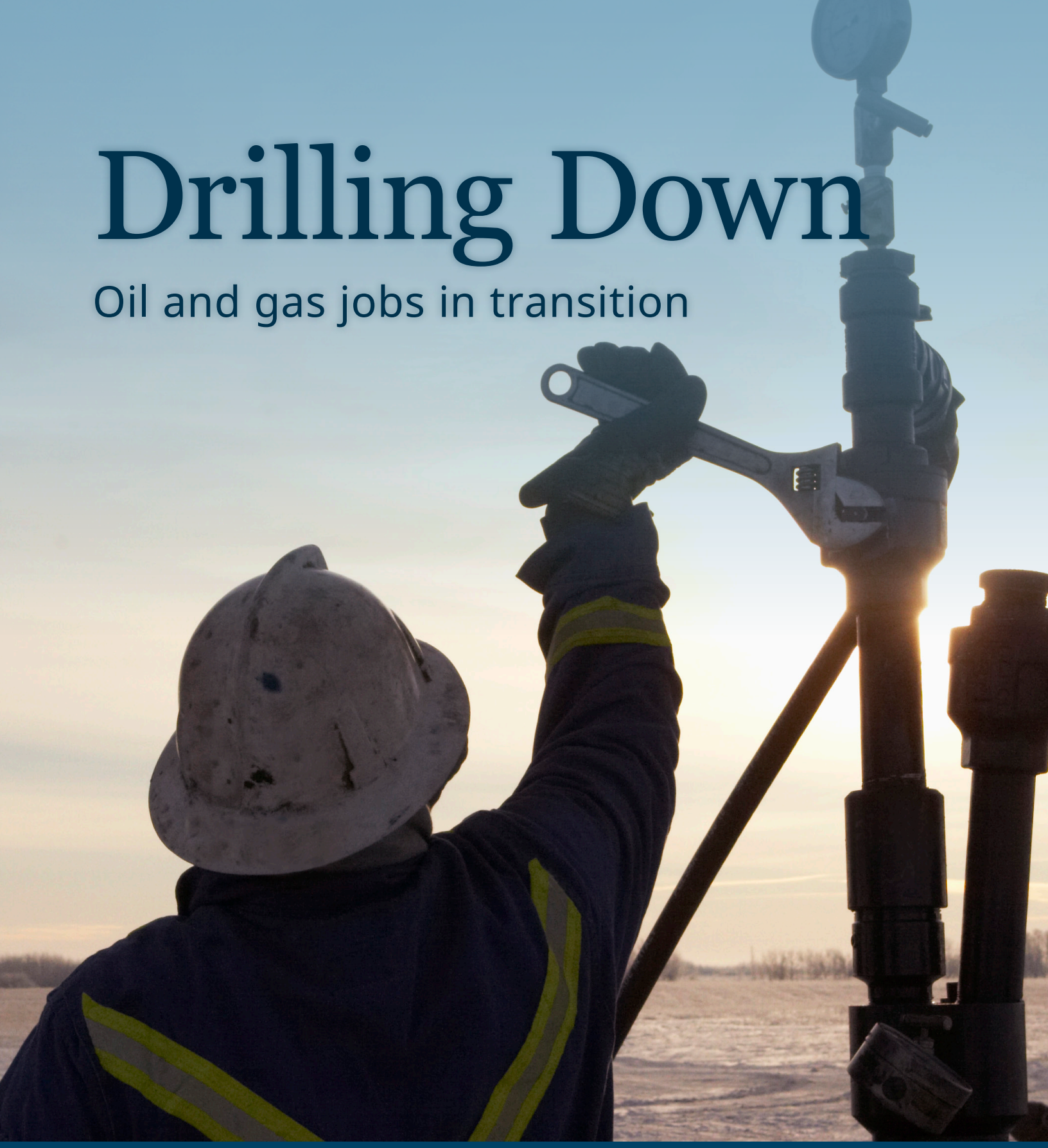
Drilling Down

Oil and gas jobs in transition



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These acknowledgements are some of the beginning steps on a journey of several generations. We share them in the spirit of truth, justice, reconciliation, and to contribute to a more equitable and inclusive future for all of society.

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Executive summary

For many years, Canada's oil and natural gas resources have been leveraged to provide thousands of jobs, billions of dollars of economic output, and well-paid work for generations of employees, especially in provinces such as Alberta, British Columbia, and Saskatchewan. As a result, the sector is still often assumed to be an engine of abundant employment opportunities and economic growth potential.

However, as this report will outline, this perception of the sector — especially with regards to how the economic benefits of oil and gas production are experienced by workers and communities — is now likely to be outdated.

Our analysis finds that employment levels in Canada's oil and gas sector never recovered from the global oil price crash of 2014 — a seismic event that fundamentally changed companies' and investors' appetite for risk. This has led to a lack of major new oil and gas project investment over the past decade, with companies instead opting to bolster their market positions through mergers, acquisitions, consolidation of workforces, and the automation of some roles.

Employment figures demonstrate the impact that this has had on workers. Where once the level of employment in the sector was characterised by periods of 'boom' and 'bust', depending on fluctuations in the global oil price, after 2012 jobs became decoupled from profits and production levels. Employment in the sector peaked in 2012, at 38 jobs per thousand barrels of oil per day produced. By 2023, it was at 22 jobs per thousand barrels — a 43% decrease, despite the fact that oil and gas production grew 47% during the same period.

Given the pace of the international energy transition, not only do we expect this trend to continue, we expect it to be exacerbated in the years ahead. In the next decade, as Canada's oil and gas industry faces a global market in which demand for its products is plateauing and beginning to fall, the sector is likely to be smaller overall, and the companies that remain will double down on these cost-cutting behaviours. Governments — especially those with significant oil and gas production in their jurisdiction — have a responsibility to acknowledge this new reality and prepare workers for it.

This report also examines the employment opportunities associated with the decarbonization of Canada's oil and gas production, including potential growth industries such as methane abatement and carbon capture and storage, both of which require skills that overlap with traditional oil and gas jobs. However, these decarbonization jobs will only materialize if governments take rapid steps to regulate the emissions that come from oil and gas production, so that companies are sufficiently incentivized to make investments in emissions-reducing projects. Not only would such regulation create jobs, it would help futureproof Canada's oil and

gas sector to retain market access in a world that is increasingly prioritizing low-carbon energy imports, such as through emerging carbon-based import duties and requirements.

However, more promising is the employment potential associated with other natural resource sectors such as renewable energy, as well as those that are expected to underpin key parts of the global energy transition, like electric vehicles and low-carbon manufacturing. In Alberta alone, our modelling indicates that the right policies and support for workers could result in tens of thousands of clean economy jobs added by 2030, reaching hundreds of thousands by 2050 — far outstripping jobs lost from the oil and gas sector.

Crucially, as leaders across Canada search for every opportunity to bolster our economic resilience — including which large projects should be fast-tracked through government approval processes — it is important to be clear-eyed about these larger, longer-term trends at play in the oil and gas industry. The findings of this report should inform policymakers about which types of investment in Canada are most likely to provide long-term benefits to workers and communities.

Rather than doubling down on new oil and gas infrastructure or projects that would, at best, only create a relatively small number of short-term jobs, governments must instead align workforce development with planning for changing energy industries. In doing so, they can ensure that workers are set up for success in the growing low-carbon economy. By facing this head-on, governments can protect workers now and in the future, deliver good jobs, and continue to build prosperity for Canada's communities.

1. The changed landscape for oil and gas jobs

Like many other resource-based industries, the oil and gas sector has historically made important contributions to Canada's economy — particularly in Alberta, Saskatchewan, Newfoundland, and British Columbia. In 2023, the oil and gas sector made up 5% of Canada's GDP, a significant share of which came from exports.[1] It was also directly responsible for 5% of jobs in Alberta (about 133,000), while just under 1% of jobs nationally (184,000) can be attributed to oil and gas extraction, refining, and pipeline transportation.[2]

However, a range of factors are now having significant negative impacts on employment in this sector, and those impacts are likely to be further amplified as the global transition away from fossil fuel use accelerates in the next few years — as we will explore later in this report.

A snapshot of the oil and gas workforce

- In 2023, direct oil and gas jobs made up 5% of jobs in Alberta and under 1% of jobs in Canada. In comparison, manufacturing made up 9% of jobs in Canada.
- The largest categories of occupations in the oil and gas sector were in the trades, transport and equipment operators (25%), natural resources and production operations (19%) and natural and applied sciences occupations (19%). However, many workers also fall into the business, financial and administration occupations (17%).[3]
- Two-thirds (67%) of oil and gas workers have some post-secondary education including a trades certificate, diploma, or degree.[4] Specifically, around a quarter (26%) have a bachelor's degree or higher.

[1] Based on a 2017 reference year, reflected in: Statistics Canada, Gross domestic product (GDP) at basic prices, by industry (2024). https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610043402

[2] Statistics Canada, Gross domestic product (GDP) at basic prices, by industry (2024). https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610043402

Canadian Centre for Energy Information, *Energy Fact Book 2023-2024* (2024), 100. https://energy-information.canada.ca/sites/default/files/2023-10/energy-factbook-2023-2024.pdf

[3] Careers in Energy, *Canada's Evolving Energy Industry Labour Force* (2024). https://careersinenergy.ca/wp-content/uploads/2024/04/FINAL_Canadas-evolving-energy-industry-labour-force-infographic_April-29.pdf

[4] *Canada's Evolving Energy Industry Labour Force*.

- In 2020, the oil and gas workforce was made up of 80% men. In the same year, 16.4% of workers were immigrants and non-permanent residents, 14.3% of workers were from a racialized group and 7.3% were Indigenous. [5]
- Nearly 69,000 workers in the oil and gas sector — more than a third of the workforce — are or will be eligible to retire between 2022 and 2035.[6] Depending on global market demand for oil, production levels, automation, and other factors shaping employment, these retiring workers may not need to be replaced and the size of the workforce may decrease due to attrition.
- Jobs in the energy sector are, on average, better compensated ($121,435 average salary) than jobs in the general population ($62,459 average).[7] However, jobs in the oil and gas sector are associated with job insecurity, falling wages, health and safety risks, lower union membership, and more long-distance labour commuting compared to other sectors.[8]

1.1 The 2014 price crash as a turning point

Historically, the biggest factor affecting jobs in the oil and gas sector has been fluctuations in the global oil price. It logically follows that high prices translate into strong shareholder confidence, meaning oil and gas companies have tended to choose these moments to invest in large new production facilities that will then generate revenue into the future. Conversely, lower prices — usually driven by lower-cost production elsewhere or weak global demand — mean companies adopt a more conservative outlook and employ fewer workers. This is the boom-and-bust cycle that is particularly familiar to residents of Alberta, but which impacts all trade-exposed sectors everywhere.

Regardless of these cycles, since 2005, only about 1% of all Canadian jobs have been in oil and gas extraction, refining, and pipeline transportation (Figure 1). The total number of direct jobs in the sector peaked in 2012 at 220,060 (1.2%) in Canada[9], after decades of expansion of oil and

[5] *Canada's Evolving Energy Industry Labour Force*.

[6] Careers in Energy, *Canada's Energy Workforce: National Labour Market Outlook to 2035* (2023), 27. https://careersinenergy.ca/resources/careers-in-energy-releases-national-energy-labour-market-outlook-to-2035/

[7] Canadian Centre for Energy Information, *Energy Fact Book 2024-2025* (2025), 39. https://energy-information.canada.ca/sites/default/files/2024-10/energy-factbook-2024-2025.pdf

[8] Jim Stanford, *Employment Transitions and the Phase-Out of Fossil Fuels* (Centre for Future Work, 2021), 72. https://centreforfuturework.ca/2021/01/18/employment-transitions-and-the-phase-out-of-fossil-fuels/

[9] This includes jobs associated with oil and gas production, refining, and pipeline transportation, as well as support services for oil and gas. Engineering/construction services for oil and gas were not included; while these jobs can represent significant employment opportunities, they are often shorter-term and more variable. For the purposes of this report, we focused on jobs directly related to the extraction, transportation, and refining of oil and gas.

gas production, which was particularly driven by high oil prices in the late 2000s and early 2010s. Between 2012 and 2023, jobs declined by 17%, despite production growing.

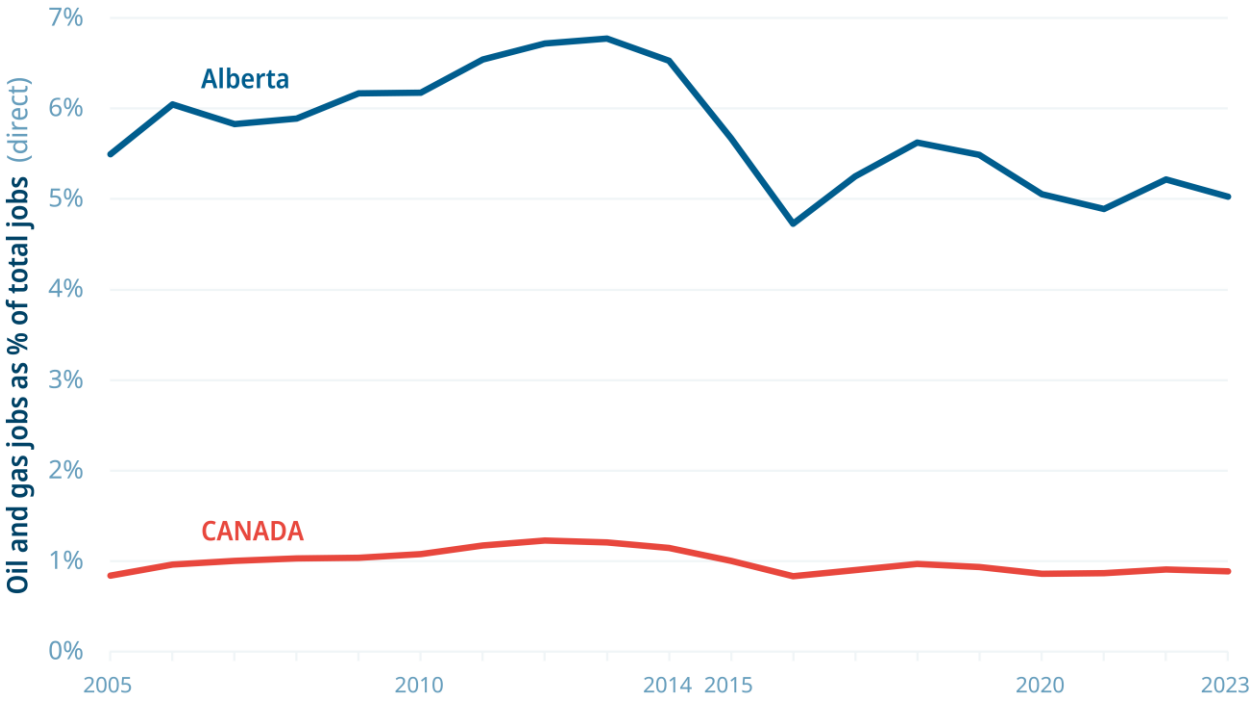

Figure 1. Direct oil and gas jobs as percentage of total jobs in Alberta and in Canada

Data source: Statistics Canada[10]

There was a sharp decline in employment in response to the collapse of global oil prices in 2014. That price collapse was caused by rapid growth of U.S. shale oil production, OPEC production decisions, and concerns surrounding the Chinese economy that led to an oversupply of oil and gas in the global market.[11] By the end of 2015, over 35,000 jobs had been lost in the Canadian oilsands.

However, the 2014 crash turned out not to be a cyclical 'bust' moment for the sector, but instead appears to have been a turning point that caused companies to fundamentally reassess the global market and alter their operations to hedge against the risk of future crashes. The impact of this apparent mindset shift on employment in the sector is demonstrated by the fact that, while there have been 'booms' in the oil price since 2015, there have been no accompanying 'booms' in job levels to the same degree. As Figure 1 shows, the level of jobs in the sector has never fully recovered from the 2014 crash.

[10] Statistics Canada, "Table 36-10-0489-01: Labour statistics consistent with the System of National Accounts (SNA), by job category and industry," May 21, 2025. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610048901

[11] Wen-Hao Chen and René Morissette, "How Do Workers Displaced from Energy-producing Sectors Fare after Job Loss? Evidence from the Oil and Gas Industry," *Statistics Canada: Economic Insights*, September 22, 2020. https://www150.statcan.gc.ca/n1/pub/11-626-x/11-626-x2020021-eng.htm

In Alberta, oil and gas jobs related to extraction, refining, and pipeline transportation make up a much larger proportion of jobs than they do elsewhere in Canada, and since 2016 employment levels in the sector have stood at 5% of total employment. As a result, the trends described above have impacted Alberta more acutely than other fossil-fuel producing provinces in Canada.

1.2 Shorter-term outlooks for companies

Mergers and acquisitions

The other significant price crash that the industry experienced in recent years was the COVID-19 pandemic. Recovery from this period was accompanied by increases in mergers and acquisitions, followed by efforts by companies to achieve what Careers in Energy has referred to as "workplace synergies" by reducing employee headcount — laying off workers, in other words.[12] A prime example of this phenomenon is the merger between Cenovus and Husky Energy which catalyzed 2,150 job cuts between 2021 and 2022.[13] Companies tend to engage in mergers and acquisitions in order to achieve larger economies of scale, reduce costs by streamlining operations and reduce workforce while increasing output and overall market share. According to a report by PetroLMI, 7,260 job losses in the oil and gas sector in 2021 from 2020 during the COVID-19 pandemic could be attributable to business restructuring, lower capital spending, mergers and acquisitions.[14]

Lack of capital expenditure in the oilsands

The shift in employment levels is also part of the project life cycle in the oilsands sector. Jobs—especially in contracting — dramatically increase during the construction phase of major projects. These jobs end as the projects become operational. Jobs in engineering and construction are most volatile, and make up the greatest share of employment.[15]

However, though oilsands companies have received regulatory approvals for a number of greenfield expansion projects, since 2014 they have generally stopped moving forward with those projects — meaning these contracting jobs are no longer materializing. For instance, Suncor's Meadow Creek SAGD project (expected to produce about 40,000 barrels per day to

[12] *Canada's Energy Workforce*, 36.

[13] Ian Hussey, *Job Creation or Job Loss? Big Companies Use Tax Cut to Automate Away Jobs in the Oil Sands* (Parkland Institute, 2022), 18. https://www.parklandinstitute.ca/job_creation_or_job_loss

[14] PetroLMI, *Labour Market Outlook 2021 to 2023: Canada's Oil and Gas Industry* (2021), 5. https://careersinenergy.ca/wp-content/uploads/2021/08/Labour-Market-Outlook-2021-to-2023-FINAL-3.pdf

[15] Statistics Canada, "Table 36-10-0489-01: Labour statistics consistent with the System of National Accounts (SNA), by job category and industry," May 21, 2025. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610048901

start) and Imperial's Aspen project (75,000 barrels per day) were approved by the Alberta Energy Regulator in 2018, but have yet to move ahead.

Instead, oilsands companies are tending to opt for marginal expansions and debottlenecking of existing projects, which present a lower long-term investment risk. These plans could nevertheless add 9,000 to 25,000 barrels per day, depending on facility — meaning companies have the option to expand production without creating significant numbers of jobs. One notable exception to this trend is the new Blackrod SAGD facility, with approvals to produce 80,000 barrels per day, and operated by UAE-owned International Petroleum Corporation. Nevertheless, the Alberta Energy Regulator predicts that from 2025 to 2030, capital expenditures in the oilsands will be about 45% of the 2014 peak.[16]

Instead of revenues being invested in big new sources of future production, a high percentage of oilsands revenues are being returned to shareholders. In the first half of 2023, 75% of available cashflow from oilsands firms was returned to shareholders in the form of share repurchases and increased dividends.[17] In contrast, in the conventional sector — where new wells can be drilled more quickly and have shorter life cycles than oilsands projects (where bitumen can be mined for several decades), most cash flow associated with conventional production was directed into capital expenditures.[18]

These factors indicate that oilsands companies are increasingly hedging their decision-making, and prioritizing short-term returns instead of longer-term projects, possibly because they are unsure of the future market for their product at this stage in the energy transition. As such, rather than being a reliable source of new investment and jobs, it would appear the oilsands as a subsector may be reaching maturity.

Furthermore, as firms continue to deploy cost-cutting measures like fleet automation (see below) and offshoring of engineering and design work, we would expect oil and gas sector jobs in Canada to continue to decouple from production; that is, where investments in new or enhanced production do occur, fewer jobs or contracting opportunities will be created than for similar types of investments made historically.

[16] Alberta Energy Regulator, "Capital Expenditures." https://www.aer.ca/data-and-performance-reports/statistical-reports/alberta-energy-outlook-st98/prices-and-capital-expenditure/capital-expenditures

[17] Jan Gorski and Eyab Al-Aini, *Waiting to Launch*: *The gap between Canadian oilsands companies' climate pledges and actions* (Pembina Institute, 2023 Update), https://www.pembina.org/pub/oilsands-waiting-launch

[18] Canadian Association of Petroleum Producers, *The Economic Impact of Canadian Oil and Gas* (2025), 8. https://www.capp.ca/wp-content/uploads/2023/12/The-Economic-Impact-of-Canadian-Oil-and-Gas.pdf

Automation

> *"Alberta must finally accept that the traditional oil and gas industry is no longer the job creation engine it once was. Like most industries, hydrocarbon extraction is being transformed by new technologies. From automated drilling rigs to predictive maintenance using artificial intelligence to remote monitoring of well sites, those technologies are displacing workers. And the jobs are not coming back."*
>
> — Alberta Federation of Labour[19]

Automation has been a major driver of workforce downsizing in many sectors, and the oil and gas industry is no exception. Several major oil and gas firms are taking concrete steps to replace labour with automated systems; for instance, Imperial Oil has invested in autonomous mining trucks, resulting in a reduction of workforce.[20]

Careers in Energy notes that automation, remote monitoring, artificial intelligence and machine learning may lessen the need to replace retiring workers, resulting in fewer net jobs in the sector in the future.[21] In particular, heavy equipment operators, drilling and service labourers, and machinists are expected to be impacted by automation in the oil and gas industry, due to the "predictable" nature of these roles (where many activities are "performed in a controlled environment and [are] not prone to changes").[22] Given the rise in artificial intelligence and the impact of large language models on office work across a range of sectors, it is reasonable to assume that office workers in the oil and gas sector will also be impacted.

In 2020, Rystad Energy predicted that 20% of oil drilling, operational support, and maintenance workers globally would be replaced by automation within a decade.[23] A study by EY Canada

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[19] Alberta Federation of Labour, *Skate to Where the Puck is Going: Re-imagining Alberta's Energy Future: An Industrial Blueprint for Job Creation and Prosperity* (2022), 26. https://assets.nationbuilder.com/afl/pages/7009/attachments/original/1665103275/Re-imagining_Alberta's_Energy_Future_-_An_Industrial_Blueprint_for_Job_Creation_and_Prosperity_-_Web_-_Final_-_6OCT22.pdf

[20] Amanda Stephenson, "Imperial's fleet of heavy haul trucks at Kearl oilsands site now fully autonomous," *Global News,* October 27, 2023. https://globalnews.ca/news/10054667/imperial-oil-autonomous-trucks/

Vincent McDermott, "Suncor on track to expand autonomous vehicle fleet by year's end," *Fort McMurray Today*, August 29, 2024. https://www.fortmcmurraytoday.com/news/suncor-on-track-to-expand-autonomous-vehicle-fleet-by-years-end

[21] *Canada's Energy Workforce*, 28.

[22] EY and PetroLMI, *Preparing for the future now: Rethinking the oil and gas workforce in 2040* (2020), 6. https://www.ey.com/en_ca/insights/energy-resources/rethinking-the-oil-and-gas-workforce-in-2040

[23] David Wethe, "Robots May Replace 20% of Oilfield Jobs in a Decade, Report Says," Bloomberg News, March 29, 2021. Available at https://financialpost.com/pmn/business-pmn/robots-may-replace-20-of-oilfield-jobs-in-a-decade-report-says

examining the automation potential of jobs in the oil and gas sector found that key job groupings, including equipment operators, facility operations and trades, could see up to a 65% decrease in employment levels by 2040, largely through attrition.[24]

Jobs numbers decoupled from oil and gas production

Added together, these trends of mergers, lack of capital expenditure on new projects, and increased automation of roles are combining to reduce the labour intensity of Canadian oil and gas production. This means the number of jobs correlated with the production of a barrel of oil (or natural gas equivalent) has decreased in the last ten years (Figure 2, blue line). In 2005, as the oilsands took off, there were about 25 jobs per thousand barrels per day of oil and natural gas production; this peaked in 2012 with 38 jobs per thousand barrels, which then rapidly declined post-price crash to 22 jobs per thousand barrels in 2023. In the period from 2012 to 2023, jobs per thousand barrels decreased by more than 40%; meanwhile, oil and gas production increased by 47% (Figure 2, dark grey line).

[24] *Preparing for the future now*, 14.

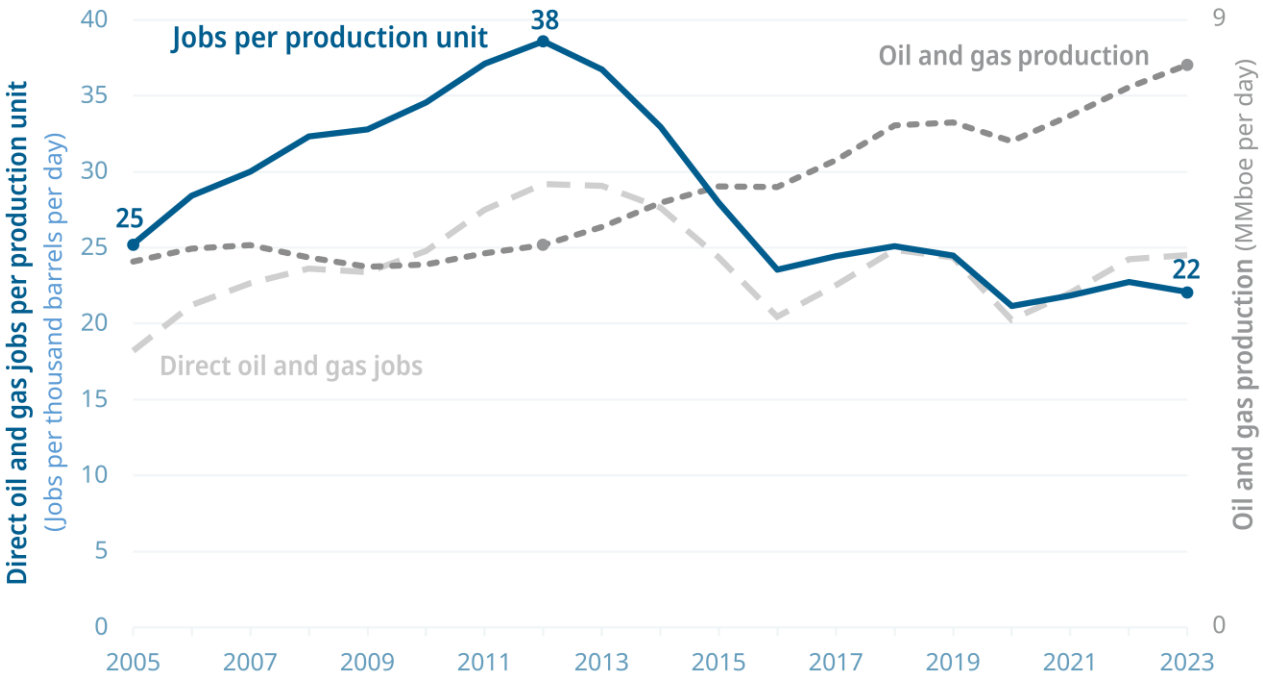

Figure 2. Labour intensity of oil and gas production decrease since the 2014 crash

This figure includes number of jobs by Statistics Canada NAICS jobs categories (conventional and non-conventional oil and gas extraction, refineries, pipeline transportation, and support activities for mining and oil and gas), published annually by Statistics Canada. Categorization of jobs may differ slightly in the modelling discussed below. We excluded construction jobs from this analysis as they are more likely to be project-based or temporary, focusing instead on core employment in the upstream and midstream. Oil and gas production has been compiled into barrels of oil equivalent per day.

Direct oil and gas jobs (light grey line) are graphed for relative comparison only to show trend.

Data source: Statistics Canada, Canada Energy Regulator[25].

[25] Statistics Canada 2024, "Table 36-10-0489-01: Labour statistics consistent with the System of National Accounts (SNA), by job category and industry."

Canada Energy Regulator, *Canada's Energy Future 2023: Energy Supply and Demand Projections to 2050* (2023). www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2023/index.html

2. Global demand decline and negative job trends

As explored above, the oil and gas industry is inherently globalized and trade-exposed. Employment in the sector is therefore shaped by fluctuations in commodity prices and the Canadian industry's responses to those fluctuations.

Nevertheless, it is still common for industry spokespeople to frame these ups and downs as a continuation of the boom and bust cycle — a perception which gives rise to "business-as-usual" predictions of continued and constant growth in the oil and gas sector out to 2050.[26] However, given the pace and scale of clean energy investment around the world that is displacing fossil fuel use, these scenarios are not prudent ones upon which to make assumptions about the role of the oil and gas sector in Canada's future labour market.

Modelling from a range of groups including the Canada Energy Regulator, International Energy Agency, and Bloomberg New Energy Finance — as well as oil and gas companies including BP, Shell and Equinor — indicates that the actions governments worldwide have already taken (or have announced) to meet their climate commitments and grow their low-carbon economies, combined with the rapidly falling costs of clean energy, will likely result in global demand for oil and gas reaching a peak in the 2030s, and then entering long-term decline.[27] A decline in demand naturally leads to falling prices, which will have implications for Canada's domestic oil and gas industry, including production (Figure 3) and employment levels.

[26] See, for instance, the "Current Measures" case in Canada Energy Regulator, *Canada's Energy Future 2023*, or OPEC, *World Oil Outlook 2050* (2024). https://publications.opec.org/woo

[27] International Energy Agency, *World Energy Outlook 2024*. https://www.iea.org/reports/world-energy-outlook-2024

Bp, *Energy Outlook,* (2024). https://www.bp.com/en/global/corporate/energy-economics/energy-outlook/energy-demand/oil.html

Canada's Energy Future 2023, Fig R.27. https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2023/results/index.html#a4

Shell, *Energy Security Scenarios* (2025). https://www.shell.com/news-and-insights/scenarios/the-2025-energy-security-scenarios.html

Equinor, *Energy Perspectives* (2024), 6. https://www.equinor.com/sustainability/energy-perspectives

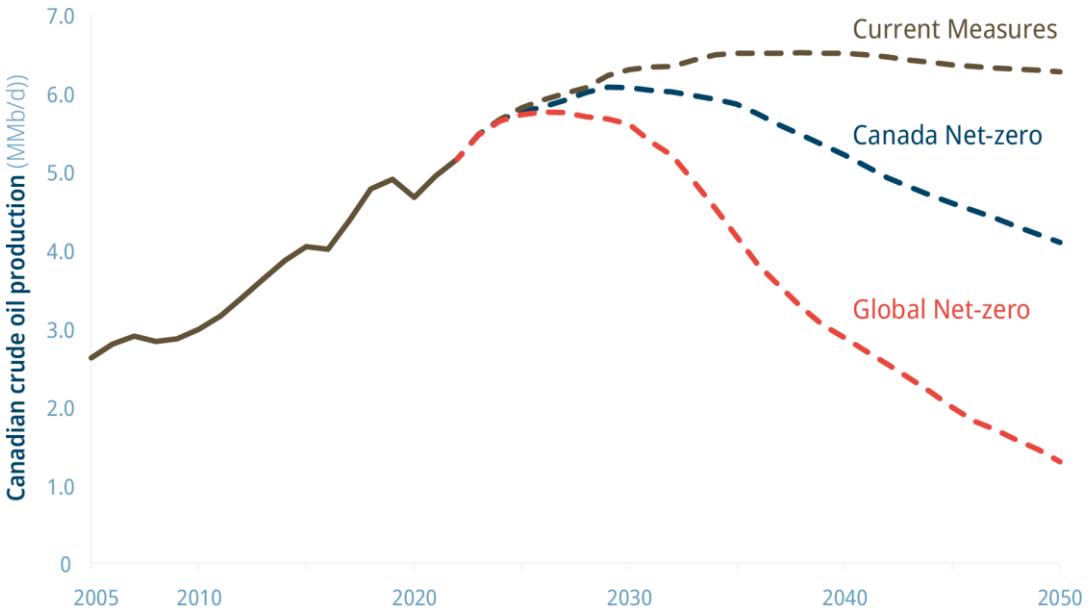

Figure 3. Canadian oil production in a scenario of changing global demand

Canada Energy Regulator's Canada Net-zero scenario (as at 2023): global market-driven demand for oil and gas results in increased production until 2030, when long-term decline in demand begins.

Adapted from: Canada Energy Regulator[28]

In most net-zero energy forecasts (which model a future where the world achieves its goal of net-zero emissions by 2050), there is still a small demand for oil and gas use where substitutions are less readily available — for instance, as petrochemicals, or in very hard-to-abate sectors like aviation.[29] Several oil-producing countries have claimed that they will therefore provide "the last barrel of oil" in 2050 as the market becomes tighter and producers out-compete one another for the limited demand that remains.

While it is still uncertain what factors will ultimately determine the success of various countries' oil and gas industries in a constrained oil market, there are a number of reasons to think critically about the likelihood of the whole of Canada's industry remaining competitive — or perpetually growing — to 2050. A more prudent approach is to explore a future where demand for Canadian oil and gas declines significantly — which would likely intensify the risk-averse, cost-cutting behaviour that the industry is already exhibiting.

[28] *Canada's Energy Future,* 14. Data available at "Canada's Energy Future 2023: Energy Supply and Demand Projections to 2050." https://apps.cer-rec.gc.ca/ftrppndc/dflt.aspx?GoCTemplateCulture=en-CA

[29] *World Energy Outlook 2024*, 24.

2.1 Canada's vulnerability to international trends

The Canadian oil and gas industry is largely export-driven. In 2022, 92% of the oil and gas sector's contributions to Canada's GDP were from exported products.[30] Canada's main customer for energy is the United States, which receives over 96% of Canadian oil and gas exports.[31] In the context of persistent trade tensions with the U.S. so far in 2025, there has been renewed interest in increasing export capacity for Canadian oil and gas in an effort to find new trading partners. Some commentators and senior politicians have, for example, called for new oil and gas pipeline projects (should any be proposed) to be designated as projects of national interest and therefore fast-tracked through environmental assessments.

However, many of these new potential customers for Canada's oil and gas — including, crucially, China and the European Union — continue to accelerate investment in renewable power, electric vehicles, and energy efficiency, to improve their own domestic energy security by reducing reliance on fossil fuel imports, as well as to meet emissions reduction commitments. In addition, import requirements on emissions-intensive products — like the European Union (EU) methane intensity requirements for fossil fuel imports, the EU and United Kingdom carbon border adjustment mechanisms, and initiatives in Japan and South Korea to better account for life cycle emissions from liquefied natural gas — are in development.

It would therefore be prudent for Canada to take a cue from those partners, and indeed from the sector itself. Given the point at which the world is now at in the global energy transition, it is arguable that the oil and gas sector is maturing and each passing year brings increased likelihood that any new fossil fuel infrastructure will ultimately become a stranded asset. That's one reason firms are investing in marginal expansion rather than expensive new projects, focusing on cutting costs, and increasing returns to shareholders. These are long-term trends underway, and though oil and gas will continue to employ tens of thousands of people into the future, it is unlikely to be a sector of perpetual job growth.

Electric vehicles and global energy demand

The transition to zero emissions vehicles is accelerating globally, with more than 17 million electric cars sold in 2024 — representing over 20% of all new car sales. To put this growth in perspective, the increase in sales from 2023 to 2024 alone was about 3.5 million vehicles, which is more than the total number of EVs sold worldwide in 2020.[32] Sales are expected to

[30] *Energy Fact Book 2023-2024*, 100.

[31] *Energy Fact Book 2023-2024*, 12.

[32] International Energy Agency, *Global EV Outlook 2025*, May 2025, https://www.iea.org/reports/global-ev-outlook-2025

reach over 20 million in 2025, a 25% increase, and projections suggest they could more than double by 2030, reaching nearly 40 million units and representing around 40% of all car sales.[33] Automakers in Europe and Asia are committed to transitioning away from internal-combustion engines, supported by policies, investments and shifting market demands, meaning that demand for gasoline and diesel for road transport will be phased out over time. Notably, demand for oil in China is now anticipated to peak before 2030, given the rapid transition to electric vehicles in that country.[34] Since most Canadian oil is ultimately used for road transportation, demand for it is predicted to decline as the global electric vehicle transition accelerates — regardless of how quickly Canadians themselves transition to electric vehicles.[35]

Demand for Canada's oilsands — which supplies the bulk of oil production, in the form of bitumen — is at greater risk in an increasingly competitive oil market. Oilsands production in Canada is among the highest average emissions intensity and cost relative to the top 15 global producers.[36] While some of Canada's oil assets are more competitive than others, on average, a barrel of Canadian oilsands costs C$12 more to produce than the global average.[37] In a transitioning world, it is logical to assume that costly, carbon-intensive oil will not fare well against other jurisdictions with advantages in both areas; however, it is also a factor that some of these other areas face higher energy security risks.

Finally, the actions of global energy producers have an impact on the Canadian sector. The Organization of Petroleum Exporting Countries (OPEC) — whose members produce 40% of crude oil globally — can increase or cut production to influence the price of oil.[38] The price of oil is one of the largest variables in determining whether producing oil from a given facility is cost-effective and can bring desired return on investment. OPEC decisions in response to shifting markets may create more volatility in the sector. This can make it harder for higher-cost

[33] BloombergNEF, *Electric Vehicle Outlook 2025,* June 18, 2025 https://about.bnef.com/insights/clean-transport/electric-vehicle-outlook/

[34] Energy Tracker Asia, "China's Oil Demand Dropped: Experts See Start of a Trend," May 1, 2025, https://energytracker.asia/china-oil-demand-dropped/

[35] *World Energy Outlook 2024,* Regional dashboards: United States, Oil demand. https://www.iea.org/reports/world-energy-outlook-2024/regional-dashboards

[36] Janetta McKenzie, Scott MacDougall, and Eyab Al-Aini, *Survival of the Cleanest: Assessing the cost and carbon competitiveness of Canada's oil* (Pembina Institute, 2023), 3. https://www.pembina.org/pub/survival-cleanest

[37] *Survival of the Cleanest,* 6.

[38] *Survival of the Cleanest,* 8.

producers to recover from low prices and for Canada's smaller, marginal producers to generate profits.[39]

[39] J.-F. Mercure et al., "Reframing incentives for climate policy action," *Nature Energy* 6 (2021). https://www.nature.com/articles/s41560-021-00934-2

Aaron Cosbey, "Why Canada Is Unlikely to Sell the Last Barrel of Oil," *International Institute for Sustainable Development,* December 14, 2022. https://www.iisd.org/articles/deep-dive/why-canada-unlikely-sell-last-barrel-oil

3. Opportunities for workers

As noted, the global energy transition is already underway and is likely to accelerate, resulting in a market-based decline in oil and gas production and jobs associated with that production. However, new and emerging sectors will also grow as the transition gains momentum, leading to additional job opportunities. In this section, we discuss the potential job opportunities both associated with decarbonizing existing oil and gas production, as well as from emerging clean economy sectors. We also outline policy changes needed to support Canada's oil and gas workers in this transition.

Our job opportunity analysis is based on forward-looking modelling aligned with global commodity prices from the International Energy Agency's *Announced Pledges* scenario.[40]

3.1 Fewer oil and gas jobs overall

Modelling undertaken by Navius Research and commissioned by the Canadian Labour Congress and Pembina Institute provides some insight into how job trends could shift in the oil and gas sector. These economy-wide results were initially published in the 2023 *Sustainable Jobs Blueprint*; oil and gas results were extrapolated for this report.[41]

In the *Announced Policies* scenario, where the measures announced in Canada's 2030 Emissions Reduction Plan are maintained and implemented, and global commodity prices align with the Canada Energy Regulator's *Canada Net-Zero* scenario, our modelling results find that jobs in Canada's oil and gas sector peak by 2030 and slowly decline thereafter. When oil prices, used in this model as an indicator of global oil and gas demand, are adjusted to align with a scenario where the world implements announced climate commitments, oil and gas jobs steadily decline about 44% from 2020 to 2050.

In other words, this is a scenario where political commitment and financial investment for decarbonization is prioritized in Canada and globally, while the world transitions away from fossil fuel consumption. It is worth noting that, while some of Canada's climate policies (such as the consumer carbon price) have been rolled back, there appears to be no shortage of investment interest in the energy transition. Global investment in renewable power, electrified

[40] Douglas Bryan, Sam Harrison and Jotham Peters, *Sustainable Jobs Blueprint: Modelling Annex* (Navius Research, 2023). https://www.naviusresearch.com/publications/sustainable_jobs_modeling_annex/

[41] Megan Gordon and Alex Callahan, *A Sustainable Jobs Blueprint, Part II: Putting workers and communities at the centre of Canada's net-zero energy economy* (Pembina Institute and Canadian Labour Congress, 2023). https://www.pembina.org/reports/sj-blueprint-part-2.pdf

transport, and energy efficiency topped US$2 trillion in 2024, driven by China.[42] The shrinkage in the oil and gas labour market is due not just to a decline in global demand for Canada's fossil fuels resulting from international uptake of low-carbon technology, but to the risk-averse firm behaviour discussed above; an emphasis on automation, cost-cutting, and capital expenditures focused on marginal expansion rather than massive new projects. While the decline in jobs is slow, and there will still be oil and gas employment opportunities in the long term, the sector is likely to represent a smaller slice of an otherwise growing pie when it comes to good and stable jobs in Canada.

3.1.1 Limited job opportunities in decarbonization of the sector

In this scenario, investment in decarbonization of oil and gas production will create associated shorter-term jobs as emissions reductions projects are constructed and brought online (Figure 4). For example, modelling suggests that carbon capture deployment could support 1,000 to 3,000 new jobs between 2025 and 2050, many of which would be located in fossil fuel-dependent regions, such as Alberta. Many of these carbon capture roles will be short-term construction jobs, with fewer full-time permanent positions required for maintenance and operation.

However, it should be noted that at present the major carbon capture project on the table — which was proposed in 2021 by the oilsands Pathways Alliance — has not yet seen significant progress, and is at this point unlikely to be realized on the timeline originally proposed by the Pathways companies.

Aside from carbon capture in the oilsands, jobs associated with methane abatement include some construction opportunities as equipment is overhauled or installed to comply with forthcoming federal and provincial regulations, as well as longer-term jobs associated with monitoring and measurement of methane. The modelling suggests 1,000 to 2,000 jobs per year in methane abatement could be supported from 2025-2050.

[42] BloombergNEF, "Global Investment in the Energy Transition Exceeded $2 Trillion for the First Time in 2024, According to BloombergNEF Report," January 30, 2025. https://about.bnef.com/insights/finance/global-investment-in-the-energy-transition-exceeded-2-trillion-for-the-first-time-in-2024-according-to-bloombergnef-report/

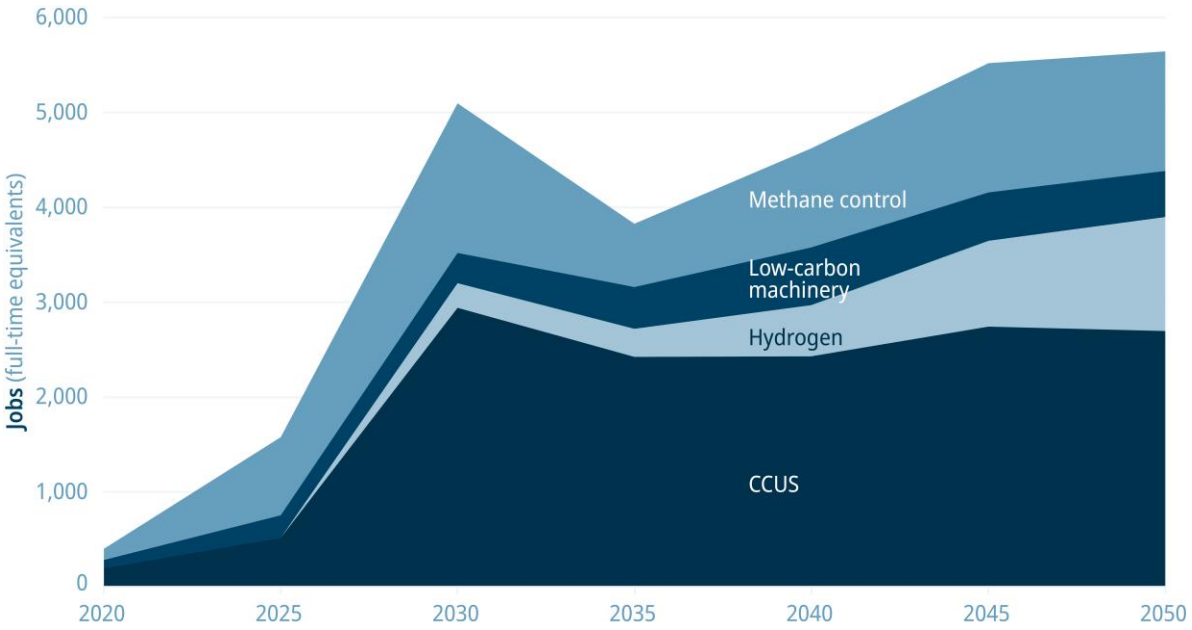

Figure 4. Modelled oil and gas decarbonization jobs, 2020-2050 (*Announced Policies* scenario)

However, given changes in federal and provincial climate policy that are ongoing in 2025 — notably, the rolling back of the consumer carbon price, some potential changes to industrial carbon pricing in Alberta,[43] the unclear future of the proposed federal oil and gas emissions cap, and the as-yet unclear future of federal and provincial methane regulations to 2030 — these jobs numbers associated with decarbonization are contingent on policy to prompt that decarbonization. In other words, given the possibly dampened trajectory of climate policy in Canada over the next few years, including the potential weakening or shelving of regulations that would have compelled companies to invest in decarbonization projects (which would subsequently create jobs), it is unlikely that jobs associated with decarbonizing oil and gas will be numerous enough to offset the inhibiting effects of automation, cost-cutting, and global demand decline.

3.2 Clean economy jobs

Our modelling also finds that job losses in the oil and gas sector are more than offset by new opportunities in the clean economy. Clean economy jobs include employment in both clean energy sectors like renewable energy, and sectors other than energy that are expected to underpin key areas of the transition, like electric vehicles and low-carbon manufacturing. In Alberta, we can expect to see tens of thousands of clean economy jobs added by 2030, reaching hundreds of thousands by 2050. Clean economy jobs in this modelling include clean

[43] Scott MacDougall, *Amendments to Alberta's TIER Policy* (Pembina Institute, 2025). https://www.pembina.org/pub/amendments-albertas-tier-policy

transportation; low-carbon buildings; direct air capture; clean electricity; biofuels; and low-carbon manufacturing; they also include jobs in hydrogen and carbon capture and storage in sectors other than oil and gas production (also discussed in Section 3.1).[44] Depending on the cost and availability of carbon capture and direct air capture technologies during this timeframe, the total number of jobs created could be even higher.[45]

Canada has a competitive advantage in the clean energy sector due to an abundance of low-emitting electricity, a skilled workforce, and emerging clean technology supply chains (for instance, battery component plants). Solar, wind, and geothermal energy generation; mining and processing critical minerals; nature-based solutions; carbon capture; and green hydrogen all show potential for new economic pathways.[46] Supply chains that support construction, maintenance, and repair of new and existing energy infrastructure — from building retrofits to mine expansions — will also grow demand for workers in construction, labour, and skilled trades.

Although Alberta has been slow to adapt itself to the energy transition while other governments have begun to occupy key pieces of the clean energy supply chain, it still has the potential to experience massive job growth, if it begins to take the right steps. Clean Energy Canada finds that on a net-zero trajectory, jobs in clean energy could grow at a rate of 10% per year, however, this scenario is only possible should Alberta choose to capitalize on and scale up clean energy industries that show significant economic potential.[47] Another report by Delphi Group, Foresight Canada, and Cleantech Group found that Edmonton and Calgary are uniquely positioned as leaders in a transition to a low-carbon economy with a growing cleantech ecosystem, talent, infrastructure, and collaboration among industry players. The cities have high potential to attract foreign direct investment in agtech and agriculture, carbon capture, electrification, energy efficiency, and hydrogen production and utilization.[48]

Some thought leaders have explored innovative ideas that leverage more value from Alberta's natural resources, such as manufacturing carbon fibre from bitumen. Others have noted that embracing building retrofits and infrastructure buildout would support community-based economic activity and employment, and spurring needed upgrades in aging infrastructure in northern communities.[49]

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[44] *A Sustainable Jobs Blueprint, Part II*, 30.

[45] *Sustainable Jobs Blueprint: Modelling Annex,* 20.

[46] Cedric Smith and Sarah Winstanley, *Net-Zero Skills: What will Canada need for the coming energy transition?* (Pembina Institute, 2022), 5. https://www.pembina.org/reports/net-zero-skills.pdf

[47] Clean Energy Canada, *A Pivotal Moment* (2023), 20. https://cleanenergycanada.org/report/a-pivotal-moment/

[48] Delphi Group, Cleantech Group and Foresight Canada, *Alberta Energy Transition* (2021), 21. https://www.calgaryeconomicdevelopment.com/newsroom/alberta-energy-transition-study-a-61b-opportunity/

[49] *Skate to Where the Puck is Going*, 57.

3.3 Support for workers

3.3.1 Strong regulatory signals for investment certainty

While a structural shift in the global energy sector is unfolding, provincial and federal governments can take a leadership role in their policymaking to ensure Canada's regional economies are positioned to thrive. Implementing stringent regulations, such as those that incentivize decarbonization investments in the oil and gas sector,[50] encourage the rapid build out of low-cost, clean electricity generation and infrastructure,[51] and accelerate Canada's transition to electric vehicles, will create greater market certainty and accelerate economic growth and job creation in new and existing industries. In short, these policies are no longer about reducing emissions — but about showing that Canada and its workers are open for business in the growing low-carbon economy.

Decarbonizing existing industrial sectors will help Canada retain good, unionized jobs, but it will also create new jobs for workers in new sectors.[52] For example, up to 15,000 jobs could be created in oil and gas reclamation if financial security requirements for the sector were more comprehensive, ensuring that funds are available when firms become insolvent or projects approach end-of-life sooner than anticipated due to global demand decline.[53]

3.3.2 A skills plan for workers in a clean economy

To align the talent pool with the job opportunities that are most likely to exist over the next few decades, better coordination between energy transition planning and workforce development is needed. More labour market information and analysis must be made available by governments, both federal and provincial, to help decision-makers, businesses, workers, unions and other stakeholders plan for and optimize future pathways. Skills mapping can help workers understand how skills and attributes can transfer between occupations and sectors.[54] Governments could also support retraining costs for displaced workers and promote in-demand

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[50] Janetta McKenzie, Scott MacDougall, Jan Gorski and Eyab Al-Aini, *Options to cap and cut oil and gas sector greenhouse gas emissions* (Pembina Institute, 2022). https://www.pembina.org/pub/options-cap-and-cut-oil-and-gas-sector-greenhouse-gas-emissions

[51] Binnu Jeyakumar and Jason Wang, *Pembina Institute Response to the Clean Electricity Standard Discussion Paper* (Pembina Institute, 2022). https://www.pembina.org/pub/response-federal-governments-discussion-paper-forthcoming-clean-electricity-standard

[52] *A Sustainable Jobs Blueprint, Part II*, 26.

53 Hadrian Mertins-Kirkwood and Matt Hulse, Heads in the *Sands*: Understanding the social and economic risks of declining global demand for Alberta oil (Canadian Centre for Policy Alternatives and Ecojustice, 2024), 26. https://www.policyalternatives.ca/news-research/heads-in-the-sands/

[54] International Energy Agency, *Skills Development and Inclusivity for Clean Energy Transitions* (2022), 7. https://www.iea.org/reports/skills-development-and-inclusivity-for-clean-energy-transitions

jobs to new workers.[55] Lessons can be drawn from innovative pilot projects such as Calgary Economic Development's EDGE UP program which connects displaced mid-career fossil fuel workers with jobs in the digital economy. The digital economy was one of the top growth opportunities for workers in the Calgary region, making a strong employment prospect for displaced oil and gas engineers where nearly 80% of skills overlap existed between these roles.[56]

3.3.3 Support for emerging industries

Canada can future-proof its economy by proactively building out and investing in industries best positioned to thrive over the next few decades. Multipronged industrial policy and sector-specific strategies can help foster economic pathways that create replacement jobs, bolster public revenues, lessen reliance on volatile industries, and improve domestic energy security.

Alberta Premier Danielle Smith noted in the 2024 provincial budget address that the province "has become unsustainably dependent on non-renewable resource revenues," creating vulnerabilities in the Alberta economy and workforce.[57] A more diversified domestic industry mix in places like Alberta can also mean workers have more stable careers, and communities can develop their local economies. Part of making sure this can happen requires addressing restrictions that unfairly target flourishing industries, such as renewable energy and related supply chains. For Alberta specifically, this would include the province doing more to create investment certainty for its once-booming renewable energy industry, which has suffered under two years of policy changes, new rules and ambiguous restrictions.[58]

Of note, American senators in states where clean energy development has flourished — catalyzed by measures in the Inflation Reduction Act (IRA) — see the value that this industry brings to regional economies and supply chains as hundreds of jobs have been created in manufacturing and other industrial activities. This support, notably from Republican senators, has in places remained strong despite the IRA's recent repeal.[59] To maximize the social benefit of these investments and ensure the clean economy rests on a foundation of good jobs, labour conditions can be attached to investment tax credits that promote investment in new industries.

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[55] Ian Hussey, *No Worker Left Behind: A Job Creation Strategy for Energy Transition in Alberta* (Parkland Institute, 2023), 26. https://www.parklandinstitute.ca/no_worker_left_behind

[56] Calgary Economic Development, "Upskilling programs: Calgary's recipe for success," December 11, 2023. https://www.calgaryeconomicdevelopment.com/newsroom/upskilling-programs-calgarys-recipe-for-success/

[57] Danielle Smith, "Premier's Address to the Province 2024," Government of Alberta, February 21, 2024. https://www.alberta.ca/article-premiers-address-to-the-province-2024

[58] Will Noel, Jason Wang and Scott MacDougall, *Down But Not Out: A brief status update on Alberta's renewable energy industry* (Pembina Institute, 2025). https://www.pembina.org/pub/down-not-out

[59] Miranda Jeyaretnam and Saijel Kishan, "Red-State Republicans Say They'll Defend Biden-Era Green Jobs," *BNN Bloomberg*, August 5, 2024. https://www.bnnbloomberg.ca/investing/2024/08/05/red-state-republicans-say-theyll-defend-biden-era-green-jobs/

Publicly funded projects could include mandatory requirements to negotiate community benefit agreements. Other policy tools like Buy Clean requirements (procurement initiatives that require the purchase of lower-carbon goods) and carbon border adjustments (economic instruments that impose a cost on high-emissions imports) could also be used. Both of these tools are meant to protect domestic industries that are investing in clean technologies from being undercut by imports from countries with lower environmental standards, supporting job growth in these sectors.

4. Conclusion

Canada is currently undertaking big decisions about its economic future, weighing which sectors and infrastructure projects are likely to provide the best returns for Canadians in the short, medium and long term. While the oil and gas sector is often regarded as a source of endless growth and opportunity, this report has demonstrated that oil and gas companies' cost-cutting behaviours are already undermining the link between industry profits and employment opportunities for Canadians. As the global energy transition accelerates and demand for Canadian oil and gas begins to decline, these existing trends are likely to be further exacerbated.

As Canada's leaders continue to consider how to best pursue an agenda of nation-building growth, governments should be seizing on the energy transition as a moment of significant economic promise for Canada and Canadians. Instead of focusing on a sector that has served us well in the past, but where prospects are now unclear, governments should focus on the emerging sectors that are set to thrive — and which are likely to be a long-term source of good, stable jobs.

We know from our research with workers in high-emissions industries that there is more support for a clean energy transition when they know there is a plan for them in place.[60] This nation-building moment in Canada is also an opportunity to show all Canadians — including those in fossil fuel-rich regions — that this moment includes them. Not only will this result in a stronger economy, but it will contribute to a more unified Canada.

[60] *A Sustainable Jobs Blueprint, Part II*, 22.

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