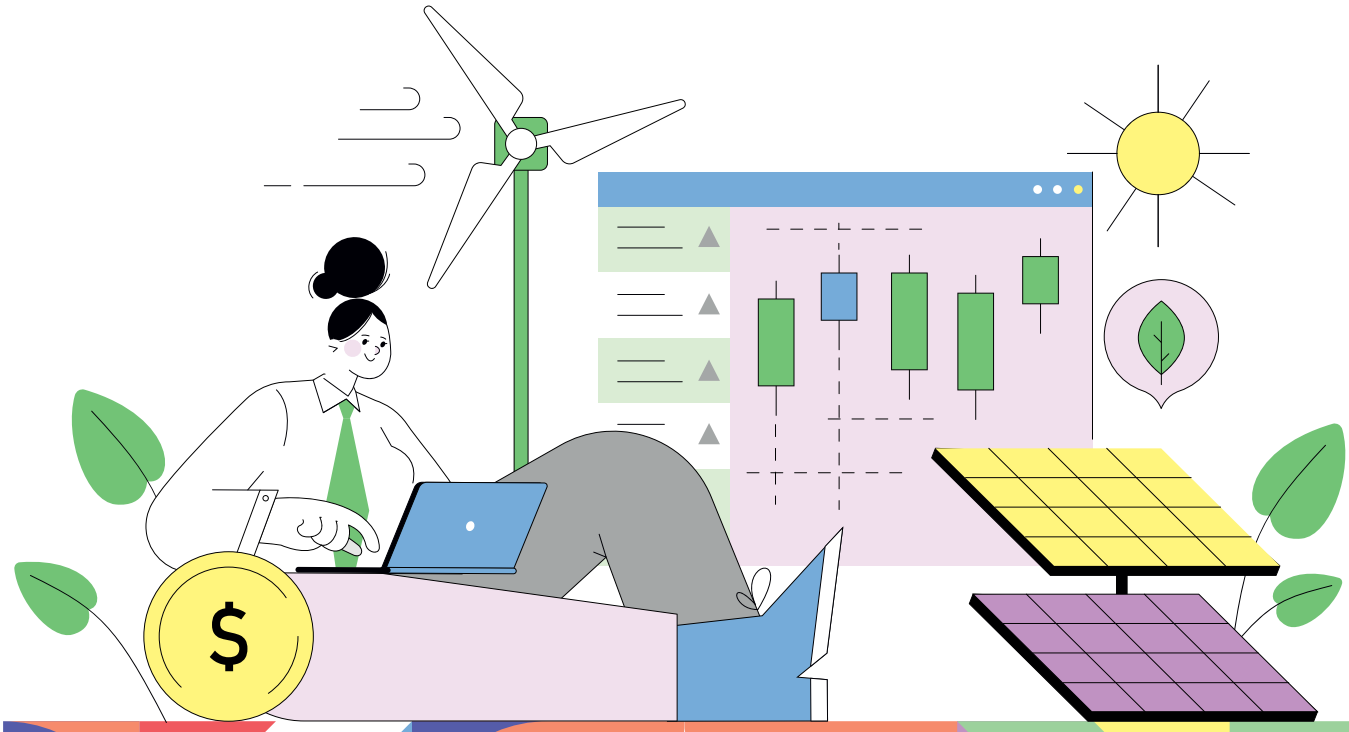
closingap

Opportunity cost of the gender gap in the energy transition

Executive summary | January 2026



The energy transition represents one of the greatest challenges and opportunities for contemporary economies. Its objective is to progressively replace energy production, distribution and consumption systems based on fossil fuels with a model based on sustainable, low-emission renewable sources. This transformation process does not only affect the environmental sphere. It also has repercussions on the productive fabric, the configuration of labour markets and, in particular, on employment opportunities for women.

In this sense, the energy transition is not a gender-neutral process. Structural inequalities that persist in access to employment, training or decision-making can condition both participation and the benefits that women and men obtain from this change of model. Ensuring a just and inclusive transition involves incorporating a gender perspective into the design and implementation of energy policies, so that the transformation towards a low-carbon economy does not amplify existing gaps, but rather helps to close them.

This report **analyses and quantifies the gender gap in the energy transition** from two complementary perspectives: employment and consumption. Finally, the degree of incorporation of the gender perspective in public energy transition policies is examined, concluding with a series of proposals aimed at reducing the detected inequalities and taking full advantage of the opportunities of an inclusive and sustainable energy model.

What sets this study apart from other reports?

Numerous publications have analysed the gender gap in the energy transition from various angles – the ecological one: MITECO (2025); entrepreneurial: MITECO (2023b); and educational: CAIXA (2024). These publications constitute an essential bibliographic framework that has served as a reference for this research. However, this study delves even deeper into several fundamental aspects:

1. **Sector delimitation:** an exhaustive and rigorous definition is offered of the sectors linked to the energy transition, incorporating both substantial contribution activities as well as enabling and transition activities. This approach allows for a comprehensive view of the phenomenon.

2. **Quantification of the opportunity cost:** the economic impact resulting from the underrepresentation of women in the energy transition sectors is estimated, putting figures to the associated losses and, at the same time, to the potential benefits of an inclusive transition that leverages all available talent.

3. **Scenario projection:** various prospective scenarios are developed that allow us to anticipate in what time frame gender equality could be achieved in the sector, offering a key analytical tool for public and business decision-making.

4. **Public policy review:** an updated analysis of gender-focused initiatives and strategies in the energy sector is included, identifying recent progress and opportunities for improvement. Based on this diagnosis, recommendations are formulated to mitigate the risk that the energy transition may act as an amplifier of inequalities.

Ultimately, this report seeks to enrich the existing literature on the energy transition by providing a solid and operational analytical framework. Its purpose is to become a reference source for academic research, public policy formulation, and business action, contributing to driving positive change in both the economy and society as a whole.

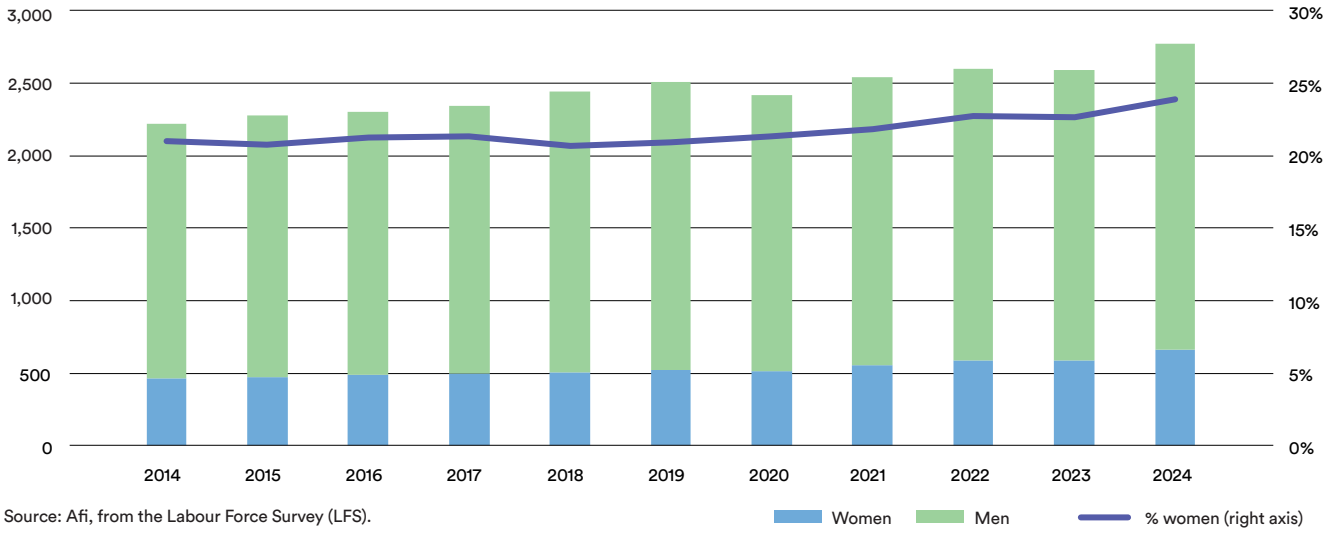
Gap 1. Women are under represented in energy transition jobs

The energy transition sectors have experienced sustained expansion over the last decade. Between 2014 and 2024, more than half a million net jobs have been created in these activities, consolidating their role as a lever of economic dynamism.

In 2024, more than 2.8 million people were working in sectors linked to the energy transition. However, this job creation has reproduced one of the main structural weaknesses of the Spanish labour market: gender inequality in access to certain occupations. Only 663,600 women were employed in these sectors compared to more than 2.1 million men, which translates into a **female participation rate of 24%, or one in four employed people.**

Figure 1. Evolution of employment in the energy transition sectors

(*on the left: thousands of people and on the right: % women of total)*



Source: Afi, from the Labour Force Survey (LFS).

Within this low representation, the presence of women is concentrated in the service sectors, particularly in retail (the lowest-paid branch), while their participation remains limited in the more technical and industrial fields, such as construction, the primary sector or transport. This distribution reflects the **persistence of horizontal occupational segregation**, which is also evident in the new sectors linked to the energy transition.

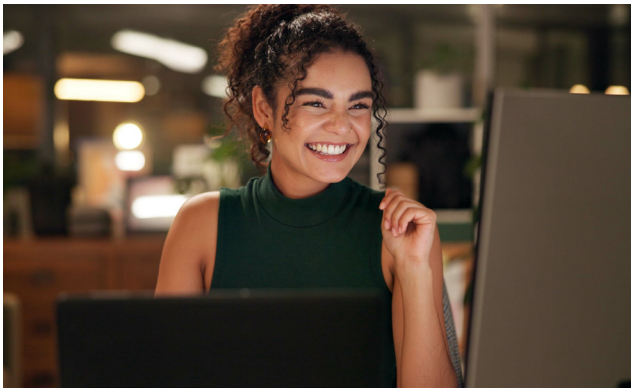
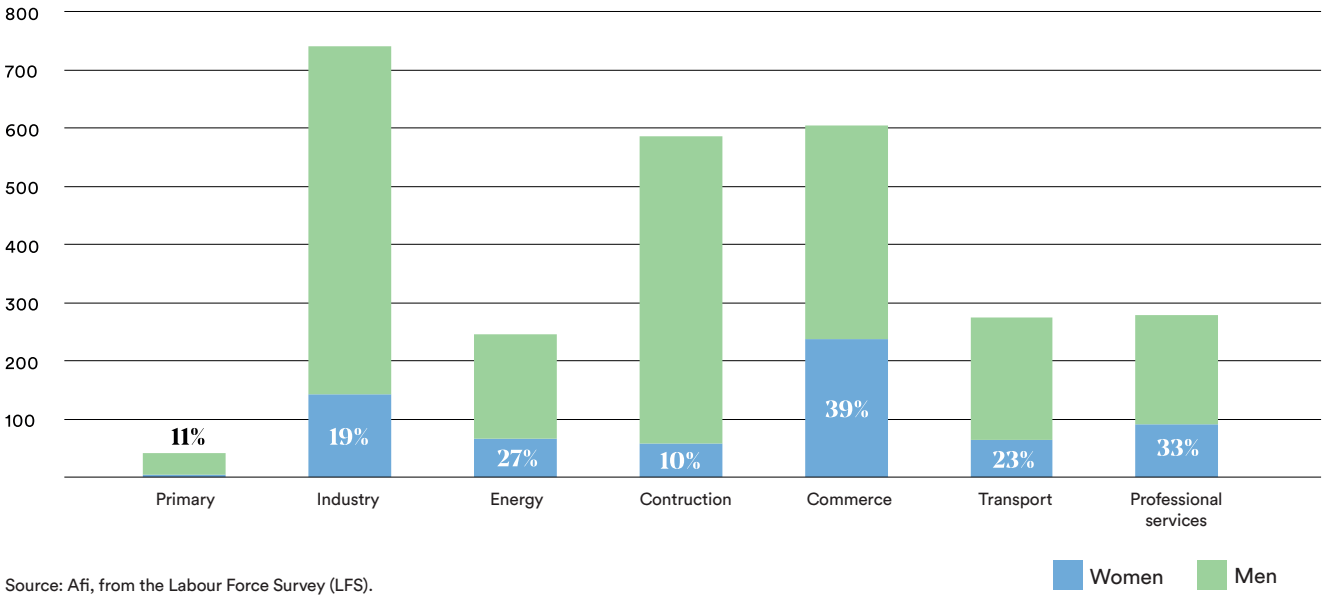


Figure 2. Employment in the energy transition sectors by type of activity

(thousands of people and % of women in each sector), 2024



Source: Afi, from the Labour Force Survey (LFS).

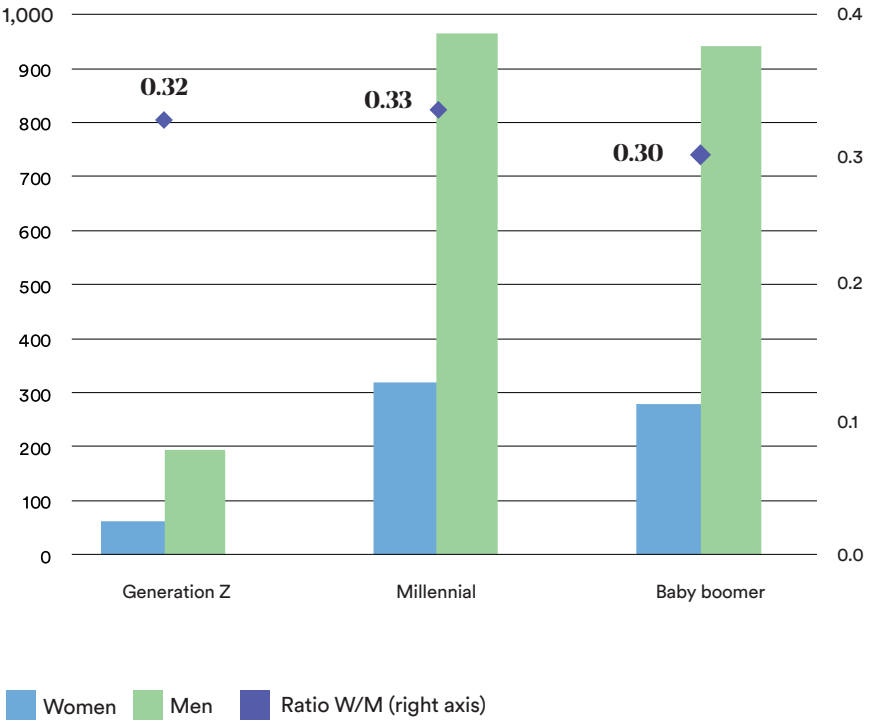
Although women working in energy transition-related activities have a higher level of education than men (38% hold a university degree compared to 20% of men), their access to strategic and senior responsibility positions remains limited. Men continue to dominate management positions (0.4 women per man), scientific and technical profiles (0.5 and 0.3 respectively), and operational occupations (0.1 and 0.2), which form the strategic core of the development of these activities. **The educational advantage held by women, therefore, does not translate into equal opportunities for leadership or decision-making.**

While the gender gap in energy transition employment persists across generations, new cohorts are marking a change in university education and access to positions of greater responsibility.

Despite the general increase in female participation in the labour market, **the generational shift has not corrected gender inequality in sectors linked to the energy transition.** In 2024, the ratio of women to men employed stood at around 0.3 across all generations, with no significant differences between cohorts. However, a reduction in the gap is observed when considering educational and occupational levels.

In this regard, among Generation Z female workers, educational parity at university level has been fully achieved (a ratio of 1), compared to 0.6 for *millennials* and 0.5 for *baby boomers*. This convergence in education also translates into slight progress in scientific and technical profiles: the female ratio rises to **0.8 in Generation Z**, compared to 0.5 and 0.4 in previous generations.

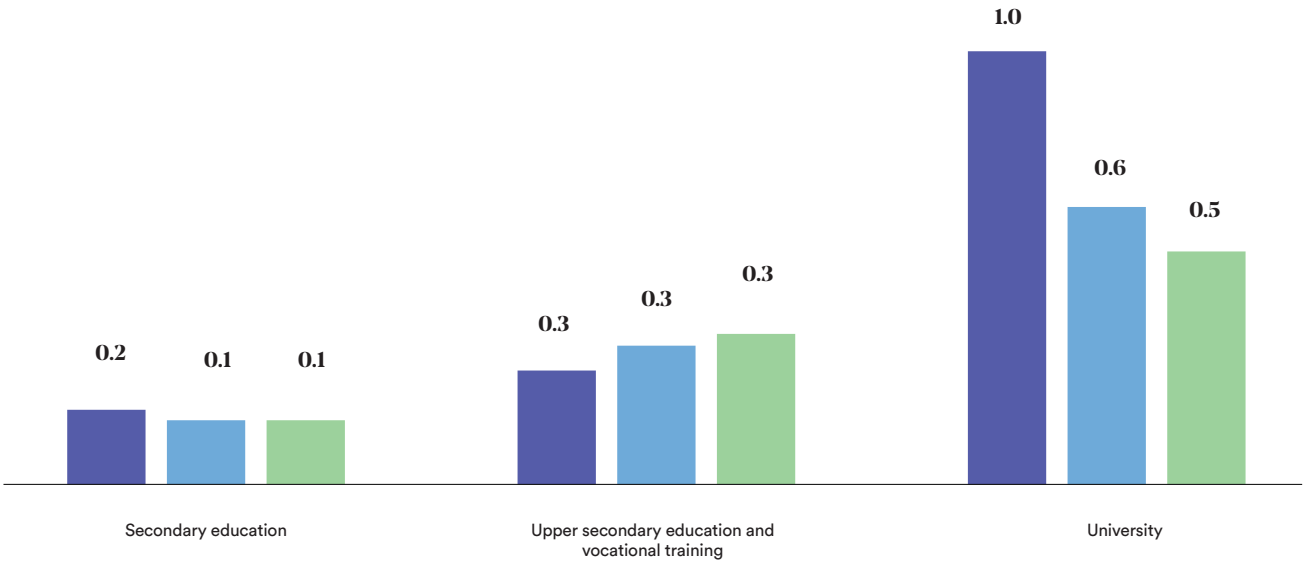
Figure 3. Employment in energy transition sectors by generation *(thousands of people, left side and W/M ratio, right side), 2024*



Source: Afi, from the Labour Force Survey (LFS).

Among employed *millennials*, women continue to be concentrated in administrative and accounting tasks (with twice the presence of men), although there is progress towards parity in these jobs among younger generations. Among the *millennials*, the presence of women in managerial positions already exceeds that of the *baby boomers*, pointing to a positive medium-term trend in leadership. However, in more operational roles, the ratios remain very low (0.2 women per man), confirming the strong male dominance in more labour-intensive sectors.

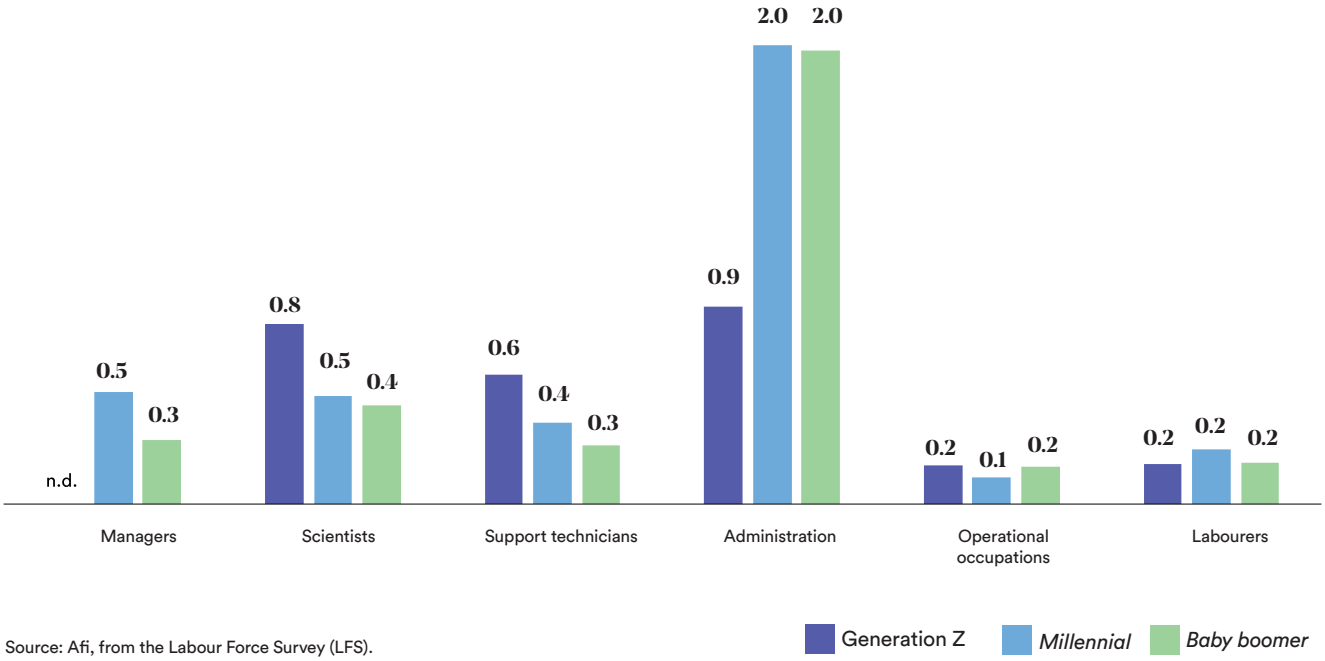
Figure 4. Gender gap in energy transition employment by generation and educational level *(W/M ratio), 2024*



Source: Afi, from the Labour Force Survey (LFS).

Figure 5. Gender gap in ET employment by generation and occupation

(W/M ratio), 2024



Source: Afi, from the Labour Force Survey (LFS).

Closing the gender gap in energy transition employment could contribute more than 122 billion euros to the Spanish economy: 7.7% of GDP.

Despite certain progress seen among the younger generations, **the gender gap in employment linked to the energy transition in Spain remains structural.** Higher levels of education and labour market participation among women have not succeeded in reversing a persistent pattern of exclusion.

This inequality represents not only an issue of fairness, but also a **significant economic cost.** According to the report's estimates, achieving gender parity in participation within the energy transition sectors could boost national GDP by over **122 billion euros per year, equivalent to 7.7% of Spain's GDP in 2024.**

This figure offers a doubly relevant interpretation. First, it shows that the gender gap is not only a problem of equity, but also of economic inefficiency and loss of competitiveness. Secondly, it highlights the magnitude of the potential return on investing in equality: **each percentage point reduction in the gap translates into economic growth and social development.**

However, this figure should be understood as an **opportunity for transformation**. Energy transition sectors are undergoing a phase of expansion, generating demand for new professional profiles. In this context, they offer a gateway for women into strategic industries.

It is important to highlight that **female talent exists and is readily available.** In Spain, there are currently more than 1.46 million unemployed women and more than 6.4 million inactive women who are not retired. Mobilising even a portion of this potential would not only reduce structural inequalities, but also tap into a key source of human capital in one of the most dynamic sectors of the future.

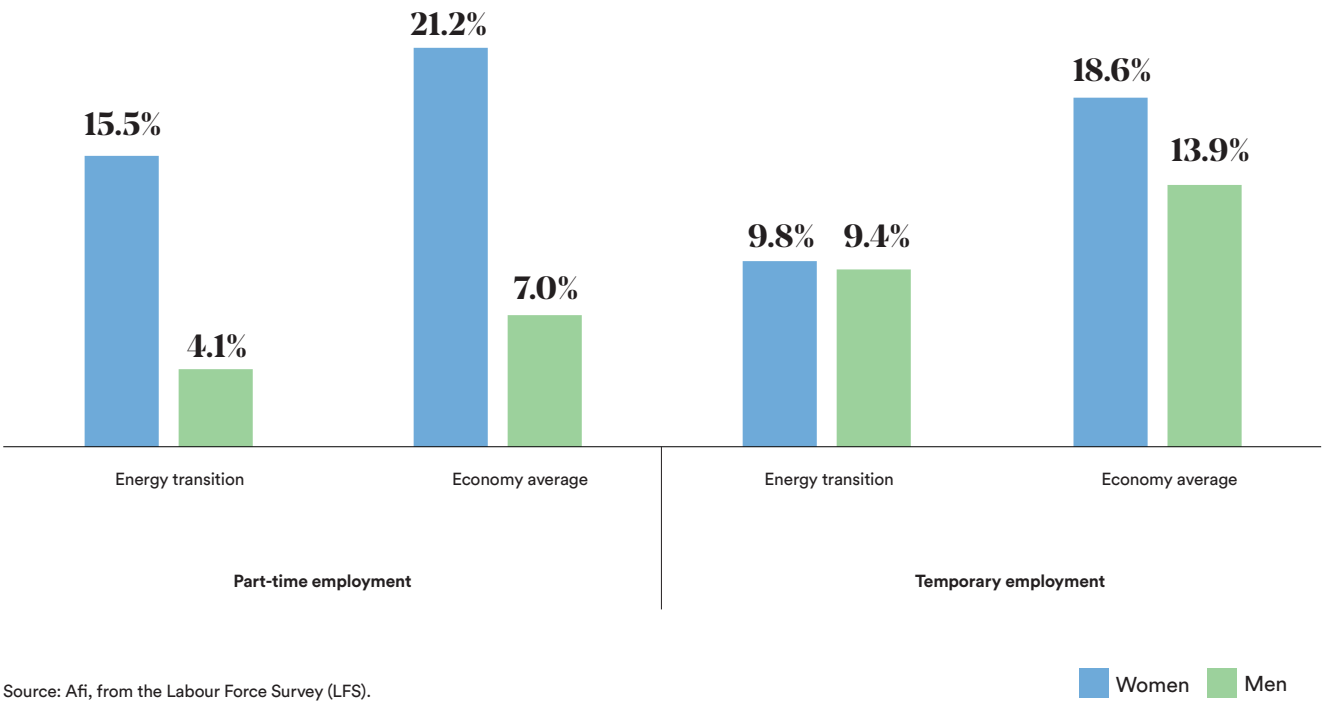
Gap 2. Employment in the energy transition offers better conditions and career prospects for women than in other sectors, although glass ceilings persist

Sectors linked to the energy transition offer better working conditions than the average for the economy, for both men and women, although **gender differences persist.**

In terms of **temporary employment**, the rates are significantly lower than in the labour market as a whole: **9.8% among women and 9.4% among men,** compared to 18.6% and 13.9%, respectively, across the overall economy. This lower level of temporary employment is also accompanied by a **narrower gender gap.**

Figure 6. Working hours and type of contract

(% of total employment by gender and sector of activity), 2024



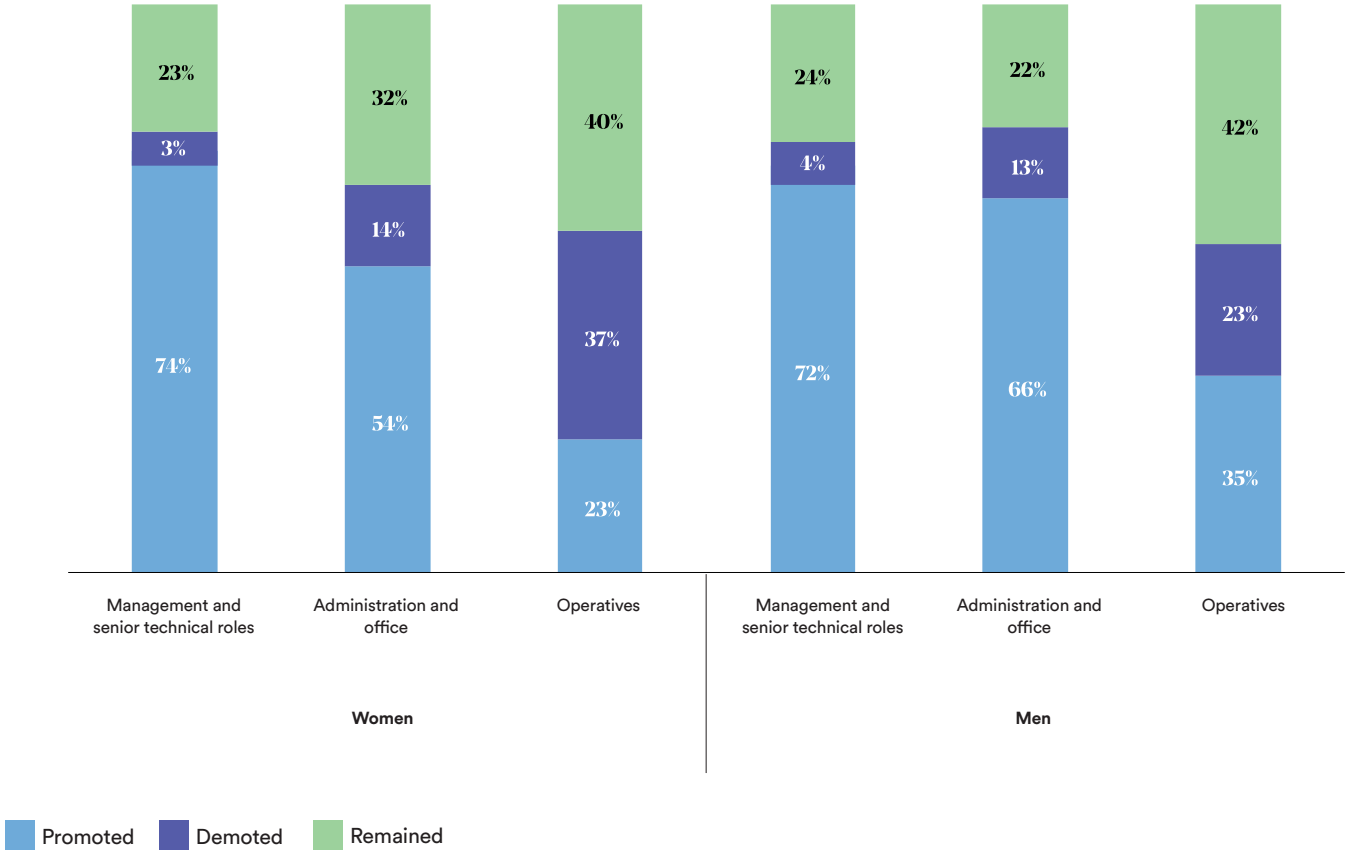
Source: Afi, from the Labour Force Survey (LFS).

A similar pattern is observed in **part-time work.** Although part-time employment is less common than the national average, it affects women **four times more than men:15.5% compared to 4.1% of men**. This difference is mainly due to **family caregiving responsibilities,** which account for part-time employment in 37% of female workers, compared to 4% of men.

In terms of **career progression,** women demonstrate a **similar capacity for internal promotion as men.** At management and senior technical levels, 74% of women and 72% of men have progressed from lower professional categories, indicating an equal likelihood of advancing into positions of responsibility.

However, disparities re-emerge at the operational level. In this segment, 37% of women have moved down from higher professional categories (compared to only 23% of men), and only one in four have managed to move up from this level (23% compared to 35% of men). **This pattern highlights the reduced opportunities for upward mobility available to women in the most basic roles within the sector.**

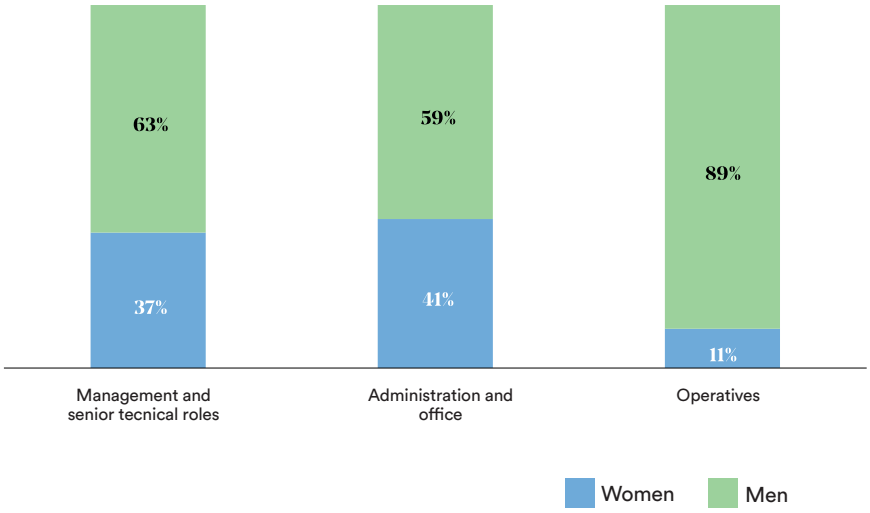
Figure 7. Percentage of women and men who have been promoted, demoted, or have remained in a professional category according to their last contribution group



Source: Afi from the Employment History Report Sample (MCVL). Notes: The career trajectory of people who have spent more than a quarter of their working life in sectors linked to the energy transition from 2009 until their last employment experience, or until 2023, is analysed. For more information on the methodology used, please consult the full report.

Looking at all promotions across the sector, women continue to represent a minority of the total. Only around a third (37%) of promotions to management and senior technical roles were awarded to women, compared with 41% in administrative roles and just 11% in operative positions, where job retention rates are high in both cases.

Figure 8. Percentage of promotions by gender and last contribution group

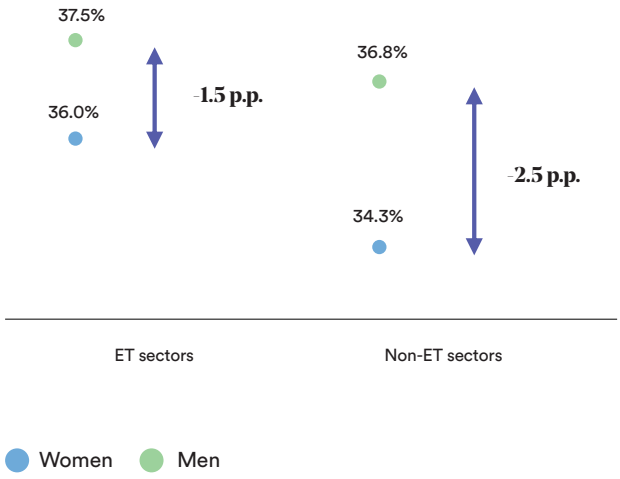


Source: Afi from the Employment History Report Sample (MCVL). Notes: The career trajectory of people who have spent more than a quarter of their working life in sectors linked to the energy transition from 2009 until their last employment experience, or until 2023, is analysed. For more information on the methodology used, please consult the full report.

In terms of wage mobility[1], **women working in energy transition sectors enjoy greater opportunities for advancement than in the rest of the economy,** although their progress remains somewhat more limited than that of their male counterparts. The likelihood of increasing one's income from one year to the next stands at 36% for women, compared to 37.5% for men — a difference of just 1.5 percentage points, significantly lower than the gap observed in sectors not linked to the energy transition (2.5 percentage points).

1 Wage mobility shows the probability that workers will see their income increase compared to the previous year.

Figure 9. Probability of salary increase by gender and sector

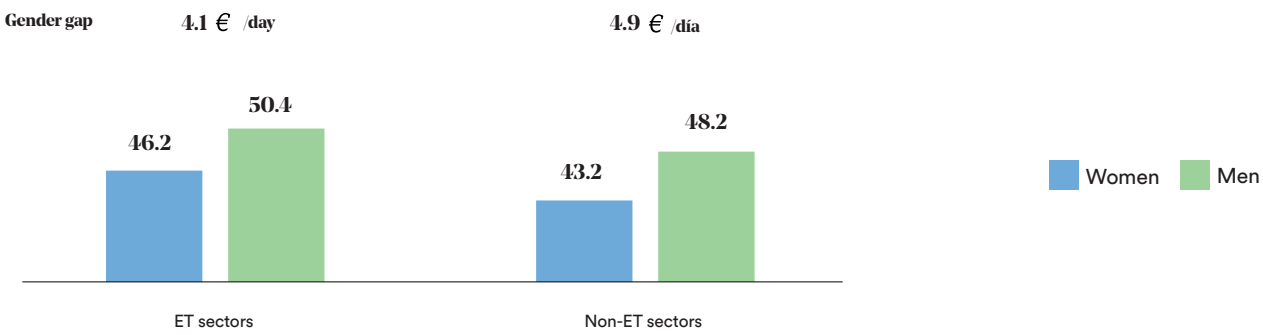


Source: Afi from the Employment History Report Sample (MCVL). Note: The vertical bars represent the 95% confidence interval around the predicted probabilities of promotion.

Moreover, **absolute pay differences are smaller than in the rest of the economy.** In median terms, women in the sector earn 3 euros more per day than those working in other sectors, although this is still 4.1 euros less than men in the same field. This gap, while significant, is even wider outside the energy transition sector—reaching nearly 5 euros per day—confirming that **energy transition activities offer greater gender parity in both wages and prospects for improvement.**

Figure 10. Median contribution base by sex and sector

(euros per day), 2023



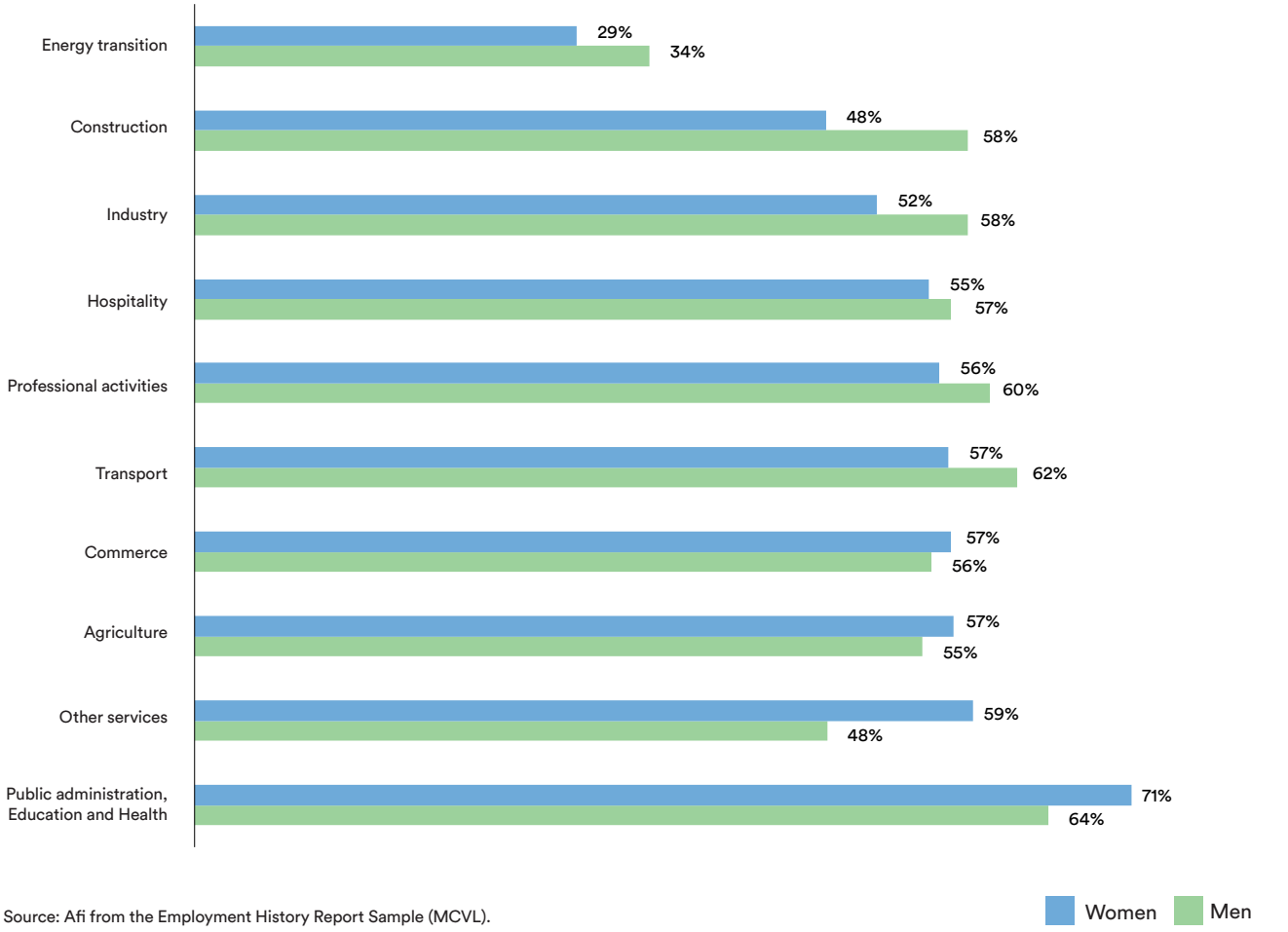
Source: Afi from the Employment History Report Sample (MCVL).

Women dedicate a smaller portion of their professional life to working in energy transition sectors.

Beyond income, **there are also differences in the duration and stability of career paths within the sector.** Women dedicate a smaller portion of their professional life in energy transition roles: 29% of their career on average, compared to 34% for men. This suggests that, while the sector is increasingly attracting female talent, it is not always successful in retaining it.

The challenge, therefore, is twofold: **to increase the participation of women and to build stable career pathways** that enable them to grow professionally and access the opportunities for growth offered by the energy transition.

Figure 11. Percentage of working life that people have dedicated on average to each of the sectors of activity *(% total by gender and activity sector)*



Source: Afi from the Employment History Report Sample (MCVL).

Female leadership is progressing in sectors undergoing transformation, although the glass ceiling still sets limits.

Finally, **female leadership continues to be an area where glass ceilings persist, even in sectors undergoing major transformation.** Although women and men have similar chances of being promoted to senior management and technical positions, the overall lower presence of women results in a reduced representation at executive levels.

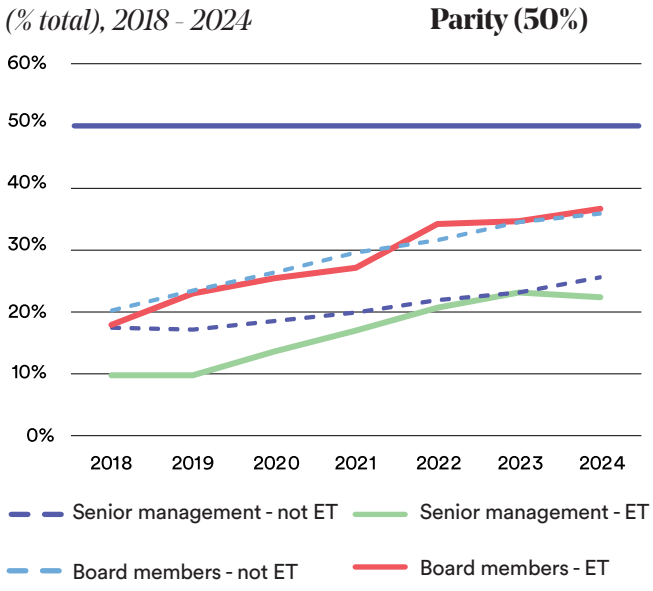
In 2024, women held 36% of board positions and 26% of senior management positions across all companies listed in Spain. In the energy transition sector, **representation on boards is similar (37%), but drops to 22% in senior management roles.**

While there is still progress to be made before reaching parity, **significant advancements have been made, reflecting the growing commitment of Spanish companies** to diversity and inclusion. In just six years, female participation in strategic roles has doubled: in 2018, women accounted for 17.9% of board members and 9.8% of senior management positions in companies within the sector.

Larger companies are leading this transformation. Among energy sector firms listed on the IBEX-35, women now make up 40% of board members and 33% of senior management positions. These figures bring the sector closer to gender parity and signal a structural shift towards more inclusive and sustainable leadership models.

Figure 12. Presence of women in management positions in listed companies

(% total), 2018 - 2024



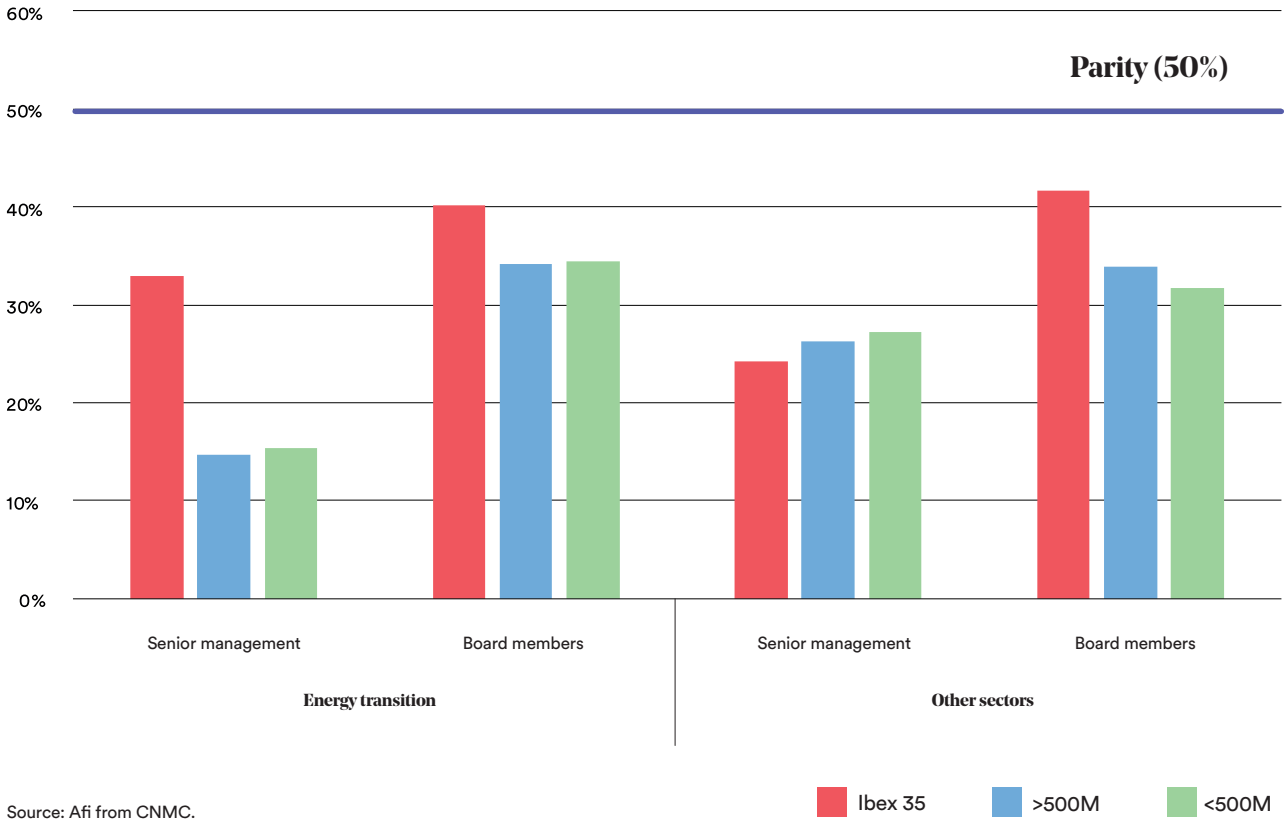
Source: Afi from CNMC.

At the same time, **the public sector linked to the energy transition is also showing notable progress towards gender equality.** Women account for 56% of senior positions within the relevant ministry, exceeding even the average across the General State Administration (48%). Female representation also reaches 46% in the Committee on Ecological Transition and Demographic Challenge in the Congress of Deputies, and 42% in the equivalent committees in the Senate.

These figures confirm that, **where there is strong institutional commitment and active gender equality policies,** women's representation in strategic sectors can advance steadily. Female leadership is not only growing in numbers but is also becoming firmly established as a driver of competitiveness, innovation and social legitimacy in the emerging energy economy.

Figure 13. Presence of women in management positions by type of listed company

(% total), 2024



Source: Afi from CNMC.

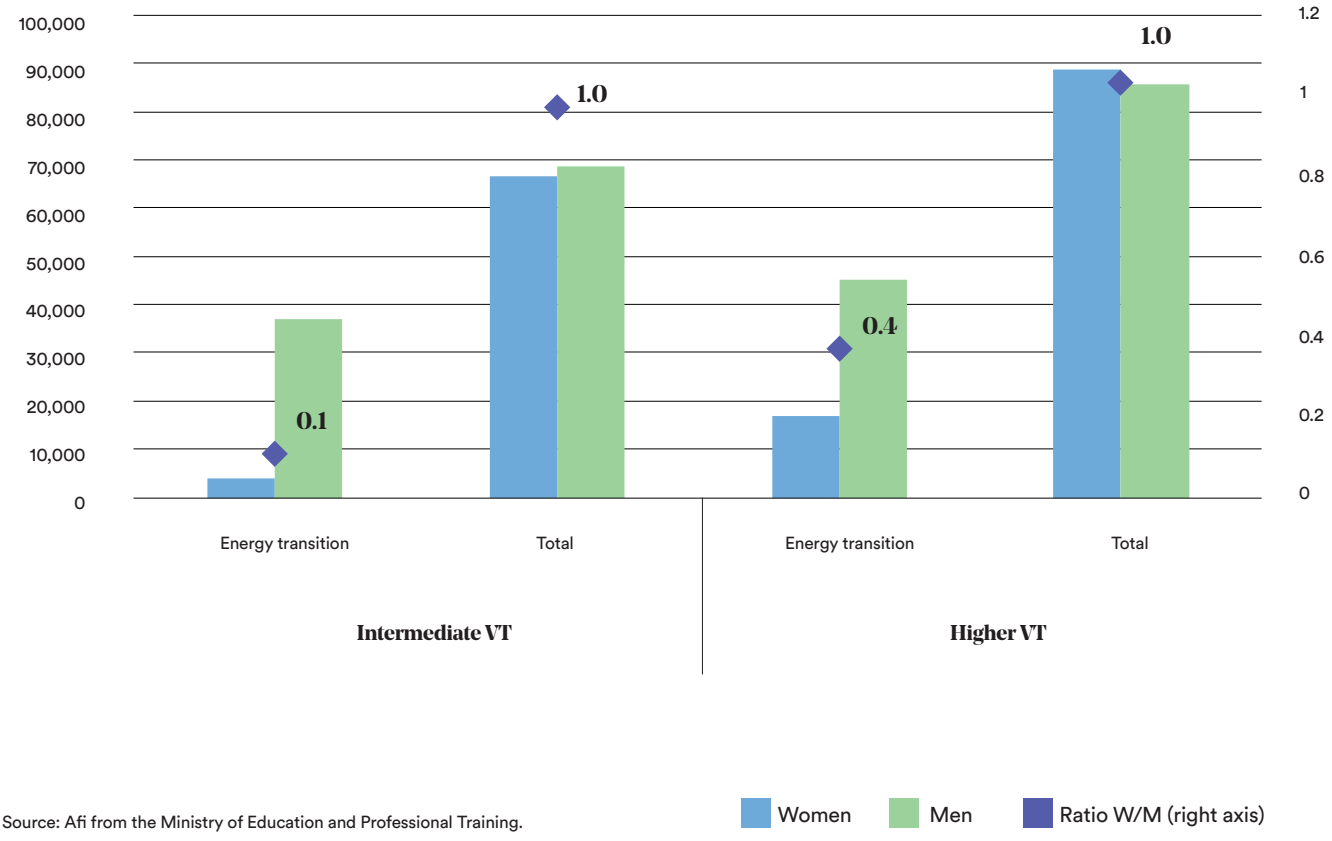
Gap 3. Women are less likely to train in areas related to the energy transition and, when they do, are less likely to enter employment within the sector

Given the low representation of women in employment linked to these sectors, promoting greater participation of women in training activities related to these sectors would not only facilitate their access to quality jobs, but would also actively contribute to closing the gender gap in one of the strategic sectors of the future.

In this context, **Vocational Training (VT)** is emerging as one of the main pathways for linking education with the labour market, providing a flexible response to the changing demand for technical qualifications driven by the energy transition. However, **female participation in these programmes remains very low.** In intermediate-level vocational training, the female-to-male ratio is 0.1 women per man, and in higher-level vocational training it barely reaches 0.4. This inequality is even more pronounced in educational fields most closely linked to energy, transport and digitalisation, where women's participation barely exceeds 10%, regardless of the level of qualification.

Figure 14. Students graduating from vocational training

(number of graduates, left side; W/M ratio, right side), 2022-2023 academic year



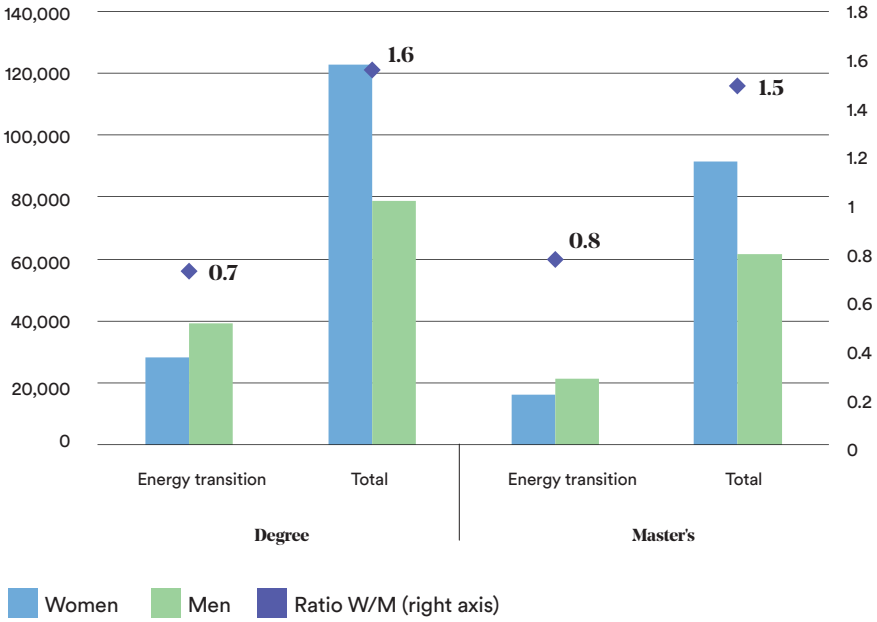
Source: Afi from the Ministry of Education and Professional Training.

Although women are more present in university studies as a whole, this advantage does not translate into equal participation in degrees linked to the energy transition. This is a paradox widely documented in specialised literature. Women study more, have longer academic careers, and obtain better results, but they still have less access to technical and scientific fields, precisely those where many of the emerging job opportunities are concentrated.

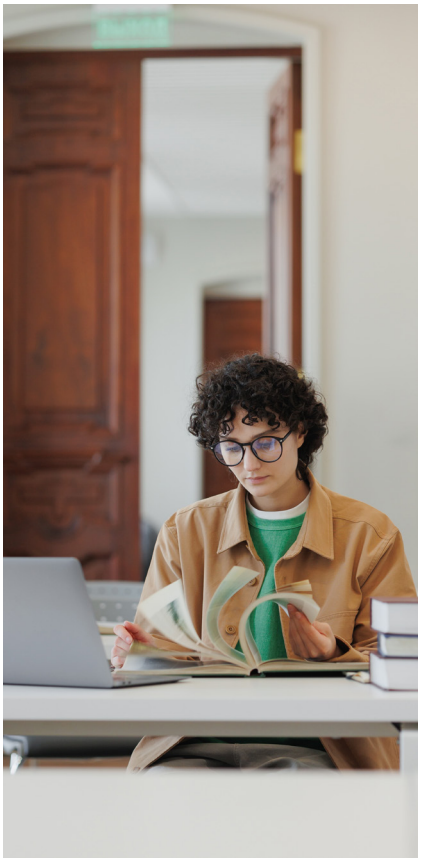
This training gap stems from a **combination of cultural and social factors,** such as the lack of female role models and the persistence of gender biases and stereotypes that shape the perceptions, expectations and decision-making of both men and women during their education.

Figure 15. University graduates

(number of graduates, left side; W/M ratio, right side), 2022-2023 academic year



Source: Afi from the Ministry of Science, Innovation and Universities.



Training is a necessary condition, but it is not sufficient: more and more women are completing studies in energy transition but are not accessing jobs in the sector.

Over the past decade, **the number of students enrolled in courses related to the energy transition has increased for both genders,** although at different rates: between 2015 and 2023, male participation rose by 24%, compared to 17% for women. This difference, while moderate, continues to reinforce the imbalance in access to key skills for the green transition.

The real challenge lies in connecting female talent with employment in these sectors. Although a growing number of women are completing technical studies related to the energy transition, their levels of integration into the sector are lower. In this regard, only 11% of women graduates in these fields go on to work within the sector itself, compared to 23% of men.

Moreover, **the lack of visible female role models in managerial, technical or operational roles** contributes to many young women not viewing these sectors as an attractive career option, despite the fact that they offer better working conditions than the average in the economy. Unless cultural barriers, stereotypes and the absence of professional networks are addressed, the investment made in training risks failing to translate into a greater presence of women in the sector's labour market.

Gap 4. If current trends continue, it would take more than 35 years to close the gender gap in the sector

Women remain significantly underrepresented in energy transition sectors, and achieving gender equality may take longer than anticipated. To estimate how long it would take to close this gap, three distinct scenarios have been modelled:

- A inertial scenario, assuming the continuation of the female employment growth rate observed between 2018 and 2024.
- A structural change scenario, based on the implementation of active equality policies and employment growth projections from the PNIEC (Integrated National Energy and Climate Plan).
- An aspirational scenario, which sets a target of achieving full gender parity by 2030, in line with the *Equal by 30* initiative.

In all cases, it is assumed that male employment continues to grow at the same rate observed in recent years, that is, 1.4% annually.

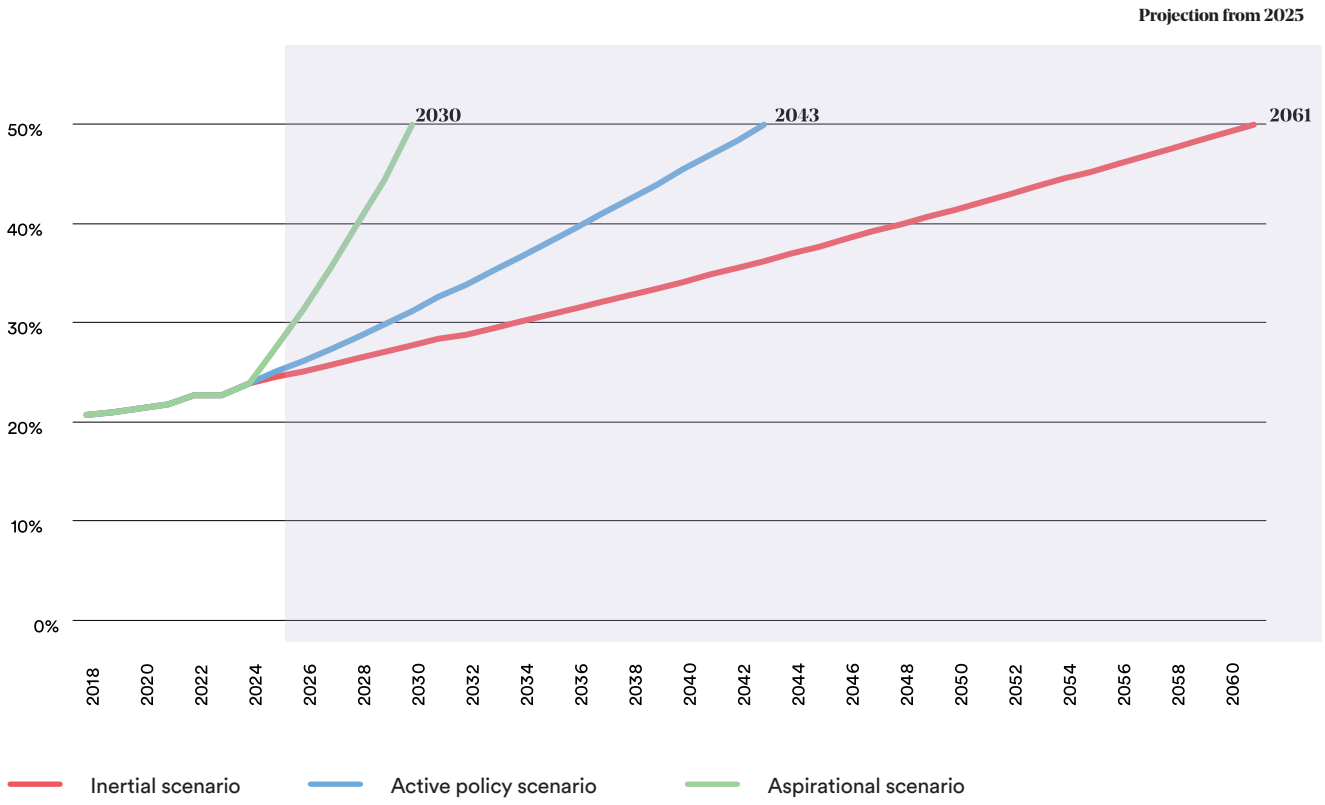
The prospective analysis suggests the following:

- **In the inertial scenario,** with an annual growth rate in female employment of 4.6%, **gender equality would not be reached until 2061,** almost four decades away.
- In the **active policies** scenario, with a higher annual growth rate of 7.8%, **parity could be achieved by 2043,** nearly 20 years earlier than in the baseline.
- In the **aspirational scenario,** reaching equality by 2030 would require an average annual increase of 23% in female employment, an **ambitious and currently unrealistic target in the present context.**

This analysis clearly shows that, even with targeted and sustained policy efforts, **achieving gender equality in employment linked to the energy transition could still take decades.**

The **more ambitious the commitment to equality, the faster the path to parity**, and the greater the economic and social benefits for the country as a whole.

Figure 16. Projection of the percentage of women in sectors linked to the energy transition in each scenario *(% women out of total)*



Source: Afi from the Labour Force Survey (LFS) and the Integrated National Energy and Climate Plan (PNIEC 2023-2030).

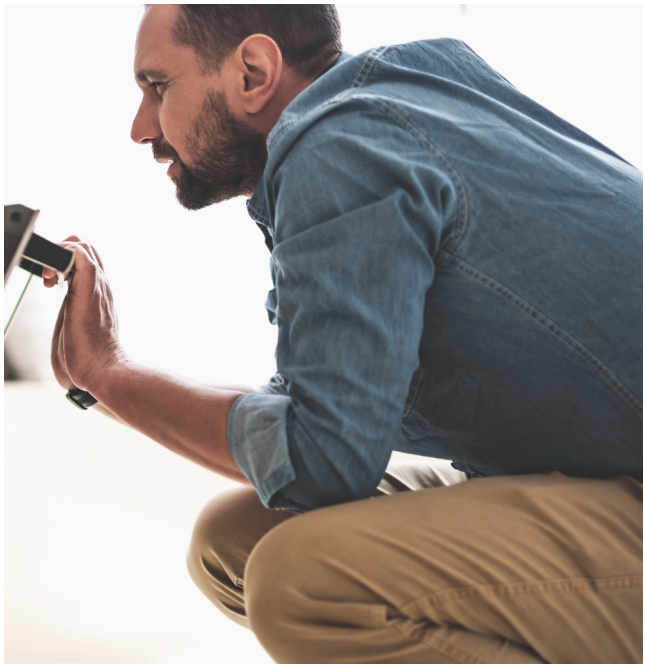
Gap 5. Female-headed households face a higher risk of energy poverty

Energy poverty refers to the difficulty some households face in accessing basic energy services, such as maintaining an adequate temperature in the home, without incurring an excessive financial burden. This problem of access to energy can arise from a combination of factors: insufficient income, high supply prices, or energy-inefficient housing. This phenomenon has a direct impact on people's quality of life and health, and has become a priority challenge on the energy transition agenda.

Numerous studies have shown that **women in situations of socioeconomic vulnerability are particularly susceptible to energy poverty** (González Pijuan, 2016; Sánchez-Guevara et al., 2018; SiiS, 2023). In 2024, the at-risk-of-poverty rate among women was 20.4% compared to 18.9%, a difference that has remained since 2017 (EAPN, 2024). This inequality is explained by multiple structural factors, such as the income gap, the feminisation of certain types of vulnerable households, and the disproportionate burden they bear in domestic and caregiving tasks.

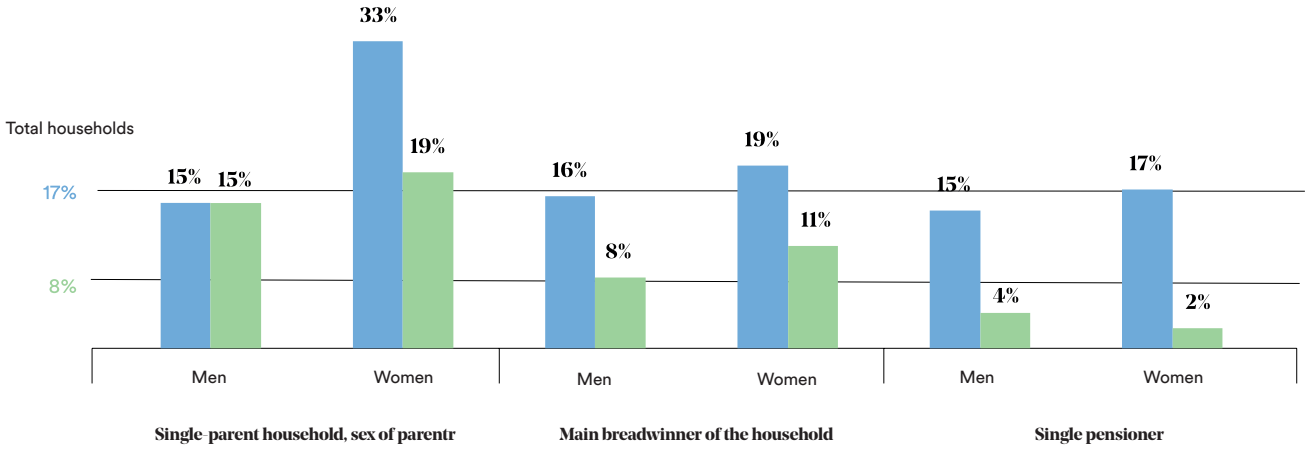
Thus, **one in three single-mother households reports being unable to afford to maintain an adequate temperature in their home,** a percentage much higher than the average for all households (17%) and for single-parent households in which the parent is a man (15%).

Furthermore, among these households, late payment of energy and household utility bills is more frequent (19% of



single-mother households, compared to 15% of single-parent households headed by men and 8% of all Spanish households). In the rest of the households, the incidence of energy poverty measured through these indicators is aligned with the total number of households, with slight differences by gender.

Figure 17. Subjective indicators of energy poverty. *Percentage of households, 2023*

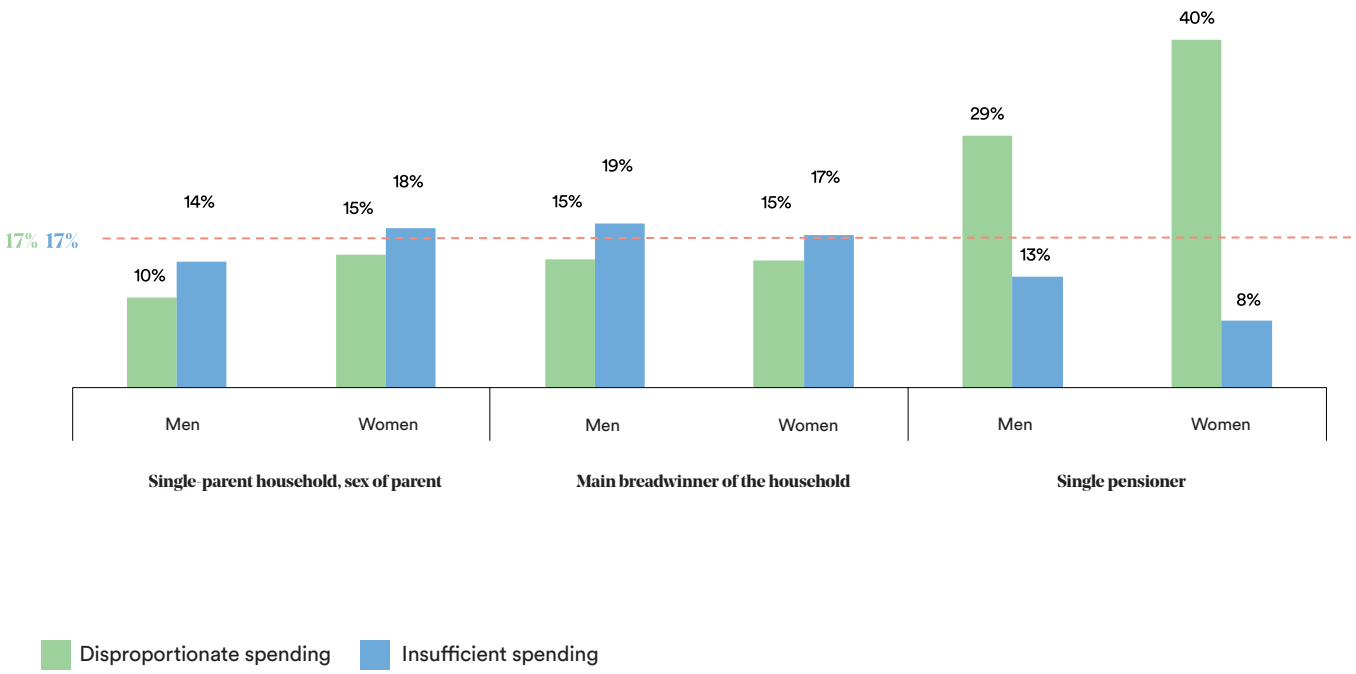


Source: Afi from ECV. Notes: Pensioners are considered to be people who receive some type of pension or benefit and are over 65 years old. The main breadwinner of the household is considered to be the person who contributes the majority of the household income, as identified by the survey itself.

Energy poverty can also be measured using objective indicators based on the proportion of household spending allocated to energy—either because it represents a disproportionate burden on the household budget, or because the level of spending is insufficient. In 2024, 40% of households consisting of a female pensioner spent a disproportionate amount on energy, compared to 29% of male pensioners living alone, and 17% of all households in Spain.

Conversely, the percentage of households that spend insufficiently is higher among single-mother households, although it has improved in the last year. In 2023, 23% of single-mother households allocated insufficient spending to energy, although this percentage has decreased in the last year to 18%, closer to the percentage observed for all households in that same year (17%).

Figure 18. Percentage of households that have insufficient or disproportionate spending on energy relative to their total expenditure, 2024



Source: Afi from HBS. Notes: Expenditure is considered disproportionate if this proportion is more than double the national median, which would represent an excessive burden for the household. Spending is considered insufficient if the proportion of energy expenditure relative to total household monetary expenditure is less than half the national median, which could indicate that not enough is being spent to maintain adequate home temperature conditions. It should be noted that the sample size in the group of single-parent households is small (less than 1% of the sample, between 100 and 192 observations, depending on the year considered), so the conclusions may not be representative of the group they represent.

The specialised literature warns of the consequences of energy poverty, the feminisation of which has traditionally been made invisible

The **consequences of this gender energy gap** go beyond simple access to energy and extend to different areas of daily life (Habersbrunner et al., 2024):

- **Physical and mental health:** Greater exposure to extreme events – such as heat waves or cold spells, droughts or floods – disproportionately affects households living with energy limitations. There is data to support this: in the summer of 2025, 3,832 people died in Spain from causes attributed to extreme heat, of whom almost 60% were women (Ministry of Health, 2025). Furthermore, prolonged exposure to extreme temperatures in poorly climatised homes increases the incidence of anxiety, depression, and respiratory and cardiovascular diseases. In rural areas, the habitual use of solid biomass such as firewood or charcoal for cooking and heating the home exposes women in particular to severe health risks, given their greater presence in these domestic spaces.

- **Domestic and care work:** women, as the main individuals responsible for the thermal comfort of the home, face a greater physical and emotional burden when they have to manage households with energy-inefficient devices. This situation not only increases the time spent on caregiving tasks, but does so under conditions of material hardship, thus deepening gender inequalities.

- **Autonomy and access to rights:** many women in vulnerable situations are not listed as holders of electricity contracts, which limits their ability to apply for aid, benefit from social bonuses, or exercise their rights as consumers. This is compounded by an excess of bureaucratic procedures that acts as an additional barrier to the effective exercise of their energy rights.

Furthermore, this is a situation that has **traditionally been rendered invisible due to the absence of official statistics** that reflect this reality from a gender perspective. This is because poverty measurement is usually carried out using the household as the unit of analysis, which hides intra-household gender inequalities (Clancy, 2011; González Pijuan, 2016; Clancy et al., 2017).

Consequently, various analyses have detected a lack of gender-sensitive indicators in European energy and climate policies, making it difficult to design effective public policies that recognise and prioritise vulnerable groups. For some years now, this situation has begun to be reversed with the creation of indicators of access to and use of energy that take these groups into account, such as the European Energy Poverty Observatory.

Gap 6. Women, especially younger women, are at the forefront of commitment and optimism towards the energy transition

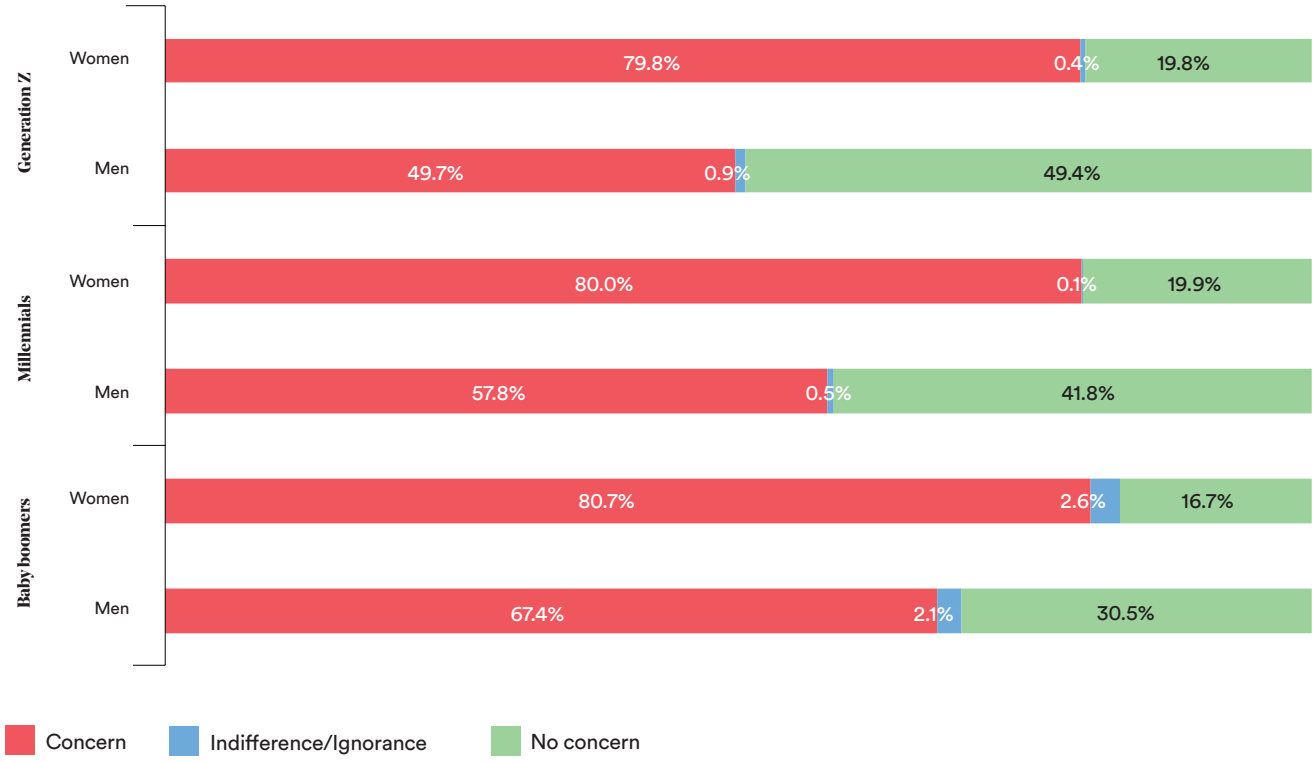
The energy transition towards a low-carbon model not only involves structural technological and economic transformations, but also a broad social mobilisation that requires the commitment and active participation of all citizens. In this context, it is essential to understand how attitudes towards this transformation vary according to sex and age, as these variables can significantly influence the level of environmental concern, interest in clean energy, and support for climate policies.

The degree of concern about climate change shows substantial differences between men and women, which intensify when the generational component is considered. Data from the CIS Barometer (March, 2025) shows that women of all generations report being more concerned about climate change than their male counterparts, and that this gender gap is especially pronounced among the youngest generation surveyed, Generation Z.

Specifically, **4 out of 5 women express concern about climate change, with levels exceeding 79% across all generational cohorts.**This pattern contrasts with the lower level of concern expressed by men, whose level of concern ranges between 50% and 67.4%, depending on their generation.

This data reveals a dual pattern. On one hand, women of all ages show very high and homogeneous levels of concern; on the other hand, men show greater generational variability, with younger men significantly less concerned than their elders. This configuration suggests that, **beyond the generational effect, sex is a determining factor in attitudes towards climate change.**

Figure 19. Level of concern about climate change, 2025

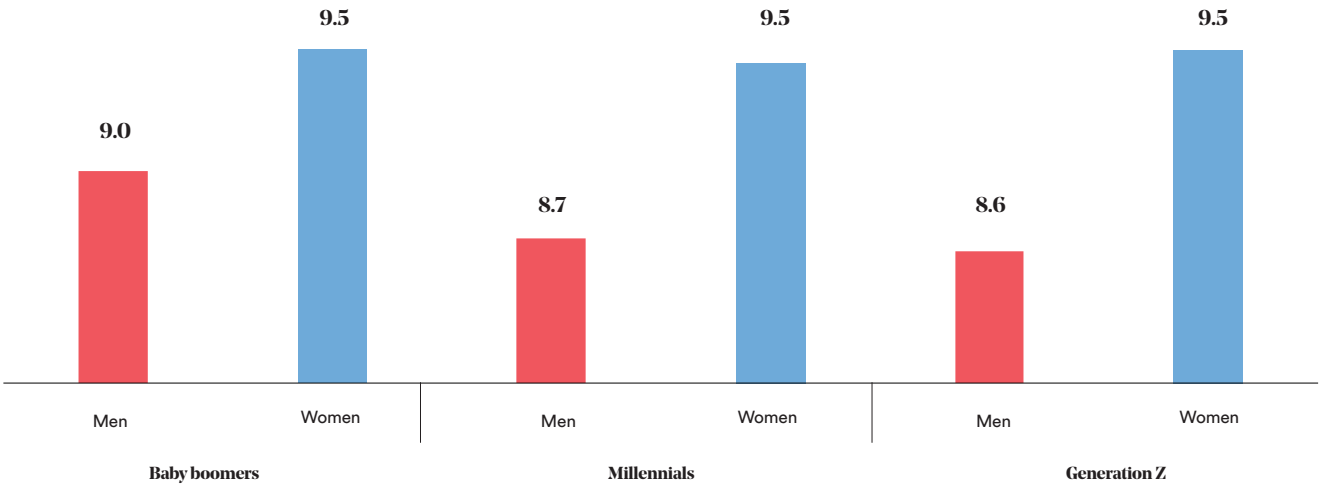


Source: Afi from CIS

As a result, women's greater concern about climate change translates into a more proactive attitude regarding the need to take measures to mitigate it. According to data from the CIS Barometer (December 2024), **women consistently and across all generations assign an average importance of 9.5 out of 10 to climate action,** which demonstrates a remarkably high level of commitment.

In contrast, **men,** although they also value action against climate change, give **a lower average score across all generational groups, with a decreasing trend among the youngest.**

Figure 20. Importance of taking action against the effects of climate change. *Average between 0 "No importance" and 10 "Maximum importance", 2024*



Source: Afi from CIS

Replacing fossil fuels with renewable energy is not only perceived as an environmental necessity, but also as a potential lever for economic development. In general, 80% of people from the *baby boomer* generation — both men and women — consider this energy transformation to be an opportunity for the business sector, showing a consensus independent of gender in this generation.

This convergence becomes less pronounced among younger people, and the younger they are, the more pronounced it becomes. Again, among Generation Z, gender differences are significantly amplified. While almost all Gen Z women (94.3%) identify the energy transition as an opportunity for businesses, only 74.7% of Gen Z men share that view.

This data suggests that women are not only more aligned with climate values, but also show greater optimism about the transformative potential of the energy transition, particularly regarding the role of businesses. This attitude is complemented by a **strong support for the public promotion of renewable energies,** which reaches very high levels in all age groups, but again with a slightly higher intensity among women.

Thus, women of all generations show a greater degree of agreement in promoting public policies that drive renewable energies as the country's main energy source.

Gap 7. Public policies for the energy transition address gender equality, with improvements in monitoring and ongoing challenges in evaluation

As this study shows, the leadership of the public sector in promoting women's employment in sectors linked to the energy transition is essential to laying the foundations for a model that achieves the objectives set by the different regulations and strategies, which are ambitious considering the evolution observed in recent years.

On one hand, the **PNIEC 2023-2030** expressly recognises the need to mainstream the gender perspective throughout the entire energy transition process. This strategic document outlines action mechanisms aimed at reversing the underrepresentation of women in the energy sector and promoting their leadership in green employment. It also includes measures to ensure equal access to the benefits of energy and climate-related investments and reforms, empower women and girls (particularly those in vulnerable situations), and support the production of data and indicators disaggregated by sex.

On the other hand, and as a key implementing body in the social dimension of the energy transition, **the Institute for Just Transition (ITJ)** has incorporated specific measures to address gender gaps in employment. Among the initiatives are the dissemination of studies and evidence on the gender gap in the energy transition, leadership in implementing measures included in the Plan Estratégico para la Igualdad Efectiva de Mujeres y Hombres 2022–2025 (Strategic Plan for the Effective Equality of Women and Men 2022–2025), and the prioritisation of women's training in PRTR-funded training contracts, among others.

The National Energy Poverty Strategy (ENPE) explicitly recognises the higher incidence of energy poverty among women and specifically promotes the following actions: publication of indicators by sex in the *European Energy Poverty Observatory;* the implementation of the electricity and thermal social tariffs, the incorporation of gender criteria in building renovation, the introduction of energy poverty detection protocols in healthcare centres and social services, and the updating of data on the reality of energy poverty in Spain.

Lastly, mechanisms such as the **Last Resort Tariff (TUR) for gas,** by setting prices regulated and limited by law, contribute to mitigating the effects of energy poverty in low-income households, reducing women's exposure to situations of severe energy vulnerability.

In conclusion, the design and monitoring of gender-sensitive policies have been successfully deployed within the field of the energy transition, although challenges remain in relation to their evaluation. In particular, questions persist regarding the accessibility of the policies in place, as well as their effectiveness and efficiency in meeting their intended objectives — including the identification of administrative, communication-related or social barriers that hinder access to the rights associated with these measures.

Conclusions and proposals

The **energy transition** is one of the key strategic pillars in tackling the climate crisis and promoting sustainable development. However, this transformation is **not gender-neutral.** The report shows that, if these gaps are not specifically addressed, they risk being reproduced in the sectors called upon to lead the change.

In the workplace, female participation in activities related to the energy transition remains low. In 2024, only 24% of employment in the sector was held by women. This underrepresentation entails a high opportunity cost. Achieving parity would generate **an estimated economic impact of 122 billion euros annually, equivalent to 7.7% of GDP.**

Although female employment has grown in recent years, occupational segregation persists. Women are concentrated in lower-paying sectors, such as commerce, and in administrative support roles, while strategic sectors with higher added value, such as energy or industry, continue to be dominated by men. Generational change does not correct this pattern. In fact, in all the cohorts analysed, the ratio remains around 0.3 women for every man.

While the energy transition sectors offer better working conditions than the economy as a whole (less temporary employment, higher wages and less pronounced gaps), this does not guarantee a just transition. The glass ceiling is still in place. **only one in five senior management positions in listed companies within the energy transition sector is held by a woman.**

The roots of the labour gap lie in education. While women are the majority in higher education overall, their participation in studies linked to the sector — including both VT and university degrees or master's programmes — remains limited. Moreover, just 11% of female graduates in these fields go on to work in the sector, compared to 23% of men, making labour market entry a critical bottleneck.

Employment projections further underscore the urgency of action: if current trends continue, gender parity would not be achieved until 2061; even with active policies in place, it would not be reached before 2043. To reach parity by 2030 — in line with international commitments — the number of women entering the sector would need to grow by 23% annually, five times the current rate.

In terms of consumption, energy poverty is one of the most acute expressions of inequality. Spain has rates with a particularly severe impact on single-mother households and pensioners living alone. These situations not only hinder access to a basic resource, but also generate serious side effects: deterioration of physical and mental health, increased caregiving burden, and greater limitation of women's economic autonomy.

Finally, **attitudes towards the energy transition show a clear gender divide.** Women express greater concern about climate change, a stronger commitment to the structural changes needed to address it, and broader support for public policies aimed at promoting renewable energy. In particular, younger generations — and especially women of Generation Z — see the transition not only as an environmental necessity, but also as an opportunity for economic growth and business innovation. This vision opens the door to aligning emerging talent with sustainability goals.

Action proposals in the field of the labour market

1

Facilitating the incorporation of women into the energy transition workforce

- Promote agreements with companies so that a percentage of internship and first job positions are allocated to female graduates of vocational training or STEM degrees.
- Develop a public-private portal that centralises job offers in energy transition sectors, filtered by technical and managerial occupations, and that guarantees visibility for female candidates.
- Offer support in selection processes and express training to cover gaps in specific requirements detected in the job offer.

2

Increasing the value of vocational training as a gateway to employment in the sector

- Promote companies' recognition of intermediate and higher vocational training as a valid route to technical positions, without always requiring university degrees for positions where such a level is not necessary.
- Value skills acquired through professional experience or certifications, favouring dual training pathways.
- Develop *in-company* training programs that promote vertical and horizontal mobility.

3

Highlighting the employment potential of energy transition activities

- Launch institutional and sectoral campaigns that showcase the opportunities for quality employment and professional growth offered by the energy transition sectors.
- Showcase female role models in technical and leadership occupations, breaking the perception that these are male-dominated environments.
- Organize talks and workshops in institutes and vocational training centres, in collaboration with companies in the sector and women's organisations.

4

Measure to transform: monitoring women's integration in the workforce

- Develop a methodological guide and an official classification of the economic branches linked to the energy transition in Spain, to facilitate homogeneous and rigorous monitoring. The lack of a clear and shared definition currently makes it difficult to measure progress towards the goals of equality and sustainability
- Implement monitoring and evaluation systems that allow for the periodic measurement of the impact of policies and programs for female integration in the labour market in the energy transition sectors.

Action proposals in the field of energy consumption

1

Guaranteeing effective access to specific measures to reduce energy poverty, especially for vulnerable groups

- Automate the granting process using data already available to the public administration (such as population registers, tax data, pension records and gender-based violence certificates), thereby avoiding placing the burden of application on the beneficiaries themselves.
- Design information campaigns tailored and segmented by profile (single mothers, retired women with minimum pensions, victims of gender-based violence), using community networks, health centres, and social services as priority channels.

2

Evaluating public policies aimed at reducing energy poverty with a gender perspective

- Set targets for reducing energy poverty, and systematically evaluate its evolution in certain household profiles with a gender perspective.
- Evaluate the impact of the measures implemented so far to correct deviations or make improvements in the design if necessary, maximising their effectiveness and efficiency.

3

Continuing to improve data sources with a gender perspective and their regular monitoring

- Expand the coverage and detail of data on energy poverty and consumption to certain profiles of vulnerable households, such as single-mother households, in the portals recently enabled for this purpose.
- Establish a schedule of periodic reports that measure the evolution of gender gaps and allow for early policy adjustments.
- Implement official indicators for measuring energy poverty that allow comparability between reports.

4

Increasing the evidence and visibility of the benefits of the energy transition to engage young men

- Develop studies, outreach materials, and testimonials based on evidence and official data that show how the energy transition generates quality employment, innovation, and professional development opportunities.
- Disseminate this evidence in formats and channels where young men are more active, with the aim of reinforcing their perception that sustainability is also a field of opportunity and leadership for them.

Ultimately, the energy transition is a strategic opportunity to transform the production model and move towards a more sustainable and resilient economy. However, this process will not be fair or effective if it does not incorporate a cross-cutting gender perspective: from training and employment to consumption and citizen participation. Closing the gender gap in this area is not only an imperative of equity, but an essential condition for fully harnessing the country's potential for growth, innovation, and competitiveness.

ClosinGap

1. What is ClosinGap? is a Spanish non-profit association that was created to promote **economic growth from a gender equality perspective**.

Formed by 14 large companies (Merck, MAPFRE, Repsol, BMW Group, Mahou San Miguel, PwC, CaixaBank, Grupo Social ONCE, KREAB, Fundación CEOE, Telefónica, Redeia, Herbert Smith Freehills Kramer Spain and Enagás) united by the goal of accelerating the transformation in favour of equal opportunities for women and men and achieving the Sustainable Development Goals using a three-pronged strategy:

- Promoting knowledge and debate on inequality from an economic perspective.
- Serving as a source of innovative initiatives connected to the economy and women.
- Acting as a driver of social and economic transformation through initiatives that help to close these gaps.

2. What kind of work are we doing

The Association publishes detailed reports on the impact on Spanish GDP of the persistence of different gender gaps in various areas such as health, pensions, work-life balance, information technologies, consumption, leisure, positions of power, employment, disability, mobility or tourism, among others, in addition to developing other common actions.

3. What are our objectives?

- To promote social transformation from the business realm in the area of women and the economy, in close collaboration with the public and private sectors.

To generate knowledge and spark debate, to become a source of innovation, as well as a driving force and agent of change.

4. Find out more about us

For more information, go to www.closingap.com or our LinkedIn (@ClosinGap) and Instagram (@ClosinGap_) accounts.

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