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# Electricity in Demand: Labour Market Insights

**FACTSHEET FOR BRITISH COLUMBIA  
2023-2028**



# British Columbia Outlook

## STRUCTURE OF THE ELECTRICITY MARKET

**In British Columbia, a public utility operates most of the province's electricity generation assets and supplies power to most of its residential and commercial customers.**

Wholesale access and free choice of electricity supplier are available to large industrial users, while smaller consumers can patronize local distributors. Independent power producer (IPPs) operate several small hydro plants, as well as biomass, wind and solar facilities.





## ELECTRICITY GENERATION BY FUEL TYPE

**As of 2023, BC's largest source of electrical generation is hydropower, making up 87% of the province's total (see Figure 1, panel A).**

Biomass/geothermal power is the next leading source of generation, at 7%. In comparison, the source that currently fuels most of Canada's electrical generation is hydropower, at 58%, whereas the corresponding shares of natural gas and nuclear power are 14% and 13%, respectively (Figure 1, panel B).

Looking ahead, a recent report from the Canada Energy Regulator (CER) sets out a potential path and corresponding provincial energy mixes that could enable Canada to achieve a net zero greenhouse gas (GHG) emissions electricity grid by 2035, and realize economy-wide net zero GHG emissions by 2050 (recognizing that there are multiple paths and different energy mixes that could achieve these goals).

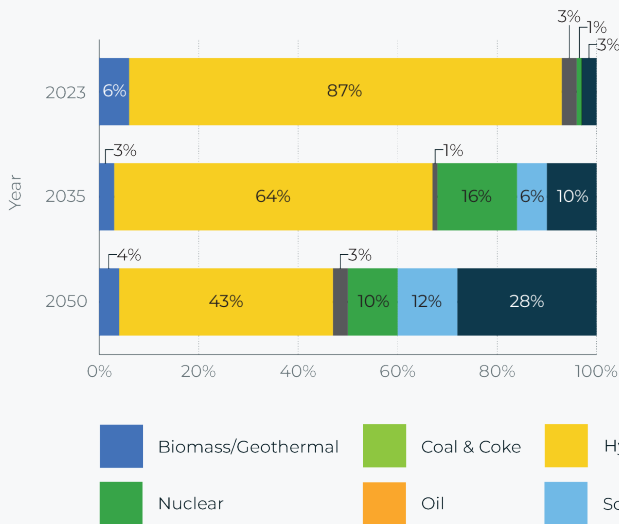
Under the CER "Canada net zero" scenario, electricity generation in terms of gigawatt hours (GWh) will more than double over the next 27 years in both Canada and BC. The need to transmit and distribute a much greater volume of electricity will likely put severe pressure on the sector — necessitating upgrades and investments in infrastructure and human resources.



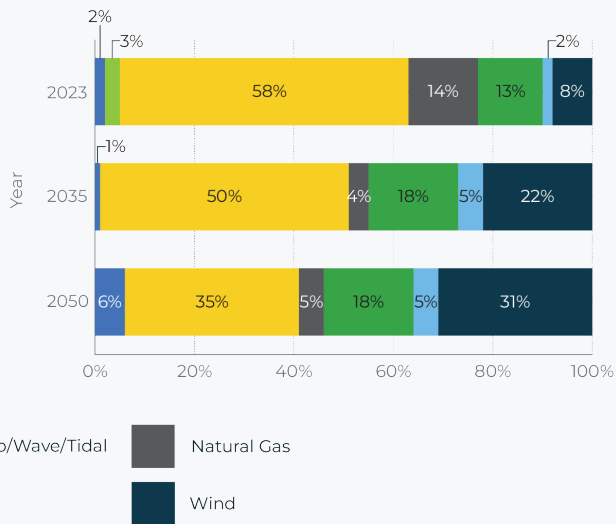


**Figure 1. Shares of electricity generation by source and year (2023, 2035, and 2050), net zero scenario (%)**

**Panel A: British Columbia**



**Panel B: Canada**



**Source:** Canada Energy Regulator, Canada's Energy Future Data Appendices.

**Note:** "Net-zero" refers to CER's "Canada net zero" scenario and reflects an energy mix and growth path for electricity generation that will enable Canada to achieve a net-zero electricity grid by 2035, and net-zero GHG emissions by 2050.

Under the scenario outlined by the CER, the proportions of electricity generated by wind and nuclear power would more than double in BC by 2035, reaching 10% and 16%, respectively (surpassing biomass/geothermal). This broadly mirrors what will be required at the national level to achieve net zero goals, i.e., the growing importance of wind.

**However, for Canada as a whole, solar power will also need to double to achieve a net zero electricity grid by 2035 (with coal and coke production being phased out entirely over the period).**



Wind power generation would continue to grow beyond 2035, eventually surpassing the combined shares of nuclear, solar, and biomass/geothermal power, and contributing more than one quarter (28%) of BC's electricity generation in 2050. The share of electricity generated in BC via hydro would continue to decline significantly (*Figure 1, panel A*) as the proportions of other types of generation rise. Solar power's share would increase from 1% in 2023 to 12% in 2050.

**Under this scenario, at the national level, the share of hydro-generated electricity will fall by over 20 percentage points by 2050, while wind power's share would increase to just over 30% (*Figure 1, panel B*).**

Under this time horizon and scenario, the share of electricity fueled by natural gas would fall to 5% at the national level, while solar power would grow only modestly.

Over the relevant time periods, in addition to considerable shifts in the shares of fuels used to generate power, the absolute amount of electricity generated will rise. (*Table 1*). Some of the changes will be dramatic, given the comparably low levels of electricity currently generated by a number of sources. For instance, between 2023 and 2035, BC's nuclear generation will expand more than that of any other fuel source (at present non-existent), followed by solar (24% average growth per year) and wind (nearly 14% average growth per year).

Between 2035 and 2050, electricity generated from natural gas will expand the most, followed by wind and solar in percentage terms.





**Table 1. Anticipated changes in electricity generation (GWh) by fuel source under a net zero scenario (volumes and compound annual %), 2023–2050**

Energy Source	British Columbia			Canada		
	2023	2035	2050	2023	2035	2050
<i>Hydro/wave/tidal</i>	59,823	61,583 (0.2%)	60,688 (-0.1%)	376,053	467,766 (1.8%)	474,316 (0.1%)
<i>Biomass/geothermal</i>	4,542	3,609 (-1.9%)	5,593 (3.0%)	10,224	18,446 (5.0%)	71,889 (9.5%)
<i>Wind</i>	2,008	9,246 (13.6%)	39,913 (10.2%)	53,498	207,476 (12.0%)	425,064 (4.9%)
<i>Natural gas</i>	2,002	521 (-10.6%)	3,646 (13.9%)	90,568	32,851 (-8.1%)	62,772 (4.4%)
<i>Solar</i>	438	5,777 (24.0%)	16,519 (7.3%)	11,060	44,914 (12.4%)	74,699 (3.4%)
<i>Oil</i>	101	0 (-100%)	1	1,606	670 (-7.0%)	1,004 (2.7%)
<i>Nuclear</i>	0	15,260 (100%)	14,176 (-0.5%)	82,425	164,478 (5.9%)	249,972 (2.8%)
<i>Coal &amp; coke</i>	-	-	-	19,594	-	-
<b>Total</b>	<b>68,914</b>	<b>95,995 (2.8%)</b>	<b>140,536 (2.6%)</b>	<b>645,028</b>	<b>936,600 (3.2%)</b>	<b>1,359,716 (2.5%)</b>

**Source:** Canada Energy Regulator, Canada's Energy Future Data Appendices.

**Note:** Figures in parenthesis for 2035 refer to the average compound annual growth in electricity generation anticipated for that energy source between 2023 and 2035. Those in the 2050 column refer to the average compound annual growth anticipated between 2035 and 2050. "Net-zero" refers to CER's "Canada net zero" scenario and reflects an energy mix scenario for electricity generation that could enable Canada to achieve a net-zero electricity grid by 2035, and net-zero GHG emissions by 2050.

In contrast, over the period from 2023 to 2035, growth in Canada's electrical output is expected to come largely from solar and wind (12% average growth per year), as well as nuclear (nearly 6% average growth per year). From 2035 to 2050, the percentage increases in the volume of electricity generated in Canada are projected to be largest among biomass/geothermal (more than 9% average growth per year), followed by wind (close to 5% average growth per year).



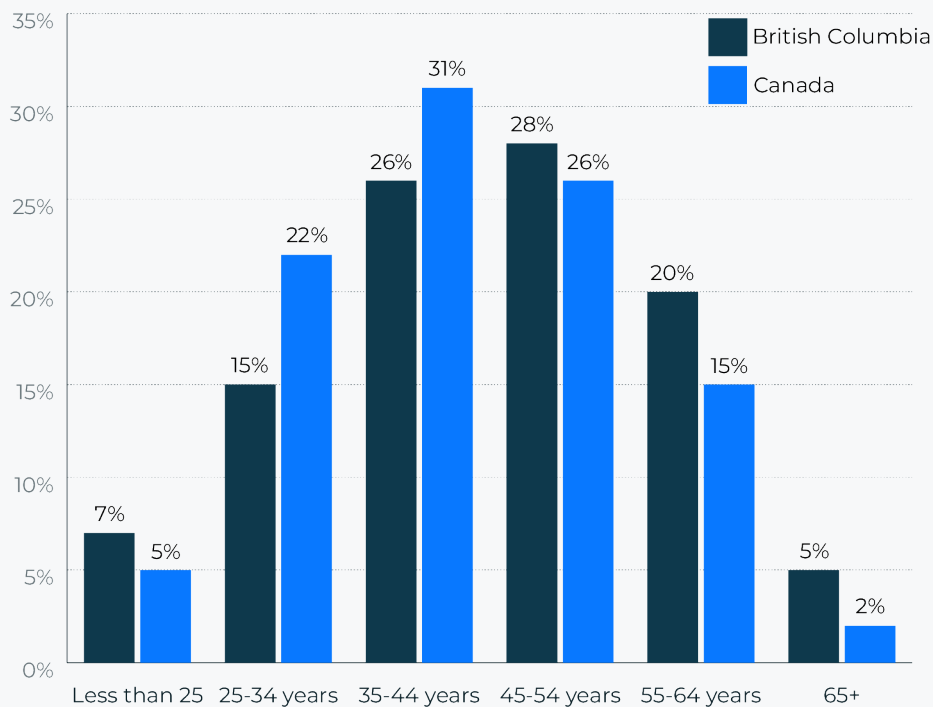


# AGE DISTRIBUTION OF THE WORKFORCE

Workers in BC’s electricity sector are older, on average, than their counterparts at the national level. (Figure 2).

For instance, in 2022, the share of workers aged 55 years of age and over in BC stood at one in four (25%), significantly higher than the national average of 17%. BC also has a lower share of younger workers, e.g., those aged 25-34 and 35-44 years of age, than Canada.

Figure 2. Age Distribution of employment in the Electricity Sector (%), 2022



Source: Statistics Canada, Labour Force Survey, 2022.



## DISTRIBUTION OF FEMALE EMPLOYMENT

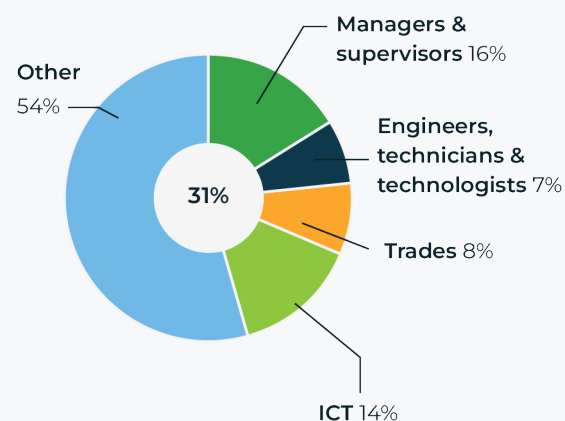
**Figure 3 highlights that the proportion of people employed in BC's electricity sector who are women, is relatively high, i.e., 31% compared to 27% in Canada.**

In terms of the distribution of female employment across occupational groups, women are overwhelmingly concentrated in *Other corporate professional* occupations in both BC and Canada (54% and 67%, respectively). *Trades* occupations employ the lowest share of women (8%) in the province's electricity sector.

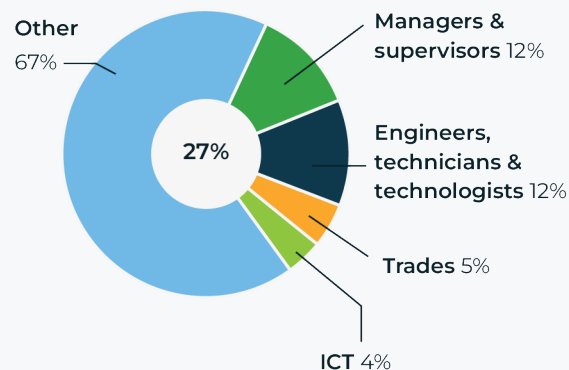
Compared to Canada, BC's electricity sector workforce has a greater proportion of women employed in the *Management & supervisors*, *Trades*, and *ICT* occupational groups. However, the province has a smaller share of women employed in *Engineer, technician, and technologist* roles than Canada. Nationally, only 4% of women in Canada's electricity sector are employed in *ICT* occupations, whereas the corresponding figure in BC is 14%.

**Figure 3. Distribution of female employment by occupational group**

**Panel A: British Columbia, 2022**



**Panel B: Canada, 2022**



**Source:** Statistics Canada, Labour Force Survey, 2022.

**Note:** The figures in the centre of the charts refer to the share of female workers in the total electricity sector workforce. See Appendix A of EHRC's [Electricity in Demand: Labour Market Insights 2023-2028](#) for information regarding the occupations covered in each of these broad groups.



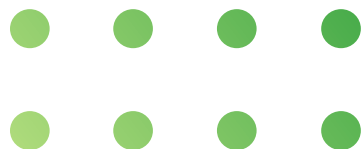


# DIVERSITY, EQUITY, AND INCLUSION

**Efforts to increase diversity, equity, and inclusion (DEI) are pivotal to the success of the electricity sector's human resources strategy.**

As is the case in other sectors of the economy, it greatly benefits from a diverse workforce, as it brings a wider array of perspectives, ideas, and innovative solutions than would otherwise be possible. According to the 2021 Census and EHRC Employer Survey, BC's electricity sector workforce is much more diverse than its national counterpart. Moreover, it compares favourably with the corresponding situation in the overall Canadian economy:

- **Indigenous peoples:** A little more than 4% of workers in BC's electricity sector identify as Indigenous, lower than the national figure for the electricity sector at 5% (the latter is on par with the share of Indigenous peoples working across all sectors of the economy at 5%).
- **Persons with disabilities:** According to the EHRC Employer survey almost 1% of British Columbia's electricity sector identified as persons with disabilities, similar to the national level.
- **Racialized groups:** Approximately one in three (33%) workers in BC's electricity sector identify as being from a racialized group, higher than the national figure for the electricity sector, at close to 22%, and similar to the share of racialized groups working across all sectors of the economy at 26%.
- **Immigrants:** Just over 31% of workers in BC's electricity sector are immigrants, higher than the national figure for the electricity sector at 18% (and similar the share of immigrants working across all sectors of the Canadian economy at 29%).
- **Gender diverse people:** EHRC survey revealed that about 3% of the electricity sector employees in British Columbia identify as gender diverse, above the national rate of 2%.



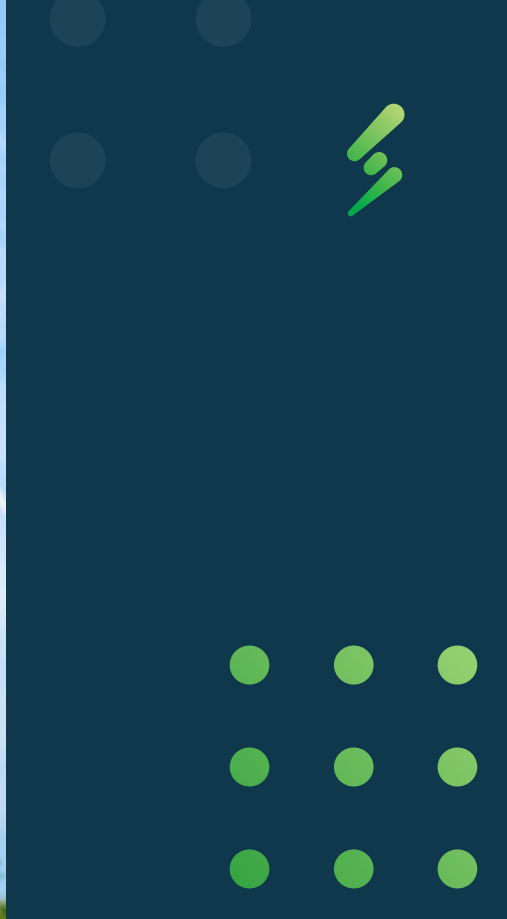


## LEVEL OF EDUCATIONAL ATTAINMENT

Educational attainment is relatively high in Canada's electricity sector workforce, with more than one in three workers (37%) having attained a Bachelor's degree or above (Figure 4).

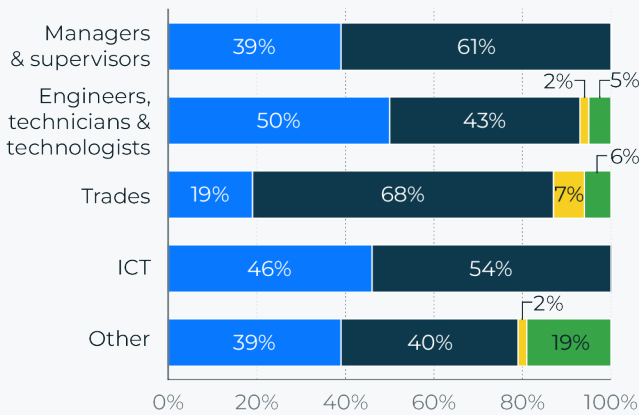
**The comparable figure for BC is somewhat lower, at 32%.** In both BC and Canada, educational attainment is also high across the main occupational groups comprising the electricity sector's workforce:

- **Managers & supervisors:** In BC, all *Managers & supervisors* have at least a post-secondary or trades certificate or diploma or higher, compared to 94% in Canada. The proportion of *Managers & supervisors* with at least a bachelor's degree in BC is 39%, compared to just over half in Canada.
- **Trades:** In this occupational group, approximately 94% of workers have at least some post-secondary education (with 19% having a bachelor's degree or more). In Canada, the corresponding figures are 91% with at least some post-secondary education and 15% having a bachelors' degree or more.
- **Engineers, technologists and technicians:** 50% of BC's workers within this occupational group hold a bachelor's degree or above, whereas the corresponding figure for Canada is 63%.
- **ICT:** The educational attainment of ICT workers in BC's electricity sector is comparable to that of Canada, although the latter has a slightly higher share with a bachelor's degree or higher.

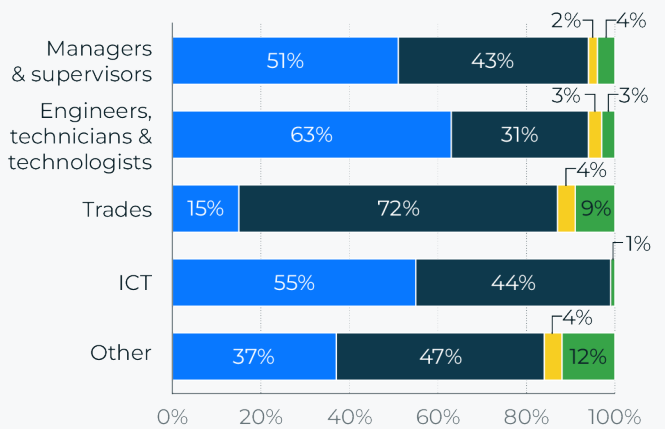


**Figure 4. Educational attainment by occupational group**

**Panel A: British Columbia, 2022**



**Panel B: Canada, 2022**



Source: Statistics Canada, Labour Force Survey, 2022.



## EMPLOYMENT PROFILE AND RECENT TRENDS

The distribution of employment across the four occupational groups in the electricity sectors of BC and Canada differs (*Table 2*).

This is particularly evident with respect to *Engineers, technologists & technicians*, which as a share of total employment in the sector, stands at close to 27% in BC and 15% in Canada. However BC has smaller shares of *Other corporate professionals* and *Trades*.

**Table 2.** Employment shares in the electricity sector by occupational group and region (%), 2022

Occupational Group	British Columbia		Canada	
	Volume	%	Volume	%
<i>Managers &amp; supervisors</i>	1,100	10.7	9,800	8.9
<i>Engineers, technologists &amp; technicians</i>	2,600	26.6	16,500	14.9
<i>Trades</i>	2,200	22.4	29,600	26.8
<i>ICT</i>	800	8.2	6,700	6.0
<i>Other corporate professionals</i>	3,200	32.2	48,100	43.4
<b>Total</b>	<b>10,000</b>	<b>100</b>	<b>110,700</b>	<b>100</b>

**Source:** Statistics Canada, Labour Force Survey, 2022.

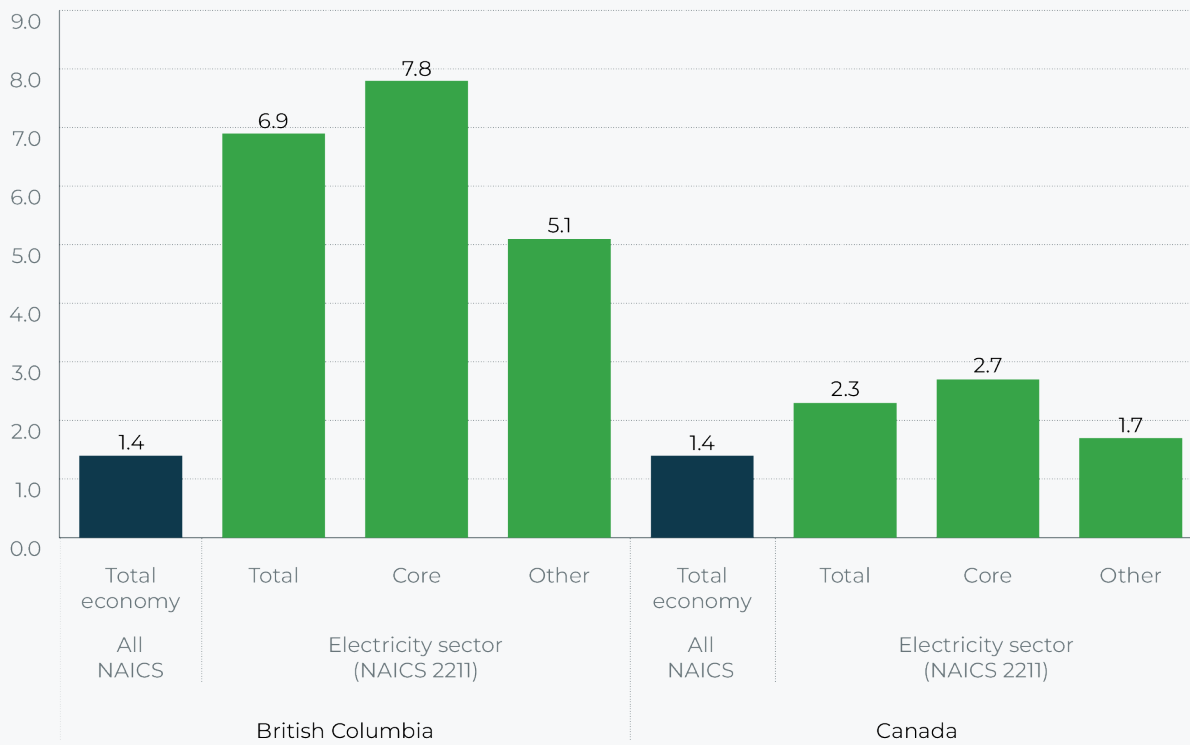
**Note:** Figures are rounded to the nearest 100.



**The growth in employment in BC’s electricity sector over the past 5 years has outpaced that of the entire provincial economy (Figure 5).**

Between 2017 and 2022, the former figure was 6.9%, more than four times BC’s average employment growth (1.4%). The employment growth in BC’s electricity sector was also higher than the comparable figure for Canada’s electricity sector, which averaged 2.3% per year during the period. BC’s strong employment growth in the electricity sector was largely driven by job gains in the core group of occupations, which averaged 7.8% per year compared to 5.1% for the “other” group of occupations. In contrast, in Canada’s electricity sector, employment growth in the core occupations was higher at 2.7% per year, compared to “other” at 1.7%.

**Figure 5. Average annual employment growth in Canada’s electricity sector (%), 2017–2022**



**Source:** Statistics Canada, Labour Force Survey, 2022.

**Note:** Core occupations refer to the group of 34 occupations that are central to the electricity sector (See Appendix A of EHC’s *Electricity in Demand: Labour Market Insights 2023–2028* for information regarding the occupations covered). “Other” refers to the remaining occupations covered in the electricity sector.



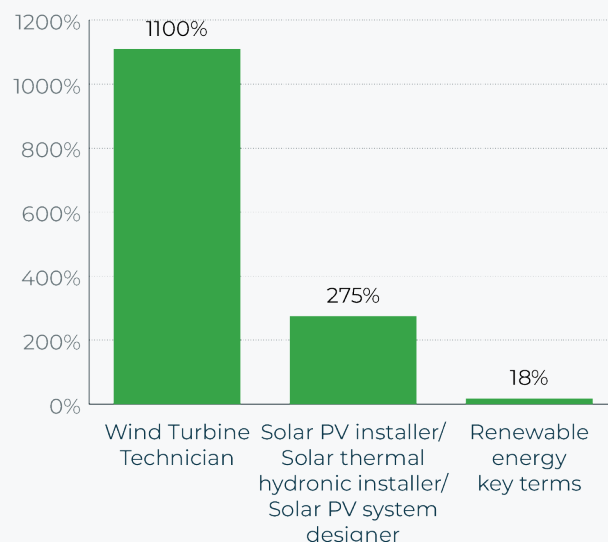
**An important consideration relative to employment patterns and the shift towards net zero is the critical role of renewable energy occupations.**

Unfortunately, there is a scarcity of official data on such jobs, since they are captured as part of broader occupations within the National Occupational Classification system. However, online job posting data from Vicinity Jobs, while not to be conflated with employment, yields valuable insights into recent trends in terms of these specific job titles.

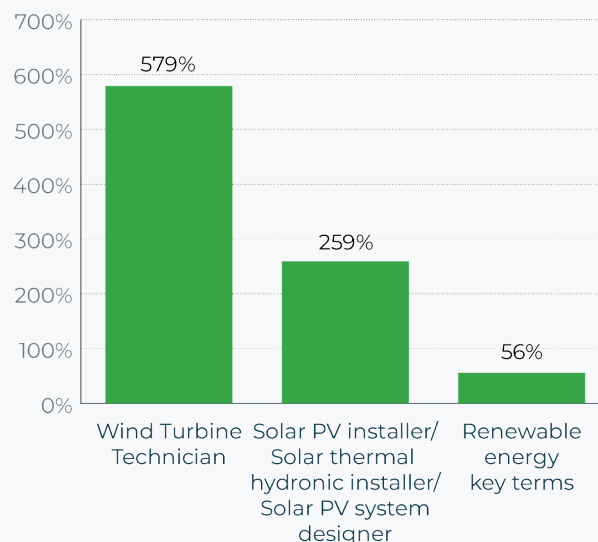
The growing demand for workers with specialized skills in the renewable energy sector is quite evident: between 2018 and 2022, the number of online job postings in BC that contained the key phrases ‘renewable energy,’ ‘solar power,’ and/or ‘wind power generation’ increased by 18%, albeit considerably lower than the national average (*Figure 6, panel A and panel B*). Additionally, *Figure 6* illustrates that between 2018 and 2022 the number of online job postings for Wind turbine technicians increased by 1100% in BC, which is nearly double the percentage increase in Canada. Online job postings for Solar PV installers and designers expanded by 275% in BC. The corresponding Canada-wide figures are 56% growth over the period 2018 to 2022 in job postings with the same key phrases, 579% growth in Wind turbine technician job postings and 259% growth in Solar PV-related job postings (*Figure 6, panel B*).

**Figure 6. Online job postings for renewable energy and related occupations (%), 2018–2022**

**Panel A: British Columbia**



**Panel B: Canada**



Source: Vicinity Jobs.

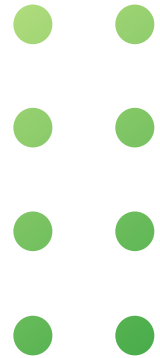




The EHRC Employer survey revealed that 37% of organizations operating in BC's electricity sector utilize contractors (compared with 40% nationally) while 24% use the services of consultants (similar to the national level). The growing reliance on contractors highlights the need to closely monitor the demographic composition of the workforce, as well as the age structure of outsourced workers.

***As workers age, it will become increasingly important to use external service providers judiciously and avoid excessive dependence on them.***

The failure to address this potential risk could adversely affect the stability and continuity of a firm's operations. It is imperative to carefully manage this aspect to ensure a sustainable and resilient workforce.



## LABOUR MARKET OUTLOOK

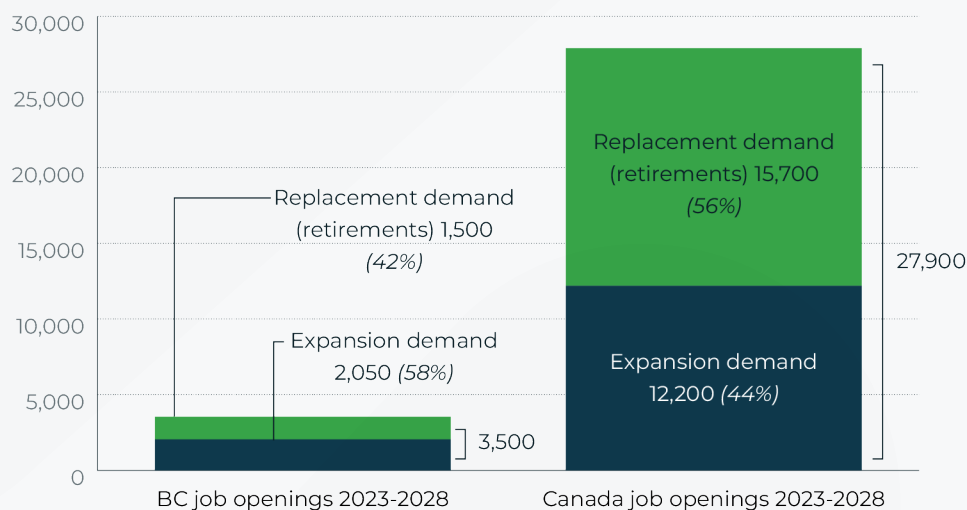
Leveraging the assumptions and data underpinning the long-term scenarios envisaged in the CER's *Canada's Energy Future 2023*, EHRC developed a forecast model to shed light on the potential medium-term employment implications for the electricity sector under the "path to net zero" scenario.

**Between 2023 and 2028, the number of job openings in BC's electricity sector are anticipated to reach nearly 3,500 (Figure 7).**

This includes roughly 2,000 job openings due to expansion demand and 1,500 expected to arise from replacement demand, i.e., from retirements. For Canada, the additional job openings associated with this expansion demand are just over 12,000, whereas the total number of retirements expected is 15,700. For Canada as a whole, this yields a total of nearly 28,000 job openings in the sector from 2023 to 2028. This highlights that, as opposed to the situation at the national level, the projected job openings in BC's electricity sector are expected to reflect growth more than retirements.



**Figure 7. Composition of demand for workers in the electricity sector, 2023–2028**



**Source:** EHRC estimates based on Labour Force Survey, EHRC model 2023 and Canada Energy Regulator, Canada's Energy Future Data Appendices.

Between 2023 and 2028, the relative size of replacement and expansion demand varies by occupational group (Table 3). In terms of expansion demand in BC, the total number of job openings expected over the 2023–2028 period is driven by strong expansionary needs among *Other corporate professionals* as well as modest expansion demand among *Engineers, technologists & technicians* and the *ICT* group of occupations.

At the same time, all occupational groups will need to fill job openings resulting from retirement, i.e., replacement demand. At the national level, despite expected retirements in the order of 1,200 among *Managers & supervisors*, expansion demand is projected to decline (-2,100) over the forecast period, i.e., between 2023 and 2028. Across all other occupational groups, strong job openings are anticipated due to expansion demand and replacement demand.

***Due to an aging workforce, with the exception of ICT occupations, replacement demand is set to exceed expansion demand over the forecast time horizon.***



**Table 3.** Composition of demand for workers in BC's electricity sector under the path to net zero scenario by occupational group, 2023–2028

Occupational Group	British Columbia		Canada	
	Expansion demand	Replacement demand	Expansion demand	Replacement demand
<i>Managers &amp; supervisors</i>	-600	100	-2,100	1,200
<i>Engineers, technologists &amp; technicians</i>	100	250	1,200	1,900
<i>Trades</i>	-200	300	2,800	3,700
<i>ICT</i>	650	100	3,800	800
<i>Other corporate professionals</i>	2,100	800	6,500	8,050
<b>Total</b>	<b>2,050</b>	<b>1,500</b>	<b>12,200</b>	<b>15,650</b>

**Source:** EHRC estimates based on Labour Force Survey, EHRC model 2023 and Canada Energy Regulator, Canada's Energy Future Data Appendices.

**Note:** Figures rounded to nearest 50. Expansion demand refers to the anticipated employment growth that occurs in the path to net-zero scenario. Replacement demand is estimated using occupation-specific retirement rates, weighted by each occupation's share of employment in the electricity sector in 2022. These estimates do not reflect openings that could result from the death or emigration of employees.

