INTEGRAL ENERGY: RESOURCES AND RESPONSIBILITY IN CANADIAN FUEL

Industry-Wide Coverage: Oil and Gas

OUTLOOK

Oil and gas have historically been a cornerstone of the Canadian economy. Despite ambitious national climate goals, the industry has remained insulated from emissions reductions efforts. Energy portfolio diversification could serve to mitigate geopolitical and environmental risks, allowing companies to benefit from economic opportunity in a climate-conscious environment.

However, shifting political sentiment in North America and Europe suggests the industry will remain protected from severe financial impact regardless of environmental consequences. The incoming Trump administration and a likely shift toward conservative leadership cement the economic health of oil and gas in Canada.

KEY POINTS

Historic and Present Significant of Oil and Gas in Canada: Canada's role as the fourth-largest producer of oil worldwide and a CA$71.4 bn industry has continued to leverage the country's rich natural resource deposits. Upstream, midstream, and downstream oil, as well as natural gas, compose a large employment base, particularly in Western provinces. The industry is responsible for nearly one-third of the country's greenhouse gas emissions.

Canadian Major Industry Players: Imperial Oil, Enbridge, Canadian Natural Resources, Parkland, TC Energy, Gibson Energy, and Cenovus Energy are each evaluated across a variety of environmental, social, and governance criteria, with lower revenue share companies including TC Energy and Gibson Energy found to outperform other key industry players.

Emissions Reduction and Voluntary Investment Keys to ESG Performance: Companies were highly differentiated based on emissions and voluntary investment, seizing the economic opportunity of diversification across energy segments and preparing for a rising carbon tax per tonne emitted.

Industry Foreign Relations and Indigenous Significance: Despite advocacy for lowering Canada's carbon footprint by shrinking its largest polluting industry, the international significance of oil and gas to Canada and its employment of Indigenous communities prove difficult economic and social challenges.

American Presidential Election Signals Prosperity of Canadian Oil and Gas: A conservative shift ushering Trump back into American office and a likely conservative Canadian Prime Minister come next October or earlier serves to protect and strengthen the oil and gas industry.

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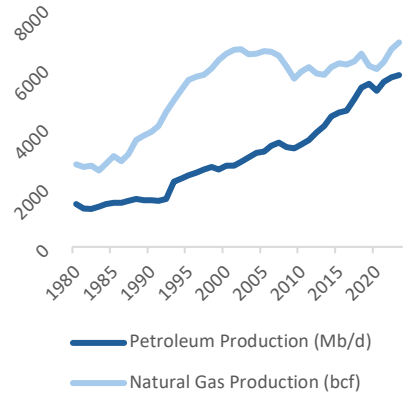
CANADIAN OIL AND GAS PRODUCTION



Source(s): EIA, Vertige Research

Table of Contents

Introduction

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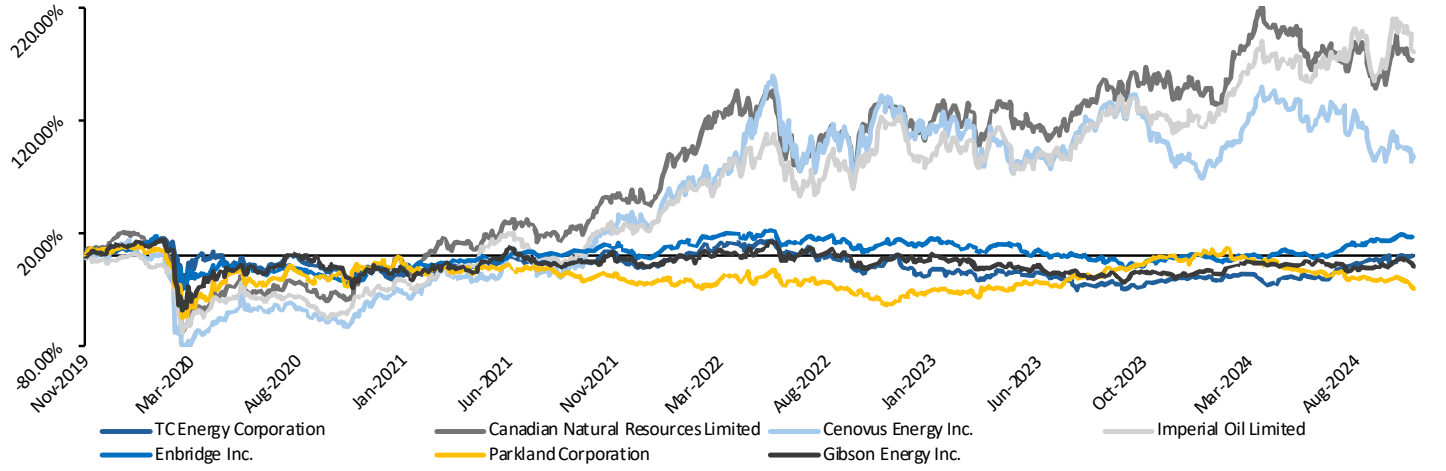
Canada is a prominent player in the global oil and gas industry, recognized as the fourth-largest producer of oil worldwide.[1] With vast natural resources, particularly concentrated in Alberta's oil sands, the country is home to one of the largest deposits of crude oil globally.[1] Canada's reserves, largely comprised of unconventional oil in the form of bitumen, represent 97% of its proven oil resources, positioning the nation as a leading supplier of energy to international markets.[2]

In 2023, the oil and natural gas industry contributed CA$208.8 bn to Canada's gross domestic product (GDP), accounting for 7.7% of the nation's overall economy.[3] The industry also serves as a vital source of employment, both directly and indirectly. In 2023, the sector directly employed over 150,000 people.[4] However, the total employment impact is much larger when considering indirect and induced jobs. For every direct job in the industry, two indirect jobs in engineering services or equipment rentals and three induced jobs in hotels, restaurants, and retail are created. Combined, the oil and natural gas sector is estimated to support employment for 450,000 Canadians.[3]

INDUSTRY OUTLOOKS DEFINED BY LONG TERM ADAPTATION STRATEGY

Canada's current legal framework seeks substantial reductions in carbon dioxide and other greenhouse gas (GHG) emissions. This report evaluates Imperial Oil, Enbridge, Canadian Natural Resources, Parkland, TC Energy, and Cenovus Energy, with the aim of ascertaining which market leading players are best suited to thrive in the growing Environmental, Social, and Governance landscape. We found that companies with lower GHG emissions and higher voluntary investment outperform other evaluated oil and gas industry leaders.

Exhibit 1: Performance in Key Oil and Gas Constituents Has Weathered COVID-19 Shocks, Continue to Grow in Share Price



Source(s): Capital IQ, Vertige Research

OIL: UPSTREAM, MIDSTREAM, & DOWNSTREAM

Oil is a naturally occurring liquid found in geological formations beneath the Earth's surface. It is primarily composed of hydrocarbons and organic compounds and is extracted to produce various fuels and products that are essential to modern life. The oil industry is typically divided into three main segments: upstream, midstream, and downstream operations, which together cover the complete lifecycle of oil from exploration to end-use.

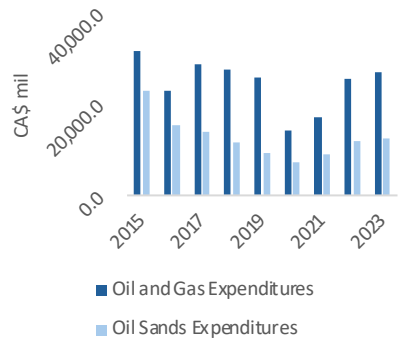
The upstream segment refers to the exploration, drilling, and production of crude oil and natural gas. This includes locating reservoirs and extracting oil or gas from beneath the earth's surface.[4] In Canada, the oil sands are a major component of upstream activities, requiring advanced extraction technologies to convert bitumen into usable oil products.

The complexities of oil sands extraction distinguish Canada's upstream sector as unique compared to conventional oil-producing countries. Many key industry players including Imperial Oil, Enbridge, and Canadian Natural Resources each invest in expensive mining operations to profit off of the upstream segment. The midstream segment involves the transportation, storage, and wholesale marketing of crude oil and natural gas.[4] Canada's pipeline infrastructure, which includes significant projects such as the Trans Mountain and Keystone XL, plays a vital role in ensuring that oil produced in Alberta and other regions reaches refineries and export terminals efficiently. This sector is essential for linking upstream production with downstream processing, enabling the flow of energy across domestic and international borders. It's also heavily influenced by foreign relations and the global petroleum market. The downstream sector focuses on refining crude oil into finished products like gasoline, diesel, jet fuel, and petrochemicals.[4] In Canada, this sector is supported by a network of refineries located across the country, with significant refining capacity in Alberta and Eastern Canada. These refineries process both domestic and imported crude oil, supplying both local demand and international markets. The downstream industry is closely tied to the global market for refined products, influencing fuel prices and energy availability.

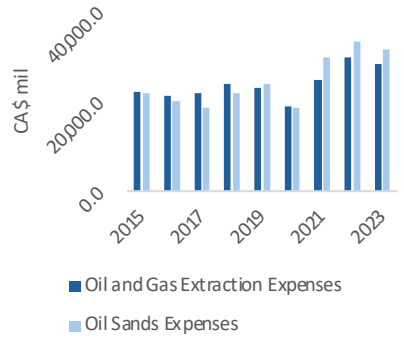
NATURAL GAS

Natural gas is a key component in Canada's energy production stack, used for heating and electricity generation, and as a key energy resource for the extraction of bitumen from oil sands.[5] According to Canada Energy Regulator, natural gas is expected to remain an essential energy product for both the domestic and international markets.[6] In 2023, the natural gas sector saw strong growth following record production, an increase of 2.9% from the previous year and the third straight year-over-year gain.[6] While Alberta production increased by 2% from 2022 to 2023, British Columbia production rose by 7%.[6] Liquified natural gas (LNG) is positioned for strong growth, with the LNG Canada terminal construction project ramping for startup, expected by mid-2025.[7]

OIL & GAS CAPITAL EXPENDITURES



OIL & GAS OPERATING EXPENSES



Source(s): Statistics Canada, Vertige Research

Vertige ESG Metric Overview

The following companies are evaluated holistically using Environmental, Social, and Governance criteria through a proprietary ESG scoring methodology developed by the ESG department of Vertige Investment Group. Environmental criteria include greenhouse gas emissions, waste management, and water management. Social criteria include freedom of association, right to collective bargaining, non-discrimination, abolition of child labour, elimination of forced labour, health and safety policy, working conditions, records, and voluntary social investment.

Exhibit 2: Vertige ESG Metric Criteria

Source(s): Vertige Research

Governance criteria include leadership diversity, shareholder rights, business ethics, supply chain management, and the presence of critical risks. Compliance was assessed through the criterion of self-assessment, International Sustainability Standards Board requirements, and full disclosure. These evaluations aim to understand and rate each company's performance across these criteria when compared to a calculated industry average, generating an overall total ESG score.

Company Analyses

Imperial Oil Ltd. (TSX: IMO)

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Imperial Oil Ltd., with an LTM revenue of CA$51.77 bn, marks the largest evaluated company by revenue.[8] It remains a massive industry player after a near 150-year history, formed in 1880, dominant in integrated energy across mining, production, and refining.[9]

Imperial Oil performed significantly below average according to industry standards. The total weighted ESG score of 55.21 out of 100 was reached with individual Environmental, Social, and Governance scores of 35.16, 63.13, and 77.0, respectively. Imperial Oil's weak ESG score is largely the result of substandard levels of efficiency in the critical areas of emissions and water management, resulting in the largest negative contribution from their Environmental performance.

Given Imperial Oil Ltd.'s substantial presence across the upstream, downstream, and chemical segments, the company has a variety of pathways to enhance its ESG metrics and better align with Canada's climate goals. In the upstream segment, Imperial could invest more heavily in carbon capture and storage (CCS) technology to mitigate emissions from oil sands production, a significant component of its operations. This would help reduce its carbon intensity and position it competitively as the global energy transition advances. In the downstream segment, adopting cleaner, more efficient refining processes could further minimize emissions and waste, contributing to more sustainable fuel production. Imperial Oil could also explore increased production of lower-carbon alternatives, such as biofuels, to align with shifting market demands toward greener energy. In the chemical segment, Imperial might benefit from innovating on biodegradable or lower-emission chemical products. By improving waste management practices and enhancing its chemical product lifecycle, Imperial could reduce its environmental footprint while meeting the growing consumer demand for sustainable products.

Carbon capture and storage (CCS) is an emissions reduction technology where CO_2 is captured at a pollution source and transported or stored locally. For high intensity polluting industries such as oil and gas, CCS has potential to support environmental efforts without lowering production. However, issues with leakage are a cause for concern, and ultimately CCS is not a solution to entirely offset CO_2 emissions.

Overall, as one of Canada's oldest and largest energy companies, Imperial Oil is well-positioned to lead by example in environmental stewardship and sustainable energy development, which will be crucial for navigating regulatory pressures and maintaining stakeholder confidence in a climate-conscious market.

Enbridge Inc. (TSX: ENB)

Enbridge Inc., with an LTM revenue of CA$48.55 bn, is a diversified energy company with most of their operations falling under oil and gas pipelines.[8] Additional activities include advancing low-carbon energy technologies such as hydrogen, CCS, and energy storage.[10]

Enbridge performed above average according to industry standards. The total weighted ESG score of 74.12 out of 100 was reached with individual Environmental, Social, and Governance scores of 82.6, 80.0, and 67.2, respectively. Enbridge's relatively higher ESG score is largely the result of above average Environmental performance, as well as high transparency in sustainability activities, resulting in a large contribution from their Social performance.

Enbridge could focus on several improvements to bolster its sustainability and position in the evolving energy sector. One key area is increasing its investment in renewable power generation. Expanding its portfolio in wind, solar, and geothermal energy could help mitigate the environmental impact of its traditional pipeline operations, aligning with global decarbonization goals. Additionally, Enbridge could enhance its efforts in CCS technology, which would further reduce its greenhouse gas emissions and make its pipeline systems more sustainable. Enbridge's Liquid Pipelines and Gas Distribution segments could also be optimized by incorporating cleaner technologies in their operations, such as reducing methane emissions in natural gas transmission. The company could explore opportunities for integrating clean hydrogen into its gas infrastructure, which would help diversify its offerings and transition towards a more sustainable energy mix. Fostering stronger relationships with Indigenous communities, particularly in areas directly impacted by its pipelines, could also improve Enbridge's social license to operate and enhance its reputation in corporate responsibility.

Investing in socially responsible initiatives, particularly those that support clean energy development and Indigenous-led businesses, would be essential for maintaining strong community ties.

These initiatives would not only make Enbridge a more environmentally responsible operator but would also align with industry trends toward a cleaner and more diversified energy future.

Canadian Natural Resources Ltd. (TSX: CNQ)

Canadian Natural Resources Ltd., with an LTM revenue of CA$35.74 bn, has anchored itself in a traditional senior oil and gas production company structure with little sustainability priority.[8; 11]

Canadian Natural Resources performed well below average according to industry standards. The total weighted ESG score of 61.71 out of 100 was reached with individual Environmental, Social, and Governance scores of 56.1, 66.3, and 57.6, respectively. Canadian Natural Resources' weak ESG performance is evident in their presence on the Environmental Offenders Registry of Canada due to a multitude of million-dollar fines and a conviction of a Federal Fisheries Act violation.[12]

Canadian Natural Resources is a major player in Canada's oil and gas sector, contributing significantly to the country's economy and foreign relations. The company is deeply integrated into the oil and gas industry's supply chain, which extends across 12 provinces and territories, benefiting from key Indigenous partnerships. In 2023, the company exported a significant portion of Canada's oil, with the United States being the primary recipient, underscoring Canada's role in North American energy security.[11]

Overall, while Canadian Natural Resources is positioned to remain a cornerstone of Canada's energy exports, its future success will depend on how well it adapts to the evolving energy landscape, balancing environmental sustainability with the economic benefits its operations continue to provide. The company's continued investment in ESG initiatives, particularly its environmental strategies, will be essential for maintaining its competitive edge as global demand shifts toward cleaner energy solutions.

Parkland Corporation (TSX: PKI)

Parkland Corp., with an LTM revenue of CA$29.32 bn, aims to integrate electric vehicle charging, solar energy, and carbon offsets to their traditional oil and gas business model.[8; 13]

Parkland performed above average according to industry standards. The total weighted ESG score of 74.57 out of 100 was reached with individual Environmental, Social, and Governance scores of 60.3, 76.3, and 92.0, respectively. Parkland's ESG performance must include an acknowledgement of the removal of some sustainability reporting from public view pending the impact of Canada's Competition Act. Further description of the act and its consequence on environmental disclosure follows below the Cenovus Energy analysis.

Founded in 1977, Parkland is a key player in the petroleum market with operations in Canada, the U.S., and internationally. The company provides retail fuel, bulk fuel distribution, propane, lubricants, and other services across commercial, industrial, and residential sectors. However, there are several opportunities for improvement.

Parkland can enhance its environmental sustainability by investing further in renewable energy, cleaner technologies, and carbon capture to lower its carbon footprint. Expanding into electric vehicle charging and biofuels would also help position the company for the energy transition. Additionally, leveraging AI and blockchain for supply chain optimization could reduce costs and improve operational efficiency, while updating retail stations and offering digital solutions would boost customer engagement. Lastly, strengthening its ESG initiatives through transparent reporting and community engagement would improve its reputation and align with growing environmental and social expectations. By focusing on these areas, Parkland can secure long-term growth in an evolving energy market in competition with larger oil and gas companies.

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TC Energy Corporation (TSX: TRP)

TC Energy Corp., with an LTM revenue of CA$16.50 bn, aligns its internal sustainability targets with the United Nations Sustainable Development Goals, aiming to leverage their North American network through nuclear and hydro storage to reduce emissions.[8; 14]

TC Energy performed significantly above average according to industry standards. The total weighted ESG score of 77.0 out of 100 was reached with individual Environmental, Social, and Governance scores of 75.3, 78.1, and 79.2, respectively. TC Energy's strong ESG score is largely the result of high levels of efficiency in water and waste management, with strong internal sustainability reporting and goal setting as well.

TC Energy Corp., founded in 1951 and headquartered in Calgary, provides energy infrastructure services across natural gas, liquids pipelines, and power generation. The company operates through diverse segments: Canadian, U.S., and Mexico Natural Gas Pipelines, Liquids Pipelines, Power and Energy Solutions, and Corporate. It manages a large network of regulated and non-regulated pipelines, storage facilities, and power generation plants across North America.

While TC Energy performs well on ESG initiatives in the energy infrastructure sector, there are key areas for improvement. To align with global energy trends and enhance its sustainability, TC Energy should focus on reducing its reliance on fossil fuels by investing in renewable energy projects, such as solar and wind, and expanding into hydrogen infrastructure. Furthermore, integrating advanced technologies such as AI for predictive maintenance and operations optimization could enhance efficiency and reduce operational costs.

Gibson Energy Inc. (TSX: GEI)

Gibson Energy Inc., with an LTM revenue of CA$12.23 bn, is the smallest evaluated company by revenue.[8; 15] The corporation aligns its internal sustainability targets with the United Nations Sustainable Development Goals, aiming to leverage their North American network through nuclear and hydro storage to reduce emissions.

Gibson Energy is a leading midstream oil and gas company specializing in crude oil storage and transportation across Canada and the U.S. Known for its reliability and efficiency, Gibson provides crucial services through its network of storage terminals, pipelines, and transportation assets. In recent years, Gibson has made notable strides in ESG efforts, underscoring its commitment to sustainability.

The company has successfully reduced emissions intensity through equipment upgrades and is investing in renewable diesel infrastructure to align with the energy transition. Gibson's strong community engagement includes partnerships with local organizations and Indigenous communities, along with a focus on safety and transparency. Through rigorous ESG reporting and governance standards, Gibson Energy demonstrates its dedication to responsible operations, positioning itself as a progressive leader in the evolving energy landscape.

Cenovus Energy (TSX: CVE)

Cenovus, with an LTM revenue of CA$55.66 bn, is a major player in the industry.[8] However, Cenovus Energy's ESG disclosures exhibit a significant lack of transparency, which it attributes to recent modifications to Canada's Competition Act.[16] The company's current reporting consists of a Corporate Social Responsibility (CSR) statement that focuses on diversity criteria and offers no environmental information. Cenovus has opted to delete its previous ESG releases from before the changes to the Competition Act, removing several years' worth of background information from the public eye. This opacity makes it more difficult for analysts and stakeholders to evaluate the business's social responsibility and environmental performance in a thorough, uniform way to compare across the oil and gas industry.

Other assessed firms have accepted these regulatory modifications but have kept access to relevant information rather than completely deleting it, in contrast to Cenovus, which uses the Competition Act amendments to rationalize its limited ESG disclosures.

Provisions were added to Canada's Competition Act in June of 2024 to require testing or substantiation of companies to support their environmental claims. The Act targets greenwashing and exaggerated claims about ESG initiatives. Despite these efforts, many companies have temporarily restricted public access to previously published ESG reporting to ensure their claims are in accordance with the Act.

Exhibit 3: Vertige Environmental, Social & Governance Scoring Breakdown by Company

Company	Environmental Rating	Social Rating	Governance Rating	Vertige Rating	% Above/Below Avg
Imperial Oil Ltd.	35.16	63.13	77.00	55.21	-21.48%
Enbridge, Inc.	82.67	80.00	67.20	74.12	5.40%
Canadian Natural Resources Ltd.	56.03	66.25	57.66	61.71	-12.24%
Parkland Corp.	60.33	76.25	92.00	74.57	6.04%
TC Energy Corp.	75.31	78.13	79.2	77.04	9.55%
Gibson Energy, Inc.	66.00	92.50	81.00	79.28	12.74%
Industry Average	**62.58**	**76.04**	**75.68**	**70.32**	**-**

Source(s): Vertige Research

Industry Benchmarking

EMISSIONS & MANAGEMENT BENCHMARKS IN ENVIRONMENTAL ANALYSIS

The Vertige Research ESG scores used in this report were determined by referencing major Canadian industry benchmarks.

The Environmental evaluations of each company were conducted through greenhouse gas (GHG) emission, waste management, and water management performances relative to GDP generated within the industry. Minimal data is available regarding Canadian oil and gas industry energy use. Total Canadian oil and gas industry water use is approximated by available data from Alberta provincial data, accounting for 84% of total Canadian oil and gas production.[17]

GHG emissions were benchmarked to a Canadian average of CA$1,243.78 per tonne of carbon dioxide (CO_2) equivalent.[18] Waste management was benchmarked to an average landfill diversion rate of 22%.[19] Water management was benchmarked to a Canadian average of CA$1,0325.12 per cubic meter of water used.[20]

SOCIAL, GOVERNANCE ANALYSES BASED ON BROADER EVALUATIONS

The Social evaluations did not require statistical benchmarking. Legal requirements and voluntary social investment of each company were sourced from company ESG and social responsibility publications. A holistic evaluation was conducted based on internal policy implementation and social investment expenses.

The Governance evaluations of each company included leadership diversity and the presence of critical risks. An industry average of leadership diversity measured 25% amongst boards of directors, meaning an average of 25% of any given corporate board was filled by racial and ethnic minorities and women.[21] The critical risks named for the oil and gas industry include persistent price fluctuation, engineering and geological limitations, and political shift on climate change.[22]

These benchmarks were used as reference for every calculation of individual company ESG scores to ensure consistency across these evaluations. Exhibit 3 depicts each company compared to an overall industry average score. The overall average total score fell at 70.3 out of 100, with an Environmental average of 62.5, Social average of 76.0, and Governance average of 75.7.

The oil and gas industry has long been regarded as a volatile commodity. Uncertainty in project investment, geopolitical conflict over access, and large supply side or demand side shocks cause large swings in oil and gas prices, despite their fuel of over 75% of the world's energy demand. This volatility contributes to high investment to capitalize on major market shifts.

EMISSIONS, VOLUNTARY INVESTMENT DETERMINE ESG FRONTRUNNERS

Given the relative security of the oil and gas industry in Canada, companies eager to jump on emissions reductions and diversified investment efforts propel them over more traditional companies in ESG evaluations.

The willingness to seek out these economic opportunities was primarily exhibited in relatively smaller companies, likely to creatively compete with larger oil and gas companies whose roots extend deeper into the Canadian economy. Enbridge and Gibson were the lowest GHG emitters evaluated, while TC Energy, Gibson, and Parkland invested more heavily in diversified technologies such as solar batteries, nuclear energy, and hydropower.

Industry Commentary

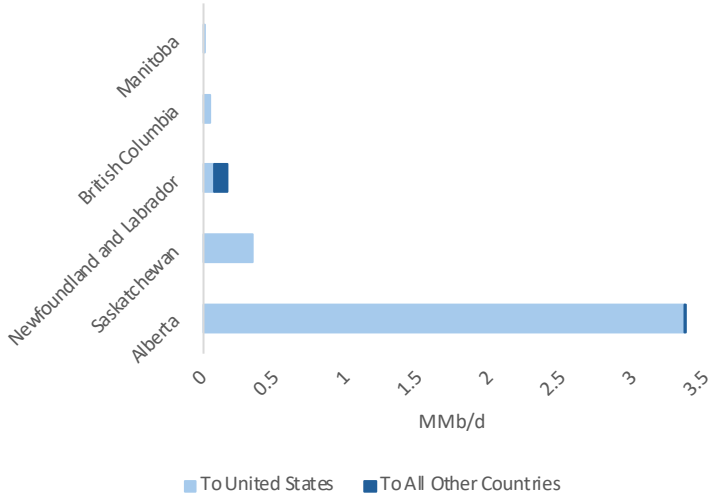
GLOBAL ECONOMIC POSITIONING REMAINS A CANADIAN CORNERSTONE

Canada's oil and gas sector is a significant part of the country's export economy, accounting for around 20% of the nation's balance of trade.[3] The strength of the Canadian dollar is closely tied to the price of oil, which directly impacts the purchasing power of Canadians. As oil prices fluctuate, they influence everything from the cost of goods to overall economic stability.

The industry's influence extends beyond direct production, through a vast supply chain that spans 12 of Canada's 13 provinces and territories. This supply chain supports businesses and communities across the country, ranging from steel manufacturers in Ontario to trucking companies in Manitoba. Indigenous businesses in particular play a key role in this supply chain, offering significant employment and economic opportunities in remote and rural communities. A significant portion of Canada's oil is exported, CA$139 bn in 2023, with the United States being the primary recipient.[3] Canada consistently ranks as the largest foreign supplier of oil to the U.S., further underscoring its importance in North American energy security. However, the global energy landscape is evolving. With mounting concerns over climate change, countries and corporations alike are being held accountable for their environmental impact. Canada's oil and gas companies are at the forefront of this challenge, tasked with balancing economic benefits while mitigating environmental risks. The sector is making strides in CCS, cleaner extraction techniques, and investing in renewable energy to reduce the carbon intensity of its operations.

In terms of future outlook, capital investment in Canada's oil and natural gas industry is forecast to reach CA$40.6 bn in 2024, reflecting the continued growth and importance of the sector to the Canadian economy.[3]

Exhibit 4: Canadian Crude Oil Exports Almost Entirely Sent to the United States

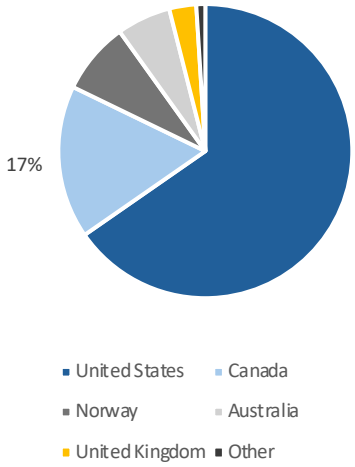


Source(s): Canada Energy Regulator, Vertige Research

INDUSTRY RELIANCE, NATURAL RESOURCE POSITIONING CHALLENGES INTERNATIONAL CLIMATE FOCUS

The drivers of climate change are well understood to be greenhouse gas emissions, however the path that countries embark on to combat the growing issue can be difficult to decide.

WESTERN ALLIANCE OIL AND GAS SUPPLY BY COUNTRY



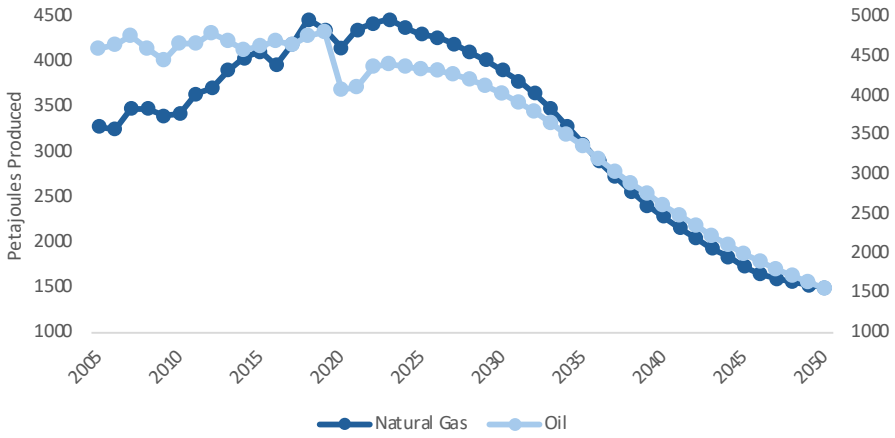
Source(s): CAPP, Vertige Research

Over 107 countries have vowed to reach net zero by 2050, meaning cutting emissions to an amount that can be offset by nature and carbon removal measures.[23] Canada has specifically mapped out its *Roadmap for the Decarbonization of the Oil and Gas Sector*, outlining key strategies to reduce the country's carbon emissions, while maintaining economic stability.[24]

The government of Canada, along with other UN members, has set out to achieve net-zero by 2050. The roadmap identifies significant reductions in methane emissions and the adoption of new technologies like CCS as essential measures. Canada's oil and gas sector, which contributes to 7.2% of its GDP and 30% of exports, faces the dual challenge of reducing emissions while continuing to support its large workforce and economic contributions.[3] Major companies like Canadian Natural Resources Limited and Cenovus have already committed to ambitious reduction targets, such as cutting methane emissions by up to 80% by 2028.[11; 16]

Canada has agreed to ambitious targets through various global climate commitments such as the 1997 Kyoto Protocol, 2009 Copenhagen Accord, and the 2015 Paris Agreement. In 2015, Canada opted for an intended nationally determined contribution by 2030 to reduce emissions to 30% below 2005 levels. In 2021, the target was updated to 40-45% emissions reduction from 2005 levels.

Exhibit 5: Oil, Natural Gas Production Needed to Steeply Decline in Canada over a 2050 Net-Zero Emissions Forecast



Source(s): Canada Energy Regulator, Vertige Research

Globally, Canada is preparing for an energy transition driven by declining demand for oil and gas as nations adopt more stringent climate policies. The Canada Energy Regulator projects that oil and gas production will peak by 2030 under various net-zero scenarios.[25] The plan is crucial to ensure that Canada's oil and gas products remain competitive in a low-carbon future, particularly in the face of carbon border adjustment mechanisms from trade partners like the European Union.

EMPLOYMENT COMPOSITION AND GOVERNMENT REVENUE SIGNIFICANCE

A notable aspect of the Canadian oil and gas workforce is its above-average compensation. Workers directly employed in the industry earn, on average, 2.2 times more than workers in other industries. Additionally, the oil and gas sector is a significant employer of Indigenous people. Nearly 7% of the workforce in this industry identifies as Indigenous, compared to the national workforce average of 3.9%.[26] Indigenous businesses also play a critical role in the industry's supply chain, with nearly 300 Indigenous suppliers involved in Alberta's oil sands and 135 Indigenous-owned businesses engaged in British Columbia's natural gas sector.[26]

The oil and natural gas industry is also a substantial contributor to government revenues, paying a record CA$34 bn in royalties to provincial governments in 2022.[3] This revenue enables provinces to fund essential public services such as healthcare, education, and infrastructure, which improve the quality of life for Canadians. In both 2023 and 2024, provincial governments are projected to receive over CA$20 bn in oil and gas royalties annually.[3]

POLICY AND REGULATIONS IMPACTING CANADA'S ENERGY MIX

As part of this broader initiative, the Canadian government is considering introducing regulations such as a cap-and-trade system to limit emissions, ensuring that oil and gas emissions decline in alignment with the country's climate goals.

These regulatory frameworks are designed to balance emissions reduction with the sector's global competitiveness, thereby safeguarding jobs and economic growth in a rapidly changing energy landscape. This forward-looking approach positions Canada as a leader in sustainable energy while addressing the immediate need to decarbonize its most significant emission-producing sector.

TRUMP, CONSERVATIVE LEADERSHIP TO FAN THE FLAMES OF AMERICAN OIL AND GAS

Trump's return to American Presidency is set to fuel the oil and gas industry. As a strong advocate for pipeline projects and a continued American reliance on fossil fuels, imports of Canadian oil and gas would likely rise further over the next four years. Trump has been outspoken in support of the Keystone XL pipeline and signed an executive order in his previous Presidency to this effect.[27] However, his urgent action to promote and expand fossil fuel use has come under scrutiny for overlooking legal requirements that may create more issues than they expedite. Short-term Canadian oil and gas is more than likely to grow under a Trump Presidency, pushing ESG burdens off corporate priority lists.

Meanwhile, Canada's political landscape is increasingly divided over energy policy, especially the carbon tax and the oil and gas industry's future. The federal carbon tax, meant to reduce emissions by making fuel and heating more expensive, has faced strong criticism from Conservatives, who say it unfairly raises costs for families and small businesses. This opposition is strongest in oil-dependent provinces like Alberta, where people argue the tax threatens local jobs and the industry's economic contributions.[28] Under Conservative leader Pierre Poilievre, there's a strong push to repeal the Canadian Carbon Tax given a potential election win. Conservatives argue that Canada should focus on supporting its own energy sector, creating jobs, and securing energy independence. While this approach might lower costs and support growth in oil and gas, it could also set back Canada's climate goals and impact its international commitments to reducing greenhouse gas emissions.

Conclusion

Given the longstanding roots of the Canadian oil and gas industry and its current economic significance, climate action will pose a significant challenge for the oil and gas industry. At the current moment, with political will pushing back against climate change action, response from individual oil and gas companies is not financially urgent. The industry is Canada's largest economic contributing commodity, a key player in Canada's foreign relations with the United States, and has a significant influence Indigenous communities.

However, voluntary investment into ESG practices of emissions reduction and energy mix diversification provide economic opportunity to gain a competitive advantage against larger industry players. Technological opportunities in energy storage and efficient distribution are seeing increasing investment. Geothermal, solar, and nuclear power are already being adopted into oil and gas company fuel options. Even without a heavy burden of political pressure, smaller oil and gas companies in particular should look to stay ahead of environmental initiatives to mitigate industry risk.

Should Canada more seriously move towards its net-zero goal for 2050, a green energy transition will require delicate consideration. In preparation for this shift, oil and gas companies will need to seriously consider GHG emissions to manage their environmental impact across a longer horizon. Reducing CO_2 emissions in particular will be integral to avoiding the rising cost of pollution in Canada through scheduled price increases implemented by the Canadian Carbon Tax while simultaneously providing companies with economic opportunity under a potential cap-and-trade system.

Canadian oil and gas is relatively shielded from drastic environmental reform in the near future. Alongside many other countries who have previously pledged ambitious emissions reduction and net-zero targets, Canada will likely prioritize the economic and international relations stability afforded by its powerhouse industry. Environmental, social, and governance developments by oil and gas companies will be fueled by and individual drive to exploit tangible financial benefit.

Auxiliary Item I: Footnote Sources

Footnote	Source
1	Government of Canada. (n.d.). *Oil, natural gas and coal: Energy facts*. Energy Information Canada.
2	Natural Resources Canada. (n.d.). *What are oil sands?* Natural Resources Canada.
3	Government of Canada. (2024). *Energy factbook 2024-2025: Section 6*. Energy Information Canada.
4	Canadian Association of Petroleum Producers. (n.d.). *Energy and the Canadian economy*. Canadian Association of Petroleum Producers.
5	Natural Resources Canada. (n.d.). *Natural gas*. Natural Resources Canada.
6	Canada Energy Regulator. (n.d.). *Natural gas: Data and analysis*. Canada Energy Regulator.
7	Natural Resources Canada. (n.d.). *Canadian liquified natural gas projects*. Natural Resources Canada.
8	Capital IQ. (n.d.). *Capital IQ platform*. Capital IQ.
9	Imperial Oil Limited. (2022). *2022 responsibility report*. Responsibility Reports.
10	Enbridge Inc. (2023). *Sustainability report 2023*. Enbridge.
11	Canadian Natural Resources Limited. (2023). *2022 stewardship report to stakeholders*. Canadian Natural Resources Limited.
12	Government of Canada. (n.d.). *Environmental offenders registry: Record 109*. Environmental Protection Canada.
13	International Institute for Environment and Development. (2021). *Drive to Zero 2021 sustainability report*. International Institute for Environment and Development.
14	TC Energy. (2024). *Sustainability report 2024*. TC Energy.
15	Gibson Energy Inc. (2023). *Sustainability report 2023*. Gibson Energy Inc.
16	Cenovus Energy. (n.d.). *Sustainability reporting*. Cenovus Energy.
17	Canada Energy Regulator. (n.d.). *Provincial and territorial energy profiles: Alberta*. Canada Energy Regulator.
18	Pembina Institute. (n.d.). *Oil and gas emissions cap important element of Canada's economic future*. Pembina Institute.
19	Statistics Canada. (n.d.). *Survey: 2009*. Statistics Canada.
20	Canadian Association of Petroleum Producers. (2024). *5 fast facts on Alberta's upstream oil and gas water use*. Canadian Association of Petroleum Producers.
21	Innovation, Science and Economic Development Canada. (2022). *Diversity on boards of directors and senior management of federal distributing corporations*. Innovation, Science and Economic Development Canada.
22	Chen, J. (2022). *The 5 biggest risks faced by oil and gas companies*. Investopedia.
23	United Nations. (n.d.). *Net zero coalition*. United Nations.
24	Natural Resources Canada. (2023). *Roadmap for the decarbonization of Canada's oil and gas sector*. Government of Canada.
25	Canada Energy Regulator. (2023). *Canada's energy future 2023: Scenarios and assumptions*. Canada Energy Regulator.
26	Indigenous Resource Network. (n.d.). *More Indigenous representation in the resource sector than in Ottawa*. Indigenous Resource Network.
27	PBS. (n.d.). *Trump administration approves Keystone Pipeline on U.S. land*. PBS.
28	BNN Bloomberg. (2024). *Oil and gas companies told to cut emissions by one-third under planned cap*. BNN Bloomberg.

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By considering these ESG-specific risk factors, investors can better understand the uncertainties and potential challenges that may impact the analyses and projections in Vertige Investment Group's ESG research.