



**GREEN GOALS AND GREAT
OPPORTUNITIES**
CANADA'S ENVIRONMENTAL
LABOUR DEMAND
FORECAST TO 2033

MARCH 2024

eco  canada

About ECO Canada

Environmental Careers Organization of Canada (ECO Canada) is a not-for-profit corporation established in 1992 as part of Canada's Sector Council Initiative. ECO Canada is focused on identifying, communicating, and meeting the needs of environmental practitioners, employers, educators, and students. Its vision is to build the world's leading environmental workforce.

ECO Canada has supported Canada's environmental workforce by establishing professional development resources, training programs, and educational partnerships, conducting in-depth labour market research and providing the largest industry-specific job board.

ECO Canada's programs and services are developed through strong national partnerships, consultative strategic planning, and ongoing labour market research. Its labour market research provides valuable insights into environmental career trends, which can be used by governments, educators, youth, and industry partners to make decisions and formulate strategies. To learn more, please visit www.eco.ca.

Acknowledgements

This study was funded by the Government of Canada's Sectoral Workforce Solutions Program. We are greatly appreciative of the support.

We acknowledge the data or research expertise provided by Prism Economics and Analysis, TalentNeuron, Statistics Canada, Employment and Social Development Canada, as well as other sources and resources.

We would also like to thank those who have provided ongoing advice and feedback regarding our research through ECO Canada's National Advisory Committee.

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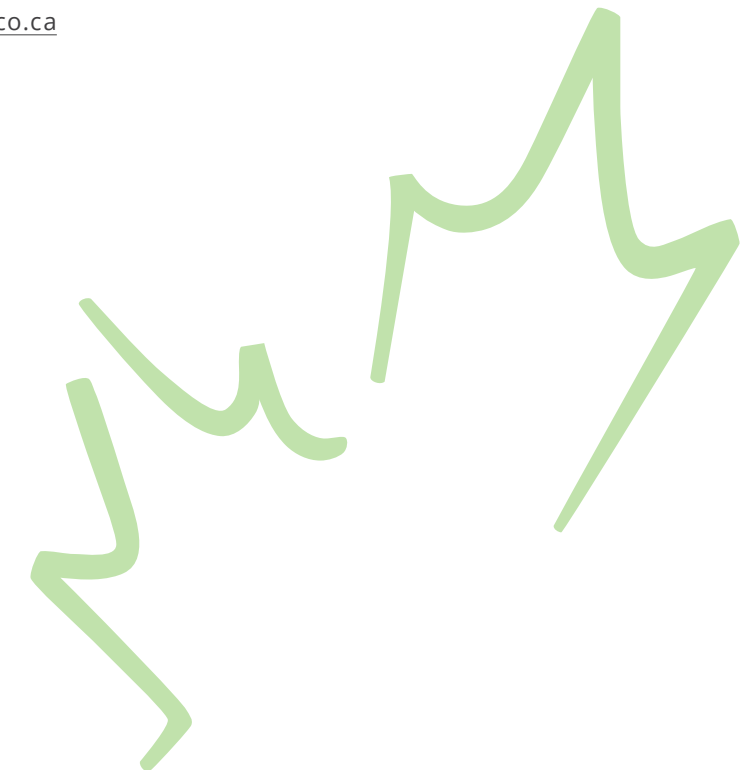




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REPORT HIGHLIGHTS

TOTAL ENVIRONMENTAL WORKFORCE

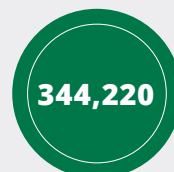
The total environmental workforce includes core environmental workers (those who require environmental-specific knowledge, skills and competencies for their role) across all industries and workers employed by environmental goods and services organizations, regardless of role or required competencies. We estimate that 1 in 15 workers in Canada are part of the total environmental workforce.



ENVIRONMENTAL WORKERS IN 2024
7% of the Canadian workforce



NET NEW JOBS BY 2033
9% growth from 2024



JOB OPENINGS DUE TO RETIREMENTS
24% retirement rate



NET JOB OPENINGS TO 2033
34% of 2024 environmental employment

NET JOB OPENINGS

Top regions

Ontario	181,750
Alberta	83,050
British Columbia	81,970

Top industries

Professional, scientific and technical services	80,440
Public administration	76,720
Health care and social assistance	61,490

Top specializations

Natural resource management	202,690
Fisheries & Wildlife	186,130
Environmental health & safety	176,520

Top occupations

Professional occupations in advertising, marketing and public relations	20,410
Home building and renovation managers	18,290
Other managers in public administration	15,740

Core environmental workforce

Core environmental workers require environmental-specific knowledge, skills and competencies.

NET JOB OPENINGS

Top regions

Ontario	49,980
British Columbia	30,250
Alberta	26,530

Top industries

Professional, scientific and technical services	53,050
Public administration	28,220
Construction	8,700

Top occupations

Administrative officers	12,250
Professional occupations in business management consulting	10,890
Civil engineers	9,080



CORE ENVIRONMENTAL WORKERS IN 2024
2% of the Canadian workforce



NEW JOBS BY 2033
6% growth from 2024



JOB OPENINGS DUE TO RETIREMENTS BY 2033
25% retirement rate



NET JOB OPENINGS TO 2033
31% of 2024 core environmental employment

Introduction

In the past five years, Canada has faced a variety of challenges. From a global pandemic to the ripple effects of a disrupted energy economy resulting from the Russia-Ukraine war, the economy, communities and the environment have contended with uncertainty across many dimensions. However, our recovery in response to these challenges has shown remarkable resilience. Canada is regaining economic stability, with 2022-2023 seeing an all-time low unemployment rate and the highest real GDP growth of all G7 nations.¹ The ripple effects of the pandemic are expected to smooth out further in the coming years, including the fall of inflation to 2% by 2025, a drop of 1.5% from 2023.²

Within these optimistic trends, a major challenge remains. The impacts of climate change are becoming increasingly severe - 2023 was the hottest year on record and wildfires in Canada were at an all-time high, with extreme weather events amounting to over \$3.1 billion in insured damage.³ The impacts of climate change also contributed to the spike in food prices in 2023, while political tensions with Russia highlighted the widespread costs that come with global reliance on the stable supply of a diminishing resource.⁴

The increasing urgency of building a greener economy also presents exciting opportunities for governments, industries, communities, and individuals to participate in a climate-resilient future. International commitments and resulting government policy are paving the way to a net-zero by 2050 future through initiatives such as the integration of energy-efficient buildings, clean energy and electrification, and the domestic development of the electric vehicle (EV) battery supply chain.⁵ In addition, innovation within the cleantech sector and the adoption of emerging technologies are key drivers in reducing environmental impact on the road ahead.

Achieving these goals will require a skilled environmental workforce. Our outlook estimates that, over the next decade, the workforce will require 480,510 additional environmental workers across all industries. One in five Canadian workers will be reaching retirement age within the next decade, with two-thirds of these job openings requiring post-secondary education or managerial expertise.⁶ The skill gaps resulting from the incoming wave of retirements are compounded by the workforce demands of the expanding environmental sector.⁷ While immigration will contribute to filling some of these gaps, engaging underrepresented groups in the Canadian workforce and providing access to adequate training will be crucial in ensuring that the skills of the environmental workforce are aligned with the available positions.⁸

This environmental labour demand outlook provides insights into both the environmental workforce today and its evolution throughout the next decade to ensure a prosperous future for all.

^{1,2,8} Government of Canada. 2023. [2023 Fall Economic Statement](#).

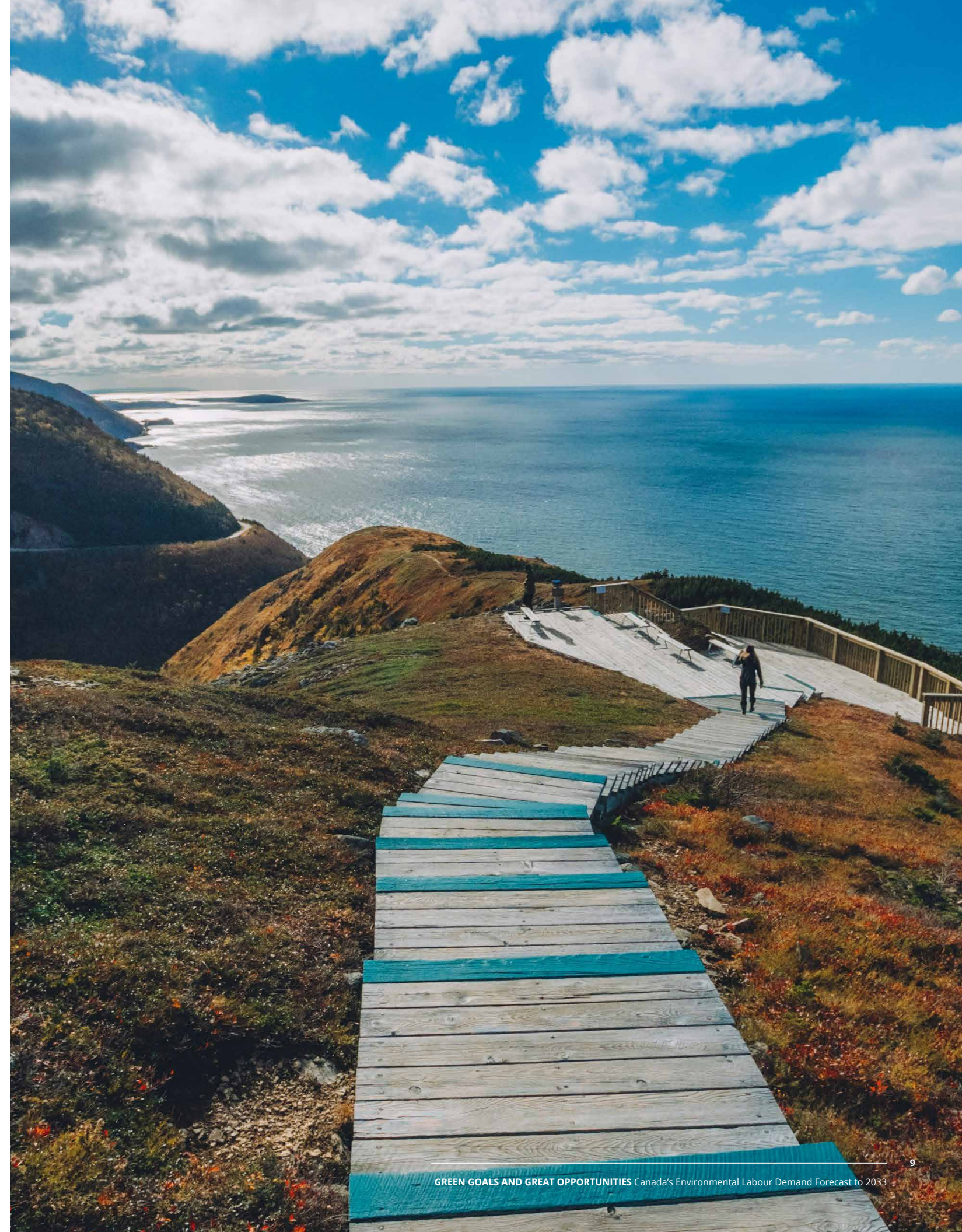
³ Insurance Bureau of Canada. 2024. [Severe Weather in 2023 Caused Over \\$3.1 Billion in Insured Damage](#)

⁴ RBC Climate Action Institute. 2024. [Double Or Trouble](#).

⁵ Government of Canada. 2024. [Net-zero emissions by 2050](#).

⁶ Statistics Canada. 2022. [In the midst of high job vacancies and historically low unemployment, Canada faces record retirements from an aging labour force: number of seniors aged 65 and older grows six times faster than children 0-14](#).

⁷ Canadian Occupational Projection System (COPS). 2022. [Job Openings \(2022-2031\)](#).

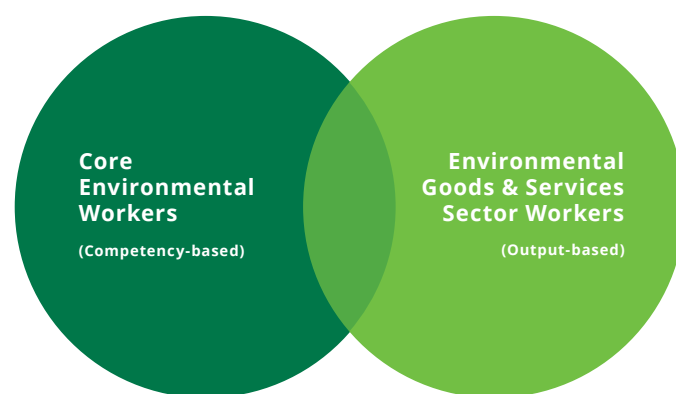


SPOTLIGHT: THE ENVIRONMENTAL WORKFORCE DEFINED

Canada's environmental workforce drives or supports the goals of natural resource management, environmental protection, and sustainability. Our definition includes:

- Core environmental workers (i.e., those in roles requiring specialized environmental competencies) regardless of industry, and
- Those directly employed within the environmental goods and services firms, regardless of occupation.

A Chief Sustainability Officer and Remediation Specialist working in oil and gas; a Conservation Officer in government; a Water and Wastewater Treatment Operator in utilities; an Energy Auditor and Environmental Engineer in construction; and an Environmental Advisor, Accountant, and Human Resource Advisor working in an environmental consulting firm are all included in our definition (see our Career Profiles to explore over 100 roles that are part of Canada's growing environmental workforce).



We also classify environmental workers according to 13 key environmental specializations or sub-sectors, from Air Quality to Fisheries & Wildlife, Natural Resource Management, and Environmental Education & Training (see our sector model for the complete list of specializations/sub-sectors).

This study presents estimates for environmental employment and net hiring requirements in Manitoba from 2020 to 2030. Our labour demand outlook integrates multiple sources of data:

- Online job postings from TalentNeuron,
- Statistics Canada's Census and Labour Force Survey,
- Employment and Social Development Canada's Canadian Occupational Projection System,
- GDP growth in accordance with an average of long-term growth forecasts published by the Parliamentary Budget Office, the Department of Finance Canada, and the Organization for Economic Co-operation and Development (OECD), and
- Sectoral trends for industries within this framework are provided by Stokes Economics.

Environmental employment is estimated by identifying the 2023 EnviroShare—the proportion of environmental workers compared to all workers at the occupational level—and applying these to forecasted employment data. **Net hiring requirements** are derived by combining jobs created from employment growth (expansion demand) and jobs that become available as workers retire (replacement demand).

Numbers have been rounded in many cases for readability.

Refer to **Appendix A** for more information about our methodology and **Appendix B** for a list of all occupations included in our study, including those mapped to core environmental workers.

Composition of Canada's Environmental Workforce

In 2024, the estimated environmental employment in Canada is **1,413,710** representing **7%** of the total employment in the workforce. About **453,680** of these workers are considered to be core environmental workers.

Opportunities for environmental workers are diverse and exist across Canada. Nearly **87%** of environmental workers are located in Ontario, Quebec, Alberta or British Columbia.

Table 1 . 2024 Environmental Employment, by Region

PROVINCE	ENVIROSHARE 2023	ENVIRONMENTAL EMPLOYMENT	ENVIRONMENTAL NET HIRING REQUIREMENTS (2024–2033)
CANADA	7%	1,413,710	453,680
Ontario	9%	500,250	154,090
Quebec	9%	279,570	85,260
British Columbia	11%	225,370	83,400
Alberta	10%	224,000	77,170
Saskatchewan	9%	47,730	11,710
Manitoba	9%	45,350	12,700
Nova Scotia	9%	34,920	11,070
New Brunswick	8%	26,800	8,360
Newfoundland and Labrador	7%	18,630	5,810
Prince Edward Island	7%	5,920	1,730
Northwest Territories	7%	2,190	1,050
Yukon	7%	2,010	920
Nunavut	4%	1,000	410

ENVIRONMENTAL EMPLOYMENT BY INDUSTRY

The top industry employer of environmental workers is the Professional, scientific, and technical services sector, with an estimated **204,180** positions across Canada in 2024, **58%** of which are core environmental workers.

Other industries with employing a high number of environmental employees include:

- Public administration (**184,570**; **47%** are core environmental workers)
- Construction (**144,250**; **28%**)
- Health care and social assistance (**136,080**; **13%**)
- Manufacturing (**133,340**; **37%**)
- Educational services (**93,340**; **30%**)

Table 2 . Environmental Employment in 2024, by Industry (NAICS)

INDUSTRY (NAICS)	ENVIRONMENTAL EMPLOYMENT IN 2024	CORE ENVIRONMENTAL EMPLOYMENT IN 2024
ALL INDUSTRIES	1,413,710	453,680
Professional, scientific and technical services (54)	204,180	118,640
Public administration (91)	184,570	86,420
Construction (23)	144,250	40,370
Health care and social assistance (62)	136,080	17,750
Manufacturing (31)	133,340	48,840
Educational services (61)	93,240	28,070
Retail trade (44)	57,970	7,000
Transportation and warehousing (48)	54,860	8,430
Finance and insurance (52)	49,510	7,230
Utilities (22)	46,930	20,830
Wholesale trade (41)	44,100	8,580
Other services (except public administration) (81)	42,330	10,810
Administrative and support, waste management and remediation services (56)	42,200	8,180
Mining, quarrying, and oil and gas extraction (21)	39,580	13,710
Agriculture, forestry, fishing and hunting (11)	36,190	7,360
Real estate and rental and leasing (53)	30,660	11,430
Arts, entertainment and recreation (71)	30,220	5,770
Accommodation and food services (72)	24,040	1,510
Information and cultural industries (51)	18,850	2,520
Management of companies and enterprises (55)	610	250

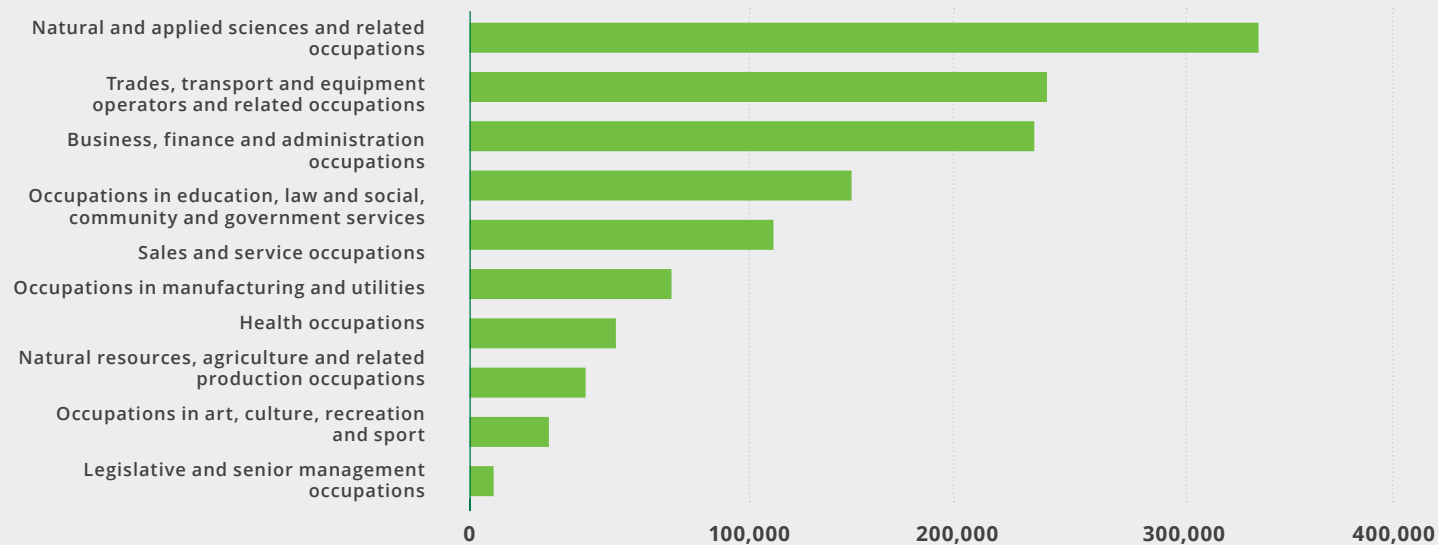
ENVIRONMENTAL EMPLOYMENT BY OCCUPATION

The job families⁹ with the most environmental workers are:

- Natural and applied sciences and related occupations (350,960)
- Trades, transport and equipment operators and related occupations (256,700)
- Business, finance and administration occupations (251,080)

An estimated **25%** of environmental workers are in Natural and applied sciences and related occupations, a job family that includes scientists, engineers, engineering technologists and technicians, and information technology specialists. Consistent with the overall workforce, Trades, transport and equipment operators and related occupations account for **18%** of Canada's environmental workforce. Business, finance and administration occupations are slightly less represented within the environmental workforce, with **18%** of occupations within this group considered environmental as opposed to **22%** of Canada's overall workforce.

Figure 1. 2024 Environmental Employment, by Job Family



⁹ 1-digit National Occupational Code (NOC). For more information, visit <https://noc.esdc.gc.ca/>.

At the 5-digit NOC, the top occupations for environmental employment are completely different than the top occupations by environmental employment share (Enviroshare):

Top occupations by environmental employment in 2024

- Professional occupations in advertising, marketing and public relations (44,870)
- Civil engineers (38,890)
- Home building and renovation managers (32,670)

Top occupations by EnviroShare in 2023

- Forestry professionals (87%)
- Conservation and fishery officers (81%)
- Water and waste treatment plant operators (76%)



SPOTLIGHT: THE RISE OF GREEN MARKETING

Green marketing involves genuine efforts by businesses to promote products and services as environmentally friendly. Companies adopting green marketing practices incorporate sustainability into their operations, production, and supply chains. This can include the use of eco-friendly materials, energy-efficient processes, and a commitment to reducing their overall environmental impact. Green marketing aims to attract and appeal to consumers who prioritize sustainability, fostering a positive image and building brand loyalty through authentic environmental stewardship.

ECO Canada monitors trends in job postings for environmental workers across Canada. Our most recent job posting analysis¹⁰ reveals that from 2021 to 2023 there were more than 1,000 environmental job ads each year for Professional occupations in advertising, marketing and public relations and 40% of all job ads in this occupation reflected a demand for environmental workers in 2023.

Our outlook for this occupation suggests that this trend will continue. We estimate that **one in five** workers in this occupation are in environmental roles and project 20,400 net job openings for environmental workers in this occupation through 2033 across Canada. Roughly **63%** of those job openings (12,910) will be in Ontario, **15%** will be in British Columbia (3,150) and **13%** in Alberta (2,750).

¹⁰ <https://eco.ca/research-and-resources/environmental-job-market-trends/>

TOP OCCUPATIONS BY INDUSTRY

Industries interact with environmental objectives in different ways, meaning that different environmental workers will be required to fill industry-specific workforce needs. This also means that the top occupations engaged in environmental work vary across key industries. For example, Home building and renovation managers currently see the highest number of environmental positions in Canada, but **99%** of this occupation is concentrated within the Construction industry. Public administration, the largest industry employer of environmental workers, includes many Police officers (**9,380**) and Firefighters (**9,340**) engaged in environmental work. In contrast, the Professional, scientific and technical services industry employs many engineering positions with both Civil engineers (**23,050**) and Other professional engineers (**8,440**).

Management roles are in the top three occupations for all industries, except for Professional, scientific and technical services and Administrative and support, waste management and remediation services.

Table 3 . Top Occupations within Select Industries

INDUSTRY (NAICS)	ENVIRONMENTAL EMPLOYMENT IN 2024	TOP OCCUPATIONS (BASED ON ENVIRONMENTAL EMPLOYMENT IN 2024)
ALL INDUSTRIES	1,413,710	<ul style="list-style-type: none"> Professional occupations in advertising, marketing and public relations (44,870) Civil engineers (38,890) Home building and renovation managers (32,670)
Professional, scientific and technical services (54)	204,180	<ul style="list-style-type: none"> Civil engineers (23,050) Other professional engineers (8,440) Lawyers and Quebec notaries (7,720)
Public administration (91)	184,570	<ul style="list-style-type: none"> Other managers in public administration (16,800) Police officers (except commissioned) (9,380) Firefighters (9,340)
Construction (23)	144,250	<ul style="list-style-type: none"> Home building and renovation managers (32,450) Construction managers (17,940) Electricians (except industrial and power system) (7,890)
Manufacturing (31)	133,340	<ul style="list-style-type: none"> Manufacturing managers (15,340) Construction millwrights and industrial mechanics (3,800) Supervisors, mineral and metal processing (2,950)
Utilities (22)	46,930	<ul style="list-style-type: none"> Water and waste treatment plant operators (4,850) Utilities managers (3,060) Utility maintenance workers (2,420)
Administrative and support, waste management and remediation services (56)	42,200	<ul style="list-style-type: none"> Public works and maintenance labourers (2,630) Contractors and supervisors, landscaping, grounds maintenance and horticulture services (1,470) Water and waste treatment plant operators (1,290)
Mining, quarrying and oil and gas extraction (21)	39,580	<ul style="list-style-type: none"> Petroleum engineers (2,690) Underground production and development miners (2,420) Managers in natural resources production and fishing (2,360)
Agriculture, forestry, fishing and hunting (11)	36,190	<ul style="list-style-type: none"> Managers in agriculture (12,330) Forestry technologists and technicians (2,820) Forestry professionals (2,110)

The top environmental specializations are:

Note: A worker or job could be mapped to one or more specializations or sub-sectors.

Sustainability	727,220
Natural Resource Management	612,780
Fisheries & Wildlife	557,480

CORE ENVIRONMENTAL WORKERS IN 2024

Green workers are employed across all industries and occupations. About **a third** of the environmental workforce is composed of core environmental workers and require specialized environmental knowledge, skills, or competencies. Core environmental workers are key drivers in advancing green initiatives in the public and private sectors, such as the 2030 Emissions reduction plan and net-zero housing projects.

Figure 2. 2024 Environmental Employment, by Environmental Specialization

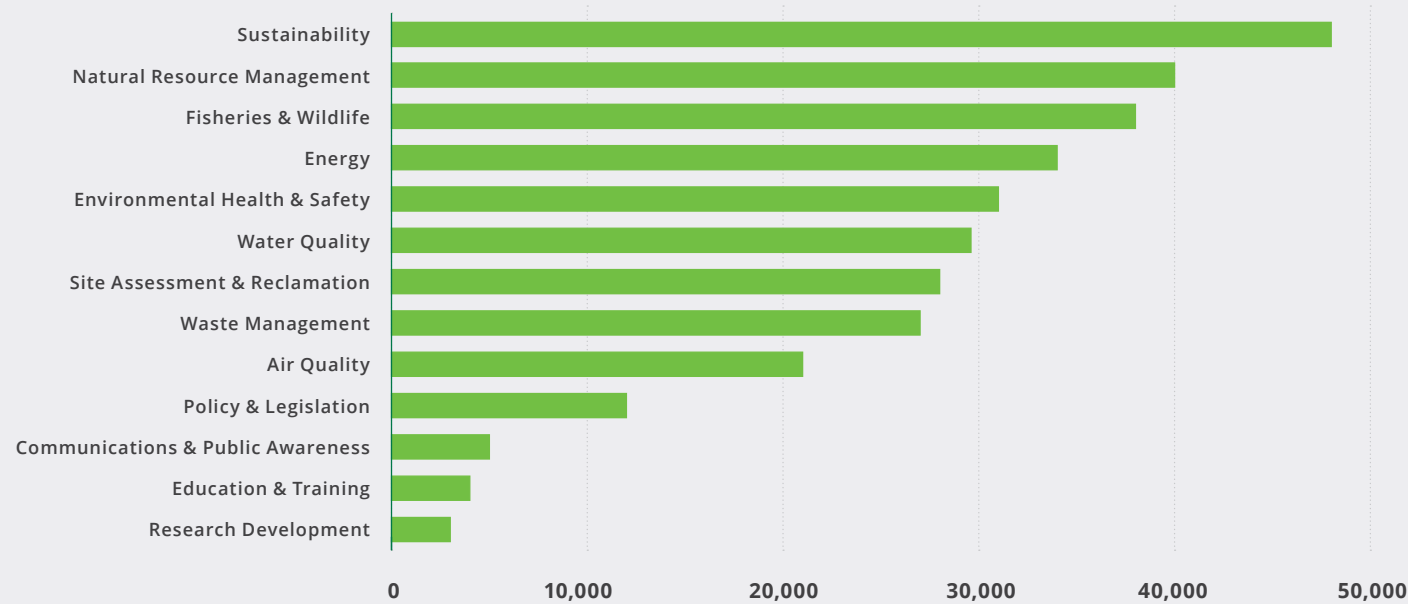


Figure 3. Distribution of core and non-core environmental workers within the environmental workforce in 2024

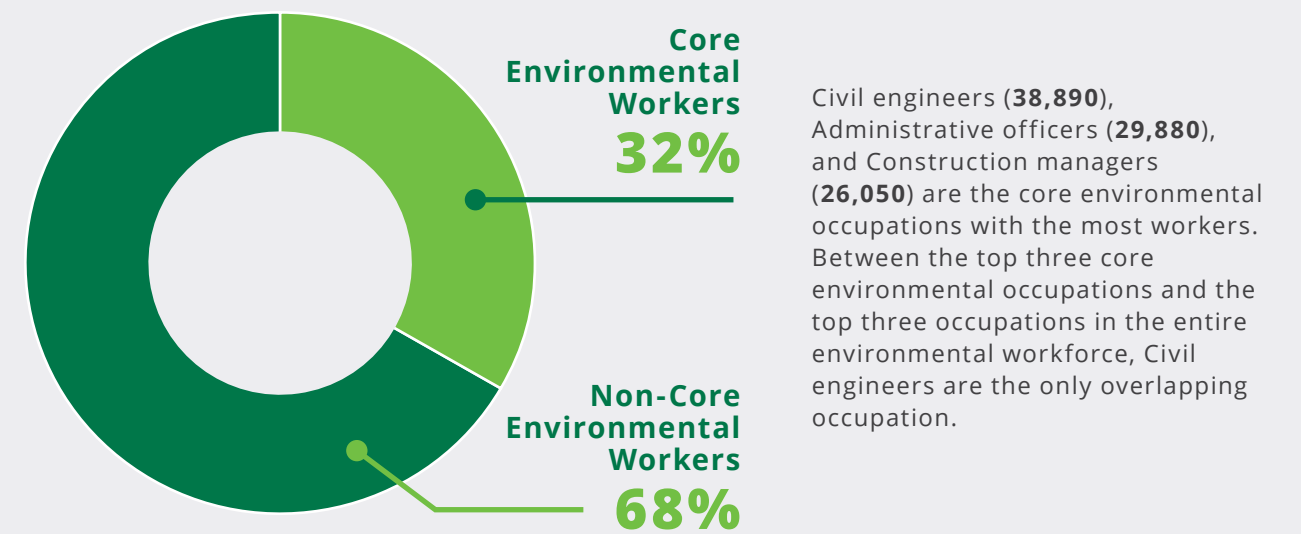


Table 4. Top occupations within the core environmental workforce in 2024

OCCUPATION (NOC)	ENVIRONMENTAL EMPLOYMENT IN 2024	ENVIROSHARE
Civil engineers (21300)	38,890	61%
Administrative officers (13100)	29,880	13%
Construction managers (70010)	26,050	25%
Other professional engineers (21399)	20,790	51%
Manufacturing managers (90010)	15,630	14%
Biologists and related scientists (21110)	14,700	48%
Professional occupations in business management consulting (11201)	14,380	12%
Contractors and supervisors, mechanic trades (72020)	12,330	18%
Computer and information systems managers (20012)	11,610	10%
Engineering managers (20010)	11,400	34%

When examined by the proportion of environmental workers in core occupations, top occupations vary from the above table. The following occupations employ the most core environmental workers by EnviroShare:

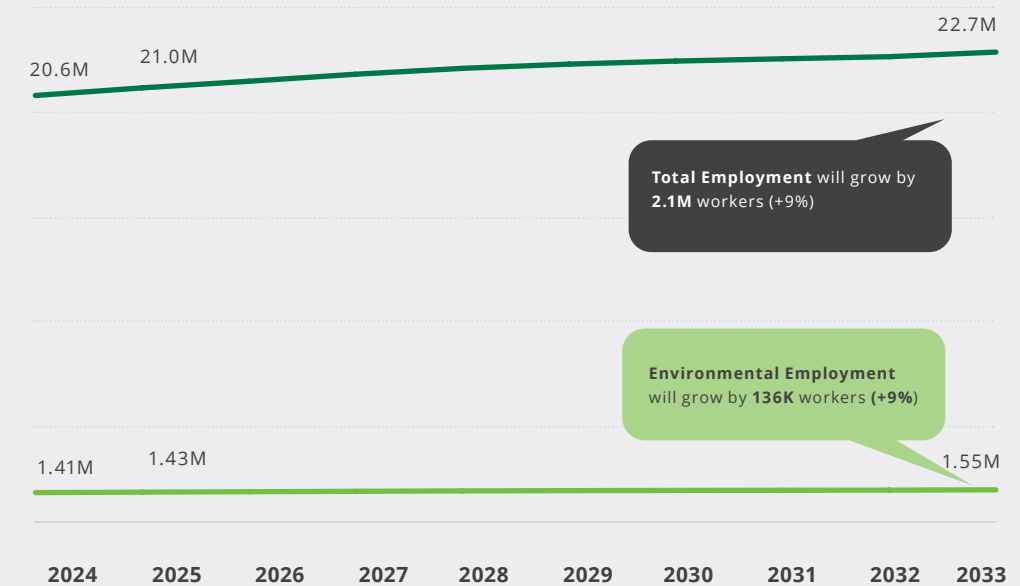
- Forestry professionals (**87%**)
- Conservation and fishery officers (**81%**)
- Water and waste treatment plant operators (**76%**)

Hiring Outlook for the Total Environmental Workforce

In Canada, a promising trend emerges on the horizon: the environmental workforce is expanding in lockstep with the general labour force, both with an increase of **9%** by 2033. Against the backdrop of increasing environmental consciousness and evolving regulatory frameworks, industries are witnessing a parallel rise in demand for skilled professionals dedicated to environmental stewardship. This synchronicity not only highlights Canada’s commitment to sustainability but also underscores the integral role of the environmental sector in shaping the nation’s economic landscape.

The demand for Canadian environmental workers will likely keep growing in pace with the rest of the economy, particularly as governments continue to prioritize and promote environmental policies.¹¹ In order to meet the country’s emissions goals of 439Mt by 2030, the government will need great investments – \$50 billion in oil and gas, \$50.8 billion in transportation, and \$25.3 billion in electricity.¹²

Figure 4. Canadian Total Employment and Environmental Employment, 2024-2033



¹¹ ICTC, Clean Energy and Pathways to Net-Zero: Jobs and Skills for Future Leaders.

¹² RBC Climate 2024

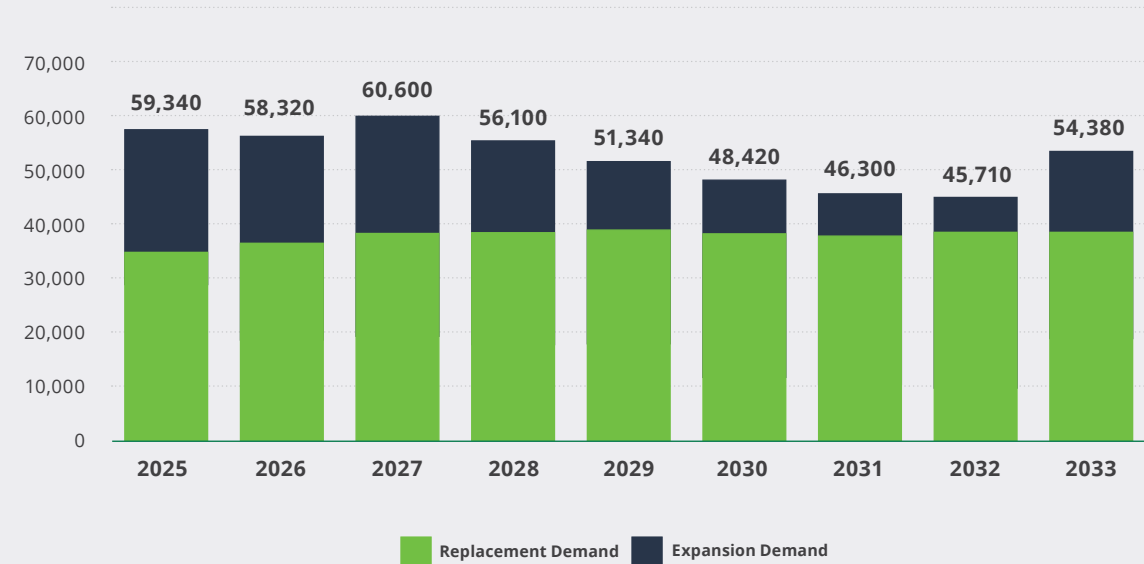


To fill this growing demand, there will be many positions that will need to be matched with prospective workers. Within the environmental sector, job growth and retirement will account for about **480,510** net environmental job openings by 2033.

About **28%** of net job openings will result from new jobs created/ job growth (expansion demand), while **72%** will be due to the retirements expected to occur in the coming years (replacement demand).

- **136,300** – new jobs created (expansion demand)
- **344,200** – additional openings as a result of retirements (replacement demand)

Figure 5. Canadian Net Hiring Requirements to 2033, All Environmental Workers



Over the next decade, job growth and worker retirement will account for about 480,510 net environmental job openings by 2033. While job growth will contribute to the net hiring requirements over the years, a major driver of hiring across the decade will come from workers retiring and the need to replace the vacant roles. Canada has an aging workforce, and as the baby boomers retire, many positions will be left to be filled.¹³ A majority of all the hiring, both environmental and in the general workforce, will be to replace incumbents.

¹³ Canadian Occupational Projection System (COPS). 2022. Job Openings (2022-2031).

REGIONAL HIRING OUTLOOK

Opportunities for environmental workers are seen in all regions over the next decade, resulting from job growth and retiring workers. While all provinces see growth in environmental hiring over the next decade, some see larger amounts. Expansion demand (new jobs created) shows a net growth in environmental positions, while replacement demand shows jobs that will need to be filled to replace people leaving the workforce.

Provinces with a higher proportion of expansion demand when compared to replacement demand mean a growth in the size of the environmental industry as a whole. The territories show the smallest number of positions that will be hired for, but the greatest expansion of the environmental workforce. By contrast, Quebec has many positions that will need to be filled, but the majority of them will replace retirees while the industry stays a similar size.

Table 5. Net Hiring Requirements for Environmental Workers to 2033, by Region

REGION	ENVIRONMENTAL EMPLOYMENT IN 2024	EXPANSION DEMAND 2024-2033	REPLACEMENT DEMAND 2024-2033	NET HIRING REQUIREMENTS 2024-2033	NET HIRING REQUIREMENTS AS A % OF ENVIRONMENTAL EMPLOYMENT IN 2024
ALL REGIONS	1,413,710	136,290	344,220	480,510	34%
Ontario	500,250	55,970	125,780	181,750	36%
Alberta	224,000	33,680	49,370	83,050	37%
British Columbia	225,370	24,370	57,590	81,970	36%
Quebec	279,570	4,220	71,350	75,580	27%
Saskatchewan	47,730	4,760	10,460	15,220	32%
Manitoba	45,350	4,520	8,940	13,460	30%
Nova Scotia	34,920	3,190	8,530	11,720	34%
New Brunswick	26,800	3,110	6,510	9,620	36%
Newfoundland and Labrador	18,630	1,170	4,650	5,820	31%
Prince Edward Island	5,920	720	1,030	1,750	30%
Canadian Territories ¹⁴	5,200	580	0	580	11%

¹⁴ Due to small sample sizes, values for Yukon, the Northwest Territories, and Nunavut have been combined and reported as Canadian Territories.

INDUSTRY HIRING OUTLOOK

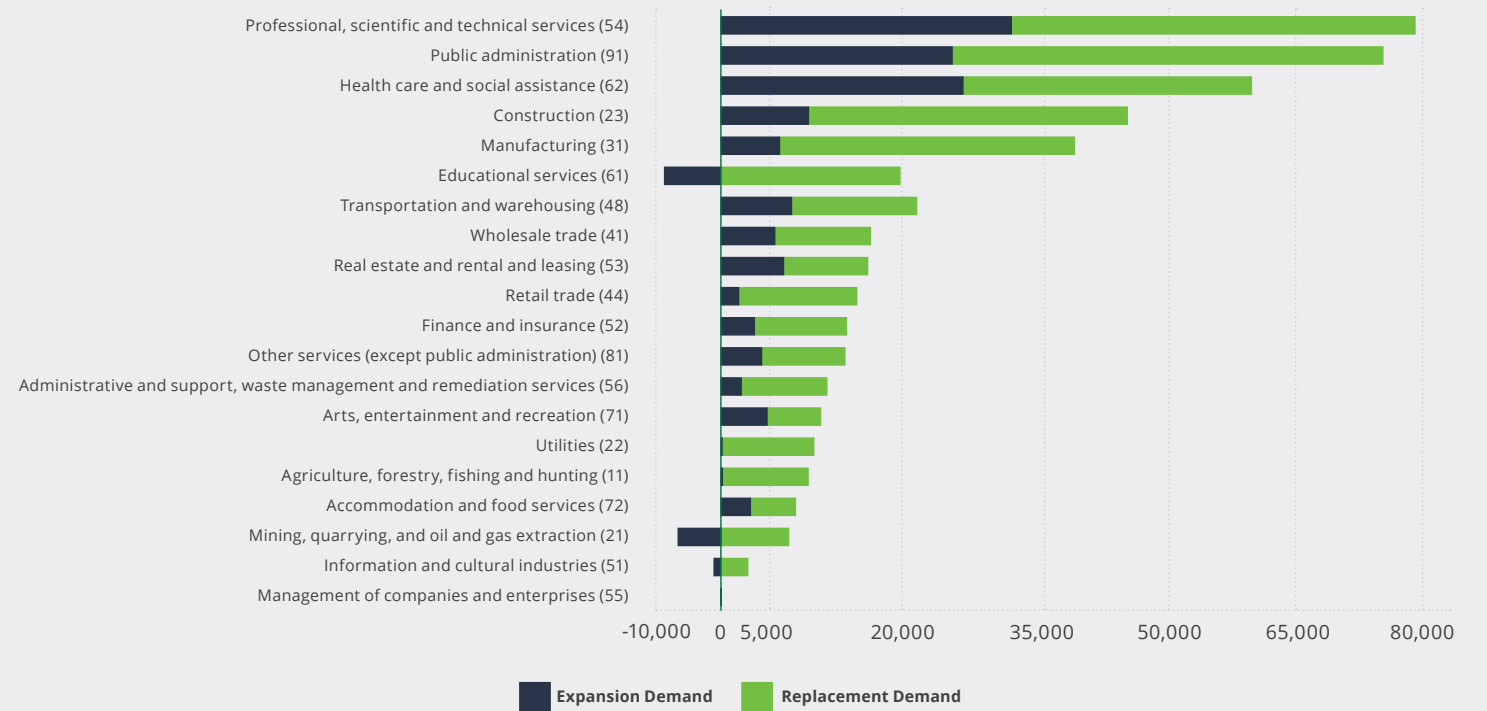
The Professional, scientific and technical services sector will account for about **17%** of net environmental job openings by 2033. Most industries, especially the Manufacturing industry, will have job openings as a result of workers retiring, which is driven mostly by replacement demand.

The expansion demand for Manufacturing and Mining, quarrying, and oil and gas extraction sectors as well as to a lesser extent, the Agriculture, forestry, fishing and hunting and Information and cultural industries sectors is expected to shrink to 2033. The reasons for these declines vary across industries and the role they play within the greater Canadian economy.¹⁵

This forecast assumes that worker demand due to expansion in the manufacturing industry will shrink as a result of increased productivity due to the successful integration of automation shifting workforce composition. While industry employment growth is not expected to contract within the overall Canadian economy, the manufacturing sector is still predicted to follow similar trends to those observed for environmental employment in Figure 6. Manufacturing is expected to see above-average labour productivity from 2022-2031 at **1.4%** average annual productivity growth which will account for **70%** of the industry's real GDP growth, as opposed to the average growth of 0.6% across all industries. However, employment growth to 2033 in the manufacturing sector is expected to follow an inverse trend with one of the slowest growth rates of all industries at **0.6%** average annual growth, while the average for all industries is predicted to be 1.4%.¹⁶

Within the Mining, quarrying, and oil and gas extraction sector, decreases in sector workforce expansion to 2033 reflect the shifting of policy and funding priorities to clean energy and electrification and consequently, limited production and pipeline capacity within the oil and gas sector. This trend is also reflected in Canada's overall workforce and is also in part due to a spike in labour productivity within the oil and gas sector due to automation and consequently, a decrease in employment growth within this subsector.¹⁷ Alternately, within this industry group, support activities for mining and oil & gas extraction are expected to see a sizeable increase in output as Canada's critical mineral value chain becomes more established and relied upon to meet increasing material demands for electric vehicles and clean energy infrastructure.^{18, 19}

Figure 6. Net Hiring Requirements to 2033, by Industry



OCCUPATIONAL HIRING OUTLOOK

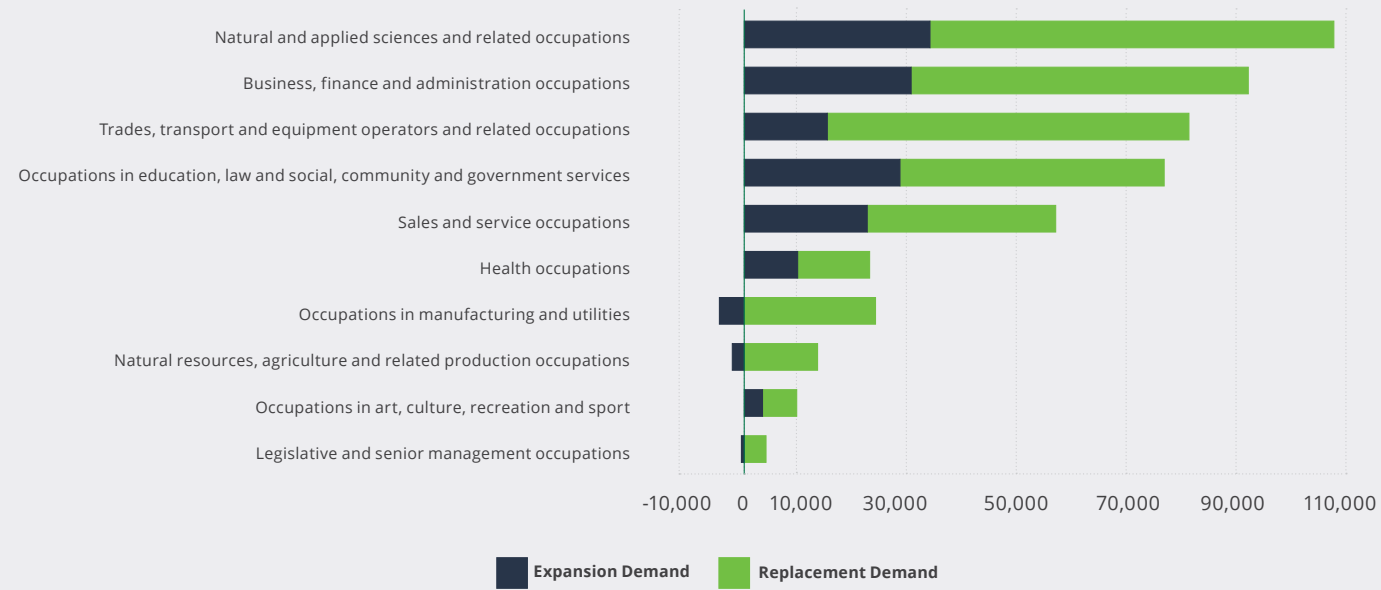
In the coming decade, environmental roles in Natural and applied sciences and related occupations will see over **20%** (**107,500** job openings) of all projected/net job openings across all job families or groups. The next highest number of job openings will come from roles in business, finance, and administrative occupations (**91,900** job openings) and trades, transportation and equipment operators and related occupations (**81,000** job openings). These job families will also see the highest environmental job openings in 2024.

A list of 100 top environmental occupations at the 5-digit NOC level can be found in **Appendix B**.

^{15, 16, 17, 19} Canadian Occupational Projection System. 2022. *Industrial Projections (2022-2031)*.

¹⁸ Government of Canada. 2023. *The Canadian Critical Minerals Strategy*.

Figure 7. Net Hiring Requirements to 2033, by Job Family

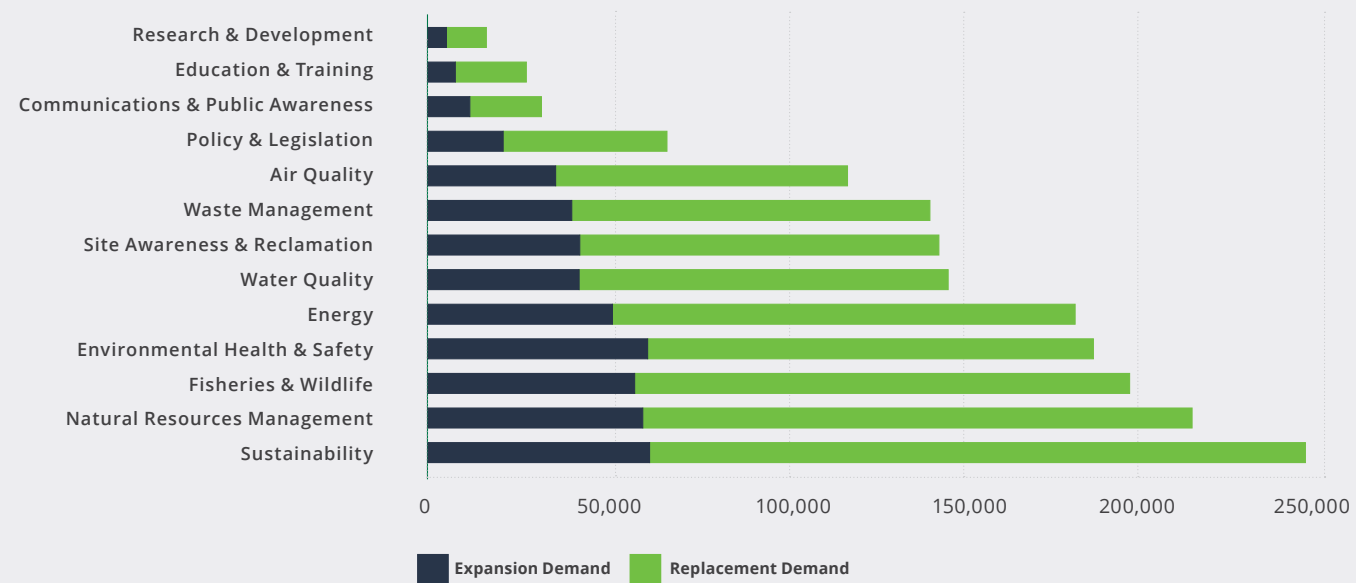


SPECIALIZATION HIRING OUTLOOK

The outlook for environmental workers in sustainability specializations (**232,740** net environmental job openings) will see the most need for workers in the coming decade. Other specializations that would experience an increase in the demand for environmental workers include:

- Natural Resource Management (**202,690** net job openings)
- Fisheries & Wildlife (**186,130**)
- Environmental Health & Safety (**176,520**)
- Energy (**171,670**)

Figure 8. Net Hiring Requirements to 2033, by Environmental Specialization





HIRING OUTLOOK FOR THE CORE ENVIRONMENTAL WORKFORCE

The opportunities for environmental work are growing in Canada. With a growing emphasis on green initiatives and sustainable practices across industries, environmental jobs are experiencing significant growth nationwide. In the coming years, net job openings for core environmental workers are estimated to grow around **31%** from 2024 employment levels, with **141,130** positions that will need to be filled. The total environmental workforce is expected to grow around a similar rate, which means that there will be an increasing need for candidates with environmental-specific competencies.

Across Canada, the highest net hiring requirements for core environmental workers to 2033 is expected to be in the four largest provinces - Ontario (**49,980**), British Columbia (**30,250**), Alberta (**25,530**), and Quebec (**15,940**). When net hiring requirements are examined as a proportion of 2024 environmental employment Prince Edward Island sees the highest proportion of core environmental workers (**38%**), followed by British Columbia (**36%**). Though the net hiring requirements for Quebec are still relatively high, this is the only province expected to see a contraction in the employment of core environmental workers within the next decade (**5,470**).

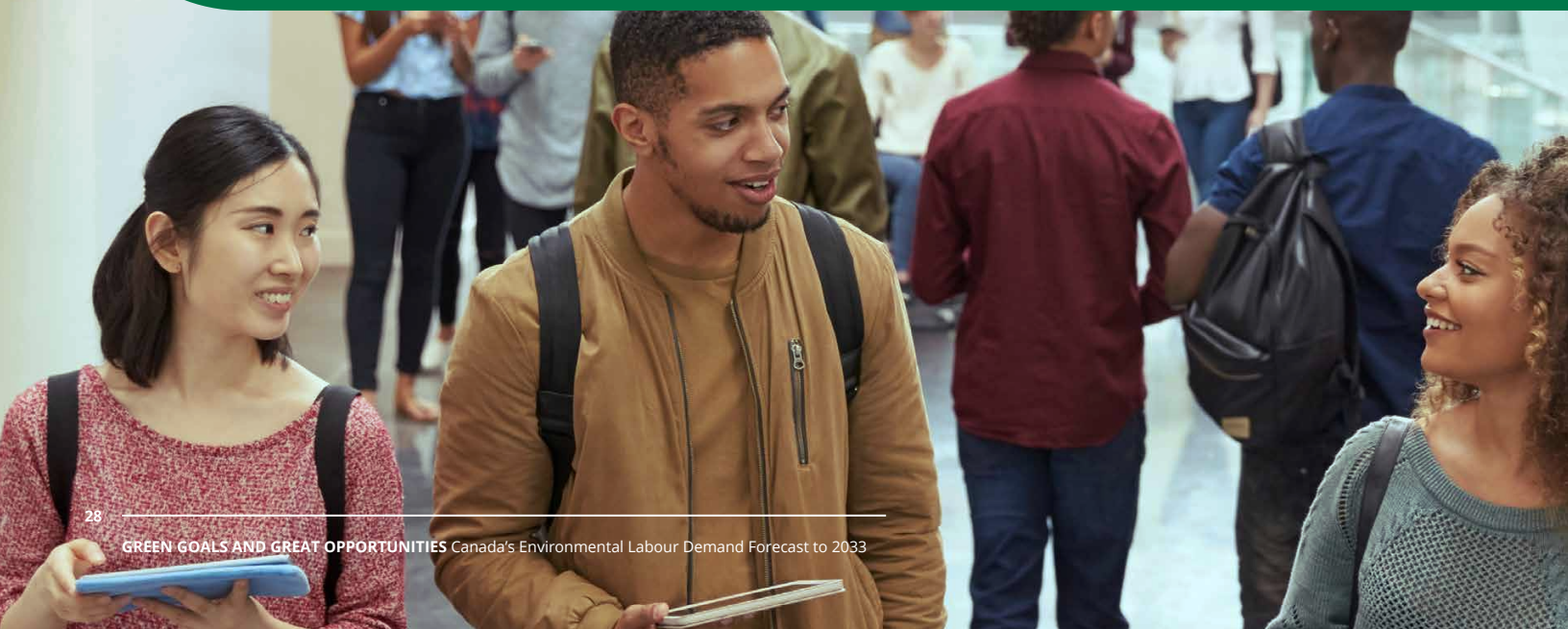


Table 6. Net Hiring Requirements to 2033 by Region, Core Environmental Workers

REGION	CORE ENVIRONMENTAL EMPLOYMENT IN 2024	EXPANSION DEMAND 2024-2033	REPLACEMENT DEMAND 2024-2033	NET HIRING REQUIREMENTS 2024-2033	NET HIRING REQUIREMENTS AS A % OF CORE ENVIRONMENTAL EMPLOYMENT IN 2024
CANADA	453,680	28,100	113,030	141,130	31%
Ontario	154,090	10,340	39,640	49,980	34%
British Columbia	83,400	8,050	22,200	30,250	36%
Alberta	77,170	8,850	17,680	26,530	34%
Quebec	85,260	-5,470	21,410	15,940	19%
Manitoba	12,700	1,430	2,700	4,130	33%
Nova Scotia	11,070	670	3,210	3,880	35%
Saskatchewan	11,710	650	2,450	3,100	26%
New Brunswick	8,360	850	2,100	2,950	35%
Newfoundland and Labrador	7,200	280	1,580	1,860	26%
Prince Edward Island	1,730	260	400	660	38%
Canadian Territories	2,380	260	0	260	11%

The expected hiring requirements for core environmental workers across industry is highest for the Professional, scientific and technical services (**53,050**) and Public administration (**28,220**) sectors. As a proportion of 2024 core environmental employment, the net hiring requirements for are expected to be highest for the Real estate and rental and leading sector (**54%**), followed by Healthcare and social assistance (**48%**) and Transportation and warehousing (**46%**).

Like the rest of Canada's workforce, the need to replace retiring core environmental workers will be felt across most industries. The highest replacement demand needs are forecasted within the Professional, scientific and technical services (**28,340**), Public administration (**22,810**), and Manufacturing (**12,040**) industries.

Consistent with the overall environmental workforce, the Manufacturing (**-4,210**), Mining, quarrying, and oil and gas extraction (**-1,640**), and Information and cultural industries (**-420**) are expected to see less demand for core environmental workers as a due to shrinking labour needs within these industries. Core environmental workers are also expected to experience decreasing expansion demand in the Utilities (**-1,360**), Construction (**-820**), Administrative and support, waste management and remediation services (**-800**), Other services (**-220**), Educational services (**-200**), Finance and insurance (**-180**), and Retail trade (**-80**) industries.

Table 8. Net Hiring Requirements to 2033 for Top Core Environmental Occupations

OCCUPATION (NOC)	ENVIRONMENTAL EMPLOYMENT IN 2024	EXPANSION DEMAND 2024-2033	REPLACEMENT DEMAND 2024-2033	NET HIRING REQUIREMENTS 2024-2033	NET HIRING REQUIREMENTS AS A % OF ENVIRONMENTAL EMPLOYMENT IN 2024
Administrative officers (13100)	29,880	2,700	9,550	12,250	41%
Professional occupations in business management consulting (11201)	14,380	5,820	5,070	10,890	76%
Civil engineers (21300)	38,890	1,370	7,710	9,080	23%
Contractors and supervisors, mechanic trades (72020)	12,330	1,760	4,300	6,060	49%
University professors and lecturers (41200)	15,990	420	5,500	5,920	37%
Construction managers (70010)	26,050	-550	6,190	5,640	22%
Mechanical engineers (21301)	10,720	3,100	1,970	5,070	47%
Civil engineering technologists and technicians (22300)	8,800	2,730	2,140	4,870	55%
Other professional engineers (21399)	20,790	200	4,450	4,650	22%
Firefighters (42101)	9,970	980	3,480	4,460	45%

A deeper dive into the intersection between the above industries and occupations shows that Civil engineers and Construction managers are likely to experience the greatest decrease in demand. While the Civil engineering occupation sees net positive expansion demand to 2033 across all industries (**1,370**) the number of environmental workers needed due to industry expansion is expected to decrease in the following industries:

- Construction (-630)
- Utilities (-390)
- Mining, quarrying, and oil & gas extraction (-190)
- Administrative and support, waste management and remediation services (-130)

The need for Construction managers in environmental roles is expected to shrink across all industries by **545 jobs**, seen especially within the Construction industry (-630) and the Administrative and support, waste management and remediation services (-130) industry. In the Manufacturing sector, industry contraction is reflected in decreased demand for Manufacturing and Engineering managers (-1,760 and -750) as well as Other professional engineers (-750). The Utilities sector is expected to see contractions in demand for Water and waste treatment plant operators (-1,160). These changes in sector expansion and occupations may be due to shifting labour needs and workforce dynamics across industries as a result of greater automation, changing policy priorities, and financial losses due to climate change.



Core environmental workers in Administrative officer positions are anticipated to see the highest net hiring requirements to 2033 at **12,250 workers (41%** of 2024 environmental employment), while those working within Professional occupations in business management consulting (**10,890**) are expected to experience the highest proportion of net hiring requirements in relation to 2024 employment levels, at **76%**.

Consistent with the above outlook for core environmental workers within the Construction industry (Table 7), Construction managers are the only top occupation by net hiring requirements expected to see negative workforce growth to 2033, with the occupation expected to contract by **550 workers**.

Table 7. Net Hiring Requirements to 2033 by Industry, Core Environmental Workers

INDUSTRY (NAICS)	CORE ENVIRONMENTAL EMPLOYMENT IN 2024	EXPANSION DEMAND 2024-2033	REPLACEMENT DEMAND 2024-2033	NET HIRING REQUIREMENTS 2024-2033	NET HIRING REQUIREMENTS AS A % OF ENVIRONMENTAL EMPLOYMENT IN 2024
Professional, scientific and technical services (54)	118,640	24,710	28,340	53,050	45%
Public administration (91)	86,420	5,410	22,810	28,220	33%
Construction (23)	40,370	-820	9,520	8,700	22%
Health care and social assistance (62)	17,750	3,120	5,470	8,590	48%
Educational services (61)	28,070	-200	8,110	7,910	28%
Manufacturing (31)	48,840	-4,210	12,040	7,840	16%
Real estate and rental and leasing (53)	11,430	2,230	3,930	6,160	54%
Transportation and warehousing (48)	8,430	1,660	2,210	3,870	46%
Utilities (22)	20,830	-1,360	4,580	3,220	15%
Wholesale trade (41)	8,580	490	2,150	2,640	31%
Other services (except public administration) (81)	10,810	-220	2,740	2,520	23%
Agriculture, forestry, fishing and hunting (11)	7,360	560	1,490	2,050	28%
Retail trade (44)	7,000	-80	1,840	1,760	25%
Finance and insurance (52)	7,230	-180	1,620	1,440	20%
Administrative and support, waste management and remediation services (56)	8,180	-800	1,820	1,020	12%
Arts, entertainment and recreation (71)	5,770	-140	1,130	990	17%
Mining, quarrying, and oil and gas extraction (21)	13,710	-1,640	2,560	920	7%
Accommodation and food services (72)	1,510	-30	280	250	17%
Management of companies and enterprises (55)	250	0	0	0	0%
Information and cultural industries (51)	2,520	-420	410	-10	-

ENVIRONMENTAL LABOUR SUPPLY OUTLOOK

As we navigate the complexities of environmental challenges, one thing becomes abundantly clear: without an increase in the supply of skilled environmental workers, we face shortages in certain environmental roles.²⁰ Nearly **80%** of surveyed environmental workers in 2023 held a post-secondary credential. In order to meet the expected growth in demand of environmental workers, the supply of post-secondary educated workers will need to keep pace

²⁰ ICTC, Clean Energy and Pathways to Net-Zero: Jobs and Skills for Future Leaders.

PROJECTED LABOUR SHORTAGES BY OCCUPATION

As the urgency to combat climate change intensifies, industries grapple with a growing demand for skilled professionals equipped to tackle environmental challenges head-on. Yet, a glaring gap persists between this demand and the available workforce. By 2033, labour market shortages are expected for the following occupations.

Moderate-risk occupations have gaps ranging between 100 and 500 environmental workers, while **high-risk occupations** have expected gaps of 500+ environmental workers.

The following table identifies occupations based on how difficult it might be to find qualified candidates to fill vacancies within the decade. Occupations in bold are mapped to the core environmental workforce, i.e., those requiring environmental-specific competencies.

Table 9. Projected Shortages for Environmental Workers, by Education Level and by Severity of Risk

MANAGEMENT	OCCUPATIONS REQUIRING A UNIVERSITY DEGREE	OCCUPATIONS REQUIRING A COLLEGE DIPLOMA OR APPRENTICESHIP TRAINING
MODERATE RISK		
<ul style="list-style-type: none"> Legislators and senior management 	<ul style="list-style-type: none"> Education policy researchers, consultants and program officers Recreation, sports and fitness policy researchers, consultants and program officers Program officers unique to government & Other professional occupations in social science Industrial and manufacturing engineers & Metallurgical and materials engineers 	<ul style="list-style-type: none"> Welders and related machine operators Residential and commercial installers and servicers Heavy-duty equipment mechanics Logging and forestry workers Electricians (except industrial and power systems) Construction millwrights and industrial mechanics Electrical and electronics engineering technologists and technicians Plumbers Contractors and supervisors, mechanic trades & supervisors, printing and related occupations
HIGH RISK		
<ul style="list-style-type: none"> Managers in public administration Home building and renovation managers 	<ul style="list-style-type: none"> Professional occupations in advertising, marketing and public relations University professors and lecturers Natural and applied science policy researchers, consultants and program officers Post-secondary teaching and research assistants Mechanical engineers Chemical engineers Professional occupations in business management consulting Mining engineers; Geological engineers & Petroleum engineers 	<ul style="list-style-type: none"> Administrative officers Civil engineering technologists and technicians User support technicians & Information systems testing technicians

SHORTAGES IN MANAGEMENT OCCUPATIONS

Within the next decade, nearly a quarter of the projected environmental job openings will be in management occupations. Many of those job openings will be the result of incumbents leaving their positions, largely due to retirements. Of the 85,822 management positions that will need to be filled over the next decade, 74,742 of them are a result of replacement demand (filling empty positions from people vacating the industry).

Finding the right candidate to fill an environmental management role can be challenging. Environmental managers are required to have a broad knowledge of all functions/activities within their oversight, as well as the leadership and management skills needed to direct the work under their purview effectively. Their work focuses on systems thinking, the integration of knowledge, professional ethics, and strategic decision-making in the management of environmental and social issues.

Since years of professional experience may be required, matching the right candidate to the job may be a challenge, even in those management occupations for which we project surpluses. In some cases, those applying for management-level positions might be less experienced workers seeking to advance their careers, so a surplus of environmental job seekers does not necessarily reflect a surplus of qualified candidates.

Management positions are particularly important because they inspire and enable the people under them to do their best work. Poor management was one of the top reasons for employee turnover in a recent CE3C survey.²¹ Not being able to find and hire managers with the appropriate skills impacts other jobs, too.

SHORTAGES IN OCCUPATIONS REQUIRING A UNIVERSITY DEGREE

The environmental workforce includes a wide variety of occupations that usually require a bachelor's degree or higher, such as engineers, designers, scientific professionals, program officers, researchers, and consultants.

The labour force holding relevant university credentials represents a potential supply of workers whose qualifications are in demand by employers of environmental workers. **Over time, changes in the number of workers with in-demand university credentials will impact how tight the labour market is for environmental workers.** Access to training and education will help increase the supply of workers with environmental competencies, which in turn creates a bigger pool of candidates that environmental employers can draw from.

The ability of environmental employers to draw from the pool of qualified candidates will depend on factors such as (1) whether these employers can offer competitive salaries and benefits, and (2) whether these employers can offer environmental-specific supplemental training to new entrants.

In a CE3C Survey, of all the voluntary staff turnover reported on, over 50% of those surveyed left their positions for a competitor or client.²² The main reason staff left was to seek better opportunities elsewhere. To attract and retain staff (and minimize turnover), employers in the environmental sector must be able to create good opportunities for their employees.

^{21, 22} CE3C Survey, 2024.

SHORTAGES IN OCCUPATIONS REQUIRING A COLLEGE DIPLOMA OR APPRENTICESHIP TRAINING

More than a third of the projected 480,500 environmental job openings over the next decade will require workers to have completed a post-secondary credential such as a college diploma or certificate, an apprenticeship or other specialized training. These credentials are typically job-specific, and the educational programs provide graduates with the technical and transferable skills required for success in their chosen fields. **Occupations for which we project a shortage of qualified job seekers for environmental roles include civil engineering technologists and technicians, administrative officers, user support technicians, and information systems testing technicians.**

ENVIRONMENTAL TALENT GAP

To fill these projected environmental job openings, the number of qualified candidates seeking work will need to meet or exceed the environmental net hiring requirements from now to 2033. Finding the workers required to meet growing demand is not guaranteed, as labour market gaps in the environmental sector can occur for a variety of reasons. In some cases, the supply of workers with the right training or credentials is not sufficient to meet the needs of employers across all sectors, resulting in a widespread labour shortage.

In other cases, the number of workers is adequate to meet the needs of the broader economy, but workers with the required competencies are scarce. In other words, there is a skill shortage. The Canadian Occupational Projection System (COPS) predicts that there will be 7.4 million job seekers entering the market over the next approximately 10 years.

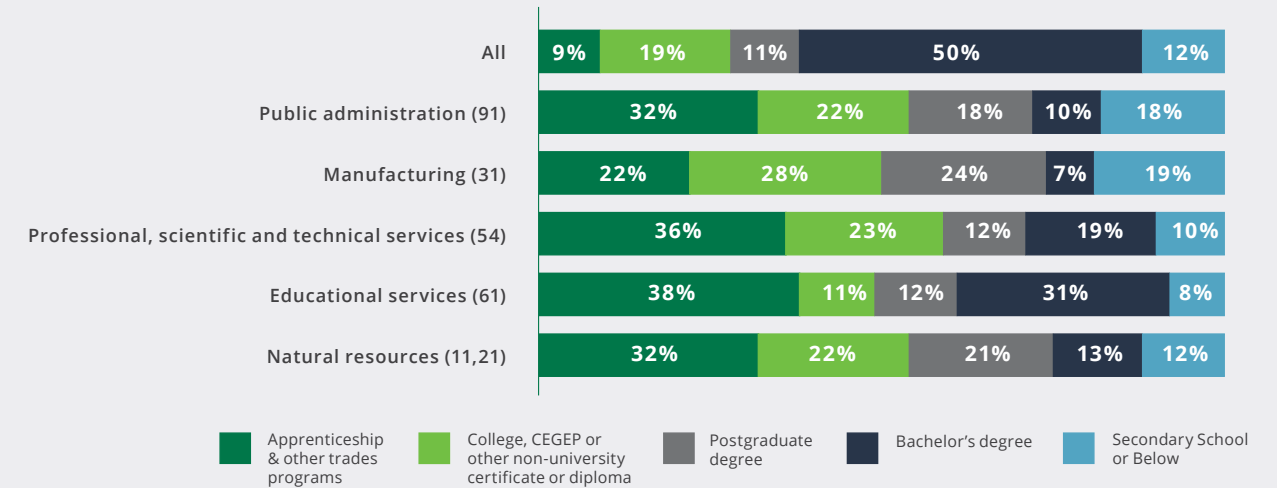
ECO Canada estimates that one in every 1 in 15 workers in Canada will be in an environmental role in 2024. Assuming this ratio stays similar, the number of workers entering the workforce will be consistent to keep up with demand, but it is not guaranteed that prospective workers will have all the necessary skills and training to be adequately matched to the available jobs.

The potential of skill mismatching could impede Canada's ability to achieve its environmental objectives. To hedge against this possibility will require collaboration among governments, educational institutions, workers, and employers. For several critical environmental occupations, labour and skill shortages are expected to persist over the longer term.

It will be crucial to have appropriate training available to post-secondary students and recent graduates, who will be necessary to fill the skill gap. 76% of environmental workers have a post-secondary credential, compared to 63% of the broader Canadian labour force. Most occupations that ECO Canada predicts will likely see a shortage of workers by 2033 are positions that require a university education, and two-thirds of all projected job openings are in occupations usually requiring at least post-secondary education or management occupations.²³

²³ Canadian Occupational Projection System. 2022. *Industrial Projections (2022-2031)*.

Figure 9. Educational Representation Among Top Industry Employers of Environmental Workers



BUILDING CANADA'S GREEN WORKFORCE: OPPORTUNITIES AND CHALLENGES

Bridging the environmental talent gap demands proactive measures aimed at aligning workforce skills with industry demands. Collaboration among governmental bodies, educational institutions, employers, and workers is crucial in developing tailored training programs and initiatives to address skill shortages. By investing in educational pathways that equip individuals with the necessary competencies for environmental roles, we can bolster Canada's workforce readiness and enhance its capacity to meet environmental objectives. Fostering partnerships between industry stakeholders and academic institutions can facilitate the design of curriculum that reflects real-world needs, ensuring graduates are adequately prepared to enter the workforce. Moreover, initiatives to attract and retain talent in the environmental sector, such as offering competitive salaries, professional development opportunities, and advancement pathways, can help alleviate skill shortages over the long term. By embracing these solutions collectively, Canada can position itself for sustainable growth while effectively addressing the challenges posed by the environmental talent gap.

Appendix A: Methodology

The purpose of this research is to estimate employment of, and project labour market requirements for environmental workers. This analysis estimates the demand for skilled trade workers in the environmental workforce using an analysis of quarterly job postings from a broad range of job posting boards provided by TalentNeuron.²⁴ The process for doing so is two-fold: first, it identifies which job postings relating to each occupation (5-digit NOC) are for environmental positions using a keyword search. Second, it applies environmental shares to an industry and occupation model of the Canadian economy to develop an estimate of current and future labour dynamics for each occupation.

JOB SHARE ANALYSIS

The core dataset for the analysis is the job posting database, an aggregation of job postings collected from a broad array of job posting websites in French and English from across Canada, maintained by TalentNeuron. The data points collected from job listings include (but are not limited to):

- Job location (Province)
- 8-digit level 2010 O*NET-SOC occupation
- Posting company
- Job title
- Full text of the job listing

ECO Canada identifies postings for environmental positions by applying a filter of sentence fragments related to environmental activity to the TalentNeuron dataset. The text in each job posting is searched to see if each fragment can be found in the job posting and the results are tracked by post and fragment. Postings with enough matched fragments to meet a fragment-specific minimum match threshold are counted as matches for each linked area of focus.

Some further filtering is required on the job posting data before being used to compare to occupational employment data, however, since job posts in the TalentNeuron dataset are mapped to the 2010 O*NET-SOC occupation hierarchy, rather than the 5-digit 2021 NOC hierarchy. This does allow the potential for higher detail since the 8-digit O*NET-SOC has 1110 classifications compared to the 516 5-digit NOC codes. However, this hierarchy does not have unique mappings to the NOC hierarchy. We have developed a concordance which allows us to align O*NET-SOC many occupations to NOC occupations. Where no direct unique match is available we used additional text analysis to attribute occupations within environmental positions. In attributing totals to occupations, however, this approach is too computationally intensive and non-unique matches were distributed according to their distribution in the Canadian economy.

The research team also assigns individual job posts to industries using an algorithm based on the following rules in the following order:

- where a job post contains industry-specific language, it was assigned to that industry; and
- where the job post was posted by a company with a known industry categorization, the post is assigned to that company's industry.

In cases where the company posting the job ad is a federally registered corporation, it is categorized into an industry based on its name and NAICS classification in the national corporation register. Some small businesses are classified based on identifiers within the business name (for example, a posting company called "AAA plumbing" would be classified within the Plumbing, heating and air-conditioning contractors NAICS).

ESTIMATING AND FORECASTING ENVIRONMENTAL LABOUR FORCE DYNAMICS

ESTIMATING BASELINE ENVIRONMENTAL EMPLOYMENT

The environmental workforce is defined in this analysis as the environmental share of jobs²⁵ times the number of jobs for each occupation (5-digit NOC) and province/territory. To estimate this share, the research team compares characteristics of identified environmental positions with their prevalence in TalentNeuron's full database. This allows the researchers to estimate an occupation and province/territory-specific share of total positions linked to each environmental area of focus. The result is the EnviroShare, a province/territory and occupation-specific proportion of employment considered to be environmental.²⁶

Mathematically, the job posting counts and the totals are both arranged in $p \times n$ matrices (**J** and **T**), where p is the number of provinces and n the number of 5-digit NOC occupations. The workforce share matrix (**W**) is a similar $p \times n$ matrix for each year and quarter calculated by:

$$W = J \odot T$$

To estimate the number of jobs, the research team uses quarterly occupational employment data from the Labour Force Survey (LFS). Each share is calculated with respect to the labour force composition within that quarter and then annualized based on a weighted average reflecting each quarter's contribution to the annual labour force. This data is augmented by projections from Census data where detailed occupation data was outside the survey. Employment estimates were organized into the same $p \times n$ matrix (**L**) for each year and quarter to create the Environmental Workforce (**E**):

$$E = W \odot L$$

For industry matches, the approach is somewhat more complicated. Industry-level job posting totals are not available within the TalentNeuron database. As such, the industry categorizations from the job posting analysis is counted within occupations, such that industry data is organized into an $i \times n$ matrix, where i is the number of two-digit NAICS industries and n the number of 5-digit NOC occupations. This matrix (**I**) is the share of each industry within the job posts for each 5-digit NOC and province/territory. The $i \times n$ Environmental Workforce by Industry matrix (**Ê**) is:

$$\hat{E} = E \odot I$$

The total size of the environmental workforce is calculated as the grand sum of Ê.

The research team projects future environmental employment by extending occupation and industry-level share trends over a labour market forecast provided by Prism Economics. That forecast is built on the macroeconomic model provided by Stokes Economics and deaths and retirement distributions based on the Canada Occupation Projection System ("COPS") forecast maintained by Employment and Social Development Canada, as well as Prism's computable general equilibrium model of occupational and industry labour dynamics.

Prism's model provides a forecast of **employment change** and **job replacement**, representing the labour demand for environmental jobs. The baseline jobs forecast will further be adjusted to reflect observed changes in environmental job shares over time. All variables are forecasted at the five-digit NOC and two-digit NAICS levels, in keeping with the underlying share estimates of environmental employment.

²⁵ This measure reflects the proportion of positions advertised online that indicate that either the employer engages in the production/provision of environmental goods/services or the job requires environmental-related knowledge, skills or aptitudes. This is used as a proxy for the proportion of current employment with these characteristics and may overstate the true environmental employment share if the newly advertised positions reflect an increase in the demand for environmental work.

²⁶ For example, suppose that the total number of job postings for NOC 21300 (Civil engineers) in Ontario in the current period is 4,000 and the number of job postings that are considered to be environmental within that NOC and region is 800. Then the enviroshare is 20%.

²⁴ For more information about TalentNeuron, visit <https://www.talentneuron.com/>.

PROJECTING FUTURE ENVIRONMENTAL EMPLOYMENT

The research team projects future environmental employment by extending occupation and industry-level share trends over a labour market forecast provided by Prism Economics. That forecast is built on the macroeconomic model provided by Stokes Economics and deaths and retirement distributions based on the Canada Occupation Projection System (“COPS”) forecast maintained by Employment and Social Development Canada, as well as Prism’s computable general equilibrium model of occupational and industry labour dynamics.

Prism’s model provides a forecast of employment change and job replacement, representing the labour demand for environmental jobs. The baseline jobs forecast will further be adjusted to reflect observed changes in environmental job shares over time. All variables are forecasted at the five-digit NOC and two-digit NAICS levels, in keeping with the underlying share estimates of environmental employment.

CHALLENGES AND LIMITATIONS

Job posting analysis provides us with an opportunity to collect large amounts of data about the demand for different types of workers. However, the methodology also has limitations:

- Not all jobs are posted online. The job posting database does not gather information about jobs that are hired through other means (e.g., signs in the window, temporary employment agencies, headhunters, union halls, etc.). This may be especially common for Red Seal Trades, as many opportunities are hired through word of mouth, personal connections, or union halls. As this is our first foray into environmental Red Seal Trades modelling, we have very little information about the impact that this may have on employment estimates and projections. To address this concern, we are incorporating information about the number of apprenticeships from the RAIS and certification skills requirements from Prism’s CANTRAQ model.
- There is no standardized multiplier to adjust job posting data to actual labour market (employment) data. For example, job postings appear more frequently for certain occupations that have higher turnover rates. In this instance, a higher number of job postings does not translate directly into higher employment.
- The vendor job posting data collection processes and algorithms vary and are not systematically linked to Government of Canada hierarchies for occupations and industries. The quality of the job posting data mapping to NOC and NAICS varies with the processes and algorithms used. This impacts the quality of the employment estimates based on the job posting analysis.
- The number of job postings within a particular region of Canada can be very small. When the sample of job postings for an occupation is small, environmental shares are estimated with lower confidence levels and can vary widely from period to period.
- Hiring demand for environmental workers does not directly measure environmental work within the current labour force. Rather, it is a proxy for the environmental employment share. At the present time, given the growing interest in environmental activity throughout the economy, we assume that the share of job postings that are considered environmental is greater than the share of employment that is considered environmental. It is also reasonable to assume, however, that workers currently employed may be increasingly required to gain additional skills and knowledge related to environmental activity and would thereby be considered environmental workers.

A key assumption of ECO Canada’s analysis is that job postings reflect the occupations at large. As such, we are planning on conducting further work to refine this methodology to take these issues into account.

Appendix B: 100 Top Occupations – EnviroShare, Environmental Employment in 2024 and Net Hiring Requirements to 2033

Occupations marked with an asterisk (*) have been mapped to core environmental workers.

OCCUPATION (NOC)	ENVIROSHARE IN 2023	ENVIRONMENTAL EMPLOYMENT IN 2024	EXPANSION DEMAND 2024-2033	REPLACEMENT DEMAND 2024-2033	NET HIRING REQUIREMENTS 2024-2033
Professional occupations in advertising, marketing and public relations (11202)	20%	44,870	13,850	6,560	20,410
Home building and renovation managers (70011)	23%	32,670	7,120	11,170	18,290
Other managers in public administration (40019)	53%	16,830	7,880	7,860	15,740
Administrative officers (13100)*	13%	29,880	2,700	9,550	12,250
Professional occupations in business management consulting (11201)*	12%	14,380	5,820	5,070	10,890
Occupational health and safety specialists (22232)	38%	13,060	5,720	4,420	10,140
Civil engineers (21300)*	61%	38,890	1,370	7,710	9,080
Information systems specialists (21222)	6%	13,130	3,520	3,240	6,770
Sales and account representatives - wholesale trade (non-technical) (64101)	4%	10,450	3,320	2,760	6,070
Contractors and supervisors, mechanic trades (72020)*	18%	12,330	1,760	4,300	6,060
University professors and lecturers (41200)*	19%	15,990	420	5,500	5,910
User support technicians (22221)	9%	10,210	3,350	2,300	5,650
Construction managers (70010)*	25%	26,050	-550	6,190	5,650
Mechanical engineers (21301)*	24%	10,720	3,100	1,970	5,070
Civil engineering technologists and technicians (22300)*	34%	8,800	2,730	2,140	4,870
Health policy researchers, consultants and program officers (41404)	18%	7,940	3,090	1,740	4,830
Managers in agriculture (80020)	12%	14,080	-500	5,210	4,710
Other professional engineers (21399)*	51%	20,790	200	4,450	4,660
Post-secondary teaching and research assistants (41201)	12%	10,150	3,730	840	4,570
Firefighters (42101)*	26%	9,970	980	3,480	4,450
Human resources professionals (11200)*	7%	9,160	2,390	1,870	4,260

Retail and wholesale trade managers (60020)	4%	15,060	-1,130	5,230	4,100
Police officers (except commissioned) (42100)*	12%	9,480	1,100	2,970	4,070
Biologists and related scientists (21110)*	48%	14,700	1,010	3,060	4,070
Facility operation and maintenance managers (70012)*	24%	8,100	1,110	2,920	4,030
Engineering managers (20010)*	34%	11,400	1,010	2,920	3,930
Lawyers and Quebec notaries (41101)*	10%	11,580	1,500	2,310	3,810
Construction millwrights and industrial mechanics (72400)*	9%	8,070	1,300	2,490	3,780
Natural and applied science policy researchers, consultants and program officers (41400)*	16%	5,930	2,340	1,200	3,540
Procurement and purchasing agents and officers (12102)	11%	8,680	1,090	2,390	3,480
Transport truck drivers (73300)	2%	7,060	1,280	2,180	3,460
Technical sales specialists - wholesale trade (62100)	8%	10,340	680	2,610	3,300
Social and community service workers (42201)	5%	7,810	1,600	1,590	3,190
General building maintenance workers and building superintendents (73201)	13%	9,610	-370	3,490	3,110
College and other vocational instructors (41210)	7%	9,410	690	2,420	3,100
Computer and information systems managers (20012)*	10%	11,610	30	3,040	3,070
Program leaders and instructors in recreation, sport and fitness (54100)	5%	6,790	2,250	790	3,050
Fire chiefs and senior firefighting officers (40041)*	39%	2,440	1,510	1,370	2,870
Financial and investment analysts (11101)	7%	5,470	1,890	950	2,840
Manufacturing managers (90010)*	14%	15,630	-1,750	4,550	2,800
Accounting technicians and bookkeepers (12200)	4%	7,270	430	2,340	2,770
Registrars, restorers, interpreters and other occupations related to museum and art galleries (53100)	50%	6,040	1,230	1,530	2,760
Electrical and electronics engineers (21310)*	28%	11,030	330	2,400	2,740
Paralegals and related occupations (42200)	13%	5,260	1,340	1,380	2,720
Security guards and related security service occupations (64410)	5%	5,600	1,360	1,350	2,710

Accommodation service managers (60031)	6%	3,140	1,130	1,560	2,690
Store shelf stockers, clerks and order fillers (65102)	2%	5,430	1,790	870	2,660
Electrical and electronics engineering technologists and technicians (22310)	15%	4,270	1,310	1,330	2,640
Supervisors, supply chain, tracking and scheduling coordination occupations (12013)	5%	4,220	1,200	1,380	2,580
Financial auditors and accountants (11100)	6%	15,250	-740	3,310	2,570
Chemical engineers (21320)*	35%	4,940	1,280	1,230	2,510
Electricians (except industrial and power system) (72200)	9%	11,070	610	1,890	2,500
Supervisors, railway transport operations (72023)	58%	4,010	1,110	1,320	2,430
Retail sales supervisors (62010)	2%	3,990	1,530	900	2,430
Accounting and related clerks (14200)	3%	4,340	1,040	1,360	2,410
Software developers and programmers (21232)	3%	4,270	1,600	650	2,250
Supervisors, motor transport and other ground transit operators (72024)	12%	4,370	860	1,350	2,210
Database analysts and data administrators (21223)	8%	4,540	1,380	720	2,100
Managers in social, community and correctional services (40030)*	12%	5,190	320	1,770	2,090
Supervisors, petroleum, gas and chemical processing and utilities (92011)	27%	5,050	420	1,660	2,080
Petroleum engineers (21332)*	28%	4,360	1,240	830	2,060
Geological engineers (21331)*	43%	3,070	1,420	630	2,050
Forestry professionals (21111)*	87%	6,470	750	1,290	2,040
Financial advisors (11102)	3%	3,240	1,140	840	1,990
Cleaning supervisors (62024)	12%	4,440	850	1,100	1,950
Executive assistants (12100)	9%	3,620	650	1,290	1,930
Heavy-duty equipment mechanics (72401)	7%	4,690	900	1,010	1,910
Senior managers - financial, communications and other business services (00012)	9%	4,700	-180	2,080	1,900
Construction inspectors (22233)	23%	5,820	160	1,670	1,830
General office support workers (14100)	5%	5,770	260	1,560	1,810
Social policy researchers, consultants and program officers (41403)	5%	4,150	980	810	1,780

Supervisors, finance and insurance office workers (12011)	7%	3,140	840	940	1,780
Landscape architects (21201)*	43%	3,000	1,260	520	1,780
Architecture and science managers (20011)*	30%	5,140	390	1,380	1,760
Computer network and web technicians (22220)	11%	4,550	840	810	1,650
Financial managers (10010)	8%	6,300	-110	1,670	1,560
Chemists (21101)	19%	2,730	790	760	1,550
Chemical plant machine operators (94110)	18%	3,230	470	1,080	1,550
Industrial electricians (72201)	17%	6,090	-90	1,620	1,540
Industrial and manufacturing engineers (21321)*	24%	4,980	690	840	1,530
Plumbers (72300)	13%	7,420	560	970	1,530
Construction estimators (22303)	15%	3,390	640	870	1,500
Education policy researchers, consultants and program officers (41405)	9%	2,750	920	540	1,460
Landscaping and grounds maintenance labourers (85121)	4%	3,300	940	510	1,450
Heavy equipment operators (73400)	7%	5,430	250	1,180	1,430
Electronic service technicians (household and business equipment) (22311)	9%	4,000	140	1,260	1,400
Property administrators (13101)	9%	4,280	-100	1,480	1,380
Software engineers and designers (21231)	4%	4,410	850	520	1,360
Contractors and supervisors, heavy equipment operator crews (72021)	19%	11,080	-1,720	3,070	1,350
Mechanical engineering technologists and technicians (22301)*	14%	3,370	600	710	1,310
Supervisors, other mechanical and metal products manufacturing (92023)	10%	1,890	580	700	1,280
Technical occupations in geomatics and meteorology (22214)*	44%	4,500	620	640	1,260
Government managers - economic analysis, policy development and program administration (40011)*	32%	4,640	-390	1,640	1,250
Other business services managers (10029)*	15%	3,130	410	820	1,230
Other professional occupations in social science (41409)	61%	5,630	-810	2,040	1,230
Shippers and receivers (14400)	3%	3,130	360	840	1,210
Public works maintenance equipment operators and related workers (74205)	11%	3,010	430	740	1,170



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