The Green Gender Gap

A special edition of LinkedIn's Global Green Skills Report 2023





Executive summary

Climate change is the most urgent existential threat of our time, and the global workforce is our most powerful engine for tackling it.

Saving our planet demands we "green" the entire economy by equipping workers around the world with the skills needed to conduct every single job, in every single industry, in an environmentally sustainable way.

We must leverage the full power of humankind toward this quest. A people-centric transition to the green economy requires that we identify and rectify opportunity gaps across the workforce to ensure that all people have access to the abundant job opportunities that the greening economy is unlocking.

This special edition of LinkedIn's <u>2023 Global Green Skills</u> <u>Report</u> leverages data from our membership base, which exceeds one billion LinkedIn users worldwide, to shine a light on the gender profile of green talent on our platform. We know that <u>women are disproportionately vulnerable</u> to the ravages of climate change. Our findings indicate that they are also missing out on the chance to be part of the climate solution. And as the urgency of the climate problem increases, our planet is missing out on the full contributions of a group that makes up nearly half of the global workforce.

Roles across industries increasingly require green skills — the knowledge and capabilities that form the building blocks for greening the economy. According to our research, however, fully two-thirds of the global green talent pool — made up of workers with at least one green skill or one green job experience — is male. While 1 in 6 men qualify as green talent, only 1 in 10 women do. **Put another way, 9 in 10 women lack a single green skill.** What's worse, the gap is widening.

This limits women's ability to tap into the most promising employment opportunities on the horizon. We know that <u>green skills</u> are highly sought-after and more resilient than other types of skills during economic downturns. The median LinkedIn hiring rate² for workers with at least one green skill is 29% above the workforce average. We also examined our data through an industry lens, by focusing on the fast-growing renewable energy industry. While women are underrepresented throughout the global workforce, and in leadership roles in particular, the problem is especially severe in renewable energy. Women comprise:

34%	of the renewable energy workforce versus 44% in other industries
21%	of the renewable energy C-suite versus 25% in other industries
21.8%	of renewable energy company founders versus 29.8% in other industries

Women deserve equal access to the emerging green economy. And our planet desperately needs their contributions. It is imperative to create new policies and programs that close the green skills gender gap — and that accelerate the proliferation of green skills throughout the entire global workforce.

¹ Unless otherwise specified, the statistics presented in this report are a global median of a sample of 44 countries that meet our data thresholds. ² The LinkedIn hiring rate is the ratio of hires divided by LinkedIn membership and is indexed to 2016. ³ For the purposes of this report, we define the renewable energy industry as including solar, wind, and hydroelectric power generation; industries that support renewable energy generation (such as photovoltaic cell manufacturing); energy generation that does not produce direct carbon emissions, including nuclear power generation; and industries that administer environmental programs and provide environmental services.

Key findings

66%	The green talent pool, made up of workers with at least one green skill or one green job experience, is 66% male.
10%	16% of men, and nearly 10% of women, have at least one green skill or green job experience. Put another way, 9 in 10 women lack a single green skill or green job experience.
25%	The green skills gender gap has grown 25% over the past 7 years, from 4.9 percentage points in 2016 to 6.1 percentage points today.
2.5x	Since 2021, women have joined the green talent pool at faster rates than men — 12.3% vs. 9.1% annual growth. To close the gap, however, women will need to join the talent pool at 2.5 times the rate they are today.
34%	While women are underrepresented throughout the economy, this problem is especially severe at all levels of the renewable energy industry. Women make up 34% of workers in the renewable energy industry and 44% of workers in

other industries: a gap of 10 percentage points.



The trend extends to leadership and entrepreneurialism. In the renewable energy industry, women hold 21% of C-suite roles (compared to 25% in other industries) and 20% of vice president roles (compared to 27% in other industries).

When men take their first green jobs, the transition is less abrupt than for women — as gauged by a metric we call "skill similarity." **The skill similarity between men's first green jobs and their prior jobs tends to be 27% higher than the skill similarity between women's first green jobs and their prior jobs.** This gap has grown since 2016, when men pivoting into green jobs had 14% greater skill similarity than women.

Men are nearly 3 times more likely than women to have "cross-functional" green skills, which are necessary for growing the green economy but not specific to the green economy. Some of the most prominent cross-functional green skills are related to maintenance, repair, and manufacturing. Since these skills make up roughly one-third of all green skills held by LinkedIn members, the gender gap for cross-functional green skills is a key driver of the overall green skills gender gap.

The green skills divide

Men are more likely than women to have access to job opportunities created by a greening global economy

At Linkedln, <u>we believe in the value of a skills-based approach to hiring</u>. By breaking down roles into the specific capabilities required to do them, organizations can develop talent strategies that recognize individuals for their ability to excel in a given role rather than the credentials or degrees they have.

Similarly, we believe the most promising avenue for greening the global economy is through the widespread growth of what we call "green skills." Green skills can range from carbon accounting to environmental planning to sustainable supply chain management. Just as most roles now require digital skills, jobs ranging from procurement specialist to fleet manager to product designer to head chef can be performed in a more sustainable way if workers have green skills.

Previous LinkedIn research shows that demand for green skills is growing much more quickly than the supply of green talent — and that those who have green skills are at a distinct advantage when it comes to hiring. Even as overall hiring slowed between February 2022 and February 2023, job postings requiring at least one green skill grew by a median of 15.2% over the same period. And since March 2020, the median LinkedIn hiring rate for workers with at least one green skill has been 29% higher than the overall pace of hiring in the workforce.



A widening chasm

The latest examination of our data reveals that the green talent pool is overwhelmingly male, with women representing only 33%.

Around the world, men are significantly more likely than women to qualify as green talent. While 16% of men are green talent, women rank lower, at 10%. Put another way, 1 in 10 women are green talent.

Since 2021, the share of women with green skills has grown more sharply than the share of men with green skills — 12.3% vs. 9.1% annual growth. However, this progress has not been meaningful enough to close the green skills gender gap. In fact, the gap has grown by 25% — from 4.9 percentage points in 2016, when around 12% of men and 7% of women were green talent, to 6.1 percentage points today.



Global green talent concentration by gender



Global green talent concentration: Male growth vs female growth (%YoY)





North America posts largest green skills gender gap

On a regional level, the gender gap in North America has remained consistently wider than the gap in other regions since 2016. Even so, the gap in North America has grown less than in any other region since 2016, from 6.3 percentage points then to 7.2 today.

In Latin America and the Asia-Pacific region, the median gender gap has grown at a similar trajectory since 2016, from 5.6 to 7 percentage points in Latin America and from 5.2 to 6.7 percentage points in Asia-Pacific.

Europe, the Middle East, and Africa are the regions with the smallest median gender gap — 5 percentage points, up from 3.5 points in 2016. Our data shows that the median gap shrunk slightly between 2022 and 2023 (from 5.3 percentage points to 5), driven by progress in smaller countries including Cyprus, Malta, Luxemburg, and Croatia.



Troubling trends in Germany and France

At a country level, the largest gender gap among the countries we examined is in Germany, where around 21.8% of men and 12.3% of women are green talent — making for a gap of 9.5 percentage points. Germany is also the country with the highest percentage-point increase since 2016, when the gender gap was 2.9 points smaller.

In France, the gender gap grew more sharply over the past 7 years than in any other country. In 2016, 11.2% of men and 8.3% of women in France were green talent, for a gap of 2.9 percentage points. By 2023, 17.3% of men and 11.7% of women were green talent, for a gap of 5.6 points. **The green skills gender gap in France has grown 93% since 2016.**

Who has which green skills

Different green skills lead to different career paths

Green skills are not homogenous. Taken together, they form a staggeringly diverse collection of knowledge and abilities that will fuel the whole-of-economy green transformation that's required. Some green skills pertain to pollution prevention, renewable energy generation, environmental policy, sustainable finance, and other areas where the connection to the environment is clear. However, capabilities in areas like accounting and computer maintenance, which are widely applicable beyond the green economy, are also considered green skills because they're essential to weaving sustainability into every aspect of the economy.

We have observed differences in the types of green skills that men and women list on their LinkedIn profiles. In a skills-first labor market, it's critical that we analyze these patterns, as different green skills can send workers down different career paths in the greening economy.



Share of LinkedIn members with at least one green skill from each category Median across all countries.





Men are also nearly 3 times more likely than women to have "cross-functional" green skills, which are necessary for growing the green economy but not specific to the green economy. Some of the most prominent cross-functional green skills are related to maintenance and repair (for electrical systems, vehicles, buildings, and computers) and manufacturing (including process optimization and Lean Six Sigma). Cross-functional green skills are some of the most common green skills, comprising roughly one-third of all green skills held by LinkedIn members. The gender gap for these skills, which holds for all countries we examined, is a key driver of the overall green skills gender gap.

Men are almost 3 times more likely than women to have green skills related to energy management and renewable energy generation. These include skills in energy efficiency, smart grids, LED lighting systems, photovoltaics, wind engineering, renewable energy markets, and energy storage.





Women are about 20% more likely than men to have skills related to sustainable development, including those pertaining to the circular economy. They are also more likely to have skills related to sustainability education and renewable energy law and policy, including environmental education, sustainability consulting, hazardous materials training, and forest certification. In countries like Australia, France, Germany, and New Zealand, women are 30% to 80% more likely than men to have skills related to sustainable procurement. As the chart on the previous page illustrates, sustainable procurement is among the least common green skills.

Industry spotlight: Oil, Gas, and Mining

In most countries in our study, women in the Oil, Gas, and Mining industry tend to have more green skills than men. The disparity is greatest for entry-level Oil, Gas, and Mining positions, where women tend to have 3 times as many green skills as men. Often, women in the industry possess skills related to environmental policy and auditing, including environmental compliance, smart plant instrumentation, and smart plant review.



Industry spotlight: Utilities

The greening of the Utilities industry is largely driven by men, but that may change as women advance within the industry. Women in entry-level Utilities positions possess 71% more green skills than their male counterparts, while women in mid-level roles have 43% more green skills than men. If these women rise through the ranks, they could help bridge the gap that exists at the senior management level.

Women in the Utilities industry often bring skills related to environmental policy, auditing, and sustainable development, while men are more likely to bring STEM-related skills in areas including solar PV, solar system design, wind turbines, and offshore wind.

Leading in the green economy

Women are more starkly underrepresented in renewable energy than in other industries

To further illuminate the gender dynamics of the greening economy, we examined our data through an industry lens. We focused on the renewable energy industry, a fast-growing sector where green skills are in high demand.

Women are underrepresented across the entire labor market, and <u>in leadership roles in particular</u>. Both trends are especially pronounced in the renewable energy industry.

Women comprise around 34% of the renewable energy workforce, compared to 44% of the workforce in all other industries — a 10-percentage-point gap. This chasm exists in every country we studied, though it varies in size.

In only one country we studied — Finland — are women fully represented in the renewable energy industry, making up 51% of the industry workforce. However, this is largely due to high female representation across the entire economy: Women make up 57% of Finland's workers on the LinkedIn platform.





Green ceilings and broken rungs

Similarly, women hold 27% of vice president roles and 25% of C-suite across the global economy — but only 20% of vice president roles and 21% of C-suite roles in renewable energy.

This trend holds true across every subsector of the renewable energy industry, reaching a low among companies specializing in solar electric power generation. In this segment, women hold just 15% of vice president roles and 13% of C-suite roles.

The gap between women's representation in renewable energy and in other industries exists across all seniority levels, peaking at the manager level. The share of women in entry-level positions is 15% smaller in renewable energy than in other industries, while the share of women managers is 24% smaller. For both director and C-suite positions, the share of women is 18% smaller in renewable energy than in other industries, while for vice president positions (between manager and C-suite roles), the share of women is 25% smaller.





Women's representation in renewable energy industry, by seniority level Median across all countries



Women's representation in renewable energy subsectors



Only one sector of the renewable energy industry approached gender equity: Environmental Quality Programs, a segment that administers programs related to conservation, clean air and water, and waste management. Women constitute 47% of the Environmental Quality Programs workforce, although many are trainees or hold entry-level posts.

Where are the female founders?

The gender gap in entrepreneurship is more pronounced in renewable energy than in other industries.

Solving the climate crisis will require creativity, innovation, and gamechanging breakthroughs. While the goal of greening the economy will require every organization to evolve, the world is in desperate need of entrepreneurs developing brand new solutions.

Women represent less than one-third of all founders across the economy. To understand how this entrenched dynamic is playing out in the greening economy, we compared the share of female founders overall to the share of female founders in the renewable energy industry.

Across the economy, the share of female founders has risen over the past 5 years — from 27.3% in 2018 to 29.8% in 2023. This figure peaked in 2021, at 30.5%.



In the renewable energy industry, however, the share of women in entrepreneurship has hovered around 22% since 2018. While women have made strides in some countries, they have lost ground in others. **Currently, women make up 21.8% of founders in the renewable energy industry — 8 percentage points below their representation in other industries.**

Regional entrepreneurship trends

As the chart below illustrates, the entrepreneurship gap is more substantial in some regions than others. In North America (NAMER), there's a gap of 11.2 percentage points between women's entrepreneurship in renewable energy (where 21.5% of founders are women) and other industries (in which 32.7% of founders are women).

In Asia-Pacific (APAC), the gender-based entrepreneurship gap is smaller — but, in a troubling trend, has grown since 2018. More than a quarter of renewable energy entrepreneurs (25.5%) in the Asia-Pacific region are women, compared to 32.7% of entrepreneurs in other industries, for a gap of 7.2 points. In 2018, 29% of renewable energy entrepreneurs in the region were women, compared to 30.7% of entrepreneurs in other industries — a 1.7-point gap.



Share of women in entrepreneurship in the renewable energy industry



Share of women in entrepreneurship in other industries

Latin America (LATAM) has the smallest renewable energy entrepreneurship gap. Female founders represent 26.9% of renewable energy entrepreneurs in the region, compared to 29.6% of founders across all other industries.

In Europe, the Middle East, and Africa (EMEA), women are lagging behind overall. Women make up 20.2% of founders in the renewable energy industry and 28.8% of founders in other industries.

Some countries stand out from the pack, meriting further exploration

In Peru, Colombia, and Singapore, women are better represented among renewable energy industry founders than among founders in other industries. In Peru, 41.5% of founders in renewable energy, and 34.2% of founders in other industries, are women. In Colombia, these figures are 31.9% (renewable energy) and 28.9% (other industries). In Singapore, they are 31.9% (renewable energy) and 30.7% (other industries).

In Finland, which is second only to Peru in the share of women among renewable energy entrepreneurs, female founders are nearly as prevalent in renewable energy (39%) as they are in other industries (39.5%).

On the other end of the spectrum, Germany is the country with the lowest female representation in renewable energy entrepreneurship, with women constituting just 14.1% of renewable energy founders (and 22.5% of founders in other industries). The Netherlands closely follows, with women representing 14.2% of renewable energy founders but faring much better in other industries, where they make up 27.8% of founders.



Share of Women in Entrepreneurship



Renewable energy industry
Other industries

The green pivot

How women and men transition into the green economy

Another way to understand the trajectory of the greening economy is to examine the experience of workers who transition into their first green jobs — roles that have sustainability at their core and generally require extensive green skills.

When a worker switches jobs, they typically move into a position that requires many, but not all, of the skills required in their previous job. In a typical job change, roughly 50% of the skills required in the new position overlap with those required in the prior position. When workers pivot into green jobs, however, the skill similarity between the two jobs is much lower — around 16%. Moving into a green job typically means taking a job with a very different set of skills.

Women typically clear a slightly larger skills gap than men when transitioning into the green economy. The median skill similarity between men's first green job and the one immediately prior is about 13% higher than for women. We saw a gap in just over half of the countries in our study, including Singapore (68% higher skill similarity for men), India (57%), the UAE (56%), Germany (31%), Australia (22%), the UK (19%), and the US (18%). **Skill similarity** measures the degree of overlap between the most representative skills for each job based on LinkedIn's Skills Genome. The similarity score reflects both the overlap of common skills between two jobs as well as the relative importance of those skills for each job. The similarity score ranges from 0% (no common skills, a difficult transition) to 100% (perfect overlap in skills, easy transition).

Median skill similarities by job transition type



None of the countries we studied have an average green pivot skill similarity that's higher for women than men by a statistically significant amount. In some countries, however, including New Zealand, Ireland, and France, the skill similarity is roughly equal for men and women.

Gateway green jobs

Men and women transition into green jobs through different types of roles, reflecting the same disparities we see in green skills acquisition. Men's first green jobs are more likely to be related to renewable energy and energy management (for example, wind turbine technician, energy specialist, energy manager, or solar consultant). Women's first green jobs are more likely to be related to sustainability, environmental specialties, and the natural sciences (for example, sustainability manager, biologist, environmental coordinator, or environmental consultant).

Women

Occupation	Share of first green jobs	
Sustainability Manager	6.39%	
Biologist	2.31%	
Environmental Coordinator	1.63%	
Environmental Health Safety Specialist	1.21%	
Environmental Consultant	1.03%	

Men

Occupation	Share of first green jobs	
Solar Consultant	1.62%	
Energy Manager	1.41%	
Energy Specialist	1.31%	
Wind Turbine Technician	1.26%	

Trends in green jobs pivots

Both men and women are increasingly moving into green jobs from ones that are less skillsimilar. This could be due to the growth of green jobs outpacing the growth of green talent.

However, the skill similarity gender gap is growing. In 2016, men were pivoting into green jobs from jobs that were around 14% more skill-similar than women's first green jobs. By 2023, that figure had risen to 27%.



Skill similarity of green job pivots Median skill similarity between old and new job

Charting the path forward

Policy recommendations for bridging the green skills gender gap

Women <u>are more vulnerable than men</u> to the devastating impact of climate change. Women are also missing out on the chance to be part of the climate solution. Our data shows that women are lagging behind men in almost every aspect of the transition to a green economy, and in many cases these gaps are widening.

The greening of the global economy is unlocking opportunities in every country and industry. Organizations of all types are increasingly seeking workers with green skills, even during times of economic uncertainty and upheaval. As green skills become more valuable and resilient than other types of skills, it's imperative that women achieve parity with men in amassing them.

To accelerate the transition to a green economy, we need every human being — regardless of their gender — to have the green skills that form the building blocks for this monumental shift. The policy recommendations outlined here are designed to substantially increase women's active participation and leadership in the greening economy. The case studies in the pages that follow illustrate the impact that some organizations are already having, as they create promising new solutions that might be replicated and expanded.

Policy recommendations

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- Include explicit gender targets in national climate policies on green training, reskilling, and upskilling.
- 2 Invest in job retraining programs that focus on womendominated jobs that are most vulnerable to climate change.
- 3 Incorporate green skills training and green career exploration into existing programs aimed at boosting STEM education for women and girls.
- 4 Create professional networks and mentoring opportunities for women in climate-focused careers.
- 5 As governments make green jobs and green skills part of their regularly tracked labor market insights, they should analyze this data to identify gender disparities.
- 6 As the Global North invests in the Global South's response to climate change, investors should support green skills development and climate entrepreneurship among women.

Case studies

INCO Academy's Green Digital Skills Certificate Program

Free online coursework on sustainability and digital technology

INCO Academy's free, online <u>Green Digital Skills Certificate Program</u> seeks to equip jobseekers in digital and IT-related fields with the knowledge and skills to incorporate sustainability and green design into their work. The certificate program is aimed at helping 40,000 participants boost their employment prospects in the greening economy, with coursework on topics including the environmental and social impact of digital technology and the key concepts of eco-design. The program is available in 12 languages, making it accessible to learners around the world.

Evana Pasaribu, who lives in Indonesia, enrolled in the program because she was curious to learn how the digital world can support the circular economy and because she believes that it's everyone's responsibility to improve their sustainability-related skills. Since earning her certificate, Evana has integrated sustainable practices into all aspects of her work as a junior sustainability associate at Aicón, a management consulting firm specializing in strategic sustainability — from her team's daily operations to the research and analysis she conducts for clients.



"Sustainability is vital for employees and companies, as it enhances corporate reputation, attracts environmentally conscious talent, and meets the expectations of socially responsible consumers. Embracing sustainability also mitigates long-term risks and helps companies stay resilient in a changing business landscape."

—Evana Pasaribu

For Gloria Norvor, a UX designer in Ghana, the Green Digital Skills Certificate Program was an opportunity to improve her understanding of sustainability, digitalization, and the interplay between the two. Gloria works at the <u>Girls Advancement Initiative</u>, a social initiative focused on empowering young girls and women in Africa by promoting menstrual hygiene management and sustainable living. She's applied her new skills to the organization's mobile app, CycleCare, by leveraging sustainable design principles and user-friendly interfaces to help educate users on sustainable choices.



"Embracing green skills is vital in addressing the environmental challenges our world faces. As a UX designer, incorporating sustainable practices ensures that our digital solutions contribute positively to the planet, promoting eco-friendly alternatives and reducing carbon footprints."

—Gloria Norvor



Case studies

Elemental Excelerator's Empowering Diverse Climate Talent (EDICT) Internship Program

Broadening the climate innovation talent pipeline

Elemental Excelerator is a nonprofit investor focused on scaling climate technologies with deep community impact. The group's <u>EDICT (Empowering Diverse Climate Talent)</u> <u>Internship Program</u> places a diverse pipeline of talent in 10-week paid internships at organizations dedicated to solving climate change. The program matches aspiring climate professionals, college students, and recent graduates from traditionally excluded backgrounds with employers from all corners of the climate innovation ecosystem, including for-profits, nonprofits, funders, and government agencies.





"This is the right time to join the climate sector! There's a place for everyone to contribute and to learn different aspects of this emergent field. The skills we are building now are highly sought after and are becoming ever more indispensable in the race to keep earth habitable. Wonderful people, noble goals, and a fantastic opportunity to bring new ideas to a highly disruptive sector — what's not to like?"

—Palak Jauhari



Case studies

Generation Spain's Solar Panel Installation Program

Free training for careers in a fast-growing sector

<u>Generation</u> is a global nonprofit network offering programs that prepare adults for careers in more than 46 professions in multiple sectors. To prepare people for jobs in the fast-growing renewable energy industry, the organization's Spanish chapter, Generation Spain, launched a <u>Solar Panel Installation Program</u>. This free program includes 270 hours of technical training in mechanics, electricity, panel installation, and maintenance, as well as 60 hours in soft skills training and 100 practical hours with companies in the sector. Generation Spain has trained and placed 183 graduates into jobs, with a 92% placement rate at 180 days post-graduation.

Trinidad del Rocio, a member of the program's second cohort, decided to pivot into the renewable energy sector after a career in the retail industry that included launching her own business. After completing the program, Trinidad got a job working at Holaluz, a technology company that commercializes electric energy from renewable sources including solar panels.





"Renewable energy is a fast-growing sector that plays a pivotal role in shaping our future. Soon, solar panels will adorn countless buildings, from residential areas to corporate offices and industrial warehouses. It's an absolute privilege to be part of this transition."

—Trinidad del Rocio



Methodology and definitions

Green skills

Our green skills classification is used to identify and validate job skills that are relevant to the green economy. The different types of low-carbon initiative skills are divided into 12 main categories of activities: Pollution Prevention, Waste Prevention, Energy Management, Renewable Energy Generation, Environmental Remediation, Ecosystem Management, Sustainability Education, Sustainability Research, Environmental Auditing, Environmental Policy, Sustainable Procurement, and Environmental Finance. These categories are derived from the definitions of green jobs, green goods and services taken from <u>Bureau of Labor Statistics (BLS)</u> and <u>Greening of the World of Work: Implications for O*NET-SOC and New and Emerging Occupations</u>.

Green talent

Members who held at least one green/greening job or have at least one green skill on their profile. See our <u>Global Green Skills Report 2023</u> for more details.

Renewable energy industry

We define the renewable energy industry to include: solar, wind, and hydroelectric power generation; industries that support renewable energy generation, such as photovoltaic cell manufacturing; energy generation that does not produce direct carbon emissions, including nuclear power generation; and industries that administer environmental programs and provide environmental services.

Renewable energy subsectors:

- Environmental Services
- Renewable Energy Semiconductor Manufacturing
- Hydroelectric Power Generation
- Nuclear Electric Power Generation
- Solar Electric Power Generation
- Environmental Quality Programs
- Geothermal Electric Power Generation
- Biomass Electric Power Generation
- Wind Electric Power Generation

Skill similarity

For each job, we identify the most important skills in each year based on their uniqueness and listing frequency, building LinkedIn's Skills Genome. The similarity score between 2 jobs reflects both the overlap of common skills as well as the relative importance of those skills.

Linked in

