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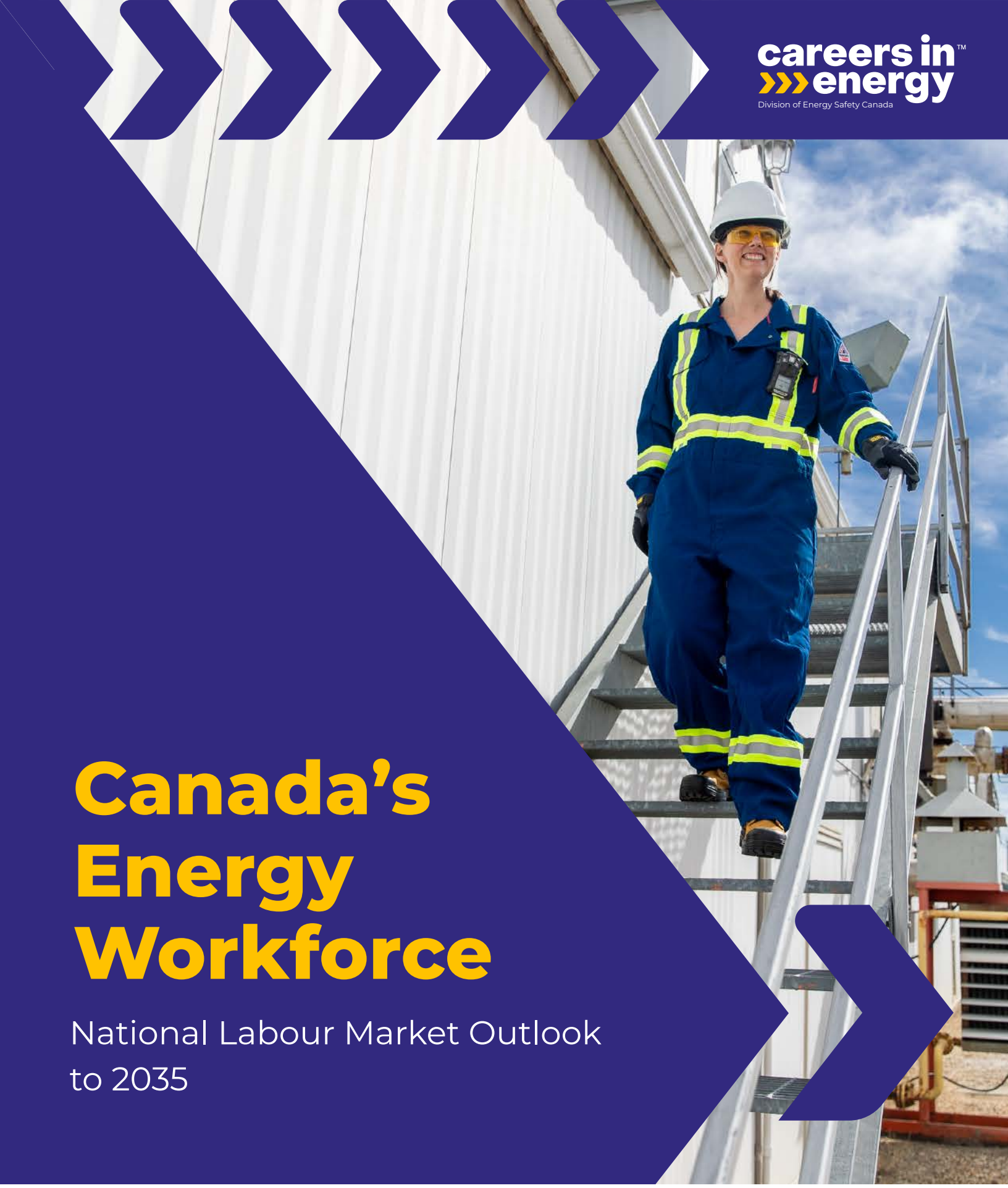
Division of Energy Safety Canada



Canada's Energy Workforce

National Labour Market Outlook to 2035

Updated: May 2026

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Foreword

Canada's energy industry plays a critical role in meeting national and global energy needs. It directly employs approximately **192,500 individuals** across the country and indirectly supports hundreds of thousands more.

As we look ahead to 2035, it is important to understand not only where the industry is going, but also who will power it. Energy security has become a defining global priority, and in the context of shifting demand, geopolitical uncertainty, and evolving expectations for lower-carbon energy, Canada is increasingly recognized as a reliable supplier of responsibly produced energy.

Canada's energy workforce is diverse, spanning engineers, skilled trades, field operations, and business and technical professionals. Together, they develop and deliver the energy that powers homes, industries, trade, and everyday life in Canada and in markets around the world.

The global energy landscape is undergoing a shift. Geopolitical conflict has underscored the fragility of energy supply chains and elevated energy security as a global priority. As a net energy exporter with long-term reserves, strong operational performance, and growing public support for exports, Canada is increasingly viewed as a reliable supplier of energy to markets seeking alternatives to traditional sources. At the same time, continued investment in low-carbon energy, emissions-reduction technologies and innovation demonstrates the industry's commitment to balancing affordability, reliability, and environmental responsibility.

These changes are reshaping Canada's energy workforce. Productivity gains driven by technology adoption and consolidation mean the industry is producing more energy with fewer workers overall, while increasing complexity is driving demand for new and evolving skill sets. Over the next decade, workforce needs will be influenced not only by industry growth, but also by retirements and continued investment across both established and emerging energy sectors.

The **National Labour Market Outlook to 2035** provides a timely snapshot of Canada's energy workforce under current measures as of March 2026. Based on a single scenario, the outlook projects workforce requirements across nine energy sectors and 81 occupations, establishing a national benchmark to support near- and medium-term workforce planning. Building on more than 20 years of experience, Careers in Energy's outlook reports continue to inform industry, educators, governments, and workforce partners as Canada strengthens its role as a secure, responsible energy supplier in a rapidly changing global environment.

Vineeta Maguire
President and CEO, Energy Safety Canada

Key Insights

Fundamental shift in the global energy economy

Geopolitical conflict has highlighted the fragility of global energy supply and elevated energy security as a priority, reinforcing Canada's potential role as a reliable supplier of diverse energy sources.

Market diversification and energy security takes centre stage

Canada is well positioned to supply energy to markets seeking alternatives to their traditional suppliers. New access to Asian markets, strong operational performance, long-term reserves and growing public support for exports strengthen the industry's growth outlook. New or expanded energy infrastructure is needed to deliver on the potential.

Continued investment in emerging sector major projects

While established oil and gas remains central, investment in low-carbon energy and innovation continues. Supportive regulatory and incentive frameworks are enabling major projects in liquefied natural gas (LNG), carbon capture and storage (CCS), and low-carbon hydrogen to move forward.

Workforce impacts beyond industry activity

Industry is producing more with fewer workers. Productivity gains have been realized by technology adoption and consolidation across the industry. While corporate functions are most affected by merger and acquisition (M&A) activity, field and operations roles remain resilient. An increasingly complex business, regulatory and geopolitical environment is shaping evolving skill requirements.

An integrated energy system

Canada's energy industry is increasingly integrated, along with its workforce. Foundational technologies, equipment, skills and expertise are being adapted and applied in innovative ways to support the development of low-carbon energy sources and emissions-reduction technologies. As a result, many of the qualifications required in emerging energy sectors already exist within Canada's established energy workforce.

Monitoring leading indicators of industry activity

As Canada approaches a potential generational shift in its global energy role, Careers in Energy (CIE), along with industry collaborators, continues to monitor policy, regulatory, and investment conditions that influence energy production and workforce needs.

A single scenario for Canada's energy workforce outlook

To provide a timely update on significant changes in Canada's energy landscape since 2024, CIE evaluated a single scenario to project potential workforce requirements through 2035. This streamlined approach delivers an up-to-date national labour market outlook to inform near- and medium-term workforce planning. The outlook establishes a benchmark for Canada's energy labour market and identifies key indicators to monitor that may signal significant shifts in future workforce needs.

Current Measures

Based on investment and development leading to energy production and carbon sequestration most likely to occur based on announced plans, policies and programs as of **March 2026**.

By the numbers

Direct employment

192,500

people are **directly** employed by Canada's energy industry

9 integrated Canadian energy sectors are included in this outlook: conventional exploration and production (E&P), oil sands, energy services, pipelines, petroleum refining, liquefied natural gas (LNG), low-carbon hydrogen, biomass-based fuels and carbon capture and storage (CCS)

81 occupations

are included in Careers in Energy's labour market modelling system that are core to production, operations and maintenance across the in-scope sectors

18,400

direct jobs are projected to be added between 2026 and 2035

54,200

energy workers are **eligible to retire** over the forecast period

72,600

net hiring requirements projected over the forecast period, if Canada's energy industry fills all job openings created by industry activity and retirements

2.2x

higher average total compensation in the energy industry compared to the Canadian average

Indirect employment

370,000

For every direct job, 2 indirect jobs are generated annually to support industry's operations supply chain

5,400

jobs are created across the economy for every $1 billion spent on developing and constructing energy infrastructure projects

1

Canada's Growing Role in Global Energy Security

Canada, as a net energy exporter, is in an enviable position relative to countries that rely on imported oil and natural gas. These countries are increasingly **looking to Canada as a reliable source of energy** and other critical commodities.

Canada's energy industry has a long history of adapting and evolving—shaping how natural resources are developed and used, the technology and equipment deployed, and the skills, experience and knowledge of a diverse workforce. The industry continues to respond to shifting political, economic and market conditions, reinforcing its role as a dynamic part of Canada's economy.

The energy industry directly employs approximately 192,500 people across the country. Beyond direct employment, an estimated 370,000 indirect jobs are sustained annually in support of the industry's operations supply chain. For every $1 billion spent on developing and constructing energy infrastructure projects, an additional 5,400 indirect jobs are created across the broader Canadian economy.[1]

Fundamental shift in the global energy economy

Russia's invasion of Ukraine made energy security a central global concern, exposing the fragility of global energy systems, and how quickly reliable, affordable energy supplies can be disrupted. Today's geopolitical environment—particularly the ongoing conflict in the Middle East—has further intensified these concerns. Some analysts describe the situation as a full-fledged energy crisis, which has fundamentally shifted supply and created significant gaps across the energy supply chain. Repairing these disruptions will take time, as fighting has caused widespread damage to critical energy infrastructure.

The shipping crisis in the Strait of Hormuz is now the largest supply disruption in the history of the global oil market.[2]

- Fatih Birol, Executive Director, International Energy Agency

Canada's energy economy is further affected by its reliance on the United States (US). Despite current challenges, the US remains Canada's largest and most important customer, with the majority of Canada's energy transportation infrastructure running north–south. Many US refineries are specifically designed, or

have been retrofitted, to process Canadian crude oil, and US ports provide critical access to international markets for Canadian oil and natural gas.

Market diversification and energy security takes centre stage

Strained relations with the US have sharpened Canada's focus on diversifying markets for its oil and natural gas, and emerging low-carbon energy sources. The current geopolitical environment and disrupted supply chain have led more countries to look to Canada as a reliable energy source. Many argue that Canada has a responsibility to help supply energy to importing countries that can no longer rely on their traditional suppliers.

The war in Iran means more countries are relying on Canada for oil supply, as it becomes more difficult to rely on oil supply from the Gulf states. There's a moral imperative for us to do this because we know that we're going to continue to use hydrocarbons.[3]

- Deborah Yedlin, President and CEO, Calgary Chamber of Commerce

Several factors position Canada's oil and gas industry for continued market expansion and diversification. The start up of the Trans Mountain Pipeline and LNG Canada has enabled production growth and, importantly, established access to Asian markets for oil and natural gas shipped from Canada's west coast. At the same time, a sustained focus on operational fundamentals such as reliability, safety, integrity, asset utilization, and profitability, combined with long-term reserves, strengthens the industry's ability to expand its market reach. There has also been an important shift in public sentiment, with a majority of Canadians now expressing support for the expansion of national oil and gas exports.

While many energy executives are encouraged by greater political interest in expanding Canada's oil and gas industry, the need remains for policy, regulatory and fiscal frameworks that signal certainty for investors to take a stake in the multi-billion-dollar infrastructure required to realize that ambition.

Canada's resource abundance means we can deliver reliable, affordable and sustainable energy at home and help our allies achieve the same. Canada has what the world wants, and we are growing our energy sector, strengthening our partnerships and making transformative changes that will catalyze private investment in Canada so we can continue to supply domestic and global markets for decades to come.[5]

- The Honourable Tim Hodgson, Minister of Energy and Natural Resources

Growing support for energy exports

Seven in ten Canadians agree (41%) or somewhat agree (29%) that Canada should expand oil and gas exports to help the world have more secure energy supplies - an 8-percentage point increase from February 2025.[4]

Canadians see a climate role for oil and gas exports

Canadians are more than twice as likely to agree/somewhat agree (69%) that Canada's oil and gas exports can contribute to combatting global climate change if they displace other more damaging energy sources, than they are to disagree/somewhat disagree (25%).[7]

Continued investment in emerging sector major projects

Despite a renewed focus on the importance of Canada's established oil and gas, low-carbon energy sources and innovation remain important. Increasing oil and gas production does not mean Canada is abandoning efforts to address climate change.

Canada's commitment to delivering affordable, reliable, and responsibly developed energy remains unchanged. A strong framework of regulatory and incentive measures fosters the growth of emerging low-carbon energy sectors, and industry investment in these areas remains active.

A value proposition for Canada's west coast LNG is that it is powered by hydroelectricity and has a lower-carbon intensity than other global suppliers. LNG Canada became operational in 2025, and two additional projects are currently under construction. Imperial Oil started producing renewable diesel at its Strathcona refinery. Two large, low-carbon hydrogen production plants are under construction in Alberta, with a third in Nova Scotia having reached significant development milestones towards a final investment decision (FID).

As world events continue to demonstrate, a reliable supply of responsibly produced energy should never be taken for granted, we're proud to be part of the effort to deliver that energy while helping Canada diversify its export markets.[6] - Teresa Waddington, Vice-President of Corporate Relations, LNG Canada

Monitoring leading indicators of industry activity

With Canada on the potential cusp of major growth opportunities, the intentional objective of this outlook is to set a baseline for workforce requirements across established and emerging energy sectors.

Amid significant uncertainty in the global energy system, CIE, in collaboration with industry partners, continues to monitor factors influencing Canada's energy production and workforce requirements.

Many suggest that the disruption to energy supply caused by the war in the Middle East will persist long after the conflict, due to damage to energy infrastructure. Supply chain disruptions are not limited to oil and natural gas; helium, petrochemicals, fertilizer, hydrogen and critical minerals used for batteries and electrification also face significant vulnerabilities. Canada also has the opportunity to expand production across these sectors, increasing demand for energy and a skilled energy workforce.[8]

On the national front, changes to the Clean Fuel Regulations could set the stage for growth in biomass-based fuels, through production incentives, target amendments and a strategy for long-term growth. The implementation of the Memorandum of Understanding between the Alberta and federal governments, project approvals from the federal Major Projects Office and individual company plans to expand transportation infrastructure to export markets, could all have a significant impact on Canada's energy workforce needs.

Finally, data centres necessary to enable the rapid deployment of artificial intelligence (AI) have the potential to be among the largest infrastructure buildouts in Canada's digital economy. They drive massive demand for energy, and Canada has the potential to meet that need through connectivity to low-carbon hydroelectricity, and abundant access to affordable, cleaner-burning, natural gas-generated power.

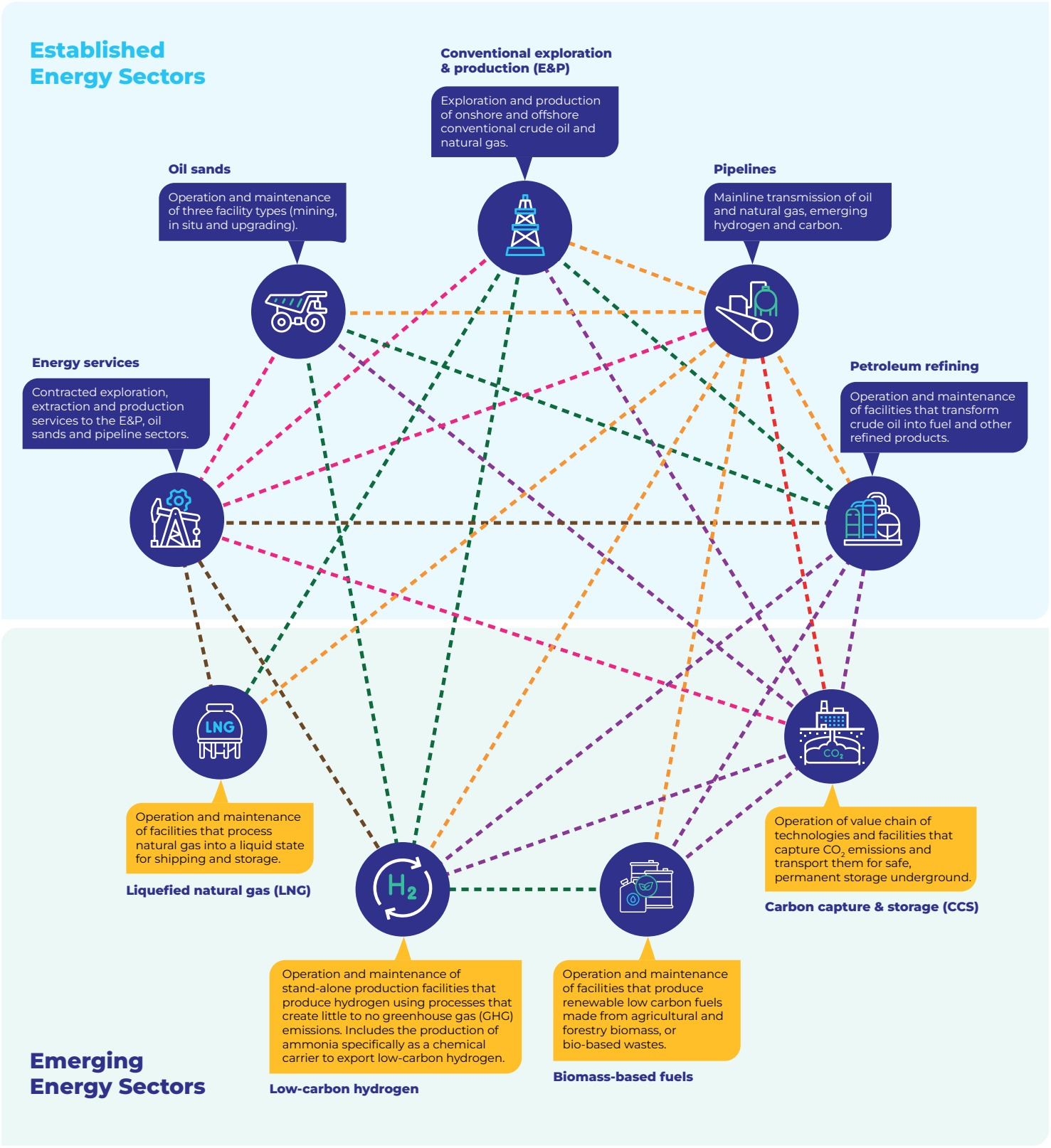
Labour market modelling system

CIE undertook a significant expansion of its labour market modelling system in advance of producing its 2024 labour market outlook. To accurately reflect changes in Canada's energy system, the model was expanded beyond the established oil and gas industry (conventional E&P, oil sands, energy services, pipelines and petroleum refining), to include emerging energy sectors and technologies—LNG, low-carbon hydrogen, biomass-based fuels and CCS.

An integrated energy system

A key insight from the model expansion work was the extent of integration between the established and emerging sectors. These sectors work interdependently to provide low-carbon energy solutions, which contribute to a more robust and dynamic job market in Canada.

Figure 1: Sector scope of Careers in Energy's labour market modelling system



Legend

- **Transport product:** required to transport product to customer
- **Transport CO_2:** specific to CCS
- **Feedstock:** produces raw materials required for energy source production
- **Feedstock production:** key role in producing feedstock
- **Emissions reduction:** energy source or technology that support reducing emissions
- **Contracted service:** equipment, technology and workforce required for production process

Occupational scope

CIE's labour market modelling system covers 81 occupations, as defined by the National Occupational Classification (NOC)[9] system. Workforce projections focus on individuals *directly* employed by companies[10] involved in the forecasted production, operations and maintenance activities of in-scope sectors.[11]

To assess what Canada's future energy workforce may look like compared to today's energy industry, CIE grouped the 81 in-scope occupations into 10 occupational categories (Table 1). Together, these groups represent a substantial share of the total workforce across in-scope sectors, ranging from 70% to 99%. The remaining workers not included in these categories are captured under the "other occupations" group.[12]

Future energy occupations resemble the occupations of today

Canada's energy industry is increasingly integrated, and so is its workforce. Foundational technologies, equipment, skills and expertise are being adapted and applied in innovative ways to advance the development of new low-carbon energy sources and the deployment of emissions reduction technologies.

As a result, many of the qualifications needed in emerging energy sectors already exist within established ones. Workers with strong foundational skills and credentials are well positioned to build careers across a range of energy sectors, with some requiring additional upskilling or reskilling. These needs can often be met through short, competency-based learning opportunities, such as micro-credential programs.

An evolving energy industry requires an adaptable workforce

The overlap in occupational requirements between established and emerging energy sectors presents a significant opportunity for industry to build a resilient and adaptable workforce. Beyond upskilling and reskilling existing workers, energy companies can strengthen workforce planning by examining how current skill sets can be applied to meet future demands. CIE's Career Pathways offer a practical framework to inform this analysis and help employers align today's capabilities with tomorrow's needs.

This report offers a more detailed view of the employment outlook for occupations essential to support Canada's production across both established and emerging energy sectors, while highlighting areas where hiring challenges may arise.

Table 1: In-scope occupations by occupational group, all sectors

Occupational group	E&P	Oil sands	Energy services	Pipelines	Petroleum refining	LNG	Biomass-based fuels	Low-carbon hydrogen	CCS
Business and operations support	6%	5%	4%	11%	4%	3%	3%	10%	11%
Energy drilling, servicing and field operations	11%	3%	22%	3%	2%	0%	0%	0%	3%
Engineers	11%	15%	3%	14%	9%	8%	8%	20%	26%
Facility operations	18%	24%	7%	20%	32%	31%	31%	30%	24%
Geoscientists	2%	1%	2%	0%	0%	0%	0%	0%	6%
Information technology	3%	4%	2%	7%	2%	3%	3%	3%	2%
Technical sales, procurement, supply chain and logistics	7%	4%	5%	9%	10%	15%	15%	7%	4%
Technicians and technologists	3%	4%	3%	4%	4%	5%	5%	8%	7%
Trades	12%	17%	13%	8%	17%	10%	10%	20%	14%
Transport and heavy equipment operators	7%	17%	10%	2%	3%	4%	4%	0%	2%
Representation of the workforce	**80%**	**96%**	**70%**	**77%**	**83%**	**79%**	**79%**	**98%**	**99%**
Other occupations	**20%**	**4%**	**30%**	**23%**	**17%**	**21%**	**21%**	**2%**	**1%**

Percentages may not add up due to rounding.

2

Outlook Scenario: Current Measures

To provide a timely update on significant changes in Canada's energy landscape since 2024, **CIE evaluated a single scenario to project potential workforce requirements through 2035.**

This streamlined approach delivers an up-to-date national labour market outlook to inform near- and medium-term workforce planning. This outlook establishes a benchmark for Canada's energy labour market, while also identifying key indicators to monitor that could signal significant shifts in future workforce needs.

- The **Current Measures** scenario is based on investment[13] and development leading to energy production, LNG exports and carbon sequestration most likely to occur based on announced plans, policies and programs as of March 2026 (Figure 2, Figure 3 and Figure 4).

Scenario assumptions report

Find detailed information on CIE's scenario approach and underlying assumptions online at CareersinEnergy.ca

Figure 2: Production by energy sector, Current Measures, 2025 and 2035

In thousands of barrels of oil equivalent per day (MBOE/day)

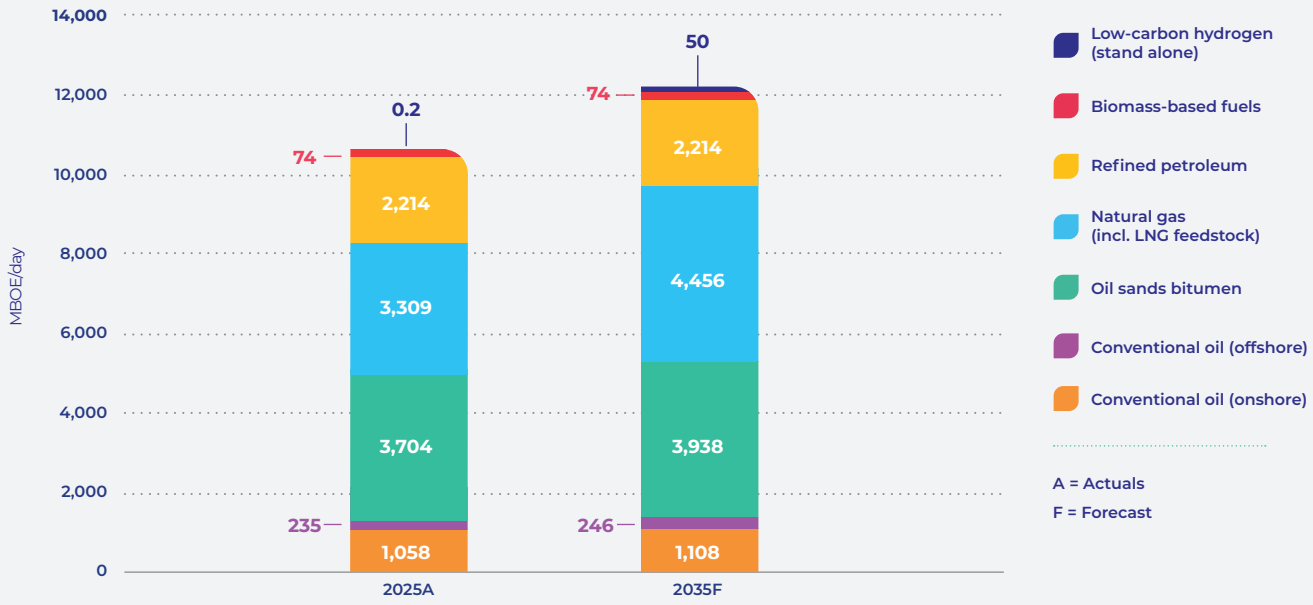


Figure 3: LNG exports, Current Measures, 2025-2035

In megatonnes per annum (MTPA)

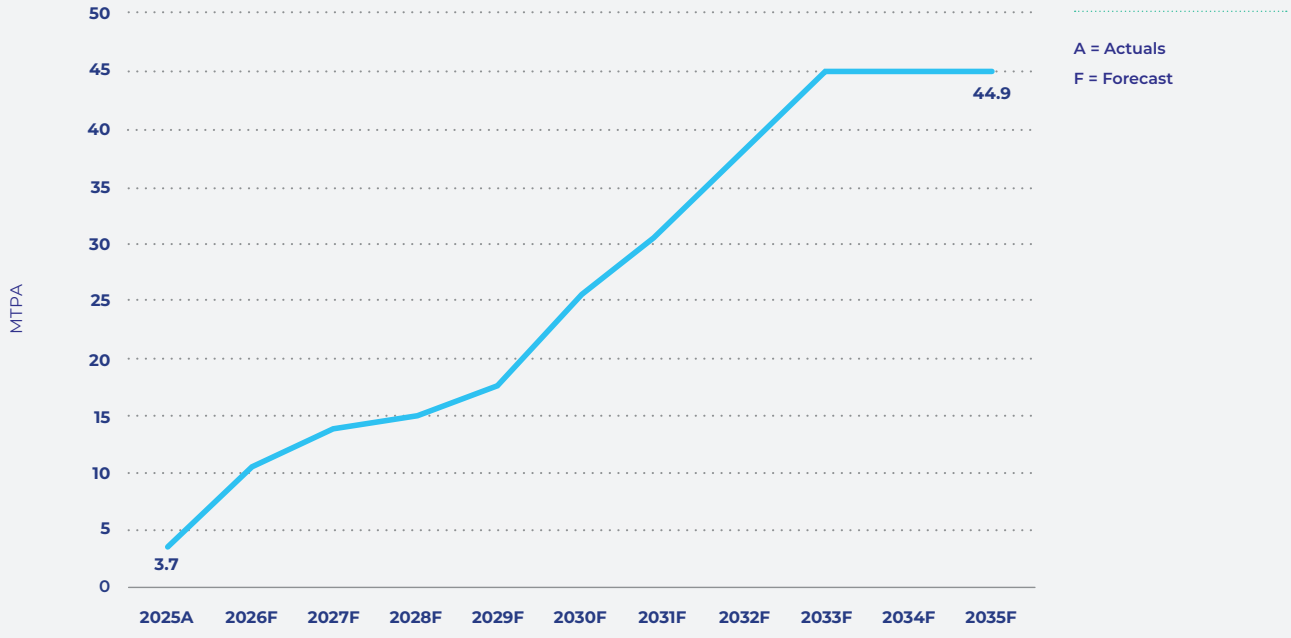
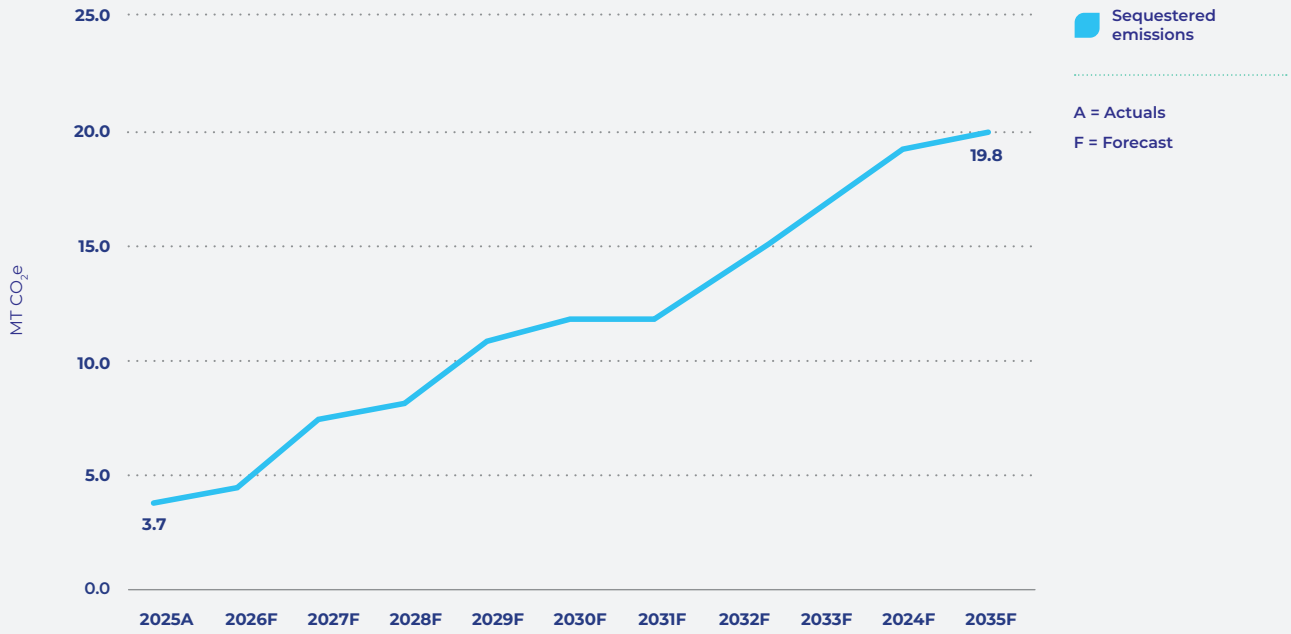


Figure 4: Oil and gas and industrial CO_2 sequestration, Current Measures, 2025-2035

In megatonnes of carbon dioxide equivalent (MT CO_2e)



Scenario assumptions

Forecasts for conventional oil and for natural gas diverge to 2035

Canada's conventional oil and natural gas sector both reached record production levels in 2025, underscoring their importance in both domestic and export economies.

Despite robust demand from the US, a lack of pipeline capacity had hindered crude oil growth in Canada for years. When the Trans Mountain Pipeline became operational in 2024, it significantly increased Canada's oil export capacity and enabled market diversification. As of December 2025, 67% of the vessels loaded at their Westridge Marine Terminal were destined for Asia.[14]

The Terra Nova floating production, storage, and offloading (FPSO) vessel, ramping up production offshore Newfoundland and Labrador, also boosted Canadian oil production in 2025.[15]

Domestically, demand for natural gas from industrial, commercial, and residential customers all rose. Beyond increased demand from the US, LNG Canada becoming operational and steady international demand for liquefied petroleum gas (LPG) were key drivers of production growth in 2025.

Looking out to 2035, the Current Measures scenario projects divergent forecasts for the two commodities. Conventional oil production (onshore and offshore) is forecast to increase 5% to 2035, while natural gas production increases 35% over the same period.

With the Trans Mountain Pipeline nearing full utilization, pipeline capacity constraints could again limit the growth of Canada's oil production. Cenovus' West White Rose project, with first oil expected in 2026, and the Bay du Nord project, projected to come online in 2031, help offset production declines at other offshore facilities in Newfoundland and Labrador.

Improvements to the existing pipeline system and full utilisation of TMX capacity will support additional production in 2026. However, without a new pipeline, capacity constraints could begin to limit production growth from 2028.[16]
- ATB Economics

Natural gas production is forecast to increase significantly due to growing demand from traditional markets, both domestically and exports to the US, and from international markets, driven by steady demand for LPG and the expansion of Canada's LNG export sector. Two low-carbon hydrogen production plants, using natural gas for feedstock, will also become operational during the forecast period.

Demand for natural gas to power data centres has not been considered in CIE's previous labour market outlooks. While data centres are not a significant factor in this outlook's natural gas production scenario, their potential impact is being closely monitored for future outlooks.

Oil sands growth requires increased pipeline capacity

Like the conventional oil sector, oil sands production was boosted in 2025 with the start-up of the Trans Mountain Pipeline, but continued growth could be affected as the pipeline is expected to be fully utilized around 2027-2028.[17]

In the Current Measures scenario, oil sands production is projected to increase by 6% by 2035. Growth is dominated by expansion of in-situ production (11%), with mining accounting for a 1% increase in production. Upgrading production remains flat for the forecast period.

Apart from Blackrod—the first greenfield thermal project built since 2018 and expected to begin production in 2026[18]— oil sands production growth is projected to come from optimizing existing facilities and expanding existing fields, rather than from newly constructed operations.

Christina Lake. Photo courtesy of Cenovus Energy

Canada's LNG export sector's second chance

Canada's LNG export sector is increasingly described as having a "second chance" because a wave of LNG project proposals in the 2010s struggled to move forward, and global demand was met by other countries.

Today, with LNG Canada having paved the way by demonstrating that complex export facilities and pipeline infrastructure can be approved, permitted and built, and that meaningful Indigenous partnerships can be fostered, additional projects are moving forward. Other factors favouring today's LNG facilities over those planned a decade ago include smaller, more modular projects, either Indigenous-led or with significant Indigenous equity partners.

With optimism expressed during consultations with industry and relevant governments in March 2026, the Current Measures scenario assumptions for LNG exports include Woodfibre LNG and Cedar LNG, both under construction, as well as another 28 million tonnes per annum (MTPA) of capacity by 2035.

Refining Canada's petroleum remains stable

Production of refined petroleum products in Canada is forecast to remain stable until 2035.

Rather than investing in production increases, companies are focused on reducing refining emissions by upgrading equipment, improving waste heat recovery and reuse and deploying CCS. They are also focused on meeting the requirements of the Clean Fuel Regulations by co-processing with biomass-based feedstocks to produce a lower-carbon fuel. This increases the complexity of feedstock supply chains and the need to ensure materials compatibility.

Biomass-based fuel production impacted by US regulations

Despite a production increase in 2025 driven by the commissioning of Imperial Oil's Strathcona renewable diesel facility, Canada's stand-alone biomass-based fuel producers face significant challenges competing within the North American market.

The sector is highly integrated with the US and has experienced substantial disruption stemming from US policy changes, most notably the Inflation Reduction Act's Section 45Z Clean Fuel Production Credit. This incentive has strengthened the competitiveness of US-based biofuel production, placing Canadian producers at a disadvantage in shared markets. At the same time, the policy has not affected the competitiveness of domestic agricultural feedstocks, thereby intensifying competition for key inputs and putting additional pressure on Canadian producers.

Under the Current Measures scenario, biomass-based fuel production in Canada is projected to remain largely flat through 2035. CIE will continue to monitor the impact of upcoming amendments to the Clean Fuel Regulations, particularly their effectiveness in improving domestic competitiveness and driving future sector growth, including any potential increase in workforce demand.

Low-carbon hydrogen gains traction

In 2026, Canada's low-carbon hydrogen industry comprises of several small production sites that primarily support hydrogen refuelling stations and hydrogen-natural gas blending for utilities. The Current Measures scenario anticipates this will change over the next decade, as three sizable projects are projected to advance, including two large production plants under construction to supply low-carbon hydrogen for industrial use and one targeting exports, currently in assessment and permitting phases. These three projects are expected to add just under 1 MTPA (50 MBOE/day) of new low-carbon hydrogen to Canada's energy mix.

CCS remains a key decarbonization tool for Canada's industrial sectors

Recent changes to incentives at the federal and provincial levels, while not perfect, are viewed as improving project economics and feasibility.[19]

The Current Measures scenario projects an additional 16.1 MT of CO_2 equivalent sequestered above 2025 levels by 2035. Importantly, CCS projects currently approved or under construction could establish the sequestration hubs and transportation corridors needed to continually improve the cost-effectiveness of CCS technologies across Canada's heavy-emitting industries.

Other factors that enhance the economic feasibility of expanding CCS include a modular approach that increases flexibility for phased scale-up, enabling the deployment of appropriate technologies across complex operating plants, and the recovery and use of waste heat to reduce energy costs.

Workforce impacts beyond industry activity

There are a range of other forces that shape both how many energy workers are needed and what skills they require.

Technology and equipment improvements are improving labour productivity

A wide variety of technologies and advanced equipment are being deployed across the energy industry. The breadth and depth of deployment depend on several factors, including company size, asset diversity and complexity and organizational maturity.

The automation of workflows and the increased use of AI and machine learning (ML) are enabling companies to centralize some operations – not only in Canada, but globally.

Leveraging the rapidly advancing technology environment and the growth of global capability centres, this restructuring plan advances our long-standing strategy of maximizing the value of our existing assets. At the same time, these actions enhance our foundation for future growth and position us to continue delivering industry-leading returns and long-term value for our shareholders.[20] - John Whelan, Chairman, President and CEO, Imperial Oil

Company consultations indicate that sentiment is also a regulating factor in the pace and integration of AI and automation. Safety is key, and a longer-term view of the potential impact on the ability to attract workers and sustain social license to operate are also considerations.

CIE's labour market model can be adjusted for sector-level productivity. The workforce and occupational impacts of AI, automation and robotics were specifically explored during industry consultations, as were equipment and material improvements, such as dual-fuel equipment, increased horsepower for pumping equipment and solvent-assisted in-situ oil sands extraction.

Mergers and acquisitions

Major M&A activity since 2024 has accelerated consolidation across Canada's established energy sectors and has had a greater impact on workforce requirements than AI or automation.

From a headcount perspective, corporate functions are most affected by consolidation, while field and operations employment and technical roles have, for the most part, remained resilient as production levels are sustained or expanded. M&As have resulted in fewer but larger operators managing more complex and integrated asset portfolios, creating demand for a workforce that supports asset integration, operational optimization, maintenance and reliability.

Consolidation has also increased demand for transferable skills, enabling workers to move across assets, basins and business units within larger organizations. Overall, M&A activity since CIE's 2024 labour market outlook has reinforced the need for a flexible, multi-skilled energy workforce capable of supporting fewer, larger operations across Canada's energy system.

Complexity of the business environment driving skill and knowledge requirements

Geopolitics, energy transformation, the regulatory and policy environment, and the importance of stakeholder and Indigenous engagement all drive the need for skills and knowledge. While the number of occupations focused on strategy and guiding the industry into the future is relatively small, their importance is immense.

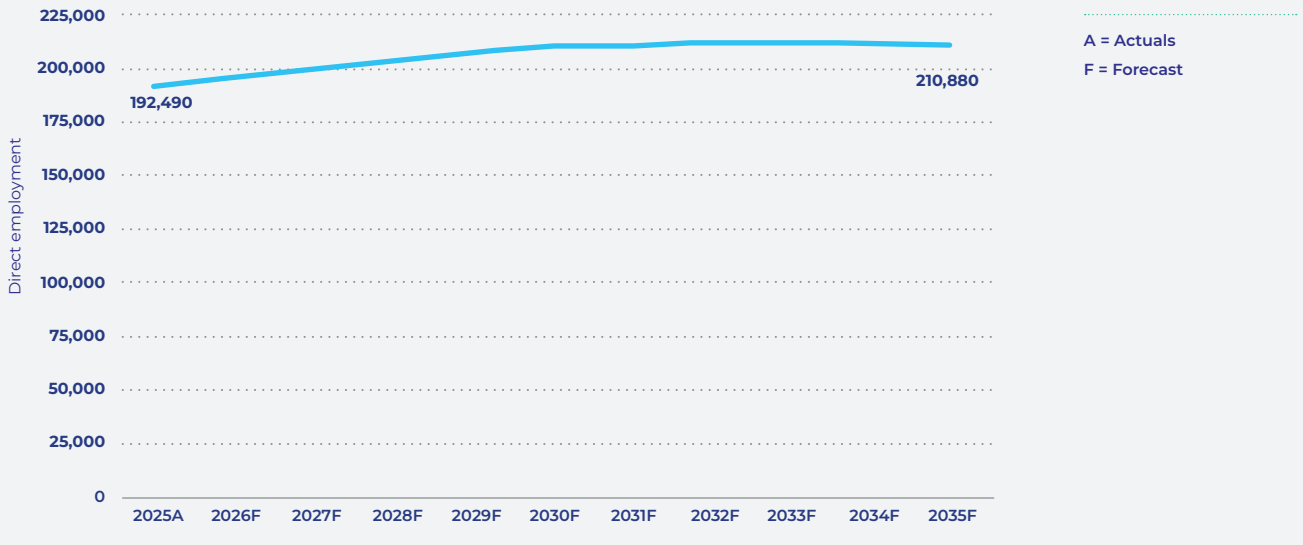
3

National Labour Market Outlook to 2035

Canada's expanded energy industry is **projected to generate 18,390 direct jobs between 2026 and 2035**. However, the pace of employment growth lags production increases.

In 2025, the baseline year for this outlook, in-scope sectors accounted for 192,490 direct jobs across Canada. It is anticipated **18,390 new jobs will be generated by industry activity** under the Current Measures scenario for a total of **210,880 direct jobs** by 2035 (Figure 5).

Figure 5: Direct employment by year, 2025-2035



Pace of employment growth lags production

Productivity gains are evident across all established energy sectors, allowing industry to produce more with fewer workers. Despite record-breaking production levels in 2025, employment in the conventional E&P sector declined by 17%, largely reflecting workforce consolidation associated with M&A activity. Employment in oil sands and energy services remained relatively flat.[21]

Looking ahead to 2035, labour productivity improvements are projected to continue, and not all established energy sectors are expected to expand their workforces. Workforce requirements in the oil sands and offshore conventional E&P sectors are forecast to decline, despite production increases, as organizations increasingly deploy technology and equipment to improve operational efficiency. In contrast, employment in onshore conventional E&P and energy services sectors is projected to increase by approximately 16% and 12%, respectively. However, these employment increases lag forecasted production growth, particularly in natural gas.

Pipeline employment growth aligns with the additional transportation infrastructure required for LNG export facilities. Meanwhile, employment in petroleum refining and biomass-based fuels is projected to remain flat, consistent with stable production outlooks for these sectors.

Employment growth in emerging sectors—including LNG, low-carbon hydrogen and CCS—is projected as major projects become operational over the forecast period to 2035.

Table 2: Direct employment and number of new jobs by sector, 2025 and 2035

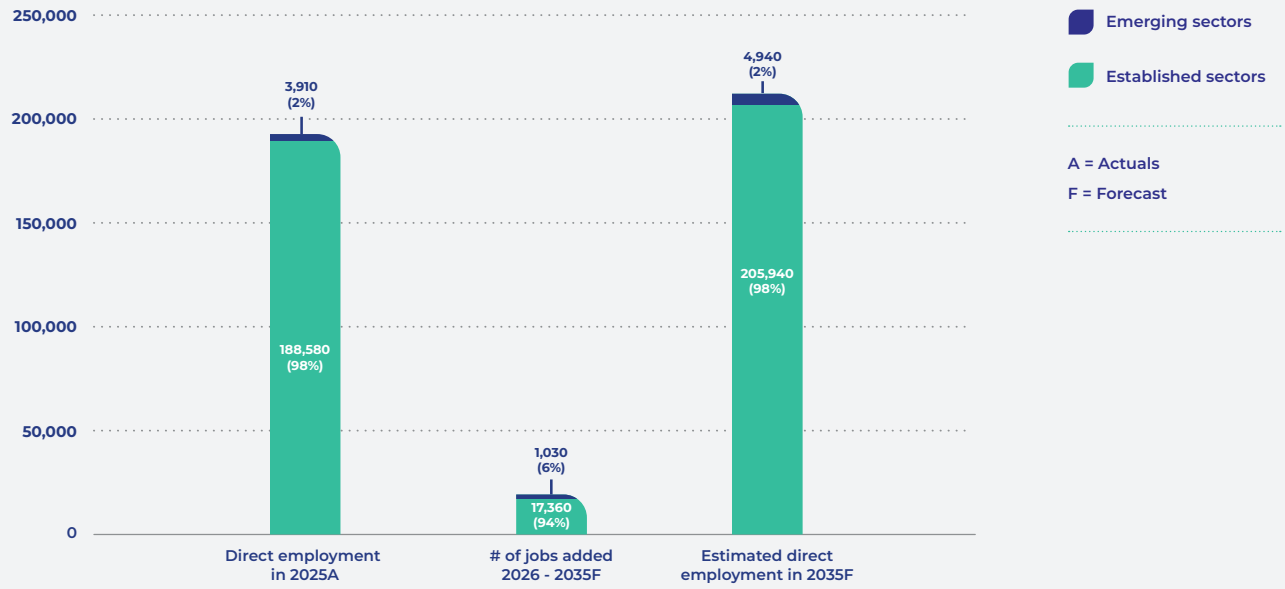
	Sector	Employment in 2025A	Estimated employment in 2035F	# of new jobs (% change)
	TOTAL	**192,490**	**210,880**	**18,390 (10%)**
Established energy sectors	Conventional E&P (onshore)	60,500	68,010	7,510 (12%)
	Conventional E&P (offshore)	6,210	5,170	-1,040 (-17%)
	Oil sands	24,990	24,070	-920 (-4%)
	Energy services	71,000	82,710	11,710 (16%)
	Pipelines	15,900	16,000	100 (1%)
	Petroleum refining	9,980	9,980	0 (0%)
	Sub Total	**188,580**	**205,940**	**17,360 (9%)**
Emerging energy sectors	Biomass-based fuels	3,520	3,520	0 (0%)
	Low-carbon hydrogen	minimal*	150	150 (all new jobs)
	LNG	250	950	700 (280%)
	CCS	140	320	180 (133%)
	Sub Total	**3,910**	**4,940**	**1,030 (26%)**

*The small number of workers currently working in this emerging sector in 2025 was not quantified for this outlook.
Numbers may not add up due to rounding

Emerging sectors: high growth, small share

While employment in the emerging energy sectors is projected to increase by 26% by 2035 (Table 2), it will represent only 2% of the integrated energy system's employment, as illustrated in Figure 6.

Figure 6: New jobs and percentage of workforce, established and emerging sectors, 2025 and 2035



Energy jobs are quality jobs

Energy employment in Canada aligns strongly with Statistics Canada's *Quality of Employment* framework, which assesses several dimensions including income and benefits, employment stability, working conditions and skills and training.[22]

Across these indicators, energy jobs consistently outperform the Canadian average. The industry is characterized by a high share of full-time, permanent employment and a strong concentration of skilled trades, technologists, engineers and professional occupations, supported by ongoing training and certification. As a result, energy workers are more likely to receive employer-provided medical and dental benefits, paid vacation leave and paid sick leave than workers in part-time or temporary jobs.

While some energy work can involve non-standard schedules or remote work arrangements, these are offset by significantly higher compensation and sustained demand for specialized skills. In 2024, average total compensation in Canada's established energy sectors[23] reached $171,100—more than double (2.2×) the Canadian average of $78,100[24]—reinforcing energy's role as a source of high-quality, well-compensated employment.

Occupational growth outlook

CIE's labour market modelling system also produces occupational-level projections for job growth driven by industry activity. Table 3 highlights the top 20 occupations projected to see the most hiring due to industry activity. Across the industry, the average occupational growth rate between 2026 and 2035 is 10%. Occupations with above-average growth are more likely to be required across both established and emerging sectors and are less affected by increased use of technology, including AI and automation. In contrast, occupations with lower-than-average growth tend to be more sector-specific or reflect roles affected by the adoption of technologies that improve operational efficiency.

Table 3: Top 20 occupations with greatest hiring due to industry activity, 2026-2035

Occupation (NOC)	# of new jobs added and (% change)
TOTAL	**18,390 (10%)**
Energy drilling, servicing and related labourers, workers and operators (83101, 84101, 85111)	1,710 (14%)
Central control, process and plant operators (9210, 9310)	1,240 (6%)
Contractors and supervisors, oil and gas drilling and services (82021)	1,020 (14%)
Transport truck drivers (73300)	840 (15%)
Heavy equipment operators (73400)	490 (5%)
Managers in natural resources production (80010)	470 (11%)
Construction millwrights and industrial mechanics (72400)	390 (9%)
Information technology (20012, 21211, 2122, 2123, 21311, 2222)	380 (7%)
Petroleum engineers (21332)	340 (9%)
Technical sales (6001, 6210, 6410, 6440)	320 (11%)
Trades helpers and labourers (7511)	290 (11%)
Welders and related machine operators (72106)	280 (10%)
Procurement and purchasing agents and officers (12102)	260 (9%)
Plumbers, pipefitters and gas fitters (7230)	260 (11%)
Heavy-duty equipment mechanics (72401)	240 (6%)
Mechanical engineers (21301)	230 (7%)
Geological and mineral technologists and technicians (22101)	220 (12%)
Supply chain logistics, tracking and scheduling coordination occupations (1440)	220 (10%)
Professional occupations in business management consulting (11201)	220 (13%)
Industrial instrument technicians and mechanics (22312)	210 (8%)
Industrial electricians (72201)	210 (8%)

The occupational projections produced by CIE's energy labour market modelling system not only indicate how industry activity affects requirements, but also illustrate the impact of productivity drivers, including technology, improved equipment and M&As. Not all energy occupations are affected equally. The following key insights were validated during industry consultations.

- **Business and operations support:** While employed across both established and emerging energy sectors, these occupations tend to be affected by the deployment of AI and automation, as routine tasks are more easily automated. They are also primarily employed within the corporate functions that are consolidated during M&As.

  The exception to this trend is an increase in roles that companies rely on to set their strategic direction and manage risk. While these positions leverage AI for analysis and evidence-based

decision-making, they are in demand because of the level of expert knowledge required in an increasingly complex business environment.

- **Energy drilling, servicing and field operations:** There is above-average demand for these occupations, as they are employed in both established and emerging sectors. Drivers of growth include increased production in conventional E&P (onshore and offshore) and in-situ oil sands. These workers also drill, complete and service wells used to sequester CO_2 underground for CCS. While the related sectors of helium, lithium and geothermal energy are not in-scope for CIE's labour market model, these occupations and the equipment and technology they operate are integral to their production.

  While field operations are increasingly leveraging technology, AI and automation, their deployment augments workers, making them safer and more efficient rather than replacing them. Field work tends to be non-routine and therefore not easily replaced by technology. This workforce is also not affected by M&As, as few consolidation opportunities exist across field work and operating assets.

- **Engineers:** This group will always play a vital role in designing and delivering sustainable energy domestically and globally. They are also integral to the innovation and implementation of emerging energy sectors. AI has become an important tool for energy engineers, enabling real-time data analysis, decision-making and system-level thinking that makes their work more efficient and cost-effective.

  The impact of M&As on engineers is mixed. Field and operations engineers tend to be less affected than office-based roles.

- **Facility operations:** Demand for occupations involved in facility operations will grow as the number of emerging energy production facilities comes onstream, including LNG, CCS and low-carbon hydrogen. The foundational qualifications and skills required of operators in emerging sectors are the same as those required in established sectors. AI and automation are improving the safety, integration, efficiency and cost-effectiveness of plant and pipeline operations.

  Rather than replacing operators, technology is driving a shift from hands-on control of operations to oversight of automated systems, data interpretation and exception management, often performed from a centralized control centre rather than on-site.

  Like other occupations directly tied to production assets, facility operations occupations tend not to be affected by M&As.

- **Geoscientists:** Demand for geoscientists is affected by reduced need in the established energy sector as it focuses on expanding recovery from long-life reservoirs, rather than greenfield exploration. At the same time, CCS requires subsurface expertise for the development of secure, permanent underground storage of CO_2, but in far smaller numbers. Potential growth opportunities for geoscientists include expanded exploration for onshore and offshore oil and gas in the Atlantic provinces, the development of underground hydrogen storage and advances in the geothermal, lithium, helium and natural hydrogen sectors. CIE continues to monitor the evolving need for geoscience expertise.

  Geoscience occupations are also affected by M&As, given the overlapping knowledge of Canada's long-life reservoirs that can be consolidated when companies come together.

- **Information technology:** Somewhat ironically, AI has had a significant impact on demand for information technology and digital occupations by reducing the need for workers to perform routine coding tasks. The need for cross-disciplinary thinking and for directing AI and evaluating its output may make it more efficient for companies to upskill technical workers with AI skills than to hire pure AI roles. The exception is the increased need for cybersecurity skills.

  Information technology-related roles are primarily employed within corporate functions, which are often consolidated during M&As.

- **Technical sales, procurement, supply chain and logistics:** There are a variety of platforms available to automate routine tasks, allowing these occupations to focus on more strategic activities in a fast-paced, complex business environment. Technical sales professionals increasingly use data-driven insights to drive customer prospecting. However, the success of these occupations also relies heavily on deep product knowledge and relationship-building skills.

  Procurement, supply chain and logistics are primarily employed within corporate functions, which are often consolidated during M&As. Technical sales roles may be less vulnerable to M&As, given the value that customer relationships can bring to the company.

- **Technicians and technologists:** Like their engineering counterparts, technicians and technologists are increasingly using technology to expedite routine tasks. Those focused on design, manufacturing and testing may be more vulnerable to AI and automation, while those who also engage in hands-on, non-routine tasks, such as maintenance and repair, are less so.

  Technicians and technologists who work in the field tend to be less affected by M&As than those in office-based roles.

- **Trades:** The below-average growth rate of trades across the energy industry does not reflect a lesser importance of these roles. Rather, the shift from reactive and scheduled maintenance to predictive and condition-based maintenance, where work is based on real data about equipment health, shapes demand. Repairing equipment before it fails means far fewer instances when large maintenance teams are required on short notice to get operations up and running. Data-driven monitoring reduces the number of inspection hours required, and remote monitoring means less travel to sites.

  Trades workers are less vulnerable to M&As due to the amount of field and plant work they perform.

- **Transportation and heavy equipment operators:** The non-routine nature of transportation occupations and heavy equipment operations makes them less affected by AI and automation. The exception is oil sands mining, where haul trucks follow predictable patterns on controlled sites and can therefore operate without drivers. As a result, growth in heavy equipment operators is projected to be well below average, while growth in transport truck drivers is projected to be well above average.

  Transportation occupations and heavy equipment operators are not typically impacted by M&As.

Business and operations support: · Professional occupations in advertising, marketing and public relations · Survey, statistical and data entry occupations · Public and environmental health and safety professionals	**Energy drilling, servicing and field operations:** · Managers in natural resources production · All energy drilling and servicing operators, contractors and supervisors	**Engineers:** · Engineering managers · Industrial and manufacturing engineers	**Facility operations:** · Facility operation and maintenance managers · Central control, process and plant operators	**Geoscientists:** · Geoscientists
Information technology: · Data scientists · Computer, software and web designers and developers	**Technical sales, procurement, supply chain and logistics:** · Supply chain logistics, tracking and scheduling coordination occupations · All technical sales occupations	**Technicians and technologists:** · Geological and mineral technologists and technicians · Industrial engineering and manufacturing technologists and technicians	**Trades:** · Managers and supervisors · Industrial instrument technicians and mechanics · Welders and related machine operators · Industrial electricians · Plumbers, pipefitters and gas fitters · Construction millwrights and industrial mechanics · Heavy-duty equipment mechanics	**Transport and heavy equipment operators:** · Managers · Transport truck drivers

4

Net Hiring Requirements

Based on annual age-related attrition rates, approximately **54,170 energy workers are eligible to retire** over the forecast period to 2035.

If Canada's energy industry replaces all job openings created by age-related attrition, when combined with Industry activity, it could result in **net hiring requirements of 72,560 jobs** over the forecast period (Figure 7).

Figure 7: Industry net hiring requirements forecast, 2026-2035

Hiring for retirements likely to outpace hiring for industry activity

The number of job vacancies that could be created by energy workers eligible for retirement is significant. However, several companies report that energy workers are staying in the industry beyond retirement eligibility. Some companies express greater concern about the loss of mid-career talent, with a portion of these individuals leaving not only their roles but, in some cases, the industry entirely.

Organizations report taking a strategic approach to workforce planning for vacancies created by retirements, carefully evaluating whether the role should be refilled, redesigned to better align with evolving operational needs, or eliminated.

Retirements in field-based roles present a more acute challenge, as these positions are typically harder to fill due to a smaller, rural-based talent pool to draw from and ongoing difficulties attracting talent to field operations.

CIE's consultation with industry, and the analysis presented earlier in this outlook, indicate that energy companies are implementing technology, equipment and process improvements to help mitigate risks associated with an aging workforce, in addition to realizing operational efficiency and driving down costs. It is also important to consider when the only reasonable solution to age-related attrition is to hire talent, including:

- **When technology, including AI and automation, cannot be scaled fast or safely enough.** Deploying technology and shifting equipment fleets are expensive and time-consuming. In these cases, scaling usage is likely to be slow and phased, rather than a widescale ramp-up.
- **When complexity outpaces standardization.** Technology works best in repeatable, controlled environments. When operations are less predictable, such as in emerging energy sectors, more specialized oversight is likely required.
- **When human judgement remains critical.** Certain roles involve troubleshooting, safety-critical decision-making and establishing and maintaining relationships with partners, including Indigenous partners. In these cases, technology can augment the work but not replace the context and accountability needed to be successful.
- **When replacing workers with technology does not garner social acceptance.**

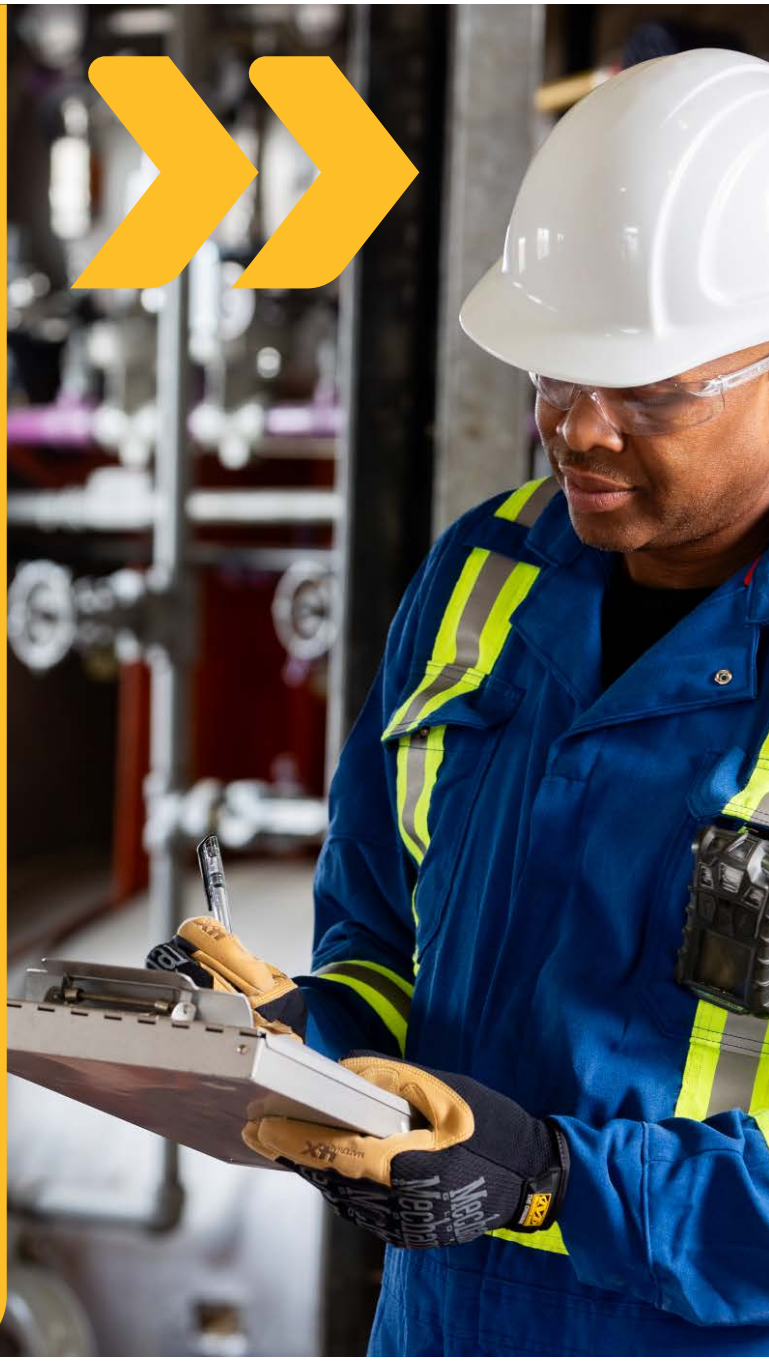


Table 4: Occupations with higher-than-average annual age-related attrition rates

Occupation (NOC)	Annual age-related attrition rate
ACROSS ALL OCCUPATIONS	**2.8%**
Supervisors, petroleum, gas and chemical processing and utilities (92011)	4.3%
Managers in natural resources production (80010)	3.7%
Purchasing managers (10012)	3.6%
Procurement and purchasing agents and officers (12102)	3.6%
Supply chain logistics, tracking and scheduling coordination occupations (1440)	3.6%
Information technology (20012, 21211, 2122, 2123, 21311, 2222)	3.6%
Contractors and supervisors, oil and gas drilling and services (82021)	3.6%
Engineering managers (20010)	3.5%
Facility operation and maintenance managers (70012)	3.5%
Managers in transportation (70020)	3.5%
Managers in manufacturing and utilities (9001)	3.5%
Geological and mineral technologists and technicians (22101)	3.4%
Construction inspectors (22233)	3.4%
Court reporters, transcriptionists, records management technicians and statistical officers (1211)	3.3%
Survey, statistical and data entry occupations (1411)	3.3%
Engineering inspectors and regulatory officers (22231)	3.3%
Occupational health and safety specialists (22232)	3.3%
Professional occupations in advertising, marketing and public relations (11202)	3.2%
Technical occupations in architecture, drafting, surveying, geomatics and meteorology (2221)	3.2%
Contractors and supervisors, technical maintenance trades and heavy equipment and transport operators (7202)	3.2%
Transport truck drivers (73300)	3.2%
Public and environmental health and safety professionals (2112)	3.1%
Civil engineering technologists and technicians (22300)	3.1%
Industrial engineering and manufacturing technologists and technicians (22302)	3.1%
Central control, process and plant operators (9210, 9310)	3.1%
Chemists (21101)	3.0%
Geoscientists and oceanographers (21102)	3.0%
Civil engineers (21300)	3.0%
Mechanical engineering technologists and technicians (22301)	3.0%
Construction managers (70010)	3.0%
Contractors and supervisors, technical industrial, electrical and construction trades and related workers (7201)	3.0%
Automotive service technicians (7241)	3.0%
Architects, urban planners and land surveyors (2120)	2.9%
Electrical and electronics engineering technologists and technicians (22310)	2.9%
Technical sales (6001, 6210, 6410, 6440)	2.9%
Chemical plant machine operators (94110)	2.9%

The industry's average annual age-related attrition rate across all occupations is forecast to be 2.8%. This represents a 0.5% increase since CIE's previous outlook, released in 2024. Table 4 lists the occupations expected to have higher-than-average age-related attrition rates and a potential risk of labour and skills shortages due to the loss of experienced workers through retirements.

The scale of hiring requirements driven by age-related attrition will have a greater impact on established energy sectors, largely due to the size of their existing workforce (Table 5). In emerging sectors, the loss of experienced workers may be felt more acutely, as seasoned professionals play a critical role in bridging knowledge gaps and supporting problem-solving during the start-up phases of new operations and technologies. The need to recruit experienced subsurface professionals, such as geoscientists and petroleum engineers, for the CCS sector is a clear example of this dynamic.

Table 5: Net hiring requirements (NHR) by sector, 2026-2035

	Sector	Industry activity	Age-related attrition	NHR
	TOTAL	**18,390**	**54,170**	**72,560**
Established energy sectors	Conventional E&P (onshore)	7,510	17,440	24,950
	Conventional E&P (offshore)	-1,040	1,740	700
	Oil sands	-920	6,140	5,220
	Energy services	11,710	20,830	32,540
	Pipelines	100	4,410	4,510
	Petroleum refining	minimal*	2,500	2,500
	Sub total	**17,360**	**53,060**	**70,420**
Emerging energy sectors	Biomass-based fuels	minimal*	990	990
	Low-carbon hydrogen	150	10	160
	LNG	700	70	770
	CCS	180	40	220
	Sub total	**1,030**	**1,110**	**2,140**

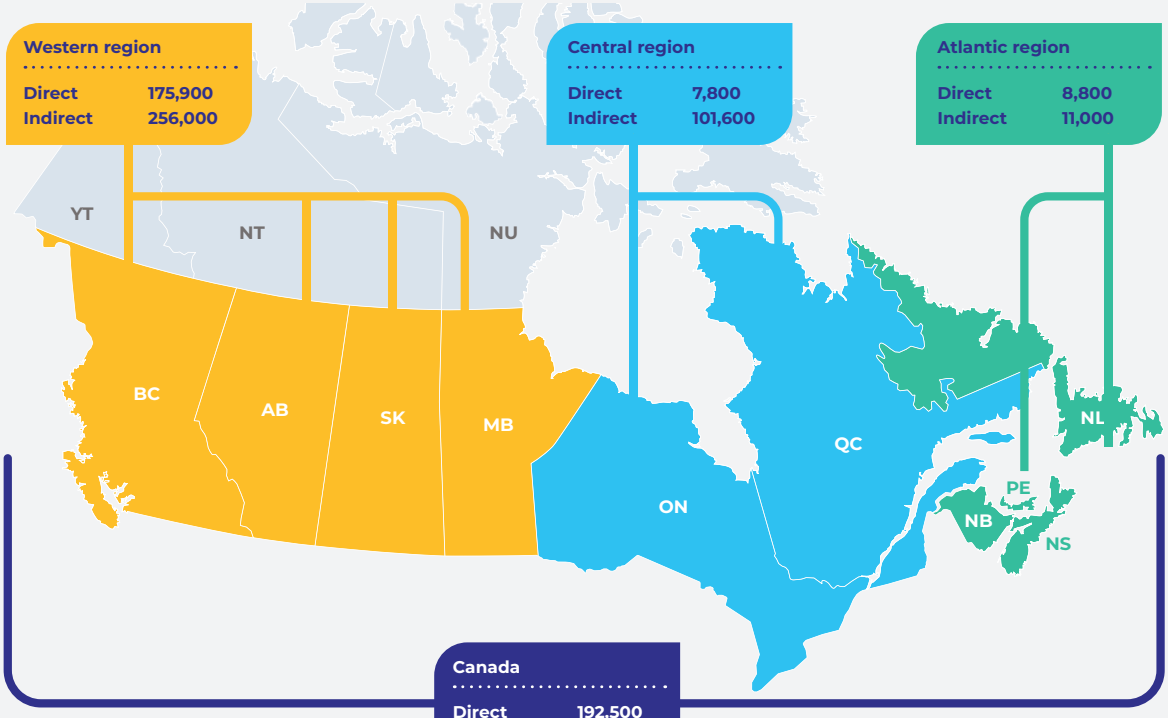
Numbers may not add up due to rounding
*Direct employment projected to remain flat.

5

Indirect Employment

In addition to the jobs directly hired for production, operations and maintenance of CIE's in-scope energy sectors, **hundreds of thousands of jobs are generated across the Canadian economy** in sectors providing goods and services to the industry's operations supply chain and capital projects.

Figure 8: Direct employment and estimate of indirect jobs supported by established energy sector operational spending in 2025



Source: Careers in Energy and Stokes Economics using Statistics Canada's Input-Output tables.
Numbers may not add up due to rounding.

Table 6: Estimate of indirect jobs supported by established energy sector operational spending, by industry

Industry	# of jobs and % of total
Professional, scientific and technical services	65,400 (18%)
Wholesale and retail trade	59,000 (16%)
Finance, insurance, real estate, rental and leasing	55,700 (15%)
Administrative and support, waste management and remediation services	46,100 (12%)
Transportation and warehousing	31,000 (8%)
Manufacturing	30,300 (8%)
Repair construction	18,400 (5%)
Accommodation and food services	13,500 (4%)
Mining and quarrying	10,900 (3%)
Government services	8,800 (2%)
Utilities	7,800 (2%)
Information and culture	7,700 (2%)
Other	15,400 (4%)
TOTAL ANNUAL JOBS	**370,000**

Source: Careers in Energy and Stokes Economics using Statistics Canada's Input-Output tables.

Two indirect jobs for every direct job

These opportunities, referred to as the energy industry's indirect jobs, are significant in numbers. In 2025, an estimated **370,000 indirect jobs** were generated from operational spending by the established energy sectors. These jobs are in sectors that provide a broad range of goods and services required to sustain ongoing operations in conventional E&P, oil sands, energy services, pipelines and refining. As the energy industry expands as projected in this outlook, the number of indirect jobs required to sustain operations is also expected to increase.

This estimate does not include induced jobs, which are generated through the spending of income earned by workers in direct and indirect jobs. For example, when energy workers spend their earnings on groceries, housing, restaurants, transportation, or entertainment, that spending supports additional jobs across those sectors.

Energy-related construction also drives jobs

An additional **5,400 engineering, manufacturing, construction and support services jobs** are created for every **$1 billion invested in developing and constructing energy infrastructure projects**.[26] These jobs are generated over the multi-year time frame required to plan, construct and commission new energy infrastructure. Sectors that see the greatest employment benefit from the energy industry's capital project spending include:

- Oil and gas engineering construction
- Legal, accounting and architectural, engineering and related services
- Wholesale trade
- Machinery and fabricated metal manufacturing

Oil and natural gas related major projects

According to the Canadian Association of Petroleum Producers (CAPP), as of April 2026, Canada has an estimated $189.7 billion in major oil and gas projects planned or under construction through 2035. This level of investment underscores the sector's role in supporting national prosperity, energy security and global competitiveness. Of this total, $151.2 billion (80%) is in the planning stage, while $38.5 billion (20%) is under construction).[27]

The methodology used to determine the number of indirect jobs generated by energy spending relies on a historical relationship, so only indirect jobs associated with investment by established energy sectors can be estimated.[28] The relationship between investment in emerging energy sectors and generation of indirect jobs is yet to be determined.

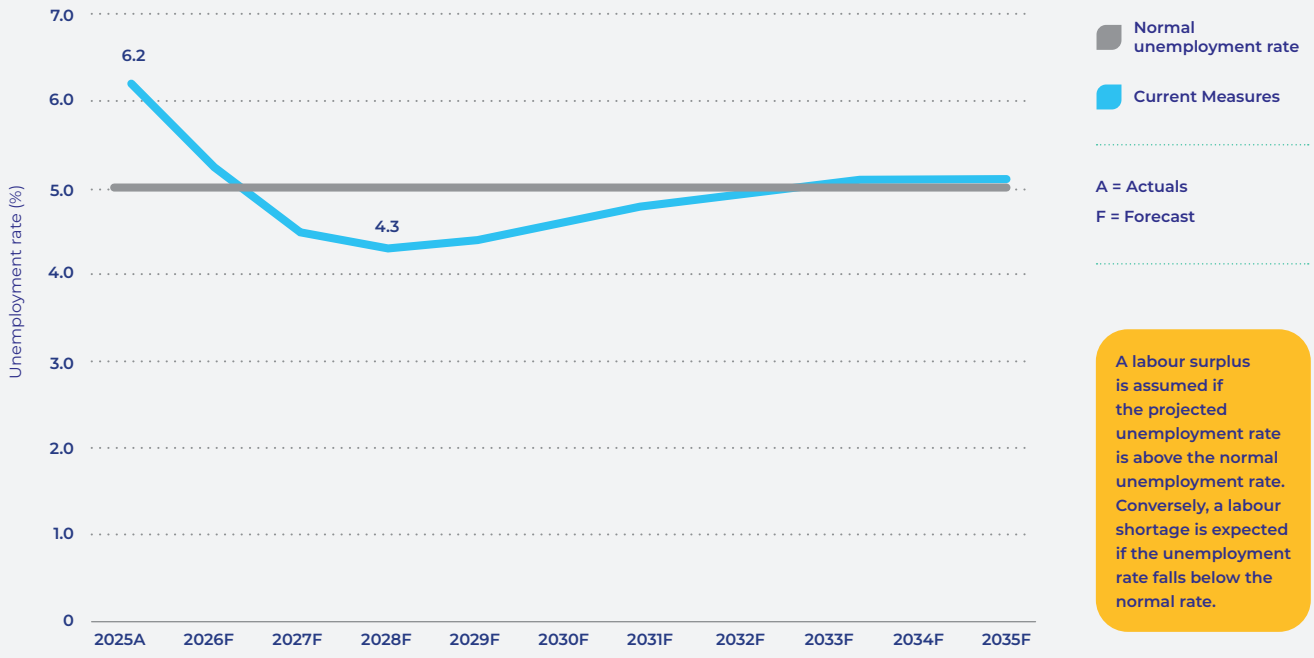
6

Labour Supply and Demand Analysis

Labour and skills shortages are projected for Canada's energy industry as early as 2027.

Canada's immigration policy has shifted noticeably over the past few years, from rapid expansion after the COVID-19 pandemic to a more controlled approach. Starting in 2025, targets were scaled back in response to rising inflation, higher housing costs and high unemployment, particularly among youth, and are expected to be managed more tightly in the medium term. Given that immigration was a key source of growth

Figure 9: Energy industry unemployment rates, 2025-2035



in the national labour market, the extent of this policy shift is likely to become clearer in the coming years.[29]

From the Canadian energy industry's perspective, factors that improved labour productivity in 2025, specifically consolidation due to M&As, meant there was a qualified talent pool readily available in the labour market. As Figure 9 illustrates, the industry's unemployment rate was above the level considered normal or indicative of a healthy balance between labour supply and demand.

Tight labour market and some skills shortages starting in 2027

The availability of talent in the energy industry varies by occupation. A closer look at CIE's labour supply and demand modelling indicates that labour shortages for some occupations are expected to return as industry activity levels ramp up in 2027, and major projects in emerging energy sectors move into operations shortly after that.

It is anticipated that the energy services sector will feel the greatest challenges in finding enough workers. In addition, companies across all energy sectors are already reporting shortages of specific skills and qualifications for certain occupations.

Labour shortage or skills shortage?

A labour shortage is a quantitative lack of enough people to fill jobs, resulting in general hiring difficulty across the industry. A skills shortage is a qualitative gap in which workers lack the specific expertise required for a role. The industry may have many applicants for job postings, but a lack of qualified candidates. Both hamper productivity and increase costs. - Labour Market Information Council (LMIC)

Risks associated with attracting sufficient talent

While CIE's labour market model is not projecting widespread labour shortages, there are several factors likely to affect industry's ability to attract the talent it needs in a timely manner.

Advancing emerging energy sectors requires expanded knowledge and specialized skills

Producing biomass-based fuels, LNG and low-carbon hydrogen, as well as deploying CCS technologies, involves processing and transporting products with unique characteristics. This, in turn, requires a workforce with expertise in safe handling practices, operational processes, and the specialized materials used in equipment, piping and associated systems.

These emerging sectors also rely on distinct supply chains for feedstock, equipment and specialized inputs. As a result, new supplier relationships must be established, alongside enhanced capabilities in navigating emerging procurement networks, regulatory frameworks, transportation logistics and sourcing strategies that differ from those of established energy sectors.

Competition for similar occupations from other industry sectors

Competition for many in-demand occupations is not confined to the energy industry, as sectors such as mining, electricity and construction draw from the same limited talent pools. This overlap intensifies hiring pressures, and as a result, employers can face increased wage competition, longer recruitment timelines and a need to place greater emphasis on retention and workforce development.

Attracting workers to field and remote locations remains challenging

Attracting workers to field and remote locations remains a persistent constraint. Rotational schedules, time away from home, outdoor work in all kinds of weather and the misperception that field work offers

fewer career progression opportunities all contribute to hiring challenges. For offshore operations, these challenges are amplified by international competition for talent, in which Canadian employers must compete on compensation and working conditions.

AI and automation are reducing the number of entry-level jobs

There are fewer entry-level roles available due to automation and the deployment of AI to perform the more routine tasks, which would traditionally have been done by new entrants into the industry as an opportunity to develop skills and knowledge.

Loss of experience among occupations with above-average age-related attrition rates

If not managed well, the loss of experience in occupations with above-average age-related attrition rates can create a compounding risk. It can be difficult to find talent that can replace the loss of institutional knowledge and role-specific judgment through hiring alone. Organizations can face longer onboarding periods, reduced productivity and increased operational risk, particularly in safety-critical and technically complex energy environments.

Concerning trend related to attracting and retaining women

In addition to age demographics, 2025 Labour Force Survey (LFS) data indicates another concerning trend — a decline in the proportion of women in the energy workforce. While the underlying causes have not been formally studied, anecdotal evidence points to several potential factors, including the disproportionate impact of M&As on female-dominated functions and a shift by some women toward alternative career paths, potentially influenced by return-to-office policies.

Labour and skills shortages across occupational categories

The following provides an overview of talent challenges likely to be faced across energy industry occupations. These are summarized in Table 7.

- **Business and operations support:** Finding talent with the right mix of technical expertise, business acumen and regulatory awareness is becoming more difficult as the energy industry operates in an increasingly complex and fast-evolving landscape.
- **Energy drilling, servicing and field operations:** Labour shortages for energy services and drilling occupations are expected to persist, and likely worsen, in 2027–2028 as industry activity accelerates in advance of LNG export-related growth. At the same time, skill requirements are shifting, with increasing demand for workers who combine traditional mechanical expertise with the ability to operate, interpret and optimize digital tools and data-enabled systems. Although concentrated in the energy services sector, these roles are essential to both established production and emerging low-carbon energy developments, making them a critical constraint across the broader integrated energy system.

  Field production roles also face persistent recruitment challenges. Potential retirements among experienced operators, along with rising technical requirements tied to digital monitoring, automation and safety systems, are compounding labour and skills shortages.
- **Engineers:** Attracting and retaining engineers for field-based roles is challenging, as many candidates increasingly prioritize urban-based positions, often driven by the misperception that head offices offer more and better career opportunities. Other challenges stem from concerns about whether smaller, rural communities can meet the needs of two-career families and provide education and services for children.
- **Facility operations:** Shortages in these occupations are most pronounced in regulated power engineering roles. In addition to existing operations, new offshore production platforms, low-carbon hydrogen production plants and CCS operations all

hire the same type of operators. Power engineers are also in demand across several other industrial processing sectors. Retirements among operators with high-level certification, as well as a limited number of lower-level operators choosing not to progress through the levels, are emerging as a concern for employers.

- **Geoscientists:** These roles are not currently facing significant labour or skills shortages; however, an above-average rate of age-related attrition underscores emerging workforce risks. This demographic pressure highlights the importance of proactive succession planning and sustained investment in early-career talent pipelines.
- **Information technology:** This is an emerging skills shortage, given the need for talent that combines deep energy sector business acumen and technical knowledge, with leading-edge AI, data engineering and cybersecurity expertise.
- **Technical sales, procurement, supply chain and logistics:** These roles are difficult to fill because they require a rare combination of commercial acumen, sector-specific technical knowledge and digital literacy. As supply chains become more complex and data-driven, demand is shifting toward professionals who can integrate analytics, risk management and stakeholder coordination.
- **Technicians and technologists:** Skills shortages are emerging in these roles due to rapid adoption of technology in automation, instrumentation and control systems, which is increasing the level of specialization required for these roles. Competition for technicians and technologists may intensify as these occupations have above-average age-related attrition rates and are hired across other industry sectors.
- **Trades:** There is a tight labour market for tradespeople, with persistent competition from construction, mining and major infrastructure projects drawing from the same shrinking talent pool, due to an aging workforce. Energy employers often face challenges not only in recruitment but also in retention, particularly for workers willing to work in the field or on rotational assignments.
- **Transportation and heavy equipment operators:** There are increasingly widespread shortages of workers with advanced driver's licences across industrial sectors, not just in energy. Transport drivers also face above-average age-related attrition, which is contributing to hiring challenges. Competition is expected to remain high as infrastructure, mining and construction projects continue to increase demand.

Table 7: Occupations projected to experience labour and/or skills shortages, 2026-2035

Opportunity group	E&P	Oil sands	Energy services	Pipelines	Petroleum refining	LNG	Biomass-based fuels	Low-carbon hydrogen	CCS
Business and operations support	✓	✓	✓	✓	✓	✓	✓	✓	✓
Energy drilling, servicing and field operations	✓	–	✓	–	–				✓
Engineers	✓	✓	✓	✓	✓	✓	✓	✓	✓
Facility operations	✓	✓	✓	✓	✓	✓	✓	✓	✓
Geoscientists	–	–	–						✓
Information technology	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technical sales, procurement, supply chain and logistics	✓	✓	✓	✓	✓	✓	✓	✓	✓
Technicians and technologists	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trades	✓	✓	✓	✓	✓	✓	✓	✓	✓
Transport and heavy equipment operators	✓	–	✓	✓	✓	✓	✓		✓

Legend: Potential labour shortages; Potential skills shortages; Potential for both labour and skills shortages

– Occupational group is employed in the sector but is not anticipated to experience labour or skills shortages Blank cells indicate minimal employment in the sector

Business and operations support:
- Professional occupations in advertising, marketing and public relations
- Survey, statistical and data entry occupations
- Public and environmental health and safety professionals

Energy drilling, servicing and field operations:
- Managers in natural resources production
- All energy drilling and servicing operators, contractors and supervisors

Engineers:
- Engineering managers
- Industrial and manufacturing engineers

Facility operations:
- Facility operation and maintenance managers
- Central control, process and plant operators

Geoscientists:
- Geoscientists

Information technology:
- Data scientists
- Computer, software and web designers and developers

Technical sales, procurement, supply chain and logistics:
- Supply chain logistics, tracking and scheduling coordination occupations
- All technical sales occupations

Technicians and technologists:
- Geological and mineral technologists and technicians
- Industrial engineering and manufacturing technologists and technicians

Trades:
- Managers and supervisors
- Industrial instrument technicians and mechanics
- Welders and related machine operators
- Industrial electricians
- Plumbers, pipefitters and gas fitters
- Construction millwrights and industrial mechanics
- Heavy-duty equipment mechanics

Transport and heavy equipment operators:
- Managers
- Transport truck drivers

7

Conclusion and Call to Action

Canada's energy industry has achieved significant gains in labour productivity, operational efficiency and cost competitiveness in an increasingly complex business environment. Sustaining and building on this performance will depend on the industry's ability to attract and retain top-tier talent. Securing that talent is not only critical to maintaining current outcomes, but also to strengthening Canada's position as a reliable, globally competitive supplier of both established and emerging low-carbon energy sources.

Research consistently shows that talent migrates toward organizations and sectors that offer **purpose, mobility, learning, quality work and inclusion**. To attract and retain talent, Canada's energy industry needs to continue focusing on:

- **A strong, credible sense of purpose:** Purpose is now a primary driver of attraction and retention, particularly among younger workers and highly skilled professionals. Energy employers must continue to link roles, not just corporate messaging, to emissions reduction, affordability and energy security outcomes in a way that employees can see and feel in their day-to-day work.
- **Clear career mobility:** Workers are more likely to stay when they see multiple future pathways, even if they don't remain in one role or sub-sector. The industry must continue investing in cross-sector mobility, role transparency and progression clarity to keep workers engaged in the energy industry, rather than losing them to adjacent industries.
- **Ongoing upskilling aligned with digital and systems transformation:** Retention risk increases when workers feel their skills are becoming obsolete. Attraction alone is insufficient; energy employers must continue prioritizing supported upskilling and reskilling pathways, especially for mid-career workers.
- **Job quality, working conditions and flexibility:** Job quality—including stability, safety and community connection—is a key determinant of workforce retention. The energy industry must continue improving work design, not just wages, particularly in field-based, remote and project-driven roles.
- **Diversity, equity, inclusion and Indigenous participation:** Addressing barriers to equitable inclusion of diverse talent pools, including Indigenous talent, is a structural solution to workforce shortages. Inclusive hiring, regional training partnerships and Indigenous-led workforce development improve both attraction and long-term retention.

This *National Labour Market Outlook to 2035* is one of a number of tools and resources developed by CIE to build a roadmap for a robust energy industry in the decades to come.

Careers in Energy: Providing Value

Value across the energy workforce ecosystem

Navigating the complexity of Canada's evolving energy industry requires reliable data, clear insights and accessible career guidance. CIE brings clarity by connecting people and organizations to trusted labour market intelligence, practical tools and resources that support informed workforce planning and confident career decisions, across the energy ecosystem.

Key tools and supports:

- National and regional labour market outlooks, projecting hiring demand, replacement needs, retirements and demographic trends
- Complimentary employer support services, providing valuable information specific to an organization's unique needs
- Career profiles, detailing role requirements, skills, wages and work environments
- Interactive career pathways, helping individuals understand the knowledge, education, skills and attributes required at each stage of a career
- Transferable skills insights, showing how experience can apply across established and evolving energy sectors or roles
- Recruitment and retention toolkits, offering information and guidance on workforce recruitment, retention and best practices
- Interactive data dashboards, allowing users to customize data insights on current employment trends, job posting trends, workforce demographics and labour market outlooks
- Diversity, equity and inclusion webinars and resources, supported by a panel of energy leaders and experts on important topics that impact the industry and its workers
- Workforce attraction and industry promotion, playing a sector-wide attraction role promoting energy careers to youth and students, career switchers and underrepresented groups at various events across the country
- Shareable content, including energy worker stories, labour market visuals and career explainers
- Virtual reality experiences, enabling users to explore the diverse work environments and worksites across various energy sectors

Value to employers and industry

Attracting, retaining and planning for talent

CIE provides employers and industry with evidence based workforce insights and tools to attract, retain, and plan for talent in a changing energy landscape.

- Support workforce planning and decision making
- Improve recruitment and retention practices
- Provide insight into real-time labour demand
- Strengthen talent pipeline development
- Support diversity, equity and inclusion efforts
- Enhance workforce attraction efforts
- Increase engagement and awareness of energy careers
- Leverage innovative technology for attraction and education
- Align education and training with industry needs

Value to job seekers and career practitioners

Career clarity, confidence and mobility

CIE supports career clarity, confidence, and mobility by translating labour market data into practical guidance for job seekers and career practitioners.

- Clarify career option in established and emerging energy sectors
- Support informed career decisions
- Make labour market data accessible to individuals
- Enable career planning and progression
- Highlight transferrable skills
- Support employment advising and coaching
- Improve job readiness and career confidence
- Increase awareness of opportunities beyond job postings
- Engage and inspire through storytelling
- Support inclusive career navigation
- Equip career practitioners with trusted resources

Value to educational and training institutions

Aligning education supply with industry demand

CIE supports educators and training institutions with labour market insights that align programs with industry demand and improve learner employability.

- Inform program and curriculum design
- Align training with industry demand
- Support future focused planning
- Improve student and learner outcomes
- Enable stackable and modular learning
- Support career guidance and advising within institutions
- Enhance learner engagement and career awareness
- Incorporate real-world industry context

Value to governments and policymakers

Evidence-based workforce and economic policy

CIE supports governments and policymakers with credible, industry validated workforce intelligence to inform evidence based policy, planning and funding decisions.

- Enable evidence-based workforce policy
- Assess workforce impacts of policy and investment choices
- Support funding and program decisions
- Identify regional and sector-specific workforce pressures
- Align workforce development with economic strategy
- Improve policy relevance and effectiveness
- Support collaboration across systems
- Increase transparency and confidence in analysis

Value to the energy system as a whole

Integration, credibility and long-term resilience

CIE's unique contribution is its system-level perspective.

- **Connecting** employers, workers, educators and governments using a shared evidence base
- **Reframing** Canada's energy workforce as integrated and adaptable, not fragmented
- **Enhancing** public understanding of energy careers and their societal value
- **Strengthening** Canada's competitiveness by improving workforce alignment

To access all the tools and resources CIE has to offer, visit CareersinEnergy.ca.

Endnotes

[1] Careers in Energy and Stokes Economics using Statistics Canada's Input-Output tables.

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[10] Investment in the in-scope sectors will generate further indirect employment opportunities across other industries such as engineering, finance and insurance, fabrication, accommodation and transportation. Analysis of indirect employment associated with the in-scope sectors can be found on pages 33 and 34.

[11] Construction workforce is not included in this forecast, although it is recognized expanding Canada's energy system will require significant new infrastructure. Construction workforce is a critical component to seeing necessary builds being completed on-time and on-budget. Workforce projections for Canada's construction workforce can be found at BuildForce: https://www.buildforce.ca/en

[12] Labour demand projections include hiring due to industry activity, age-related attrition and net hiring requirements and have been produced using CIE's modelling system for the energy industry. This system projects labour demand by sector and industry for the 81 occupations mapped according to the National Occupational Classification (NOC) 2021. An "other occupations" category is used to capture any residual occupations and ensure the total energy industry workforce is accounted for.

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About Careers in Energy

Careers in Energy (CIE), a division of Energy Safety Canada, is Canada's trusted source of labour market intelligence, workforce trends and career resources for the energy industry. CIE supports employers, jobs seekers, career practitioners, educators and policymakers by providing evidence-based forecasts, insights and practical tools that inform workforce planning and career decision making.

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