sponsored by Imperial Oil and Alberta Innovates. IOSI researches “new methods for extraction, upgrading and refining of bitumen”⁹⁶ under four research themes: extraction, oil sands mining/smart mining, tailings fundamentals and value added products.⁹⁷ The descriptions for two of the themes offer an article on Imperial’s Kearl oilsands mine for further information, despite the fact that the Kearl oilsands mine has been seeping tailings into groundwater, and that Imperial Oil knowingly waited years before they reported the leak.⁹⁸

⁹⁵ Coglón, David. “U of A scientists explore future energy systems” Context Energy Examined, CAPP website. Oct 7, 2020. Accessed at: <https://context.capp.ca/articles/2020/article-u-of-a-future-energy-systems/>; and NSERC Awards database. https://www.nserc-crsng.gc.ca/ase-oro/Results-Resultats_eng.asp

⁹⁶ Coglón, David. “U of A scientists explore future energy systems” Context Energy Examined, CAPP website. Oct 7, 2020. Accessed at: <https://context.capp.ca/articles/2020/article-u-of-a-future-energy-systems/>

⁹⁷ IOSI website-Research themes. <https://iosi-alberta.ca/research/>

⁹⁸ Weber, Bob. The Canadian Press. Via Toronto CityNews website. Oct 2, 2023. Accessed at <https://toronto.citynews.ca/2023/10/02/imperial-alberta-regulator-knew-for-years-about-tailings-seepage-at-mine-documents/>

5

CONCLUSION

The state of university funding means that industry support has become an essential part of university operations.⁹⁹ Given the potential for drastic climate repercussions, the fossil fuel industry's relationship to academic funding poses critical risks to Canada's ability to increase knowledge and innovation in order to to accelerate the much needed energy transition. The industry's influence is likely to prioritize areas of study that serve industry while jeopardizing the environment and the public good. As well, the clear financial interest of fossil fuel companies means that for an institution, department, or researcher working on climate issues, proximity to oil and gas funding can erode trust and tarnish evidence-based, objective research findings. And the stakes couldn't be higher.

These companies and their directors have long known the outcome of emitting high levels of greenhouse gasses.¹⁰⁰ Yet they continue to increase production despite decades of clear scientific evidence, reports and outcries, despite record-breaking heat, life shattering floods, fires, and windstorms.¹⁰¹ Instead of heeding their own science now—or years ago when it would have been much easier to limit global temperature increases—they have been playing a decades-long game of deny-then-delay when it comes to climate change, making misleading claims about the impacts of their industry and misrepresenting themselves as climate leaders.¹⁰² The industry's financial clout and key connections have enabled oil and gas companies to advance these tactics, contributing greatly to the current dire climate situation. Their influence over academic research is one of the tools they can use to enable, even justify, delaying climate action.

Oil and gas companies are making extreme riches exploiting a natural resource that is causing irrevocable harm to the entire planet. Their interest, and their track record, do not align with creating promising research that can lessen the climate crisis. Instead their input is likely to produce more empty promises that ultimately fuel even more extreme weather events. As long as there are millions of dollars of fossil fuel industry money funding the climate and energy problems that this industry exacerbates, it will narrow the scope of inquiries, curtail innovation, and limit Canada's ability to address the climate crisis.

⁹⁹ Backgrounder No 3: Corporatization in Post-Secondary Education, Post Secondary Education Our Time to Act. Canadian Union of Public Employees (CUPE). Page 1. January 29, 2019. Accessed at: https://cupe.ca/sites/cupe/files/backgrounder_3_corporatization_eng.pdf

¹⁰⁰ Milman, Oliver. "Revealed: Exxon made 'breathtakingly' accurate climate predictions in 1970s and 80s" The Guardian. Jan. 12, 2023. Accessed at: <https://www.theguardian.com/business/2023/jan/12/exxon-climate-change-global-warming-research>; and McMullen, Jane. (2022) Big oil v. the world. Three-part series. (BBC Two

¹⁰¹ Shingler, Benjamin. "Despite climate pledges, Canada and other fossil fuel producers set to scale up production: report." CBC News. Nov 8, 2023. Accessed at: <https://www.cbc.ca/news/climate/canada-climate-fossil-fuel-production-report-1.7020988#>

¹⁰² Canadian Association of Physicians for the Environment website. <https://cape.ca/focus/fossil-fuel-ad-ban/>

⑥ APPENDICES

Appendix 1

Oil and gas rent calculation:

In 2021 Canada's GDP was \$2,022,291,000,000.¹⁰³

In 2021 oil rent was 2.8% of GDP¹⁰⁴, which equals \$56,624,148,000.

In 2021 gas rent was 0.008% of GDP¹⁰⁵, which equals \$16,178,328,000

For a total oil and gas rent of \$72,802,476,000

¹⁰³ Statistics Canada. Table 36-10-0491-01 Historical (real-time) releases of gross domestic product (GDP) at basic prices, by industry, monthly. Reference data Dec 2021, all industries.

¹⁰⁴ The World Bank databank—oil rents (by GDP) Canada. <https://data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS?end=2021&locations=CA&start=1970&view=chart>

¹⁰⁵ The World Bank databank—gas rents (by GDP) Canada. <https://data.worldbank.org/indicator/NY.GDP.NGAS.RT.ZS?locations=CA>

Appendix 2

Note that since the enrollment data was only available up to academic year 2020-21, the award figures differ from those for funding by province alone.

Table 5: NSERC grants for oil, gas, and coal projects* by province, 2013/14 to 2020/21

PROVINCE	NUMBER OF AWARDS	STEM ENROLLMENT	TOTAL \$ AWARDS	PER CAPITA* \$ OF AWARD
Alberta	294	335,148	\$28,919,955	\$86
Newfoundland and Labrador	31	62,502	\$1,257,441	\$20
Saskatchewan	46	108,090	\$1,343,728	\$12
British Columbia	46	461,754	\$2,079,675	\$5
Ontario	116	1,823,964	\$6,814,880	\$4
New Brunswick	2	53,739	\$163,911	\$3
Québec	48	891,642	\$2,339,189	\$3
Nova Scotia	10	113,547	\$288,209	\$3
Manitoba	7	116,232	\$173,783	\$1
Total	600	3,966,618	\$43,380,771	\$15

Source: NSERC Awards and Statistics Canada¹⁰⁶

*per capita here refers to total award dollars divided by the number of students enrolled in STEM

¹⁰⁶ STEM enrollment data 2013-2021 found by province from Statistics Canada. Table 37-10-0163-01 Postsecondary enrolments, by International Standard Classification of Education (...). Accessed at: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710016301>; Awards data at NSERC Awards Database. Research area oil, gas and coal. Sorted by province and year. Accessed at: https://www.nserc-crsng.gc.ca/ase-oro/index_eng.asp

Appendix 3

Table 6: NSERC grants for oil, gas, and coal projects* by institution, 2013/14 to 2022/23

INSTITUTION	NUMBER	AMOUNT	
		\$CAD	%
Alberta			
Northern Alberta Institute of Technology	22	3,745,792	6.97%
Southern Alberta Institute of Technology	33	2,401,211	4.47%
University of Alberta	201	24,039,350	44.76%
University of Calgary	98	7,131,150	13.28%
British Columbia			
Simon Fraser University	6	192,000	0.36%
University of British Columbia	38	1,941,819	3.62%
University of Northern British Columbia	3	64,500	0.12%
University of Victoria	12	403,000	0.75%
Manitoba			
University of Manitoba	7	173,783	0.32%
New Brunswick			
Collège communautaire du Nouveau-Brunswick	1	63,911	0.12%
University of New Brunswick	1	100,000	0.19%
Newfoundland and Labrador			
Memorial University of Newfoundland	35	1,423,156	2.65%
Nova Scotia			
Dalhousie University	10	329,334	0.61%
Nova Scotia Community College	1	24,875	0.05%
Ontario			
Carleton University	2	50,000	0.09%
McMaster University	17	573,500	1.07%
Queen's University	5	184,782	0.34%
Ryerson University	7	181,500	0.34%
University of Guelph	11	998,728	1.86%

INSTITUTION	NUMBER	AMOUNT	
		\$CAD	%
University of Ontario Institute of Technology	8	229,000	0.43%
University of Ottawa	4	202,000	0.38%
University of Toronto	15	1,083,037	2.02%
University of Waterloo	13	967,683	1.80%
University of Western Ontario	28	2,534,602	4.72%
University of Windsor	18	476,050	0.89%
Wilfrid Laurier University	2	75,000	0.14%
Québec			
Cégep André-Laurendeau	1	25,000	0.05%
Cégep de Trois-Rivières	1	74,515	0.14%
Concordia University	2	140,000	0.26%
École de technologie supérieure	20	927,801	1.73%
Institut national de la recherche scientifique	6	638,600	1.19%
McGill University	9	312,927	0.58%
Université de Sherbrooke	1	25,000	0.05%
Université du Québec à Trois-Rivières	3	104,346	0.19%
Université Laval	11	291,000	0.54%
Saskatchewan			
University of Regina	40	1,039,573	1.94%
University of Saskatchewan	14	542,915	1.01%
Total	706	53,711,440	100.00%

Source: NSERC¹⁰⁷

¹⁰⁷ NSERC Awards database. Search criteria: All institutions, Area- oil, gas and coal; Display by organization. https://www.nserc-crsng.gc.ca/ase-oro/index_eng.asp

Appendix 4

Methodology to determine how much of the combined application areas: “oil, gas and coal” and “energy resources (including production, exploration, processing, distribution and use)” was related to oil and gas:

As noted previously, there is no NSERC area of application that captures all fossil fuel projects. Therefore, to get a reasonable estimate of the numbers and value of all projects related to fossil fuels, I combined two areas that contain many oil and gas related projects: “oil, gas and coal” and “energy resources (including production, exploration, processing, distribution and use)”

From these areas, I searched the project titles for the following keywords related to oil and gas: asphaltene, bitumen, coking, diluent, gas, hydrocarbon, in-situ, in situ, oil, petroleum, reservoir, solvent, steam assisted gravity (SAGR), sulfur, and unconventional. While sorting the results from these terms, I also found and included three other projects related to oil and gas with no clear key words in their titles.

This identification provided the estimation that, on average, just above half (roughly 51%) of the projects in the two categories combined were related directly to fossil fuels.

