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by Bassirou Gueye

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Research article

Women in the environmental and clean technology sector

by Bassirou Gueye

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Abstract

The Environmental and Clean Technology (ECT) sector in Canada plays a significant role in the nation's economy and efforts to combat climate change. Statistics Canada defines the ECT sector as encompassing activities related to environmental protection, resource optimization, and the use of energy-efficient goods. In 2021, the sector contributed 2.9% to Canada's GDP and employed 314,257 individuals, representing 1.6% of the national workforce.

This study uses data from the Environmental and Clean Technology Products Economic Account to provide a comprehensive analysis of the sector's workforce diversity. This paper focuses on the representation of women in the ECT sector, highlighting their underrepresentation and examining their compensation relative to men across various demographics, including age, education, and occupation. Women comprised 28.6% of the ECT workforce in 2021, with a higher presence in service-related jobs compared to goods production. They were more likely to have postsecondary education but face a gender pay gap, earning on average 16.3% less than their men counterparts. The paper further explores the intersectionality of gender with Indigenous, racialized, and immigrant identities, highlighting the additional challenges these groups could face. For instance, among immigrants, Indigenous peoples, and the racialized population, women were underrepresented in the ECT sector and faced a compensation gap compared to their men counterparts.

Keywords: Environmental and clean technology, gender representation, compensation gap, Indigenous women, racialized women, immigrant women, Canada, economic growth, workforce diversity

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Introduction

Protecting the environment and combating climate change are initiatives that concern many of the world's leaders. In Canada, the government has established a series of measures designed to support environmental protection on a global scale, but also to ensure a future of clean growth for the country (Government of Canada, 2022, 2023).

Despite growing interest in the topic, there is no universally accepted definition of the environmental and clean technology (ECT) sector. This is partly because industry-based definitions cannot be used to identify ECT businesses. Statistics Canada (2023a) defines the ECT sector as the activities related to environmental protection, the optimal allocation of natural resources and the use of goods that require less energy or resources than the industry standard. The ultimate aim of these strategies is to reduce or prevent pollution and the depletion of natural resources.

In Canada, the ECT sector plays an important role in the economy. The nominal gross domestic product (GDP) of the ECT sector was estimated at $73.1 billion in 2021, representing 2.9% of Canada's GDP (Statistics Canada, 2022a). Additionally, in 2021, the ECT sector employed 314,257 people (1.6% of all jobs) and contributed 2.3% of exports and 2.8% of imports in Canada (Statistics Canada, 2023a, 2023b).

In addition to playing an important role in meeting greenhouse gas emission reduction targets, the ECT sector also contributes to economic growth for both businesses and employees. From 2018 to 2020, small and medium-sized enterprises in the ECT sector were more likely than businesses overall to have sales or revenue growth of over 10% (Dewan, 2023). They were also more resilient during the COVID-19 pandemic, with lower temporary closure rates. At the individual level, compensation was higher, on average, in the ECT sector. In both 2017 and 2021, average annual compensation was higher for employees in the ECT sector than for all employees in Canada (Statistics Canada, 2019, 2022a, 2023a).

Considering this higher remuneration and the fact that women are, on average, less represented in highly paid sectors (Statistics Canada, 2022b), it is worth shedding light on women's representation among the workforce of the ECT sector. Building on the work of Goombs (2022), who studied the gender characteristics of the ECT sector's labour force, this paper aims to analyze women's participation in the ECT sector. Specifically, this paper examines the representation of women in the sector and the evolution of their compensation relative to men, according to certain characteristics, such as age, level of education and occupation. The paper contributes to filling the knowledge gap on the ECT sector in Canada by analyzing the representation of Indigenous, racialized and immigrant women, as well as their compensation relative to their men counterparts. Using more recent data, the article also presents the variation in employment in the ECT sector to determine whether there were gender gaps in job losses following the COVID-19 pandemic.

The rest of the paper is structured as follows. The next section presents the data used in this paper. The third section examines women's representation and their compensation, compared with men. The fourth section offers a more granular analysis by adding a breakdown by Indigenous identity, racialized group and immigrant status. The fifth section presents the conclusion.

Data source

The concepts of green jobs or green growth have drawn the attention of researchers and policy makers in recent years. However, defining and measuring green jobs have often been challenging. In their systematic review of the literature on green jobs, Stanef-Puică et al. (2022) reiterate the lack of international consensus on a uniform definition of this concept. However, the authors reveal a certain propensity toward the definition associated with the Green Jobs Initiative (GJI) and proposed in the 2008 joint report by the United Nations Environment Programme, the International Trade Union Confederation, the International Organisation of Employers and the International Labour Organization. According to the GJI, green jobs are those that can reduce the consumption of energy, raw materials and water to decarbonize the economy and reduce emissions of greenhouse gases, waste and pollution.

Although Statistics Canada does not refer to the concept of green jobs in its products, its definition of ECT products is in many ways consistent with the GJI's concept of green jobs. Indeed, Statistics Canada (2023a) defines ECT products as

> any process, product or service that reduces environmental impacts through any of the following three strategies: environmental protection activities that prevent, reduce or eliminate pollution or any other degradation of the environment; resource management activities that result in the more efficient use of natural resources, thus safeguarding against their depletion; or the use of goods that have been adapted to be significantly less energy or resource intensive than the industry standard.

The limited amount of analysis and research on the ECT sector is partly attributable to the difficulty of measuring economic indicators related to the ECT sector. The production of ECT goods or the delivery of ECT services can be linked to almost all industries. Thus, using the North American Industry Classification System to define the ECT sector would lead to an overestimation of the number of jobs in the sector.

Statistics Canada launched the Environment Industry Survey in 1998, which became the Survey of Environmental Goods and Services in 2008, with the aim of collecting data on sales and employment in the ECT sector. In addition, as part of the Government of Canada's Clean Technology Data Strategy,[1] Statistics Canada has developed a new source of data on the ECT sector—the Environmental and Clean Technology Products Economic Account (ECTPEA)—which evaluates GDP, employment and other economic indicators of the sector.

This study is based on data from the ECTPEA.[2] The Human Resource Module (HRM) of the ECTPEA complements and enhances analytical capacity and allows for a broader insight into the sector's role in the economy by providing more detailed information on the diversity of the ECT sector's workforce. The main data sources of the HRM include the Canadian Productivity Accounts (CPA), data in the Canadian System of National Accounts, the Census of Population, the Labour Force Survey and the ECTPEA.[3] In this article, the concepts of job and employment refer to salaried employees and thus exclude self-employed individuals.

1. For more information on the strategy, see https://ised-isde.canada.ca/site/clean-growth-hub/en/clean-technology-data-strategy.
2. Estimates for reference years 2020 and 2021 are preliminary.
3. The combination of the different files is not based on a microdata linkage; jobs and earnings are calculated from the CPA and broken down according to several characteristics through benchmarking based on the Census of Population and industry ratios.

The characteristics of employees in the ECTPEA are consistent with those reported in the Census of Population. Prior to the 2021 Census, information solely based on sex was collected. Starting in 2021, the census introduced a new gender variable and added the “at birth” precision to the sex variable.

The sex variable in census years prior to 2021 and the two-category gender variable in the 2021 Census are combined in this analysis to make historical comparisons. Although sex and gender refer to two different concepts, the introduction of gender in 2021 is not expected to have a significant impact on data analysis and historical comparability, given the small size of the transgender and non-binary populations. Additional details on the new gender concept are provided by Statistics Canada (2020, 2022c).

Given that the non-binary population is small, data aggregation to a two-category gender variable is necessary to protect the confidentiality of responses. In these cases, individuals in the category “non-binary people” are distributed into the other two gender categories. Unless otherwise indicated in the text, the categories “men” and “men+” include men and some non-binary people, while the categories “women” and “women+” include women and some non-binary people.

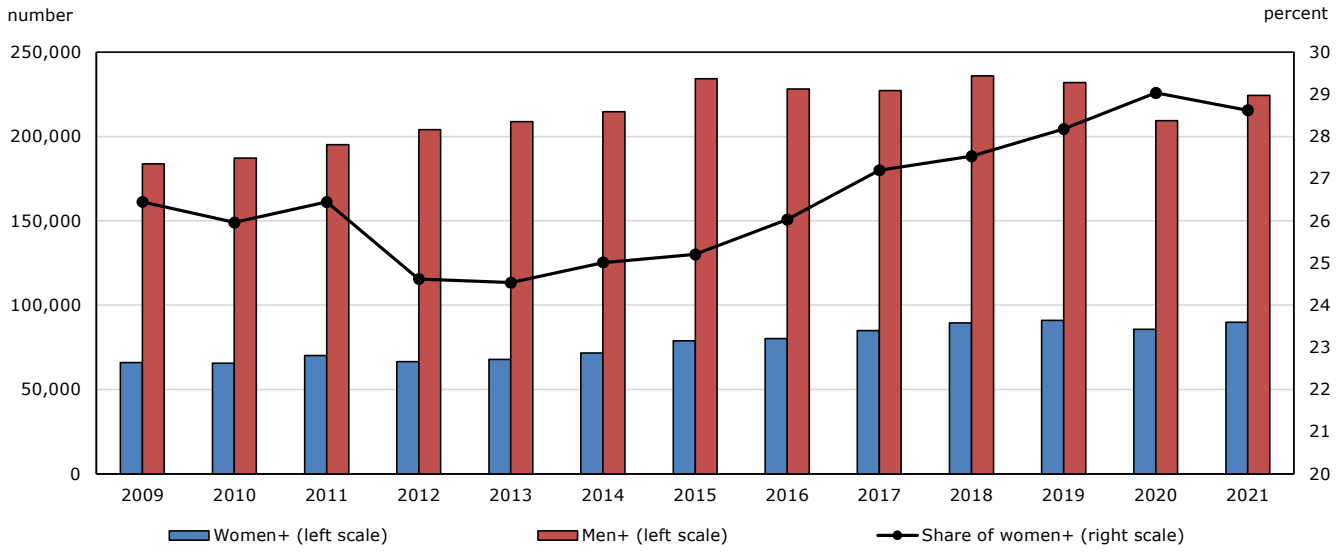
Unless otherwise stated, the results are based on all employees aged 15 years and older who were employed full time or part time.

Results

Women remain underrepresented in the Environmental and Clean Technology sector

The ECT sector remains dominated by men, although the number of jobs held by women has grown faster than that for men. In 2021, women accounted for 28.6% of the ECT sector's workforce, 2.2 percentage points more than in 2009 (26.4%; Chart 1). Except for a slight decrease in 2021, the share of women in the ECT sector has been on an upward but moderate trend since 2013, reaching its highest level in 2020 (29.0%).

Chart 1
Employment in the environmental and clean technology sector by gender, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women+" was called "females" and the category "men+" was called "males." Starting in 2021, "women+" includes women and some non-binary people, and "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

There are two broad categories in the ECT sector, namely environmental products and clean technology products. Jobs in each category are classified into two subgroups, according to their association with the production of goods (ECT goods) or the delivery of services (ECT services). In the ECT sector, women were less likely to be employed in the goods-producing subsector than in the provision of services. In 2021, women occupied 24.8% of jobs related to the production of goods and 30.5% of those related to the delivery of services.[4]

The underrepresentation of women in the goods-producing subsector is not unique to the ECT sector. As Moyser (2017) reports, women are more likely to work in the services sector and less likely to work in the goods-producing sector. The same was true in 2021, with almost 8 out of 10 jobs in the goods-producing sector occupied by men, while women were more prevalent in the service-producing sector, particularly in education (where they represented 68.4% of the workforce) and health care and social assistance (80.5% of the workforce).[5]

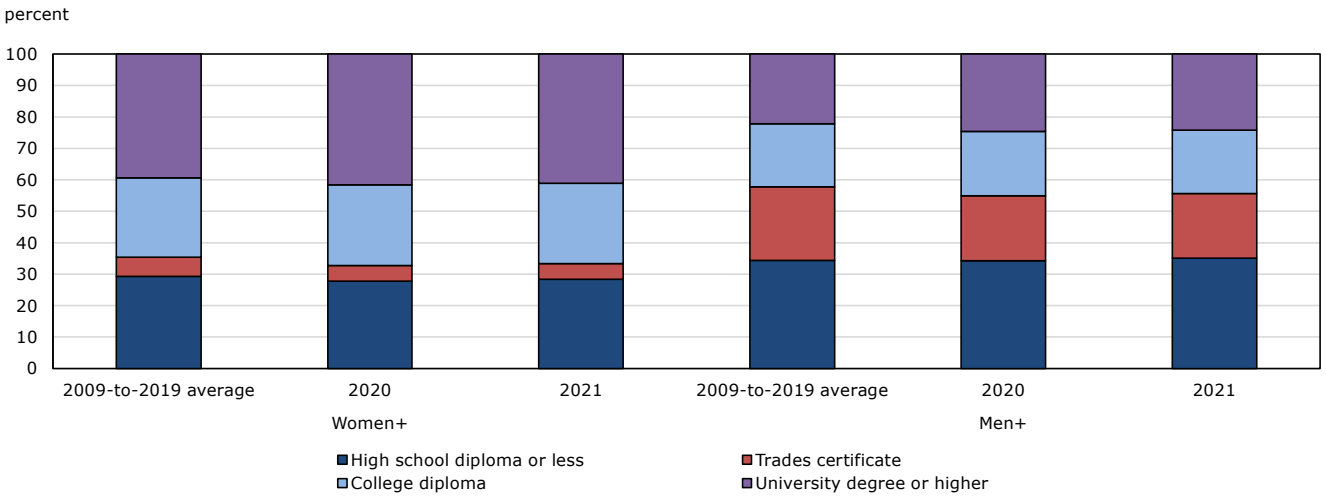
4. See Table 36-10-0691-01.
5. See Table 14-10-0023-01.

In terms of level or growth, job losses from 2019 to 2020 were higher for men (-9.6%; -22,333) than for women (-5.8%; -5,237; Chart 1) in the ECT sector. While women represented 28.2% of the ECT sector's workforce in 2019, they accounted for 19.0% of job losses the next year. This is not related to a sectorial shift, as the decrease in jobs related to the provision of ECT services (-9.9%) was proportionally higher than that of ECT jobs in the goods-producing subsector (-5.9%).[6] As noted above, the proportion of women was higher in ECT jobs associated with the delivery of ECT services than with the production of ECT goods. Furthermore, 2020 was the only year in which the number of women in the ECT sector declined since 2012, while the number of men in the sector declined from 2016 to 2020. In 2021, the number of ECT jobs held by women was 1.1% below its 2019 pre-pandemic level, while the number of jobs held by men was 3.2% below its pre-pandemic level.

Women working in the environmental and clean technology sector are more likely than men to have a postsecondary education

The distribution of employment in the ECT sector by educational attainment shows notable differences between men and women. In 2021, over 6 in 10 women employed in the ECT sector had either a college diploma (25.5%) or a university degree or higher (41.1%), while the proportion was 4 in 10 among men, with 20.2% holding a college diploma and 24.2% holding a university degree or higher (Chart 2). Among all employees aged 15 years and older in Canada, women were more likely to hold a university degree or higher but were as likely as their men counterparts to have a postsecondary certificate or diploma as their highest educational attainment.[7]

Chart 2
Distibution of environmental and clean technology sector employment by gender and educational attainment, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women+" was called "females" and the category "men+" was called "males." Starting in 2021, "women+" includes women and some non-binary people, and "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

6. See Table 36-10-0691-01.
7. See Table 14-10-0118-01.

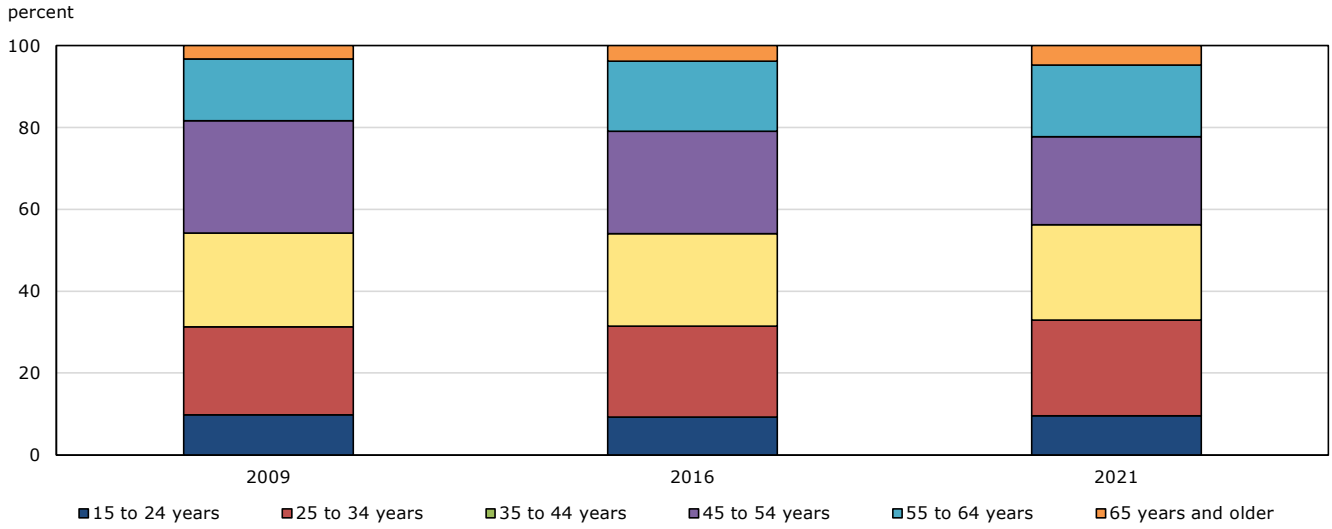
Furthermore, men in the ECT sector (20.5%) were four times more likely than women (5.1%) to hold a trades certificate. Employees with a high school diploma or less accounted for the largest share of men employed in the sector (35.1%). The distribution of employment in the ECT sector by gender and educational attainment remained relatively stable from 2009 to 2021.

Women's underrepresentation in the ECT sector varied according to educational attainment. In 2021, women represented 9.0% of the ECT sector's workforce with a trades certificate, but they accounted for 33.6% of those with a college diploma and 40.5% of employees with a university degree or higher. Employment outcomes are generally more sensitive to educational attainment for women than for men. For example, data from the Labour Force Survey[8] show that women's employment rate rises faster than men's as the level of education increases. Moyser (2017) explains this phenomenon as a combination of women's historically prioritized roles in the household and the lower opportunity costs associated with labour market inactivity for women with lower levels of education.

The distribution of employees in the ECT sector by age group was similar between women and men. As with all Canadian employees, most people employed in the ECT sector were in their core working years (25 to 54 years; Chart 3). Employees aged 25 to 34 years and those aged 35 to 44 years each accounted for 23.3% of women in the ECT sector, followed closely by women aged 45 to 54 years (22.1%). A similar pattern held true for men.

The proportion of women aged 55 and older in the ECT sector increased from 18.4% in 2009 to 22.3% in 2021. The share of women aged 45 to 54 years dropped by 5.9 percentage points over the same period. These results were generally comparable to those observed among men.

Chart 3
Distribution of women's workforce by age group, environmental and clean technology sector, 2009, 2016 and 2021



Notes: Estimates for 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women" was called "females." Starting in 2021, "women" includes women and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

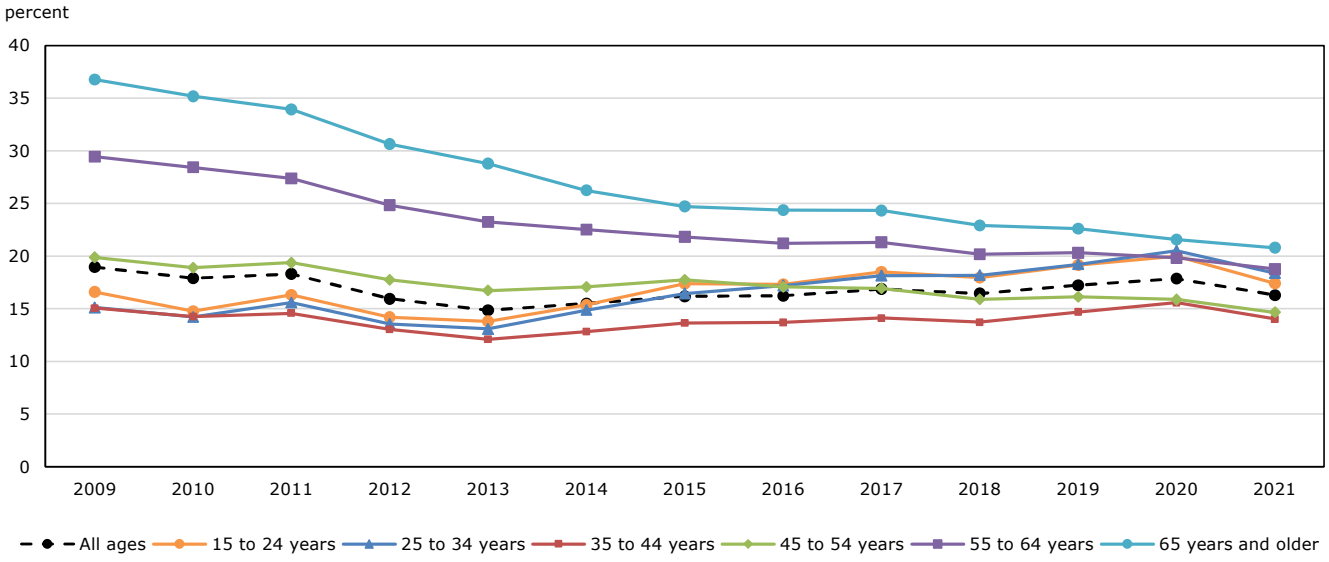
8. See Table 14-10-0118-01.

Compensation[9] gap decreases over time among older employees

Different concepts and earnings measures (annual or hourly compensation) can be used to analyze data on pay differences between men and women. The gender pay ratio represents women's average pay expressed as a percentage of men's, and the gender pay gap corresponds to how much less women earn than men (Moyser, 2019). The gender pay gap calculated using hourly earnings is based solely on the price of labour, is less influenced by differences between men and women in terms of labour supply, and is the most widely used in the literature for gender pay gap analysis (Moyser, 2019). As a result, this article uses the gender gap in hourly compensation to compare women's earnings in the ECT sector with those of men.

In the ECT sector, women had average hourly compensation of $44.35 in 2021, which was $8.64 less than that of men ($52.99). This means that the compensation gap between men and women was 16.3%[10] (Chart 4), higher than the gender compensation gap observed among all employees in Canada (12.4%).[11] The gender compensation gap in the ECT sector contracted slightly, by 2.7 percentage points, from 2009 (19.0%) to 2021 (16.3%).

Chart 4
Gender compensation gap by age group, environmental and clean technology sector, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to 2021, the gender compensation gap was measured using the sex variable. Starting in 2021, it is measured using the two-category gender variable.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

In 2021, regardless of gender, the majority of the ECT sector's workforce were full-time employees (83.6% of women; 93.0% of men).[12] This indicates that women (16.4%) were more than twice as likely as men (7.0%) to be employed part time. In the ECT sector, the gender compensation gap was higher among full-time employees (15.1%) than among part-time employees (10.5%).[13]

9. Compensation includes wages; salaries; and supplementary labour income such as pensions, benefits and other benefit payments from employment.
10. This corresponds to 1 minus women's average hourly compensation, divided by men's average hourly compensation, expressed in percentage.
11. See Table 14-10-0417-01.
12. See Table 36-10-0691-01.
13. See Table 36-10-0691-01.

Whether among younger employees or those closer to retirement, the gender compensation gap is apparent at all ages. Indeed, regardless of age group, women's hourly compensation in the ECT sector was at least 14% lower than men's in 2021 (Chart 4). The largest gap was recorded among employees aged 65 and older (20.8%). Using monthly data from the Labour Force Survey, Drolet and Mardare Amini (2023) found that, among all employees aged 20 to 54 in Canada, women's average hourly compensation was lower than men's in all five-year age groups.

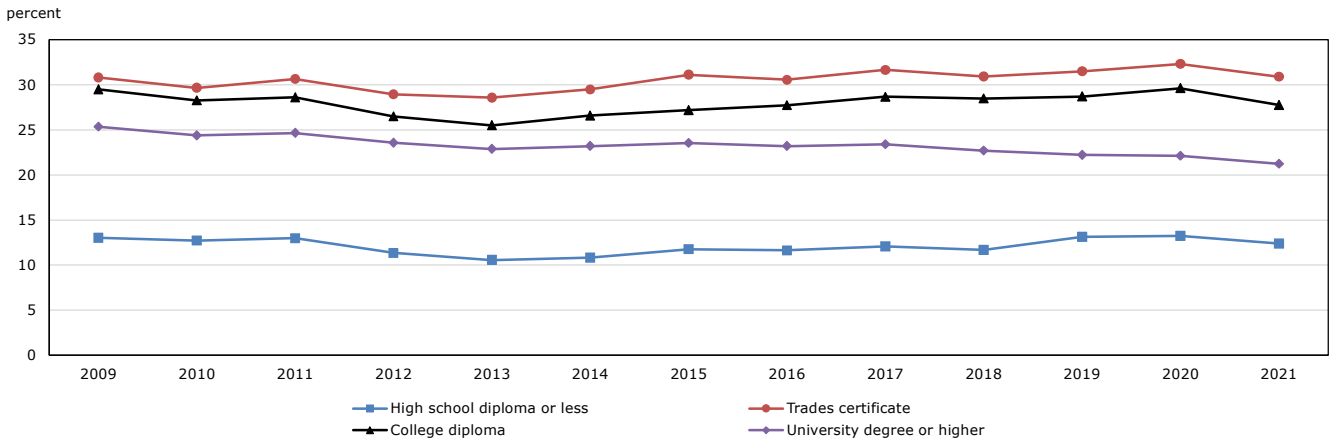
It is worth noting that the gender compensation gap decreased from 2009 to 2021 among employees aged 55 to 64 and those aged 65 and older. In 2009, women's hourly compensation was 29.5% lower than that of men among employees aged 55 to 64, compared with 18.8% in 2021. Similarly, the gender compensation gap among employees aged 65 and older decreased from 36.8% in 2009 to 20.8% in 2021. The gap remained relatively stable over time in other age groups. Furthermore, the decrease in the overall gender compensation gap (-2.7 percentage points) from 2009 to 2021 was mainly driven by the decreases in the two older age groups, which were at least two times larger than changes in other age groups.

The estimates allow for synthetic cohort analysis that can be conducted to determine the effect of aging on the gender compensation gap in the ECT sector. For example, in 2009, among those aged 35 to 44, the compensation gap was 15.1% (Chart 4). In 2019, these same people would be in the 45-to-54 age group, with a compensation gap of 16.1%—a slight increase of 1.0 percentage point compared with 2009. For the group aged 35 to 44 in the 2010 cohort, the gap increased slightly from 14.3% in 2010 to 15.9% in 2020. For the group aged 35 to 44 in 2011, the compensation gap remained unchanged 10 years later. Further analysis would be possible by, for example, reducing the size of the age groups to five years and having data from a longer period. This would make it possible to examine the effect of aging on the gender compensation gap.

Regardless of educational attainment, women's average hourly compensation is lower than men's

The gender compensation gap in the ECT sector among employees with a high school diploma or less was 10.6% to 13.2% over the 2009-to-2021 period (Chart 5). The gap between women's average hourly compensation and that of their men counterparts was lowest among this group, compared with employees with higher levels of education.

Chart 5
Gender compensation gap by educational attainment, environmental and clean technology sector, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to 2021, the gender compensation gap was measured using the sex variable. Starting in 2021, it is measured using the two-category gender variable.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

Other than employees with a high school diploma or less, Chart 5 indicates that the gender compensation gap decreases as the level of education increases. For all years, the gap between women's hourly compensation and men's was highest among employees with a trades certificate, followed by those with a college diploma, and lower for those with a university degree or higher. The gender pay gap was 30.9% in 2021 among employees with a trades certificate, comparable to its 2009 level (30.8%).

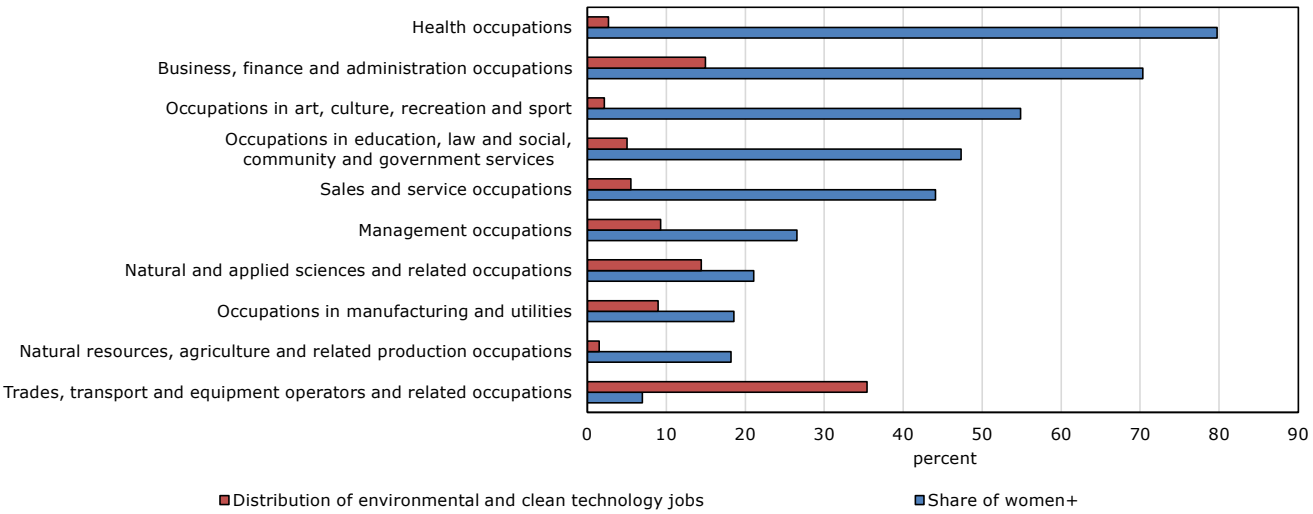
Women in the ECT sector were more likely than men to hold a college diploma or a university degree or higher. However, this did not translate into higher or comparable average hourly compensation. Indeed, in 2021, the gender compensation gap was 21.2% among employees with a university degree or higher and 27.8% among the ECT sector's workforce with a college diploma.

Data from the 2021 Census of Population show that women accounted for around 55% of postsecondary graduates, but 30% of science, technology, engineering and mathematics (STEM) graduates. Regardless of gender, employees with STEM degrees employed in the STEM field had higher incomes than those in non-STEM fields (Statistics Canada, 2017[14]). Further analysis considering field of study would better place ECT employment and the gender compensation gap in context. It would be relevant to know the proportion of women in the sector with STEM degrees and how their compensation compares with that of men. Unfortunately, there are no data available with such detailed information.

Women are predominant in some occupations but have lower compensation in all occupations

The underrepresentation of women in the ECT sector could be partly related to their under enrolment in trades certificate programs. In fact, 111,239 of the 314,256 jobs (35.4%) in the ECT sector were trades, transport and equipment operators and related occupations in 2021 (Chart 6); women occupied 7.0% of these jobs. If these occupations require a trades certificate or similar specific training, then enrolling more women in this type of program will qualify them for this type of position and thus potentially increase their representation in the sector. Similarly, women were less represented in occupations that likely require STEM credentials, such as natural and applied sciences and related occupations (21.1%).

Chart 6
Distribution of jobs and share of women in the environmental and clean technology sector, by occupation, 2021



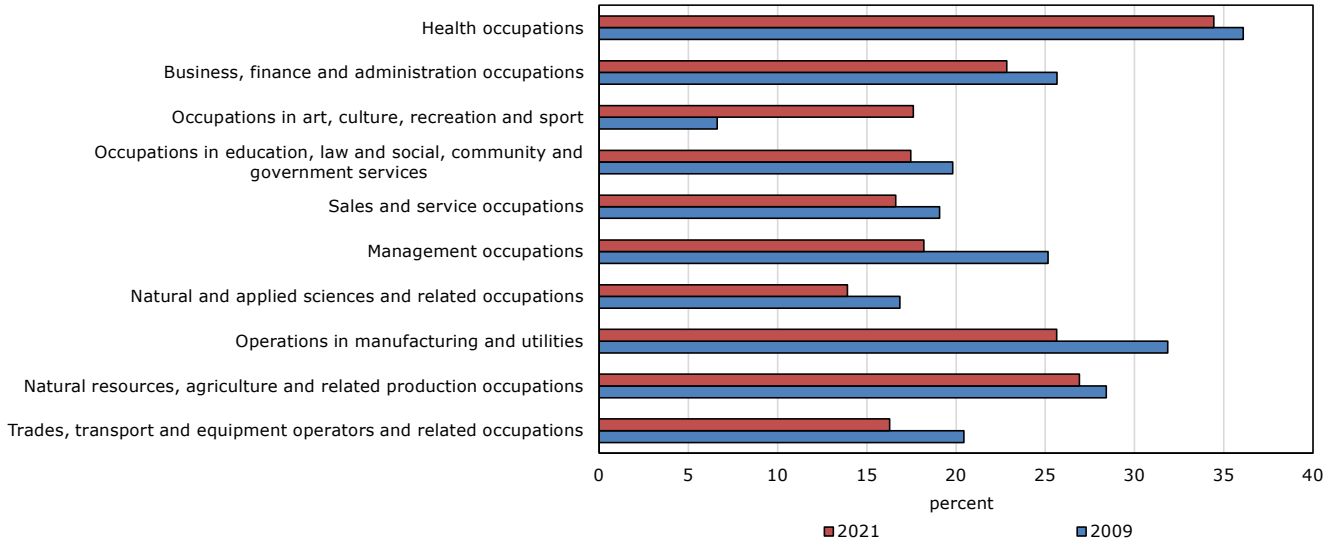
Notes: Data are preliminary (as of October 16, 2023). In 2021, the category "women+" includes women and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0694-01).

14. See Table 98-10-0589-01.

In 2021, women were predominant in the ECT sector in business, finance and administration occupations (70.3%); health occupations (79.8%); and occupations in art, culture, recreation and sport (54.9%; Chart 6). Together, these occupations accounted for 48.5% of the jobs held by women in the ECT sector. However, these three occupations represented 19.9% of total ECT jobs.

In light of this, it might be tempting to say that the overall gender compensation gap can be explained by occupational differences. These differences could play a role at the aggregate level, but they cannot fully explain the gender differences in pay because women earned, on average, less than men in all occupations (Chart 7). Although the gender compensation gap was higher in health occupations (34.5%), which had the highest share of women employees, and lower in trades, transport and equipment operators and related occupations (16.3%), where the share of women was lowest, there does not seem to be a clear relationship between women's representation and the gender compensation gap. For example, the second-lowest share of women was in natural resources, agriculture and related production occupations, which had the second-highest gender compensation gap (26.9%).

Chart 7
Gender compensation gap in the environmental and clean technology sector by occupation, 2021



Notes: Data are preliminary (as of October 16, 2023). Prior to 2021, the gender compensation gap was measured using the sex variable. Starting in 2021, it is measured using the two-category gender variable.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0694-01).

It is also worth highlighting the relatively low presence of women in management[15] occupations in the ECT sector. In 2021, women accounted for 26.6% of people employed in management occupations in the ECT sector (Chart 6), which was 12.6 percentage points below the share of women among all managers in Canada (39.2%).[16] Furthermore, women's average hourly compensation in management occupations in the ECT sector was lower, compared with the average hourly compensation of their men counterparts. In 2021, the gender compensation gap in management occupations in the ECT sector was 18.2%, down 7.0 percentage points from 2009 (25.2%; Chart 7).

15. This includes legislative, senior management and specialized middle management occupations.
16. See Table 98-10-0404-01.

Indigenous, racialized and immigrant women in the environmental and clean technology sector

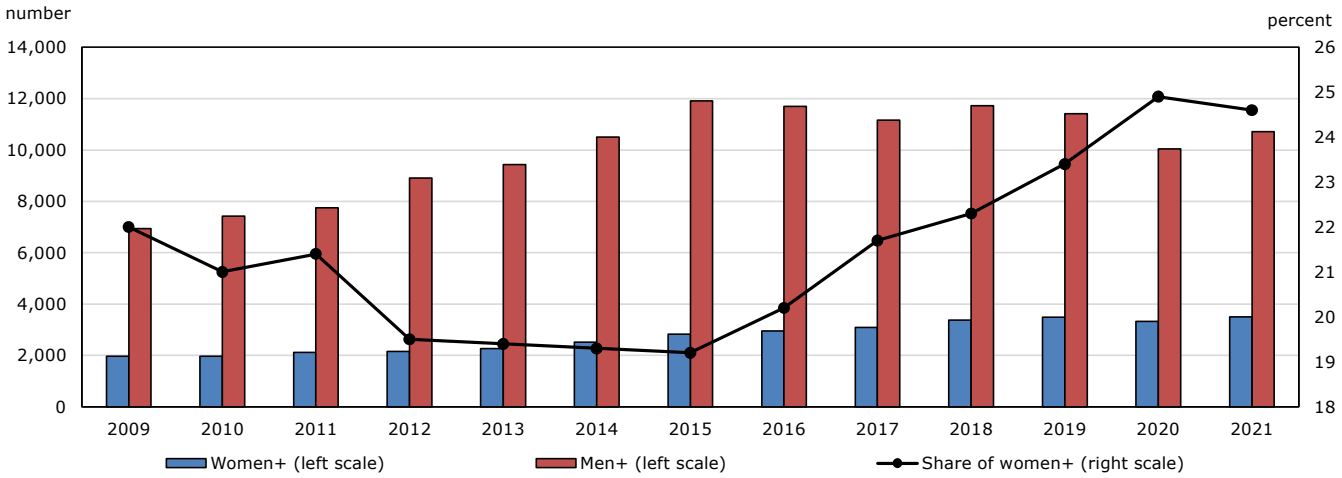
Subsequent sections integrate additional demographic characteristics into the analysis. Specifically, the representation and compensation of Indigenous[17], immigrant and racialized[18] women in the ECT sector are discussed.

Women are also underrepresented in the environmental and clean technology sector among Indigenous peoples

The proportion of Indigenous[19] employees in the ECT sector rose slightly from 3.6% in 2009 to 4.5% in 2021. Among all employees aged 15 and older in Canada in 2021, Indigenous peoples (3.9%) represented a lower proportion of the workforce compared with their share in the ECT sector.[20]

As observed among all employees, women were underrepresented in the ECT sector among Indigenous employees. According to the 2021 Census of Population, Indigenous women accounted for just over half of all Indigenous employees.[21] However, Indigenous women accounted for about one-quarter (24.6%) of Indigenous employees in the ECT sector in 2021, up slightly from 2009 (22.0%; Chart 8).

Chart 8
Indigenous employment in the environmental and clean technology sector by gender, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women+" was called "females" and the category "men+" was called "males." Starting in 2021, "women+" includes women and some non-binary people, and "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

17. Indigenous peoples include not only those who are First Nations, Métis, and/or Inuit, but also those who reported membership to a First Nations or Indian band as well as those with Registered or Treaty Indian status.
18. The concept of “racialized population” is derived from the detailed “visible minority” variable in the Census. The term “visible minority” comes from the Employment Equity Act. The act defines visible minorities as “persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.” The visible minority population consists mainly of the following groups: South Asian, Chinese, Black, Filipino, Arab, Latin American, Southeast Asian, West Asian, Korean and Japanese.
19. It would be worth looking at the representation and outcomes in the ECT sector of the different Indigenous groups (First Nations people, Métis and Inuit). However, data disaggregated at that level are not available.
20. See Table 98-10-0422-01.
21. See Table 98-10-0422-01.

Indigenous women in the ECT sector were proportionally less impacted by job losses than Indigenous men during the COVID-19 pandemic. While Indigenous women's employment decreased by 4.6% from 2019 to 2020, the number of jobs dropped by 12.0% among Indigenous men (Chart 8). In other words, men accounted for 89.6% of job losses among Indigenous employees in the ECT sector. In 2021, the number of Indigenous women employed in the ECT sector returned to its 2019 level, while the number of Indigenous men in the sector was 4.6% below its pre-pandemic level (Chart 8**)**.

No gender difference in the distribution of Indigenous employees in the environmental and clean technology sector by age group

The distribution of the ECT workforce by gender and age group was somewhat comparable between Indigenous and non-Indigenous peoples (Table 1). For both groups, regardless of gender, those aged 25 to 54 accounted for about 7 in 10 employees in the sector. However, Indigenous employees were younger than their non-Indigenous counterparts.[22] For both men and women, as for all employees in Canada, the share of employees in the ECT sector aged 15 to 24 was higher among Indigenous employees (13.1% of men and 13.4% of women) than among non-Indigenous employees (8.5% of men and 9.4% of women). In addition, regardless of gender, the proportion of employees in the ECT sector aged 55 and older was lower among Indigenous employees than among non-Indigenous employees.

The proportion of Indigenous employees among women in the ECT sector varied by age group and was highest among those aged 15 to 24 (5.4%), followed by employees aged 25 to 34 (4.3%). The share of Indigenous employees among women working in the ECT sector was lowest among employees aged 65 years and older (2.4%).

Table 1

Distribution of employment of Indigenous and non-Indigenous workers in the environmental and clean technology sector by gender and age group, 2021

	Indigenous		Non-Indigenous	
	Men+	Women+	Men+	Women+
	percent			
15 to 24 years	13.1	13.4	8.5	9.4
25 to 34 years	25.9	25.6	22.4	23.2
35 to 44 years	23.0	22.4	23.2	23.3
45 to 54 years	20.2	21.2	21.2	21.5
55 to 64 years	14.6	14.6	19.2	17.6
65 years and older	3.2	2.9	5.5	4.8

Notes: Data are preliminary (as of October 16, 2023). In 2021, the category "women+" includes women and some non-binary people, and the category "men+" includes men and some non-binary people.

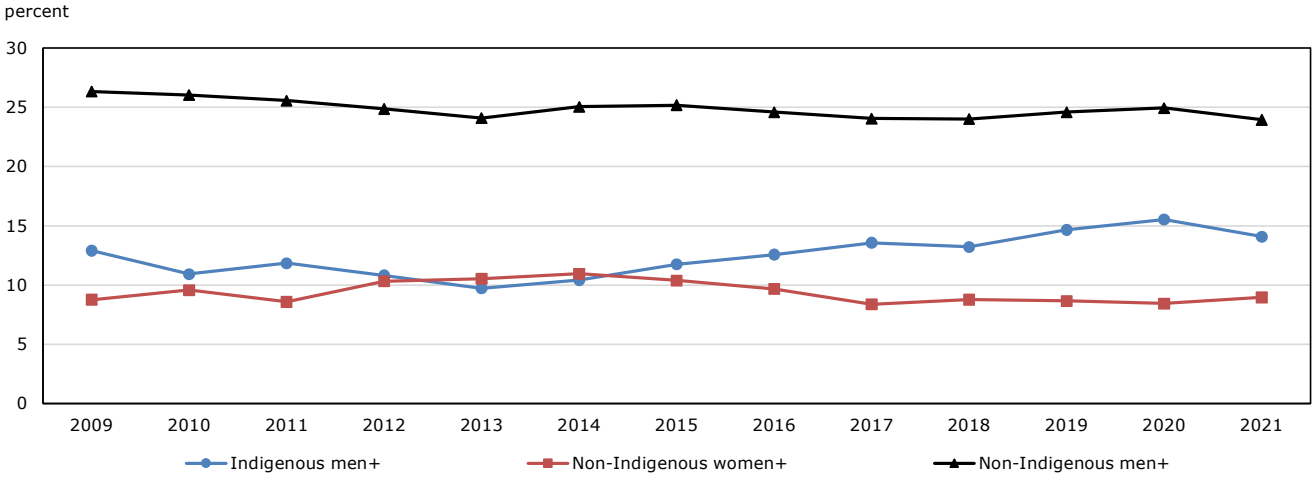
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

22. This pattern is also observed among the total population of employees (Table 98-10-0425-01).

Indigenous women in the environmental and clean technology sector have lower average hourly compensation than Indigenous men and both non-Indigenous men and women

Indigenous women working in the ECT sector had, on average, lower hourly compensation than Indigenous men, non-Indigenous women and non-Indigenous men (Chart 9). The compensation gap between Indigenous women and non-Indigenous women remained relatively unchanged from 2009 (8.8%) to 2021 (9.0%). The compensation gap was higher between Indigenous women and Indigenous men, but still stable over the same period (12.9% in 2009 vs. 14.1% in 2021). The compensation gap was most pronounced when comparing the compensation of Indigenous women with that of non-Indigenous men (a gap of 24.0% in 2021).

Chart 9
Compensation gap between Indigenous women and Indigenous men, non-Indigenous women and non-Indigenous men, environmental and clean technology sector, 2009 to 2021



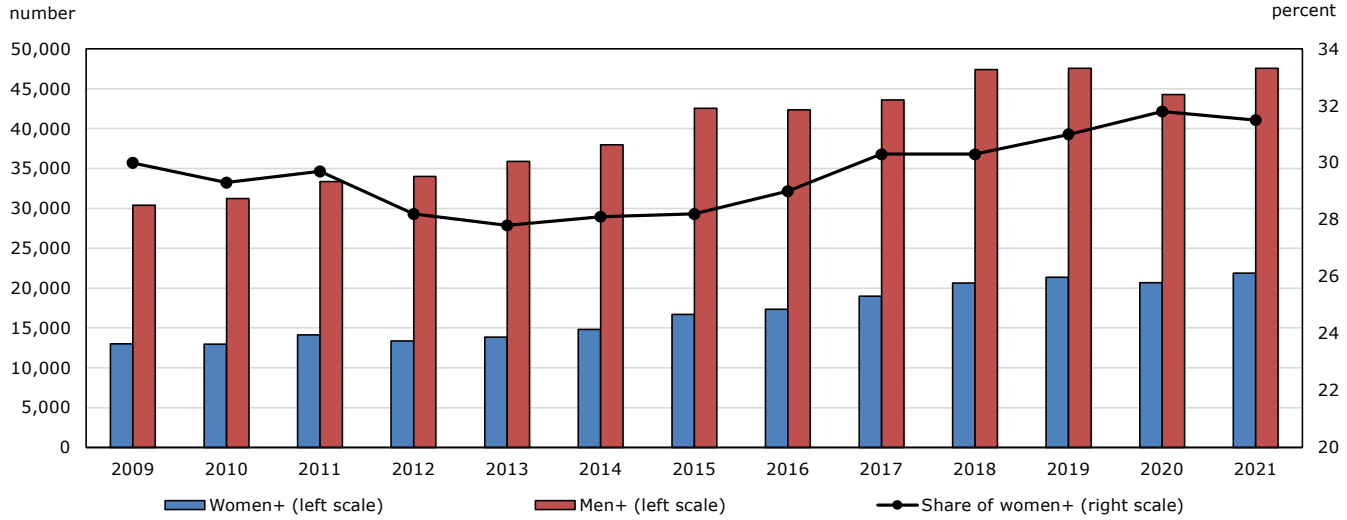
Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women+" was called "females" and the category "men+" was called "males." Starting in 2021, "women+" includes women and some non-binary people, and "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

Women are underrepresented among racialized employees in the environmental and clean technology sector

In 2021, 69,406 employees in the ECT sector were racialized, accounting for 22.1% of all employees in the sector (Chart 10). By comparison, racialized people represented just over one-quarter (26.5%) of all employees in Canada in 2021.[23]

23. See Table 98-10-0436-01.

Chart 10
Distribution of racialized employees in the environmental and clean technology sector by gender, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women+" was called "females" and the category "men+" was called "males." Starting in 2021, "women+" includes women and some non-binary people, and "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

Women accounted for 31.5% of racialized employees in the ECT sector, compared with 47.8% of all racialized employees in Canada (Chart 10).[24] Although the proportion of racialized women in the ECT sector has remained relatively stable from 2009 (30.0%) to 2021 (31.5%), the number of racialized women employed in the sector grew 68% over that period. With the exception of 2020, the number of racialized women in the ECT sector has been increasing since 2009.

The decrease in employment in the ECT sector in 2020 was proportionally lower for racialized women (-3.3%) than for racialized men (-6.9%; Chart 10). However, in 2021, employment returned to its pre-pandemic level for racialized men and was 2.3% above the pre-pandemic level for racialized women.

The age distribution of racialized employees in the environmental and clean technology sector is similar between women and men

The distribution of racialized employees by age group was similar between men and women in the ECT sector, and racialized women were slightly younger than racialized men (Table 2). Racialized women employed in the ECT sector were somewhat younger than their non-racialized counterparts.[25] Indeed, racialized women were less likely to be aged 55 to 64 (11.6% of racialized women vs. 19.4% of non-racialized women) and 65 and older (2.6% of racialized women vs. 5.5% of non-racialized women). Racialized women were more prevalent in younger age groups than their non-racialized counterparts. These patterns were also observed among men working in the ECT sector.

24. See Table 98-10-0436-01.
25. This is also observed among the total population of employees in Canada (Table 98-10-0436-01).

Table 2
Distribution of employment of racialized and non-racialized workers in the environmental and clean technology sector by gender and age group, 2021

	Racialized		Non-racialized	
	Men+	Women+	Men+	Women+
		percent		
15 to 24 years	10.0	11.2	8.4	9.1
25 to 34 years	25.9	28.4	21.6	21.7
35 to 44 years	26.0	26.4	22.4	22.3
45 to 54 years	20.7	19.8	21.2	22.1
55 to 64 years	13.8	11.6	20.4	19.4
65 years and older	3.5	2.6	5.9	5.5

Notes: Data are preliminary (as of October 16, 2023). In 2021, the category "women+" includes women and some non-binary people, and the category "men+" includes men and some non-binary people.

Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

The proportion of racialized people among women in the ECT sector rose from 19.7% in 2009 to 24.3% in 2021. The proportion of women who were racialized was highest among the three youngest age groups, with over one in four women employees identifying as a member of a racialized group. In addition, excluding the youngest age group (15 to 24 years), the proportion of racialized women among all women employed in the ECT sector decreased with age, from 29.6% among those aged 25 to 34 to 13.4% among those aged 65 and older.

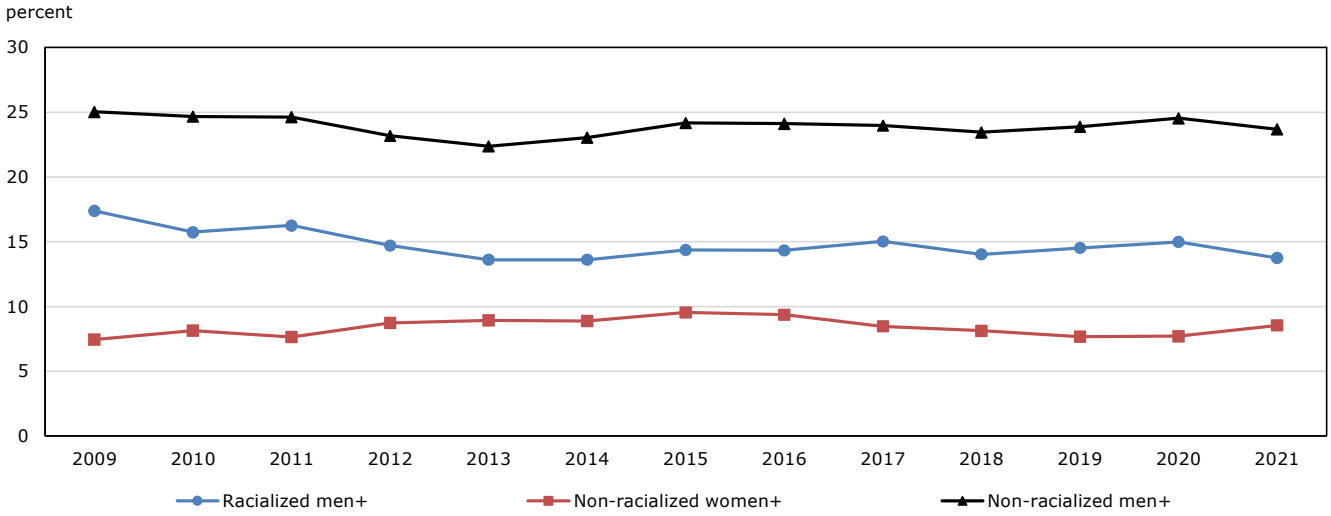
The gender compensation gap is smaller among racialized employees in the environmental and clean technology sector than among their non-racialized counterparts

In 2021, racialized women in the ECT sector had average hourly compensation that was 13.8% lower than that of their men counterparts (Chart 11). However, the gender compensation gap was smaller among racialized people than among non-racialized people who had a gender compensation gap of 16.6%.[26] Compared with 2009, the gender compensation gap contracted slightly among racialized and non-racialized employees in the ECT sector. The decrease in the gender compensation gap over that period was more pronounced among racialized employees (-3.6 percentage points) than among non-racialized employees (-2.4 percentage points).

The compensation gap between racialized and non-racialized women in the ECT sector was relatively stable from 2009 (7.4%) to 2021 (8.6%; Chart 11). Meanwhile, the compensation gap between racialized women and non-racialized men has been 22% to 25% since 2009. In 2021, the compensation gap between racialized women and non-racialized men was 23.7%.

26. See Table 36-10-0693-01.

Chart 11
Compensation gap between racialized women and racialized men, non-racialized women and non-racialized men, environmental and clean technology sector, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women+" was called "females" and the category "men+" was called "males." Starting in 2021, "women+" includes women and some non-binary people, and "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

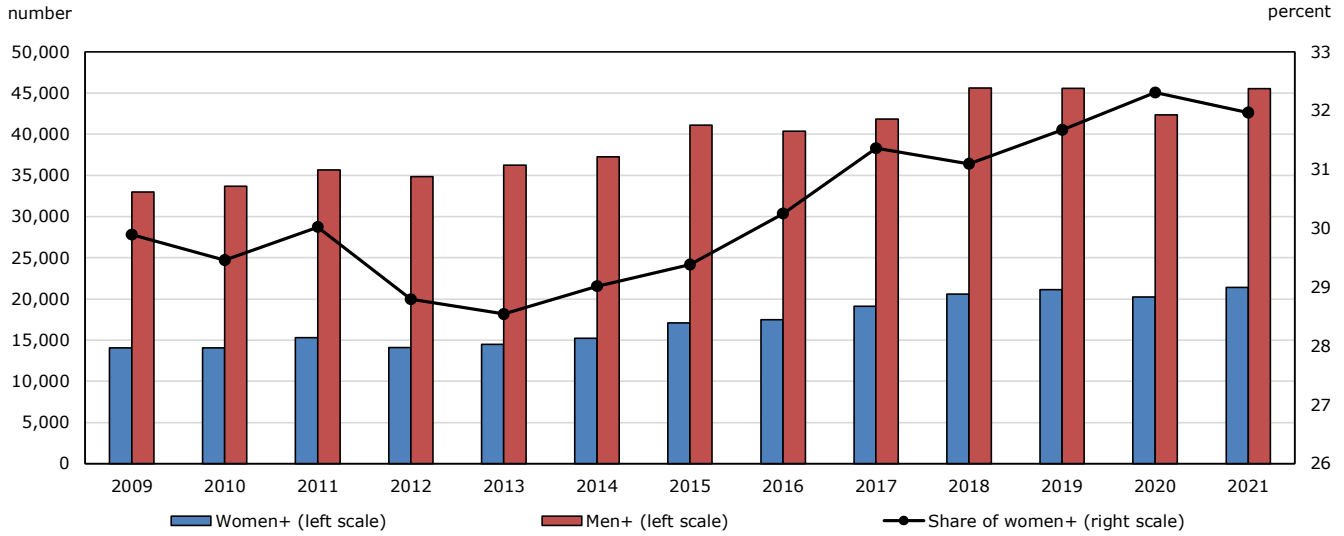
The underrepresentation of women in the environmental and clean technology sector also prevails among immigrants

In 2021, immigrants accounted for one-quarter (25.5%) of all employees in Canada[27] and 21.3% of the ECT sector's workforce (Chart 12). As with the other groups studied in this article, men predominate in the ECT sector among immigrants. In 2021, 32.0% of immigrant employees in the ECT sector were women. Although the number of immigrant women (+52.0%) in the sector increased faster than that of immigrant men (+38.0%) from 2009 to 2021, the share of women among immigrants working in the sector remained relatively unchanged.

The decrease in the number of ECT jobs held by immigrant women (-4.3%) from 2019 to 2020 was lower than that of their men counterparts (-7.1%). Regardless of gender, the number of jobs held by immigrants returned to its pre-pandemic level in 2021.

27. See Table 98-10-0446-01.

Chart 12
Immigrant employment in the environmental and clean technology sector by gender, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women+" was called "females" and the category "men+" was called "males." Starting in 2021, "women+" includes women and some non-binary people, and "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

Fewer youth are employed in the environmental and clean technology sector among immigrant women than among non-immigrants

The distribution of the ECT sector's employees by gender and age group was almost identical among immigrants and non-immigrants (Table 3). Immigrant women were less likely than non-immigrant women to be aged 15 to 24 (6.1% of immigrants vs. 10.6% of non-immigrants) and more likely to be aged 35 to 44 (26.1% of immigrants vs. 22.5% of non-immigrants).[28] Their shares were comparable in the other age groups. The proportion of immigrants among women employed in the ECT sector increased in all age groups from 2009 to 2021 except the two oldest.

28. These findings held among the total population of employees (Table 98-10-0446-01). However, immigrant women employees who landed from 2011 to 2021 were younger than non-immigrant women in Canada (Table 98-10-0441-01).

Table 3
Distribution of employment of immigrant and non-immigrant workers in the environmental and clean technology sector by gender and age group, 2021

	Immigrant		Non-immigrant	
	Men+	Women+	Men+	Women+
		percent		
15 to 24 years	5.0	6.1	9.7	10.6
25 to 34 years	19.9	22.9	23.2	23.7
35 to 44 years	25.3	26.1	22.7	22.5
45 to 54 years	23.7	23.0	20.5	21.0
55 to 64 years	19.2	16.4	19.0	17.7
65 years and older	7.0	5.5	5.0	4.5

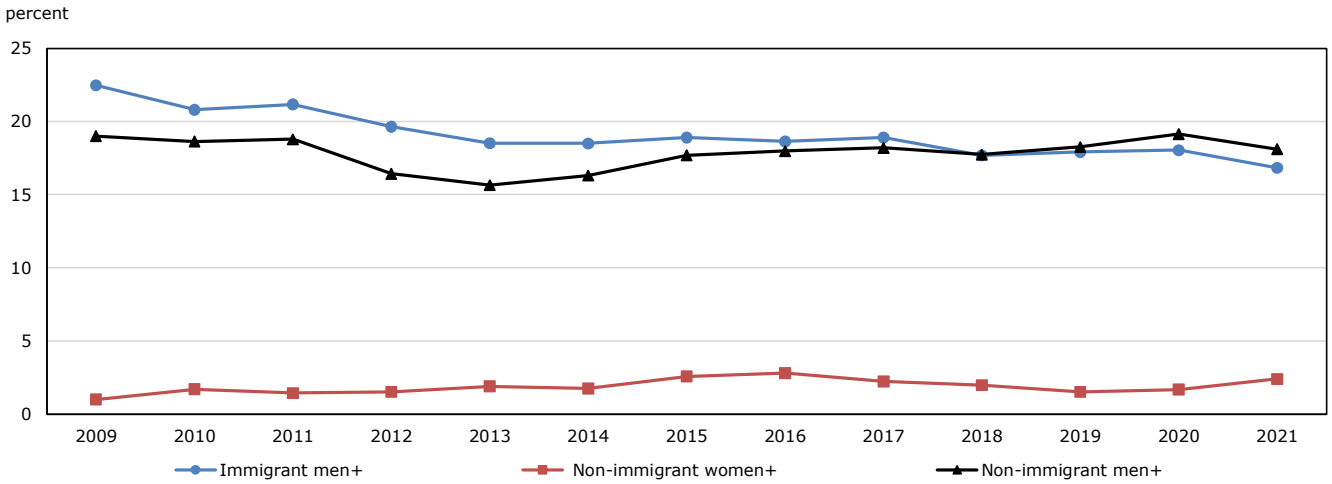
Notes: Data are preliminary (as of October 16, 2023). In 2021, the category "women+" includes women and some non-binary people, and the category "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

The hourly compensation of immigrant women is similar to that of non-immigrant women but lower than that of both immigrant and non-immigrant men

In 2021, immigrant women and their non-immigrant counterparts had comparable hourly compensation in the ECT sector. From 2009 to 2021, the compensation gap between immigrant women and non-immigrant women varied from 1.0% to 2.8% (Chart 13).

However, compared with both immigrant and non-immigrant men in the ECT sector, immigrant women earned less, on average (Chart 13). Although the gender compensation gap among immigrants decreased relative to 2009 (22.5%), it was 16.8% in 2021. In addition, immigrant women's hourly compensation was, on average, 18.1% lower than that of non-immigrant men.

Chart 13
Compensation gap between immigrant women and immigrant men, non-immigrant women and non-immigrant men, environmental and clean technology sector, 2009 to 2021



Notes: Estimates for 2020 and 2021 are preliminary (as of October 16, 2023). Prior to the 2021 Census, the category "women+" was called "females" and the category "men+" was called "males." Starting in 2021, "women+" includes women and some non-binary people, and "men+" includes men and some non-binary people.
Source: Statistics Canada, Environmental and Clean Technology Products Economic Account—Human Resource Module (36-10-0693-01).

Conclusion

Women generally earn, on average, lower compensation than men and are less likely to hold jobs in high-wage sectors (Statistics Canada, 2022b). Considering the generally higher compensation in the ECT sector, the aim of this study was to analyze women's representation in this sector and compare their average hourly compensation with those of men, according to certain characteristics, such as age, level of education and occupation. Women's representation in the ECT sector and their average hourly compensation were also compared with those of men according to their Indigenous identity, racialized characteristics and immigrant status.

The results show that, overall, women were underrepresented in the ECT sector and had lower average hourly compensation than men. Although the number of women working in the ECT sector increased faster than that of men from 2009 to 2021, the proportion of women remained relatively stable over that period. However, the share of women rose 4.0 percentage points from 2012 (24.6%) to 2021 (28.6%). Moreover, job losses in the ECT sector during the COVID-19 pandemic were less pronounced among women than among men. These findings also apply to Indigenous women, immigrant women and racialized women, compared with their men counterparts. The gender compensation gap in the ECT sector decreased from 19.0% in 2009 to 16.3% in 2021, 3.9 percentage points above the gender compensation gap observed among all employees in Canada (12.4%).[29]

Women were more likely than men to hold a college diploma or a university degree or higher and had, on average, lower hourly compensation than their men counterparts. In addition, regardless of age, educational attainment or occupation, women's hourly compensation was, on average, lower than men's. Furthermore, Indigenous women earned less than non-Indigenous women and racialized women earned less than their non-racialized counterparts. However, immigrant women's average hourly compensation was similar to the average hourly compensation of non-immigrant women.

While the present study has demonstrated the underrepresentation of women in the ECT sector and established the existence of a gender compensation gap, it does not explain the origin of these differences. Microdata on individuals working in the ECT sector would enable econometric analysis with simultaneous control for individual and workplace characteristics. The availability of data on employee field of study could also add value to the analysis.

Although this paper focused on employees in the ECT sector, research on women-owned businesses in this sector would also be relevant. Businesses in the ECT sector, comprising small and medium-sized enterprises (SMEs), make an important contribution to Canada's economy (Statistics Canada, 2023c). Huang (2020) and Dewan (2023) have profiled SMEs operating in the ECT sector in Canada and found that they were less likely than all SMEs to be owned by women, racialized people, Indigenous peoples or people with disabilities. An analysis on the businesses in the ECT sector would not only shed light on their characteristics and performance according to the gender of the owners but also contribute to filling the knowledge gap on gender diversity in the ECT business sector.

29. See Table 14-10-0417-01.

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https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=9810043601 Consulted on September 10, 2023

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