German-Brazilian Energy Partnership

Integrating the Gender Component into Energy Policies Across the G20 Countries

Prepared as part of the bilateral energy partnership on behalf of the BMWK

Legal Information

Publisher:
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
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Last updated:
November/2024

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Energy Partners

Federal Ministry for Economic Affairs and Climate Action

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German-Brazilian Energy Partnership

Implementing organisation

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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1. Introduction

As the G20 advances towards a cleaner and more sustainable energy matrix, it is crucial that gender inequalities, often invisible in political and social spheres, are effectively addressed to ensure a just transition. Within the context of the German-Brazilian Energy Partnership, established as a platform for high-level political dialogue between the Brazilian Ministry of Mines and Energy (MME) and the German Federal Ministry for Economic Affairs and Climate Action (BMWK), implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, an opportunity has emerged to advance the debate on including gender components in energy policies.

The energy sector serves as a critical foundation for sustainable development and economic prosperity. However, many G20 nations have not fully integrated gender equality into their energy policies and practices, resulting in significant disparities in energy access and representation of women in both the sector and policymaking processes. Consequently, it is vital to understand and map effective strategies for incorporating gender components into energy policies to promote equality and advance the Sustainable Development Goals (SDGs). The active involvement of women and the implementation of gender-transformative policies in the energy sector are crucial for achieving SDGs 5 and 7.

According to IRENA (2023), 675 million people lack access to electricity, mainly in Africa and South Asia. Meanwhile, 2.3 billion people lack access to clean cooking facilities. Evidence suggests that this energy poverty has a gender component that is often overlooked, despite statistics showing that women are responsible for most family care and domestic tasks. This reality puts women at a disadvantage when it comes to using the energy services available in their homes, exacerbating social and economic inequalities. In many communities, women are the primary managers of household energy, making them highly vulnerable to inadequate energy policies. The lack of proper infrastructure forces them to rely on unsustainable sources like wood and charcoal, which harms both the environment and their health. Traditional energy policies often overlook these gendered impacts and fail to offer accessible alternatives. Additionally, the time women spend collecting firewood, an invisible economic resource, could be used for education, paid work, or entrepreneurship, boosting income and reducing poverty.

However, addressing gender issues in energy access is not enough; it is essential to recognize that the challenge extends beyond usage to the implementation of inclusive energy policies. The solution lies in a comprehensive approach that considers women's social and economic contexts, specific needs, and adaptive capacities. To achieve this, energy access policies must incorporate mechanisms that empower women to actively participate in the shift of the energy landscape. The integration of women into energy projects, such as installing solar panels or maintaining community energy systems, can significantly improve the outcomes of such initiatives and promote women's autonomy and community development.

Ensuring that women are empowered to actively participate in energy transition processes also involves recognizing the economic inequalities women face. Often, they do not have the same access to credit or financial resources as men, limiting their ability to acquire cleaner energy technologies, such as efficient stoves or solar panels (Cecelski & Oparaocha, 2023). For energy policies to be effective, it is vital to address these economic barriers and create conditions that allow women to access microcredit programs or targeted subsidies. Access to quality jobs and financing are critical levers for empowering women and their families.

Although women play a crucial role in managing energy at the household and community levels, their participation in professional and decision-making levels in the energy sector remains very limited. In the renewable energy sector, for instance, it is estimated that less than a third of jobs are held by women, with only 22% in technical roles (IRENA,2019). This imbalance is often rooted in socially constructed gender roles and power dynamics that restrict women's inclusion in the energy labor market. Sectors like oil and gas, transportation, construction, and agriculture are mostly dominated by a male workforce often due to stereotypes that influence career choices. Additionally, these fields value experience in operational and engineering roles, areas where female representation has historically been low. If energy policies continue to be developed without considering this gender perspective, they may perpetuate or worsen existing inequalities.

Recognizing the vital role women play in energy management at the household and community levels highlights the need for their inclusion in broader discussions and decision-making processes within the energy sector. Their insights and experiences are crucial for developing effective energy policies that address not

only technical aspects but also social dimensions. By ensuring that women have a voice in the creation and implementation of these policies, policymakers can foster a more inclusive energy landscape that reflects diverse perspectives and meets the needs of all communities.

For companies in the energy sector, attracting and retaining talented women goes beyond a matter of social responsibility: gender diversity expands access to innovative ideas and strengthens the ability to tackle critical changes in the sector, such as the energy transition. Gender-balanced teams demonstrate greater effectiveness in solving complex problems and improving overall performance (Duchnowski,2022). Additionally, organizations that include women in leadership positions tend to be more sustainable and achieve better financial results. Studies indicate that companies with at least 30% female leadership can see profit margins up to 6% higher (PRNewswire,2016).

Another aspect of the gender issue is the lack of female representation in decision-making spaces and energy policy formulation. Women rarely have an active voice in discussions about energy infrastructure, and their needs and perspectives are often ignored. The lack of female leadership in the upper echelons of the energy sector limits the diversity of ideas and innovations that could emerge in the search for more effective solutions. Therefore, overcoming this barrier requires affirmative policies that encourage the entry of women into technical and leadership areas in the energy sector.

However, the inclusion of women in the energy sector involves more than just technical considerations; it requires social and cultural change. It is necessary to recognize that disparities are intrinsically connected to broader system factors, that interact with individual circumstances, which can impede effective solutions. This underscores the importance of an intersectional approach that addressed the multiple layers of inequality and their overlapping effects. Therefore, public policies should be developed through participatory processes, enabling women to engage in the planning, implementation, and monitoring phases of energy policies. This active participation ensures that their needs and experiences are heard and considered, resulting in more sustainable and equitable solutions.

The energy sector, in all its dimensions, is profoundly shaped by gender issues, necessitating their integration into energy policies to ensure a more efficient transition for everyone, particularly for women, who have historically been marginalized in these discussions. The lack of gender integration in energy policies perpetuates inequalities and hinders the full use of women's potential in the energy transition. In this context, this study aims to conduct a detailed analysis of the strategies adopted by G20 countries to incorporate gender components into their energy policies, identifying best practices, challenges, and opportunities for improvement.

This study is structured into seven chapters, beginning with this introduction. The second chapter outlines the methodology employed in the study. The third chapter provides an overview of gender integration in the energy sector across G20 members, highlighting three key areas: National Key Figures, which includes critical data indicators; Institutional Framework, which examines the governmental structures responsible for formulating, implementing, and monitoring energy and gender policies; and Legal Framework, which outlines initiatives and policies addressing gender issues within the energy sector. The fourth chapter presents a comparative analysis of the G20 countries in these same three areas, providing both quantitative and qualitative assessments. The fifth chapter discusses the findings from interviews conducted with women working in the energy sector, including those involved directly with policy development and gender mainstreaming. The sixth chapter explores best practices adopted by G20 members to promote gender equity in the energy sector and offers recommendations to inspire gender mainstreaming initiatives. Finally, the last chapter presents the conclusions of the report.

2. Methodology

The study was developed based on a comprehensive analysis of the literature, data collection, and interviews with women working in the energy sector, including gender policy experts. Additionally, relevant documents, such as national policies, plans, frameworks, and reports, were qualitatively analyzed and compared to identify best practices and formulate recommendations. While our sample size is limited in relation to the broader population of affected individuals in G20 countries, our findings provide an initial indication rather than a claim to representativeness. The methodology applied to each of these components is described below.

Literature Review

The literature review was conducted in two main stages. The first stage involved a general review of documents addressing gender issues within the energy sector. The second stage focused on a country-by-country search for each G20 member. During these stages, research was carried out using the official websites of G20 countries' respective energy ministries, as well as gender-related public agencies where available.

Additionally, extensive searches were made in major literature databases, such as Scopus, Google Scholar, and Web of Science. Reports and databases from international organizations, such as the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA), the World Bank (WB), the Organization for Economic Co-operation and Development (OECD), and various UN agencies (including UNFCCC, UNIDO, and UN Women), were also consulted.

In this process, specific keywords were used to identify relevant documents, combining terms in several ways. These searches were conducted primarily in English when an English version of the website was available, but in some cases, searches were performed in the native language of the respective country. This allowed for searches in Spanish, Portuguese, French, and Russian. The keywords used included terms such as "women", "woman", "gender", "female", "empowering", "empowerment", "empower", "girl", "energy", and "STEM".

The relevant literature identified during these searches was systematically documented in a spreadsheet. In a subsequent step, each document was carefully analyzed to assess its content. The literature was then categorized into two main groups: general bibliographic materials with a broad focus, and country-specific policies, actions, or initiatives. The primary aim was to identify areas where gender and energy intersect, particularly within three main topics: energy poverty and access, workforce participation and the gender pay gap, and political representation in the energy sector. Additionally, the research was expanded to encompass gender-inclusive policies in Science, Technology, Engineering, and Mathematics (STEM) fields.

Finally, a review of overarching gender policies within each country and their legal frameworks was conducted, particularly when these regulations impacted the broader economy and, consequently, the energy sector.

National Key Figures

Data on key indicators were collected from various international databases for each G20 member to identify gender gaps in the energy sector. All sources are linked within the National Key Figures sections.

The demographic indicator "Population" and the economic indicator "GDP" were obtained from the annual estimates of the World Bank. The Gender Gap Index was extracted from the Global Gender Gap Report 2023, published by the World Economic Forum, which assesses and ranks 146 countries in terms of gender inequality across various dimensions, with scores ranging from 0 (absolute inequality) to 1 (absolute equality).

The "Total Gender Employment Gap" indicator was also sourced from the 2023 Global Gender Gap Report and represents the percentage difference between male and female employment rates: (Employed men – Employed women) / (Employed men). For the energy sector, the same methodology was applied based on 2018 data from the IEA Gender and Energy Data Explorer, except for the United Kingdom, which uses 2014 data. The indicators "Total Share of Female Senior Managers" and "Share of Female Senior Managers in the Energy Sector" were obtained from the IEA database, using data from 2023.

The "Total Gender Wage Gap" was calculated as the percentage difference between the average wages of men and women: (Average wage of women – Average wage of men) / (Average wage of men). For Argentina, Brazil, China, Japan, Mexico, South Korea, and Turkey, data from the Global Gender Gap Report 2023 was used. For the African Union, Global Gender Gap Report 2022 was utilized, and for the European Union, Eurostat data from 2022. For Australia, Canada, France, Germany, Italy, and the United States, data from the IEA 2018 was used, except for the United Kingdom, whose information is from 2014. The 2022 Women in Energy report was used for Russia.

The same methodology was applied for the "Gender Wage Gap in the energy sector", focusing on wage disparities in this field. Data for Australia, Canada, France, Germany, Italy, and the United States was also sourced from the IEA 2018, except for the United Kingdom (2014 data). In the case of Argentina, data from the Ministerio de Ambiente y Desarrollo Sostenible (2019) was used, and for the European Union, data from the European Comission (2023) was referenced. For Russia, the 2022 Women in Energy report was considered.

The indicators "Share of Women in STEM Graduate Attainment", "Share of Women in Parliament", and "Share of Women in Ministerial Positions" were collected from government websites or databases such as the World Economic Forum and Eurostat. Meanwhile, the indicators "Share of Women in Energy Ministries' Staff" and "Share of Women in Energy Ministries' Senior Management" were gathered directly from the websites of energy ministries. The calculation of female staff was based on the proportion of female employees relative to the total number of employees, while for ministries' senior management, the count and weighting were based on senior positions (Commissioner, Secretary, Deputy Commissioner, Deputy Secretary, Director-General, Director, and other high-ranking roles such as Chief Advisers) listed on the official ministry websites, except for France, Germany, Italy, and the United States, where data was sourced from a report published by the Federal Ministry for Economic Affairs and Climate Action in 2022.

Institutional Framework

A review of government structures and the entities responsible for formulating, implementing, and monitoring policies related to both the energy sector and gender equity was conducted for each G20 country. This included the prospecting of official reports, institutional websites, and publications from international organizations, followed by a description of the specific responsibilities and functions of each entity.

Initially, the main bodies involved in the formulation and implementation of energy policies were identified, emphasizing their functions and activities. The review covered ministries and analogous entities responsible for promoting, coordinating, and implementing programs aimed at developing energy resources, and councils that often act as advisory bodies, ensuring the harmonization of different interests within the energy sector.

Subsequently, the role of institutions dedicated to promoting gender equality and women's empowerment was analyzed. In this context, ministries and specialized departments within ministries that play central roles in the formulation of policies, national strategies, and action plans were considered. Decentralized entities, such as agencies or specialized bodies, which in certain countries are responsible for addressing gender issues, were also assessed.

Legal Framework

In this phase, a systematic analysis was conducted of the main initiatives, programs, and policies in the energy sector that address gender issues, as well as broader policies covering the entire economy and society, necessarily including the energy sector.

Initially, based on the documents collected during the literature review phase, specific content analysis was conducted for each G20 country. The evaluation addressed specific areas of energy, such as the labor market, energy access, and political representation, ensuring comprehensive coverage of different axes of gender integration. Next, each selected initiative was described using the 5W2H method to ensure all relevant aspects were considered: Responsible (Who), Objective (What), Location (Where), Reason (Why), Period and Status (When), Process (How), and Costs (How much). Each initiative was introduced with its name, responsible entity, objective, implementation period, and reason for its creation. In addition, the implementation process, status, associated costs, and results achieved to date were discussed. Finally, for each country, a summary of their legal frameworks focused on the intersection between gender and the energy sector was presented.

Comparative Analysis

The comparative approach was organized into three main phases. Initially, the key national indicators of G20 countries were examined, including quantitative data on gender disparity and female participation in economic and energy sectors. Then, the institutional frameworks of each country were investigated, highlighting similarities and differences at the governmental level in terms of responsibility for gender and energy issues. Finally, the integration of gender issues into energy policies and practices was evaluated, based on the existing legal frameworks.

In the first stage, seven distinct analyses were conducted based on the data collected:

- For the "Gender Gap Index", countries were ranked to identify those with the highest and lowest gender disparities, considering the four specific dimensions of the Index. Additionally, average scores for Global North and Global South countries were calculated, excluding the European Union and African Union as they do not have individual scores.
- For the analysis of the indicators "Gender Employment Gap - Total vs. Energy Sector", "Gender Wage Gap - Total vs. Energy Sector", and "Share of Women in Senior Management Positions - Total vs. Energy Sector", bar charts were developed based on the collected data for each country, comparing the energy

sector with other sectors of the economy. Additionally, regional averages were calculated for Global North and Global South countries. Due to the absence of some data, certain adaptations were necessary in calculating the averages. For the "Total Gender Employment Gap" indicator, the average for the Global South was calculated excluding countries from the African Union. For the "Gender Employment Gap in the Energy Sector" indicator, the Global North average excluded South Korea and Japan. For the "Share of Women in Senior Management" and "Share of Women in Senior Management in the Energy Sector" indicators, the average for the Global South was calculated excluding the African Union countries and China. For the "Total Gender Wage Gap" indicator, the Global South average excluded Saudi Arabia, South Africa, India, and Indonesia. Finally, for the "Gender Wage Gap in the Energy Sector" indicator, the Global North average was calculated without including South Korea and Japan, while the Global South average considered only Argentina and Russia.

- The "Share of women in STEM graduate attainment" was presented in a scatter plot, highlighting disparities among G20 members. Regional averages were calculated, excluding Russia due to lack of data.
- The "Share of women in parliamentary and ministerial positions" was compared using bar charts. Furthermore, averages were calculated for Global North and Global South countries. For the indicator "Share of Women in Ministerial Positions", African Union was excluded due to the lack of data.
- The "Share of women in senior management positions within energy ministries" was represented using scatter plots. Averages were calculated considering countries from the Global North and South, with specific exclusions, such as Mexico, due to data unavailability. Additionally, simple averages were computed for the identified percentage margins of countries such as France, Italy, the United States, and Germany.

In the second stage, a comparative analysis was conducted on the institutional frameworks of G20 member countries concerning the degree of formalization and priority given to gender and energy issues. It was analyzed whether the governments have dedicated ministries for women, consultative bodies, or specialized departments within larger ministries, whether they integrate gender into the core of their national policies, or whether they address gender equality within broader agendas. In the case of the energy sector, the organization of ministries, departments, and secretariats was examined, along with the alignment of energy policy with other economic and environmental priorities, such as industrial policies, sustainability, energy transition, and climate change.

In the third stage, both quantitative and qualitative analyses were conducted. Tables and charts were employed to illustrate the distribution of policies by category and to classify countries according to their approach to gender policies in the energy sector.

The quantitative evaluation concentrated on the presence of laws, programs, frameworks, and initiatives that promote gender equity in the energy sector, along with policies that address the broader economy and indirectly influence this sector. The analysis assessed whether each country has policies addressing gender across eight distinct categories: Labor Market, Labor Market in the Energy Sector, Political Representation, Political Representation in Energy Ministries, Access to Energy for Women, Training and Education Programs, Financial Aspects, and Externalities of Energy Policies.

For the qualitative analysis, countries were classified into four categories of gender integration based on the identified policies:

- Gender-Informative: Recognizes the existence of gender issues but does not address the norms and gender relations that affect access to resources.
- Gender-Sensitive: Acknowledges gender norms and roles but does not develop corrective actions to address the inequalities generated.
- Gender-Responsive: Considers the specific needs of marginalized groups and develops policies intentionally targeted at these groups within the energy sector.
- Gender-Transformative: Addresses harmful gender norms, develops strategies for progressive changes in power relations, and tackles the structural causes of gender inequalities in the energy sector.

In this study, it was classified the G20 countries into two categories: the "Global North" and the "Global South," based on the United Nations Conference on Trade and Development (UNCTAD) criteria. The Global South generally includes Africa, Latin America and the Caribbean, and most of Asia and the Middle East (except for Japan and South Korea), as well as Oceania (excluding Australia and New Zealand). On the other hand, the Global North encompasses North America, the EU, Japan, South Korea, Australia, and New Zealand, as defined by UNCTAD. Russia, as part of the European and Asian continent but not part of the EU, was included in the Global South group.

Accordingly, the Global North countries in this study are: Australia, Canada, France, Germany, Italy, Japan, South Korea, the United Kingdom, the United States, and the European Union. The Global South countries are: Argentina, Brazil, China, India, Indonesia, Mexico, Saudi Arabia, South Africa, Russia, Türkiye, and the African Union.

Stakeholders Interview Analysis

Between September 17 and October 11, 2024, research was conducted through questionnaires and virtual semi-structured interviews with gender policy experts, policymakers, and women in the energy sector. The participants included 11 women from Brazil, Australia, Japan, South Africa, France, and Russia. All virtual interviews were recorded, transcribed, and thoroughly analyzed.

Both the questionnaires and interviews used the same set of questions, as outlined above:

- How would you assess the current state of gender inclusion in your country's energy policies regarding energy poverty or access to energy? From 1 to 4.
- How would you assess the current state of gender inclusion in your country's energy policies regarding energy poverty or access to energy? From 1 to 4.
- How would you assess the current state of gender inclusion in political representation in your country? From 1 to 4.
- Do you know best practices or cases of success of gender-inclusion policies in the energy sector? If yes, which ones?
- What do you think are the main challenges and barriers in integrating gender aspects in energy policies?
- What would you recommend for making energy policies more gender-inclusive?

These included three exploratory and three evaluative questions, the latter using a Likert scale: 1 for bad, 2 for unsatisfactory, 3 for good, and 4 for excellent. The objective questions were designed to assess the respondents' level of agreement or perception of specific statements, providing a quantitative framework for analyzing their opinions. The exploratory questions, on the other hand, allowed for deeper insights, giving participants room to expand on their thoughts and experiences. This qualitative element enriched the data by capturing nuances that quantitative methods might overlook.

Best Practices and Recommendation

Based on the legal frameworks described for each country, exemplary practices were selected for their scope, uniqueness, results, and transformative impact in promoting gender equity and equality[1] in the energy sector. Following qualitative analyses, these best practices were categorized into different thematic areas, each addressing various aspects of gender integration in the energy sector:

- Energy Plans, Gender Strategies, and Laws: Focuses on policies and legal frameworks that incorporate gender into energy development strategies.
- Forums, Discussion Networks, and Global Initiatives: These initiatives aim to promote discussion, share experiences, and create networks that can catalyze gender inclusion.
- Training and Capacity Building: Involves educational programs and professional development initiatives that aim to increase women's skills for participating in the energy sector.
- Financing: Highlights financial mechanisms designed to create an economic environment that favors female participation in the energy sector and gender-responsive budgeting.
- Tools: Covers instruments and resources that facilitate the implementation of equity policies.

Finally, recommendations were drawn up based on the documents identified in the literature review, the interviews, and suggestions from the authors, all of which are appropriate to the context of the G20 countries. The recommendations presented in this chapter are organized in a table, focusing on four main areas of results:

- Economic Empowerment: Focuses on improving women's employability, gender wage gap and encouraging entrepreneurship in the energy sector. Strategic actions are suggested to promote skills development and the creation of business opportunities for women.
- Access to Energy and Affordability: Enhances the importance of ensuring that energy poverty policies and energy infrastructure plans account for gender roles in their approaches, guaranteeing equitable access, quality, and affordability of energy for women.
- Representation in the Public Sector and Politics: Focuses on promoting policies that ensure a significant presence of women in public and political leadership roles.
- Gender Mainstreaming: Includes strategies for integrating a gender perspective at all levels of energy policy formulation and implementation, as well as political and structural measures to enhance institutional capacities.

1 Equity: involves treating everyone justly, or equitably, according to their circumstances. Equity recognizes that people have different circumstances and allocates resources and opportunities to reach an equal outcome. Equality is an outcome of the equity process, it means treating everyone the same, regardless of their differences or specific needs.

3. Overview of gender integration in the energy sector

This chapter provides an overview of gender integration in the energy sector across G20 members, focusing on three key areas. National Key Figures highlight data indicators that reveal gender disparities in the energy sector for each country. Institutional Framework analyzes the governmental structures responsible for formulating, implementing, and monitoring energy and gender policies. Finally, Legal Framework outlines initiatives and policies addressing gender issues in the energy sector, while considering broader policies that impact the sector.

3.1 Africa Union (AU)

3.1.1 National key figures

Population (2023): 1.48 billion[2]

GDP (2023), current US$): 2.86 trillion[3]

Gender Gap Index: n.a.

Gender employment gaps:

- Total gender employment gap: n.a.
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers: n.a.
- Share of female senior managers in the energy sector: n.a.

Gender wage gaps:

- Total gender wage gap (2022): 34%[4]
- Gender wage gap in the energy sector:

Share of women in STEM graduate attainment (2022):47%[5]

Gender political representative gaps:

- Share of women in parliament (2023): 25,02%[6]
- Share of women in chief executive position (2023): 1,79%[7]
- Share of women in the African Energy Commission's staff: n.a.
- Share of women in the African Energy Commission's senior management: 25%[8].

Share of energy poor population that is women: n.a

3.1.2 Institutional Framework

The African Union (AU) plays a significant role in advancing energy access, regional energy integration, and renewable energy development across the continent. Two key bodies are involved in shaping energy policy within the AU: the Department of Infrastructure and Energy and the African Energy Commission.

The **Department of Infrastructure and Energy** is responsible for promoting, coordinating, implementing, and monitoring programs and policies related to infrastructure development, transportation, energy resources, and information and communication technology. The **African Energy Commission**, a specialized agency under the Commission for Infrastructure and Energy, is dedicated to fostering energy development and cooperation throughout Africa. Its broad mandate includes leading the creation and continuous updating of African energy statistics, formulating energy policies and programs, mobilizing technical and financial support for member states, and implementing capacity-building initiatives.

The **Women, Gender, Development and Youth Directorate** is responsible for leading, guiding, defending, and coordinating the AU's efforts on gender equality, development and promoting women's empowerment. The Directorate designs programmes and projects based on the policies and frameworks adopted by AU Member States.

2 https://www.worldometers.info/world-population/africa-population/

3 https://www.imf.org/external/datamapper/NGDPD@WEO/DZA/ZAF/MAR/NGA/EGY/AFQ

4 https://www.weforum.org/publications/global-gender-gap-report-2022/

5 Graduates, undergraduates and postgraduate levels. https://www.womeninscience.africa/africa-has-highest-proportion-of-female-stem-graduates/

6 Mean of the countries' data. https://ourworldindata.org/women-political-advances

7 Chief executive" means the head of state or head of government, depending on who has more power. https://ourworldindata.org/women-political-advances

8 Considering the leadership structure of the African Energy Commission (Executive Director and Head of Division - Policy Strategy and Support) and the Department of Infrastructure and Energy (Commissioner and Acting Director). https://au-afrec.org/leadership and https://au.int/en/directorates/about-infrastructure-and-energy"

3.1.3 Legal Framework

The AU is a continental body consisting of the 55 member states that make up the countries of the African Continent. Officially launched in 2002 as a successor to the Organization of African Unity, the AU aims to drive Africa's socio-economic and political integration.

While the AU has formally committed to gender equality by embedding it within its legal framework and development strategies, the lack of targeted and structured interventions in the energy sector suggests its efforts are still in the early stages. It is important to note, however, that several African countries have made significant progress in integrating gender into their national energy policies. These advancements, though, are from individual country initiatives rather than directives from the AU.

Gender equality is a principle embedded in the AU's framework. Article 3 of the **Protocol on Amendments to the Constitutive Act of the African Union**[9] acknowledges the vital role of women in promoting inclusive development. It calls upon the AU to ensure the effective participation of women in decision-making processes, particularly in political, economic, and socio-cultural spheres. Additionally, the **Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa**[10], adopted in 2003, explicitly addresses women's rights and gender equality across the continent.

The commitment to gender equality is further reinforced in **Agenda 2063**[11], the AU's strategic framework for Africa's long-term socio-economic transformation. One of the key pillars of Agenda 2063 is Aspiration 6, which envisions "an Africa whose development is people-driven, relying on the potential of African people, especially its women and youth, and caring for children". This emphasizes the need for a more inclusive society where all citizens actively participate in decision-making, with no one left behind based on gender, political affiliation, religion, ethnicity, locality, or age. As part of this vision, the AU has committed to eliminating all forms of gender-based violence and discrimination and achieving gender parity in education, public and private institutions, and elected public offices at all levels.

To operationalize this commitment, the AU has developed the **Strategy for Gender Equality and Women's Empowerment**[12], focusing on six key pillars: Women's Economic Empowerment and Sustainable Development; Social Justice and Protection of Women's Rights; Leadership and Governance; Gender Management Systems; Women, Peace, and Security; and Media and ICTs. These pillars aim to ensure that women are integral to Africa's development agenda and are equally represented and involved in decision-making processes.

Despite these comprehensive strategies, specific interventions in the energy sector are scarce within the AU's framework. One example is the commitment to "put the political and financial spotlight on existing AU initiatives and campaigns for parity at all levels and in all fields of education, literacy, **STEM**, and vocational training". While no specific AU-wide plans or programs for gender integration in the energy sector were found, various African countries have developed best-practice examples of energy frameworks that promote gender equality at the policy and national planning levels.

A global study examining 192 national energy frameworks from 137 countries found that around one-third included gender considerations. Mostly gender-responsive frameworks came from developing countries, especially in sub-Saharan Africa, addressing issues such as time poverty, energy access, and women's health and well-being (Ngum and Kim, 2023). In Africa, there is a growing collaboration among national governments, international organizations, the UN system, NGOs, and the private sector to bridge gender gaps in sustainable energy and to address the interlinkages of gender and energy with the other SDGs (Cecelski and Oparaocha, 2023).

Several countries have made significant strides in incorporating gender into their national energy policies (IUCN, 2018). Kenya adopted a **National Gender and Energy Policy** in 2019. The Economic Community of West African States has developed a **Policy for Gender Mainstreaming in Energy Access**, which provides policymakers with essential indicators and arguments to align energy interventions with gender equality principles (Cecelski and Oparaocha, 2023). **Mauritius' Long-Term Energy Strategy** recognizes that women's roles as energy consumers and producers can significantly contribute to energy savings and efficiency. **Nigeria's National Energy Masterplan** includes provisions for organizing meetings between grassroots partners, women's groups, and other stakeholders to influence energy policy recommendations. **South Africa's Energy Policy** mandates the Department of Minerals and Energy to develop an employment equity plan to address gender imbalances. **Rwanda's Energy Policy** proposes credit enhancement and micro-finance programs targeting women to boost investments in clean energy technologies. **Zimbabwe's National Energy** framework explicitly allocates funds for gender-related activities. Additionally,

9 https://au.int/en/treaties/protocol-amendments-constitutive-act-african-union
10 https://au.int/en/treaties/protocol-african-charter-human-and-peoples-rights-rights-women-africa
11 https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf
12 https://au.int/sites/default/files/documents/36195-doc-au_strategy_for_gender_equality_womens_empowerment_2018-2028_report.pdf

Niger, Benin, and Botswana have incorporated gender indicators in their frameworks, such as tracking the number of jobs created for women through renewable energy initiatives.

These national efforts are further bolstered by public-private partnerships and international networks such as ENERGIA, which operates across Africa and Asia to champion gender equity in the energy sector. ENERGIA has supported energy ministries and local authorities in nine African countries — including Kenya, Nigeria, Ghana, Botswana, Senegal, Lesotho, Tanzania, Benin, and Liberia — in evaluating their policies and institutional practices through a gender-sensitive lens (Ngum and Kim, 2023). Additionally, ENERGIA has empowered over 8,000 women entrepreneurs in the clean energy sector through targeted support and training (Cecelski and Oparaocha, 2023).

Development financing institutions and agencies, which design, manage, and finance energy access programs, also play a crucial role in influencing gender mainstreaming practices in the sector. Institutions such as the World Bank, African Development Bank, Asian Development Bank, and Inter-American Development Bank have introduced guidelines to integrate gender considerations into energy and infrastructure projects (IRENA, 2019).

Table 1 outlines other initiatives, both governmental and public-private partnerships, across African countries.

Table 1 - Initiatives across African Countries

Country	Description
Kenya	The Strathmore Energy Research Centre (SERC) conducted training for female solar PV technicians and included gender awareness in the curriculum to promote women's participation in renewable energy vocational education (IRENA, 2019).
Burkina Faso Ethiopia Kenya Uganda Tanzania	Hivos, a Dutch development organization, incorporated gender equality into its domestic biogas and improved cookstove programs, including the African Biogas Partnership Programme, in 2011. This integration encompassed planning, implementation, monitoring, and institutional setup. Training approaches were adapted to address gender issues more effectively, resulting in a significant increase in the proportion of women trainees across all participating countries (IRENA, 2019).
Ghana	Ghana's Scaling Up Renewable Energy (SREP) investment plan incorporates a gender-sensitive approach, including hiring a gender expert, conducting women-targeted consultations, and implementing participatory feedback mechanisms. The plan aims for equitable access to modern energy services and employment in renewable energy, with established health, safety, and environmental standards (CIF, 2017).
Nigeria	The Rural Women Energy Security (RUWES) Initiative targets underserved rural women who are off-grid, energy-poor, and suffer from health issues related to harmful energy practices. This project focuses on small-scale renewable energy solutions to enhance women's health and improve the overall quality of life for their families (CIF, 2017).
Namibia	Namibia's Equitable Economic Empowerment Policy includes previously disadvantaged groups, such as women and disabled individuals, in renewable energy tender processes. Scoring elements include, among others, ownership, or shareholding, with particular emphasis on women and disabled individuals, and management or board positions held by the previously disadvantaged (IRENA, 2019).
Kenya	The Public Procurement and Asset Disposal Act 2015 mandates that at least 30% of procurement value each year be allocated to enterprises owned by women, youth, persons with disabilities, and other disadvantaged groups. Public entities, including those in the energy sector, must report biannually to Parliament on compliance. Implementation challenges have been met with increased procurement spending and targeted training for women entrepreneurs (Un Women and UNIDO, 2023)
East and Southern Africa	The project enhances access to information and engages women in distributing energy-efficient lighting and appliances. It addresses the distinct roles of women and men in household energy use, ensuring both genders have the information needed to make informed decisions. The project also focuses on improving product accessibility and includes capacity-building activities to strengthen women's roles in distributing energy-efficient products (Un Women and UNIDO, 2023).
Uganda	In 2017, Uganda introduced the Gender and Equity Compact to support gender-responsive budgeting (GRB) in the energy and mineral sectors, aiming to enhance gender and equity planning and budgeting (Un Women and UNIDO, 2023).
East Africa	The West African States Programme on Gender Mainstreaming in Energy Access served as a model for others. In 2018, the East African Regional Centre published its Gender and Sustainable Energy Situation Analysis, a baseline study that identifies barriers and achievements in gender equality, and reviews policies and regulatory frameworks supporting gender mainstreaming and women's engagement in the energy sector (IRENA, 2019).

Source: elaborated by authors (2024)

3.2 Argentina

3.2.1 National key figures

Population (2023): 46.6 million[13]

GDP (2023), current US$): 640.6 billion[14]

Gender Gap Index[15] **(2023): 0.762 (ranked 36th)**[16]

Gender employment gaps:

- Total gender employment gap (2023): 29%[17]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers (2023): 9.3%[18]
- Share of female senior managers in the energy sector (2023): 10.5%[19]

Gender wage gaps:

- Total gender wage gap (2023): 6.25%[20]
- Gender wage gap in the energy sector: 2% [21]

Share of women in STEM graduate attainment (2022): 25%[22]

Gender political representative gaps:

- Share of women in parliament (2023): 44.8%[23]
- Share of women in ministerial positions (2023): 22%[24]
- Share of women in the Secretariat of Energy's staff: 50%[25]
- Share of women in the Secretariat of Energy's senior management: 31%[26]

Share of energy poor population that is women: n.a

3.2.2 Institutional Framework

The Argentine **Secretariat of Energy** of the Ministry for Economy (*Secretaría de Energía del Ministerio de Economia*) is responsible for the development and implementation of energy policies. It oversees energy planning, regulation, and the coordination of national energy strategies and oversees public services in the energy sector. It also promotes the development of new energy sources, technological research, and international cooperation in energy matters.

Currently, there is no national body specifically dedicated to addressing gender issues in Argentina. This is a notable change from the previous institutional frameworks established to address gender-related concerns. The first organization of this type was the National Council of Women (Consejo Nacional de las Mujeres), created in 1992, which was responsible for policies aimed at eliminating gender discrimination. In 2017, it was replaced by the National Institute of Women (Instituto Nacional de las Mujeres), which was then succeeded by the Ministry of Women, Gender, and Diversity (*Ministerio de las Mujeres, Géneros y Diversidad*) in 2019. At the end of 2023, the Ministry was replaced by the Subsecretariat for the Protection against Gender Violence (*Subsecretaría de Protección contra la Violencia de Género*), created within the Ministry of Justice and Human Rights. However, this sub-secretariat was dissolved in June 2024.

3.2.3 Legal Framework

In Argentina, the legal framework for gender equality spans multiple areas, including politics, labor, and violence prevention. More recently, efforts have focused on closing

13 https://data.worldbank.org/indicator/SP.POP.TOTL

14 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017

15 The Gender Gap Index rates 146 countries around the globe. In the framework, a score of 0 indicates absolute gender inequality, while a score of 1 indicates absolute gender equality. With a score of 0.912 (2023), Iceland currently ranks first in terms of global gender equality and Afghanistan ranks last, with a score of 0.405.

16 https://www.weforum.org/publications/global-gender-gap-report-2023/

17 The gender employment gap is the percent of women compared to men working in the given sector/year/country among the employed workforce of working age: (Employed men – Employed women) / (Employed men). The gender employment gap of 29% indicates that, proportionally, the employment rate for women is 29% lower than the employment rate for men. Available at: https://www.weforum.org/publications/global-gender-gap-report-2023/

18 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

19 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

20 https://www.weforum.org/publications/global-gender-gap-report-2023/

21 Electricity, Gas, and Water Sector. Calculation based on total labour income (nominal values at fourth-quarter 2019 prices). https://www.argentina.gob.ar/sites/default/files/manual_-_genero_sector_energia_1.pdf

22 https://www.enargas.gov.ar/secciones/noticias/descargas/descarga1_875.pdf

23 https://www.weforum.org/publications/global-gender-gap-report-2023/

24 https://www.weforum.org/publications/global-gender-gap-report-2023/

25 count and weighting were conducted based on the positions described on the SE's webpage. https://www.argentina.gob.ar/jefatura/gestion-y-empleo-publico/empleo-publico/biep/informes-estadisticos

26 count and weighting were conducted based on the positions described on the SE's webpage. https://www.argentina.gob.ar/jefatura/gestion-y-empleo-publico/empleo-publico/biep/informes-estadisticos

gender gaps within the energy sector. While concrete policies in this field only emerged in 2021, Argentina's evolving approach demonstrates an effort to ensure that vulnerable groups, particularly women, benefit from the energy transition, focusing on skill development, inclusive decision-making, and addressing energy poverty.

Although concrete policies in this area were only initiated in 2021, incorporating a gender perspective in energy access, workforce inclusion, and political participation demonstrates Argentina's evolving approach.

Gender equality is embedded in the Argentinian Constitution and in various international agreements to which Argentina is a signatory. **The 1995 Constitution**[27], in Article 75, Section 23, empowers the National Congress to legislate and implement positive measures to ensure real equality of opportunity and treatment, and the full enjoyment and exercise of human rights for women.

However, full equality necessitates additional laws to address historical disparities. Although these laws are not specific to the energy sector, they apply across all fields. Notable examples include the **Female Quota Law** (Law 24.012/1991[28]), which mandates that national legislative candidate lists must include at least 30% women, in proportions that provide a genuine chance of being elected. The **Female Union Quota Law** (Law 25,674/2002[29]) aims to ensure proportional female representation among union delegates, reflecting the number of women in collective bargaining units. Another important measure is the **Gender Parity Law in Political Representation** (Law 27,412/2017[30]), which requires candidate lists for the national Senate, House of Representatives, and Mercosur Parliament to alternate between male and female candidates throughout. This law also establishes the principle of gender parity in the lists of candidates for national legislators and for the Mercosur Parliament, raising female representation from 30% to 50%. This law was first implemented in the 2019 national elections. The **Micaela Law** (Law 27,499/2018[31]) mandates compulsory gender and violence prevention training for all public officials at every level and branch of government. Additional laws focus on preventing and eradicating violence against women and ensuring the rights of transgender women.

In recent years, Argentina designed national plans related to gender and diversity, leading to significant advances in public policy. These efforts include the formulation of interministerial actions to achieve government objectives. However, as of 2024, under a new administration, the future of gender-focused policies remains uncertain. Key plans incorporating a gender perspective into public policy—the **National Plan on Violence Against Women**[32] and the **National Plan for Equality in Diversity**[33]— had their latest editions covering the periods 2022-2024 and 2021-2023, respectively.

In the energy sector no concrete plan or program has been established. However, in 2021, the Secretariat of Energy approved the **Energy Transition Plan 2030 Guidelines** (Resolution 1036/2021, Annex 1[34]), setting the vision, goals, and strategy for Argentina's energy transition. These guidelines recognize the relationship between climate change and social inequality, where the most vulnerable sectors are those that are most affected by environmental impacts. In this Resolution the Secretary of Energy highlights that it is necessary to ensure universal access to modern and quality energy services, particularly for the most vulnerable socioeconomic groups, with a gender perspective. The strategy also includes gender equality in the development of skills and knowledge required for the energy transition (AMES and BID, 2022). In the same year, the **Federal Network of Argentine Women in Mining**[35] was established under the Secretariat of Mining of the Ministry of Productive Development. It aims to consolidate a federal and territorial network that helps promote equal conditions for greater inclusion of women in the national mining industry.

During 2022 and 2023, Argentina was in the process of developing a **National Gender, Diversity, and Climate Change Strategy**, which is directly related to energy policies. This strategy outlines five key areas of action: 1) Institutionalizing policies and training with a gender and diversity perspective; 2) Planning and budgeting with a gender and diversity perspective; 3) Mechanisms for women's and diverse groups' participation in decision-making; 4) Technical and professional training and inclusion of women and LGBTI+ individuals in strategic sectors; and 5) Financing projects with a gender perspective. In 2022, the first phase of this strategy focused on collecting qualitative data on gender, diversity, and climate change through collaborative efforts with

27 https://www.argentina.gob.ar/normativa/nacional/ley-24430-804/texto
28 https://www.argentina.gob.ar/normativa/nacional/ley-24012-411/texto
29 https://www.argentina.gob.ar/normativa/nacional/ley-25674-80046/texto
30 https://www.argentina.gob.ar/normativa/nacional/ley-27412-304794/texto
31 https://www.argentina.gob.ar/normativa/nacional/ley-27499-318666/texto
32 https://www.argentina.gob.ar/sites/default/files/2022/08/pna_2022_2024.pdf
33 https://www.argentina.gob.ar/sites/default/files/2020/09/plan_nacional_de_igualdad_en_la_diversidad_2021-2023.pdf
34 https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-1036-2021-356100/texto
35 https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-255-2021-354810/texto

stakeholders, which also contributed to developing governance scenarios (Argentina, n.d.).

In this context, the National Directorate for Climate Change published six guides in 2023 that provide key concepts and tools for integrating gender and diversity perspectives into sectoral climate action plans, including those in the energy sector (Ministerio de Ambiente y Desarrollo Sostenible, 2023). These guides identify the main gender gaps and offer examples and recommendations for incorporating gender into the design of energy sector measures.

In conclusion, while Argentina has a long history of gender inclusion policies, specific efforts in the energy sector only began to materialize in 2021, yielding promising research in 2022 and 2023. However, the 2024 change in administration has left the future of the National Gender, Diversity, and Climate Change Strategy uncertain. Overall, the implementation of concrete actions to address gender inequalities and promote equity in access to resources, leadership positions, and pay within the energy sector remains limited. Current initiatives primarily emphasize awareness and capacity building, without effectively challenging the gender norms and relations that sustain inequality.

3.3 Australia

3.3.1 National key figures

Population (2023): 26.45 million[36]

GDP (2023, current US$): 1.7 trillion[37]

Gender Gap Index (2023): 0.778 (ranked 26th)[38]

Gender employment gaps:

- Total gender employment gap: 37.4% (2018)[39]; 13.3% (2023)[40]
- Gender employment gap in the energy sector: 84.9% (2018)[41]
- Total share of female senior managers (2023): 17.9%[42]
- Share of female senior managers in the energy sector (2023): 11.4%[43]

Gender wage gaps:

- Total gender wage gap: 17.1% (2018)[44]; 15.31% (2023)[45]
- Gender wage gap in the energy sector: 13.6% (2018)[46]

Share of women in STEM graduate attainment (2022): 37%[47]

Gender political representative gaps:

- Share of women in parliament (2023): 38.4%[48]
- Share of women in ministerial positions (2023): 43.48%[49]
- Share of women in Australia's Department of Climate Change, Energy, the Environment and Water staff (2023): 59.4%[50]
- Share of women in Australia's Department of Climate Change, Energy, the Environment and Water senior management (2023): 59%[51]
- Share of women on Australian Government boards (2023): 53.2%[52]
- Share of Chair and Deputy Chair held by women on Australian Government committees in the Climate Change, Energy, Environment and Water portfolio (2023): 21.7%[53]

Share of energy poor population that is women (2005-2011): 39,82% (fuel poor)[54]

36 https://data.worldbank.org/indicator/SP.POP.TOTL
37 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
38 https://www.weforum.org/publications/global-gender-gap-report-2023/
39 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
40 https://www.weforum.org/publications/global-gender-gap-report-2023/
41 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
42 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
43 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
44 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
45 https://www.weforum.org/publications/global-gender-gap-report-2023/
46 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
47 https://www.industry.gov.au/publications/stem-equity-monitor/higher-education-data/university-enrolment-and-completion-stem-and-other-fields
48 https://www.weforum.org/publications/global-gender-gap-report-2023/
49 https://www.weforum.org/publications/global-gender-gap-report-2023/
50 https://www.apsc.gov.au/employment-data
51 https://www.apsc.gov.au/employment-data
52 https://www.pmc.gov.au/resources/gender-balance-australian-government-boards-report-2022-23/appendix
53 https://www.pmc.gov.au/resources/gender-balance-australian-government-boards-report-2022-23/appendix
54 Mean calculated based on the five fuel poverty affordability indicators—Low income – high cost, Cost–income ratio > 0.1, Cost–income ratio > 2x median, Unable to heat the home, and Could not pay bills on time—established in Azpitarte, Johnson, & Sullivan (2015).

3.3.2. Institutional Framework

The Department of Climate Change, Energy, Environment and Water (DCCEEW) is responsible for assisting the Minister for Climate Change and Energy in exercising their legal powers and for overseeing energy policy, regulation, and sustainable development in the energy sector. To ensure the effectiveness of these policies, the DCCEEW works closely with the **Energy and Climate Change Ministerial Council**, which guides national energy reforms and policies. The Council, composed of representatives from various levels of government, coordinates efforts and ensures that policies align with national objectives. The **Department of Industry, Science and Resources** through the Resources and Strategy Group covers policies and initiatives related to the oil and gas industry.

In Australia, promoting gender equality and women's safety is the responsibility of the **Office for Women** in the Department of the Prime Minister and Cabinet. The Office provides gender advice and delivering effective policies and programs for the Minister for Women and the Prime Minister.

3.3.3 Legal Framework

Australia's approach to gender equality is grounded in a robust strategy that extends across various sectors, including energy, the labor market, and political representation. Initiatives aim to address gender pay disparities, increase women's representation in leadership, and promote access to energy as part of the country's broader commitment to an inclusive energy transition. Additionally, the government has made strides in supporting women's participation in STEM fields, fostering political representation, and ensuring that the energy transition benefits marginalized groups, including women.

The Affirmative Action (Equal Employment Opportunity for Women) Act 1986[55] first required non-public sector organizations with 100 or more employees to report on a seven-step program to promote equal opportunity for women. In 1998, the Act was revised to become the **Equal Opportunity for Women in the Workplace Act**[56], shifting the focus from process to action. It was further revised in 2009-2010, resulting in the **Workplace Gender Equality Act 2012**[57], which aims to streamline reporting through six key indicators.

The Workplace Gender Equality Agency (WGEA), established by the 2012 Act, is responsible for collecting and publishing data on gender inequality indicators. WGEA promotes understanding, acceptance, and public debate on gender equality in Australian workplaces.

These laws have increased employer awareness of the importance of gender equality in the workplace, as evidenced by the high proportion of employers with formal gender equality policies. However, the 2022 data still show significant occupational segregation by gender, pay gaps and under-representation of women on boards.

In the electricity, gas, water and waste services sector, the gender pay gap decreased from 18.9 per cent in 2013-14 to 15.9 per cent in 2021-22. In addition, the proportion of organizations acting following a pay gap analysis increased from 47.1% to 85.7% over the same period. However, while organizational action increased, improvements in the pay gap lagged. Between 2019-20 and 2021-22, the proportion of organizations acting increased from 84.4% to 85.7%, but the wage gap increased from 13.9% to 15.9% (WGEA, 2021).

In response, Australia, guided by the **Equality in Energy Transitions Initiative** and the "**Equal by 30"**[58] campaign, has adopted structural measures to enhance pay transparency, promote women in leadership roles, and drive cultural change in the energy sector. After joining Equal by 30 at COP26 in November 2021, Australia committed to addressing gender disparities in executive roles and pay. In 2023, following a public consultation, the government announced further commitments under Equal by 30, including: 1 - establishing the Australian Women in Energy Roundtable to promote and share equality initiatives that accelerate women's participation in the clean energy workforce; 2 - advancing gender balance in leadership roles within the Department of Climate Change, Energy, the Environment and Water (DCCEEW); and 3 - working across government agencies to build a Women in Energy Resources Hub which will offer guidelines and procedures for small and medium enterprises aiming gender equality (DCCEEW, n.d.; Australian Public Service Commission, 2022).

The new **National Energy Workforce Strategy** consolidates the government's efforts to build capacity to meet its 2050 climate goals fairly and inclusively. Currently, under public consultation, the government aims to ensure that the workforce has the skills to meet net-zero targets while emphasizing diversity and inclusion. A previous government-commissioned study prioritized measures to increase women's participation in the clean energy workforce, including employer-focused initiatives to improve gender representation in recruitment.

55 https://classic.austlii.edu.au/au/legis/cth/num_act/aaeofwa1986634/
56 https://www.legislation.gov.au/Details/C2009C00329
57 https://www.legislation.gov.au/Details/C2016C00895
58 https://www.equalby30.org/

These initiatives are consistent with **Working for Women: A Strategy for Gender Equality**[59], launched by the government on March 7, 2024. The strategy outlines six long-term goals for achieving gender equality and identifies five priority areas for action: gender-based violence; unpaid and paid care work; economic equality and security; health; and leadership, representation, and decision-making.

Women's representation in the energy workforce is specifically addressed in Priority Areas 3 (economic equity and security) and 5 (leadership, representation, and decision-making). All the priorities are interlinked and will be considered in Australia's policy development. The Government is committed to supporting the private sector in embedding gender equality in pay, leadership, and opportunities, particularly in emerging sectors such as clean energy and the Equal by 30 campaigns on women in clean energy. The Government plans to invest US$376 million[60] to support community organizations facing increased costs and will implement indexation changes for organizations delivering women's safety initiatives (PM&C, 2024).

To further accelerate progress, the Administration is also implementing STEM-focused initiatives to promote gender equity in emerging sectors such as clean energy, cybersecurity, and shipbuilding. For example, the **Women in STEM and Entrepreneurship (WISE) Grants Program**[61], first announced in 2015 under the National Innovation and Science Agenda (NISA), aims to increase the participation of girls and women in STEM education and careers. The fourth round, launched in 2022, included US$8.7 million[62] in funding over three years, with grants ranging from US$336,634[63] to US$673,342[64] (DISR, 2024).

In 2019, two key frameworks were introduced: the Advancing Women in STEM Strategy and the Women in **STEM Decadal Plan**[65], led by the Australian Academy of Science and the Australian Academy of Technology and Engineering. A key outcome of these frameworks is the STEM Equity Monitor, hosted on the Department of Industry's website. The **STEM Equity Monitor**[66] tracks the participation of women and girls in STEM to ensure that current and future gender equity efforts are effective and targeted.

Moreover, in Australia's **Net Zero Plan**[67], currently under development, gender considerations are included in the formulation and implementation, though they are not the central focus. The plan specifically addresses "social equity through the transition," highlighting gender equality as one of the key factors to ensure a just and inclusive shift towards a low-carbon economy. It emphasizes the importance of providing marginalized groups, including women, with access to the opportunities and benefits of the energy transition.

The Australian government plans to conduct targeted consultations with stakeholder groups, including women, to ensure that future policies meet the needs of all segments of society and promote social equity. These consultations are part of a broader effort to develop a plan that maximizes social, economic, and energy benefits for all Australians.

Nonetheless, the **Australian Public Service Gender Equality Strategy 2021-26**[68] is the key document guiding gender equality across all levels of the public service. Agency heads and secretaries are held directly accountable for implementing the strategy through a range of measures demonstrating their commitment. Notably, it emphasizes fostering leadership at all organizational levels, including ensuring the presence of gender advocates in both senior and mid-level positions, and establishing employee networks that are valued and equipped to advance the gender equality agenda.

In 2024, the government reinforced its commitment to achieving and maintaining gender balance on government boards with the launch of the **Working for Women: A Strategy for Gender Equality**. This strategy sets specific targets for women's representation in general board positions as well as in chair and deputy chair roles.

Another key initiative is the **BoardLink program**[69], managed by the Office for Women. This initiative maintains a database of women candidates for

59 https://www.pmc.gov.au/office-women/working-women-strategy-gender-equality#:~:text=Working%20for%20Women%3A%20A%20Strategy%20for%20Gender%20Equality%20outlines%20the,outcomes%20no%20matter%20their%20gender

60 A$560 million, using an exchange rate of A$ 1,48 to $1. (October 10, 2024)

61 https://www.industry.gov.au/science-technology-and-innovation/diversity-stem

62 A$13 million, using an exchange rate of A$ 1,48 to $1. (October 10, 2024)

63 A$ 500 thousand, using an exchange rate of A$ 1,48 to $1. (October 10, 2024)

64 A$1 million, using an exchange rate of A$ 1,48 to $1. (October 10, 2024)

65 https://www.industry.gov.au/publications/stem-equity-monitor

66 https://www.industry.gov.au/publications/stem-equity-monitor

67 https://www.dcceew.gov.au/climate-change/emissions-reduction/net-zero

68 https://www.apsc.gov.au/publication/australian-public-service-gender-equality-strategy-2021-26

69 https://www.boardlinks.gov.au/

government board appointments and provides communication between women leaders in Australian industry and government.

In addition, Australia has funded leadership programs to encourage more women to run for parliament and take on political roles. The **Enhancing Diverse Women's Pathways into Leadership Roles** project, launched in 2023 with a $3.3 million[70] grant, is run by Women for Election Australia Ltd. It supports in-person training events, online forums, and the development of a technology platform to provide resources and support for women candidates. The goal is to increase both the number and diversity of women standing for and being elected to public office, with a particular focus on politically underrepresented communities (DESSFB, 2023).

In conclusion, Australia's gender policies have made significant progress across key areas, including the labor market and political representation. Australia has demonstrated a strong commitment to advancing gender equality through a comprehensive legislative framework and innovative initiatives. The Workplace Gender Equality Act 2012 and the Workplace Gender Equality Agency (WGEA) are central to these efforts, which aim to address pay gaps and promote equal-opportunity policies. While there has been progress in the energy sector — such as Australia's participation in Equal by 30 and the establishment of the Australian Women in Energy Roundtable — challenges remain, including the under-representation of women in senior roles. The need for more effective measures to close the gender pay gap. The 2024 Strategy and the new National Energy Workforce Strategy demonstrate a clear intent to embed gender equality into all aspects of energy policy and the labor market. In addition, Australia's investment in promoting women's participation in STEM and political leadership underscores the government's recognition that systemic change is essential to achieving meaningful and inclusive gender equality. Despite progress in integrating the gender perspective into energy policies, there is still room for a deeper transformation that challenges existing gender norms and promotes significant structural changes.

3.4 Brazil

3.4.1 National key figures

Population (2023): 216.4 million[71]

GDP (2023, current US$): 2.2 trillion[72]

Gender Gap Index (2023): 0.726 (ranked 57th)[73]

Gender employment gaps:

- Total gender employment gap (2023): 28%[74]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers (2023): 10%[75]
- Share of female senior managers in the energy sector (2023): 10.8%[76]

Gender wage gaps:

- Total gender wage gap (2023): 9.09%[77]
- Gender wage gap in the energy sector: n.a.

Share of women in STEM graduate attainment: 36.64%[78]

Gender political representative gaps:

- Share of women in parliament (2023): 17.7%
- Share of women in ministerial positions (2023): 36.67%
- Share of women in the Ministry of Mines and Energy's staff: n.a.
- Share of women in the Ministry of Mines and Energy's senior management: 32%[79]

Share of energy poor population that is women: n.a.

3.4.2 Institutional Framework

The **Ministry of Mines and Energy** (*Ministério de Minas e Energia*) is the main government institution responsible for energy sector legislation, as well as the regulation, supervision, and control of the implementation of policies aimed at promoting the development of the sector. These actions are carried out in accordance with the guidelines established by the **National Council for Energy Policy** (*Conselho Nacional de Política Energética*), an advisory body to the

70 A$5 million, using an exchange rate of A$ 1,48 to $1. (October 10, 2024)

71 https://data.worldbank.org/indicator/SP.POP.TOTL

72 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017

73 https://www.weforum.org/publications/global-gender-gap-report-2023/

74 https://www.weforum.org/publications/global-gender-gap-report-2023/

75 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

76 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

77 https://www.weforum.org/publications/global-gender-gap-report-2023/

78 https://www.weforum.org/publications/global-gender-gap-report-2023/

79 A count and weighting were conducted based on the positions described on the MME's webpage. https://www.gov.br/mme/pt-br/acesso-a-informacao/institucional/quem-e-quem

President of the Republic for the formulation of energy policies and guidelines.

The **Ministry of Women** (*Ministério das Mulheres*) is responsible for promoting gender equality, advancing women's rights, and combating gender-based violence. This Ministry leads the National Policy for Gender Equality. Additionally, the **National Council for Women's Rights** (*Conselho Nacional dos Direitos da Mulher*) is a consultative body that supports gender equality initiatives at the federal level.

3.4.3 Legal Framework

Brazil has developed a multifaceted framework to address gender equality across the entire economy, including the labor market and political representation. While the country's legal structure provides a foundation for gender rights, recent policies and initiatives reflect a growing focus in the energy sector, mostly in education and professional training of women in STEM fields, as well as the promotion of workplace equity.

Gender equality is embedded in the Brazilian Constitution and in various international agreements to which Brazil is a signatory, such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). **The 1988 Constitution**[80], in Article 5, guarantees equality before the law for all citizens, regardless of any distinctions, including gender equality. It also prohibits discrimination based on gender, age, color, or marital status in terms of salary, job functions, and admission criteria (Art. 47, XXX). In the Latin American context, Brazil stands out for its pioneering role in combating violence against women, with the Maria da Penha Law (Law 13,340/2006[81]) being a notable example.

However, full equality requires the creation of additional laws to address historical disparities. Although these laws are not specific to the energy sector, they apply to all areas, including energy. Notable among them is the **Gender Quotas Law** (Law 9,504/1997[82]), which mandates that at least 30% of party candidates in elections must be women. Additionally, **Resolution No. 23,607/2019**[83] by the Superior Electoral Court requires 30% of Electoral Fund resources and campaign time to be reserved for female candidates. However, the difficulty parties face in meeting these quotas has led to fraud known as "dummy" candidates. In response, the Superior Electoral Court decided in 2019 that the use of fictitious candidates could lead to the annulment of the entire slate. More recently, in 2023, the **Salary Equality Law** (Law 14,611/2023[84]) was enacted, reinforcing the prohibition of salary disparities between men and women performing the same functions, with provisions for sanctions against companies that violate this rule.

In recent years, a range of programs and initiatives has been introduced in the energy sector to promote gender equality, reflecting a renewed focus on equity by the Lula government since 2023.

One key development in this area is the establishment of the **Permanent Committee on Gender Issues of the Ministry of Mines and Energy and Associated Companies.** This committee is responsible for planning and monitoring gender equality policies within the Electro-Energetic and Mineral Sector Companies and the MME agency, organizing debates and projects aimed at advancing equity (MME, 2024). In addition, the Ministry launched the **Diversity, Equity, and Inclusion Program** in May 2024[85]. This program aims to implement policies that address diversity, equity, and inclusion, with a particular focus on gender and race.

Further advancing these objectives, in September 2024, the Ministry of Mines and Energy and the Ministry of Women signed the **National Pact for More Women in Energy and Mining**. This initiative promotes gender equity in leadership and management roles, encourages technical and managerial training for women in these sectors, and includes measures to reduce energy poverty by expanding access to energy and clean cooking technologies. It also addresses workplace violence and discrimination (EIXOS, 2024).

Besides this Pact, the Ministry of Women has played a crucial role in launching federal plans and programs. The **Gender and Race Equity Program**, coordinated by the Ministry of Women in partnership with UN Women, the ILO, the Ministry of Racial Equality, and the Ministry of Labor and Employment, seeks to promote gender and race equity practices in the organizational culture of medium and large companies, focusing on management and human resources areas. In its 7th edition, the Program introduced the **Gender and Race Equity Seal**, which certifies companies committed to gender equality in the workplace. Currently, 103 companies participate, including major energy companies and the Energy Research Office (*Empresa de Pesquisa Energética)*. To qualify for the seal, they must implement action plans approved by the Ministry by 2026 (MM, 2024; EPE, 2024).

80 https://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm
81 http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2006/lei/l11340.htm
82 https://www.planalto.gov.br/ccivil_03/leis/l9504.htm
83 https://www.tse.jus.br/legislacao/compilada/res/2019/resolucao-no-23-607-de-17-de-dezembro-de-2019
84 https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2023/lei/l14611.htm
85 https://www2.aneel.gov.br/cedoc/prt2024786mme.pdf

In March 2024, in honor of International Women's Day, the Ministry of Women launched a series of policies and actions for women, including measures for increasing women's participation in decision-making positions, salary equality between men and women, and capacity building in STEM fields (MM, 2024). Some of these initiatives include: the **Call for Support for Political Formation Projects for Women,** with an investment of US$715,500[86], this initiative aims to increase women's participation in decision-making positions. Named "Equality of Decision and Power for Women," the call was launched in April 2024 and focuses on projects from civil society organizations.

Also, the Wings for the Future Program is an initiative that aims to increase the participation of young women from marginalized communities in technology, energy, infrastructure, logistics, transport, science, and innovation sectors, with an emphasis on sustainability careers. It targets young women aged 15 to 29 who are socially vulnerable, preferably black, and indigenous women. The program has a budget of US$ 1.8 million [87]and is expected to benefit around 20,000 young women annually. It is a partnership with the Secretary-General of the Presidency of the Republic and is supported by Caixa Econômica Federal through its Sustainability and Digital Citizenship vice-presidency.

Another initiative is the **Empower Women in IT.** This cooperation agreement with the Federal Data Processing Service involves a social investment of US$ 89,500[88] and will support approximately 500 women. Besides, the **More Women in Energy Program** in partnership with the Ministry of Mines and Energy, is a program that aims to boost the careers of women in the energy sector and encourage the entry of young women. The agreement includes reserving 30% of slots in professional qualification courses and 50% in social training for young women in MME partnerships.

Additionally, the **Partnerships in Calls with the Ministry of Science, Technology, and Innovation (MCTI)** support projects that encourage the entry, training, and retention of girls and women in Exact Sciences, Engineering, and Computing. Lastly, the **"They in the Exact Sciences" Pilot Project,** which is currently being developed in partnership with the Federal Institute of São Paulo, this pilot project in the Alta Paulista region of São Paulo aims to encourage young public-school students to pursue STEM careers. The pilot will support about 500 students.

More recently, the Brazilian government, alongside 34 federal state-owned companies, signed a comprehensive national commitment to diversity and equity known as the **Pact for Diversity, Equity, and Inclusion**[89]. The pact aims to promote a more just society, positively impacting people's lives. It also focuses on enhancing well-being by creating better working conditions, including the preservation of physical and mental health. Additionally, the initiative is committed to combating all forms of discrimination, with respect and the appreciation of differences as its foundation. Furthermore, it promotes an inclusive culture by fostering psychological safety, strengthening cooperation, and optimizing efforts and resources in the pursuit of solutions.

To conclude, the integration of gender issues into energy policies is still developing, despite notable progress over the past two years. The highlighted programs reflect an increasing focus on educating and professionally training women in STEM fields, along with promoting workplace equity. However, there are no targeted policies to boost female representation in ministries or senior positions within the energy sector, nor are there broad laws that address women's presence in management or executive roles. Additionally, while energy poverty is acknowledged, there is little emphasis on its impact on women. Although there is recognition of the importance of gender inclusion, a more structured approach is needed to comprehensively address the specific needs of women in the energy sector.

3.5 Canada

3.5.1 National key figures

- **Population (2023): 40 million**[90]
- **GDP (2023, current US$): 2.1 trillion**[91]
- **Gender Gap Index (2023): 0.770 (ranked 30th)**[92]
- **Gender employment gaps:**
  - Total gender employment gap: 1.4% (2018)[93]; 11.9% (2023)[94]

86 R$ 4 million, using an exchange rate of R$ 5.59 to $1.
87 R$ 10 million, using an exchange rate of R$ 5.59 to $1.
88 R$ 500,000, using an exchange rate of R$ 5.59 to $1.
89 https://www.gov.br/gestao/pt-br/assuntos/estatais/transparencia/publicacoes-2/pacto-pela-diversidade-equidade-e-inclusao-nas-empresas-estatais/pacto-pela-diversidade-equidade-e-inclusao.pdf/view
90 https://data.worldbank.org/indicator/SP.POP.TOTL
91 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
92 https://www.weforum.org/publications/global-gender-gap-report-2023/
93 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
94 https://www.weforum.org/publications/global-gender-gap-report-2023/

- Gender employment gap in the energy sector: 67.8% (2018)[95]
- Total share of female senior managers (2023): 17.1%[96]
- Share of female senior managers in the energy sector (2023): 17.7%[97]

Gender wage gaps:

- Total gender wage gap: 13% (2018)[98]; 16.67% (2023)[99]
- Gender wage gap in the energy sector: 19.2% (2018)[100]

Share of women in STEM graduate attainment (2021): 34%[101]

Gender political representative gaps:

- Share of women in parliament (2023): 30.7%[102]
- Share of women in ministerial positions (2023): 48.5%[103]
- Share of women in the Natural Resources Ministry of Canada (2024): 49.6%[104]
- Share of women in the Natural Resources Ministry of Canada's staff (2022): 41–60 %[105]
- Share of women in the Natural Resources Ministry of Canada's senior management (2022): 41–60 %[106]

Share of energy poor population that is women (2017): 56,7%[107]

3.5.2 Institutional Framework

In Canada, energy policy is led by Ministry of Energy and Natural Resources of Canada or **Natural Resources Canada (NRCan)**, which develops and implements policies for the sustainable management of energy resources and the transition to a low-carbon economy (NRC, 2024). The **Canadian Energy Regulator (CER)**, on the other hand, regulates energy infrastructure to ensure safety and environmental compliance.

Women and Gender Equality Canada (WAGE), headed by the Minister for Women and Gender Equality, is a federal agency dedicated to promoting equality in respect of sex, sexual orientation and gender identity or expression.

3.5.3 Legal Framework

For Canada, it was possible to find initiatives that integrate gender aspects into government programs related to energy. Natural Resources Canada has a clear commitment to improving the adoption of a gender-sensitive approach in the development of its policies and programs, to ensure equitable access to energy for underserved groups. In addition, there are efforts to improve the representation of women in decision-making processes, while addressing gender disparities in the labor market. These topics highlight Canada's integrated approach to promoting gender inclusion in the energy sector through public policies and initiatives.

Since adopting the Beijing Declaration in 1995, Canada has committed to incorporating gender perspectives into its policy decisions, supported by the **Gender-Based Analysis Plus (GBA+)**[108] tool. GBA+, coordinated by Women and Gender Equality Canada, is mandatory for all federal ministries and agencies, including those responsible for energy policy, such as Natural Resources Canada and the Canada Energy Regulator.

From the Canadian government's perspective, gender emerges as an indicator of effectiveness, recognizing that the intersection of identity factors and social contexts influences the experience of a policy, program, or governmental initiative. Over the years, Canada has sought to identify and rectify gender-based discrimination, promoting equal opportunities in the workforce through laws ensuring equal pay for work of equal value and advancing women into leadership positions.

For instance, the **Legislated Employment Equity Program** (LEEP)[109] is designed to ensure that employers analyze their workforce and set tangible action plans and targets. However, despite progress in achieving employment equity, persistent systemic gender discrimination in pay led

95 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
96 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
97 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
98 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
99 https://www.weforum.org/publications/global-gender-gap-report-2023/
100 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
101 https://www150.statcan.gc.ca/n1/pub/36-28-0001/2021011/article/00004-eng.htm
102 https://www.weforum.org/publications/global-gender-gap-report-2023/
103 https://www.weforum.org/publications/global-gender-gap-report-2023/
104 https://www.canada.ca/en/treasury-board-secretariat/services/innovation/human-resources-statistics/population-federal-public-service-department.html
105 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
106 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
107 Mean calculated based on the two energy poverty affordability indicators— Cost–income ratio > 0.1, Cost–income ratio > 2x median (both before and after housing costs)—established in Riva et al. (2021).
108 https://www.canada.ca/en/women-gender-equality/gender-based-analysis-plus.html
109 https://www.canada.ca/en/employment-social-development/corporate/portfolio/labour/programs/employment-equity/legislated.html

the Canadian government to pass the **Pay Equity Act (S.C. 2018, c. 27, s. 416)**[110], which came into effect in 2021. This law established a proactive pay equity regime for federally regulated sectors under the Canada Labor Code with workforces of ten or more employees. This includes the public sector and various industrial sectors such as pipeline distribution systems and nuclear energy production.

The implementation of the law is facilitated through Equity Plans, developed, and implemented by the Pay Equity Committee and monitored by the Pay Equity Commissioner, who has the authority to conduct audits and ensure employers meet their obligations. Employers must adhere to a strict timeline to ensure compliance, with deadlines for forming committees, creating plans, and implementing pay increases when discrepancies are identified. If pay differences are found, companies must adjust them, and these increases can be phased in gradually, provided they do not reduce the pay of other job classes. The law also provides penalties for non-compliance, with fines up to US$36,387[111], and allows for reviews and appeals of violations (CANADA).

Regarding the energy sector, Canada, through Natural Resources Canada (NRCan), plays a leading role in the **"Equal by 30"** Campaign, as well as in the **Awards and Recognition Program** (Woman of Distinction Award and the Organizational Leadership Award) and the **Equality in Energy Transitions Initiative**. Canada's influence is reflected in its direct engagement to ensure gender issues are addressed in global discussions on the energy transition. The Canadian government has established clear gender equity goals within its internal policies and encourages Canadian energy companies to join the campaign.

NRCan partnered with organizations like the International Energy Agency (IEA) to contribute to data collection efforts, and it was also responsible for developing a reporting framework to measure progress on gender equality commitments, creating a gender-disaggregated database for the energy sector. Preliminary results of this framework were officially released on March 8, 2021 (International Women's Day), and an Extended Report was published in August 2021.

In 2022-23, the campaign developed a self-assessment tool, set to launch in July 2023, to help signatories assess their progress in implementing equity, diversity, accessibility, and inclusion practices in their workplaces. Signatories will be able to track their progress towards 2030 and self-assess against the campaign's goals (equal pay, equal leadership, and equal opportunities), as well as the four areas for improvement identified in the 2021 Equal by 30 Reporting Framework (culture, fair management, career development, and workplace safety/harassment).

The Canadian government also aims to increase the inclusion of women, youth, and underrepresented groups in the energy sector, ensuring that the benefits of the energy transition are distributed to those who face barriers to access and participation. In this context, the **Sustainable Jobs Plan 2023-2025** (SJP), launched by NRCan in February 2023, outlines concrete federal actions to promote economic prosperity and sustainable jobs in Canada. The plan includes efforts focused on skills development, the promotion of Indigenous-led solutions, and gender equality in a low-carbon future. According to NRCan, GBA Plus is integrated into all aspects of this initiative to ensure better tracking and confirmation that the work of building the economy of the future is inclusive and fair. As this initiative is new and not yet fully underway, no results have been identified to date.

In Canada, women have historically faced barriers to access in the natural resources sectors. It is no coincidence that, since 1997, the Canadian government, through NRCan, has promoted the **Science and Technology Internship Programme** (STIP) as part of the **Youth Employment and Skills Strategy (YESS)**. This initiative provides non-repayable funding to employers across Canada to hire, train, and mentor youth (aged 15 to 30) in the natural resources sector, including industries related to energy, such as STEM.

According to NRCan's 2022-23 departmental plan, the program is expected to continue expanding its activities, focusing on overcoming age-related barriers and addressing employment gaps faced by equity groups in areas deemed strategic by the Canadian government. For this initiative, the Government of Canada is investing US$219.3 million[112] over two years, starting in 2023-24 (CANADA, 2022). The next steps include systematically monitoring the long-term impacts of these changes, such as the retention of women in STEM and the creation of new opportunities in remote regions.

Moreover, in 2021, NRCan conducted a survey to identify intersectional gender-based barriers in the energy efficiency sector. The study presented alternative or additional performance indicators to support better evaluation, monitoring, and reporting of the impacts of the **Energy Efficiency Program (EEP)** by gender and diversity. Since 2021, the EEP has utilized GBA Plus impact data from Canada's energy efficiency programming to inform policy and the delivery, design, and implementation of the program, promoting equity among diverse gender groups and underrepresented communities (CANADA, 2021).

In response to the critical issue of lack of access to energy policies, the Canadian government used GBA+ analysis to develop the **Oil to Heat Pump Affordability**

110 https://laws-lois.justice.gc.ca/eng/acts/P-4.2/

111 C$50 thousand, using an exchange rate of C$ 1,37 to $1. (October 10, 2024)

112 C$301.4 million, using an exchange rate of C$ 1,37 to $1. (October 10, 2024)

(OHPA)[113] **Grant**, focusing on low- and middle-income households, including women, Indigenous peoples, and youth. The program aims to help these groups replace oil heating systems with heat pumps, a more efficient and environmentally sustainable solution. By 2023, the program advanced initiatives targeting Indigenous communities, approving 36 applications for retrofits through an investment of approximately US$33.4 million[114]. However, while performance indicators, such as awareness of the ENERGY STAR logo, exist, there is a lack of more detailed and disaggregated data, including by gender, to provide a fuller assessment of outcomes (CANADA, 2022).

Although there is a clear effort to engage more underrepresented groups, full implementation of these goals is still in progress. According to NRCan, the program is beginning to collect more detailed data on the participation of women and other marginalized groups, allowing for a better understanding of the barriers they face and enabling adjustments to future initiative designs.

Nevertheless, the Government of Canada undertakes various initiatives to increase the number of women in leadership and decision-making roles, including efforts to boost female representation on corporate boards and in politics. The **Public Service Employment Act (S.C. 2003, c. 22, ss. 12, 13)**[115] aims to establish and regulate fair, transparent, and inclusive guidelines for the management and hiring of personnel in the Canadian public service. In 2021, amendments were introduced to strengthen the importance of a diverse and inclusive workforce, ensuring that hiring and personnel management reflect the plurality of Canadian society, guaranteeing equal opportunities for all groups in the public service.

In addition, the Canadian government financially supports projects and initiatives that strengthen women's participation in politics. Since 2016, Women and Gender Equality Canada has provided funding to **Equal Voice**, including nearly US$3.8 million[116] to support various projects, such as Daughters of the Vote. This program brings together women aged 18 to 23 from all of Canada's federal riding to represent their communities and share their visions for the country. Equal Voice is a national organization dedicated to empowering female leaders and increasing women's political participation to create more gender-balanced governments (CANADA, 2022).

The federal government also funds the Federation of Canadian Municipalities (FCM) through Women and Gender Equality Canada (WAGE). The organization develops projects aimed at addressing barriers that prevent active political participation by women and helps achieve greater gender parity in municipal councils across the country. The **Canadian Women in Local Leadership (CanWILL)**[117] initiative has provided eighteen grants of up to US$7,274[118] to municipalities and their community partners in all provinces, focusing on empowering often underrepresented women. This includes Indigenous, Black, and other racialized women, as well as youth and members of the LGBTQ2S+ community (FCM, 2024).

Since 2018, the government has financed projects to empower and enhance the democratic leadership and participation of Indigenous women through **The Indigenous Women's Circle (the Circle)**[119]. These projects aim to strengthen leadership within Indigenous communities and promote greater participation of Indigenous women in democratic processes.

Natural Resources Canada has made significant efforts to promote gender equity and embed the principles of **Inclusion, Diversity, Equity, and Accessibility (IDEA)** internally. The department supports IDEA integration through various initiatives and capacity-building mechanisms, investing in training and mentorship to ensure that all employees are equipped to apply these principles in the workplace. NRCan has established capacity building initiatives to foster IDEA across different areas, including workforce development, departmental culture, corporate services, and the administration of policies and programs (NRC, 2024).

These efforts extend to public policy, program and service delivery, as well as research and scientific practices. In this context, several employee-led initiatives have been developed, functioning as internal networks. Notable examples include the Policy Analyst Recruitment and Development Program (PARDP), the Visible Minorities Advisory Council (VMAC), and the Young Professional Network (YPN). These programs provide mentorship opportunities for professionals from underrepresented communities, connecting them with senior-level mentors for guidance and support (NRC, 2024).

113 https://natural-resources.canada.ca/energy-efficiency/homes/canada-greener-homes-initiative/oil-heat-pump-affordability-program/24775

114 C$46 million, using an exchange rate of C$ 1,37 to $1. (October 10, 2024)

115 https://www.canada.ca/en/public-service-commission/news/2021/07/important-amendments-to-the-public-service-employment-act.html

116 C$5.2 million, using an exchange rate of C$ 1,37 to $1. (October 10, 2024)

117 https://fcm.ca/en/programs/women-in-local-government/wilg/canadian-women-in-local-leadership

118 C$10 thousand, using an exchange rate of C$ 1,37 to $1. (October 10, 2024)

119 https://www.canada.ca/en/women-gender-equality/indigenous-womens-circle.html

In conclusion, Canada demonstrates a strong commitment to integrating gender perspectives into its policies and initiatives, particularly through the application of GBA+. Since adopting the Beijing Declaration, the country has made strides with the Employment Equity Act and the Pay Equity Act to promote equal opportunities and address disparities. In the energy sector, initiatives such as the Smart Renewables and Electrification Pathways Program (SREPs) and the Equal by 30 campaign highlight significant efforts to modernize infrastructure and ensure gender equity. Although energy efficiency programs are not yet specifically targeted at women, they recognize and address gender-based intersectional barriers, aiming to improve energy access for underrepresented groups. Additionally, efforts to increase female representation in leadership and politics reflect a continuous effort to create a more inclusive environment. Overall, Canada stands out for its policies that not only acknowledge gender inequalities but also actively implement strategies to address and transform them. However, to ensure true equality and inclusion, rigorous and effective monitoring and implementation of these policies and programs remain essential.

3.6 China

3.6.1 National key figures

Population (2023): 1.41 billion[120]

GDP (2023, current US$): 17.79 trillion[121]

Gender Gap Index (2023): 0.678 (ranked 107th)[122]

Gender employment gaps:

- Total gender employment gap (2023): 18,5%[123]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers: 19%[124]
- Share of female senior managers in the energy sector: n.a.

Gender wage gaps:

- Total gender wage gap (2023):12.6%[125]
- Gender wage gap in the energy sector: n.a.

Share of women in STEM graduate attainment: n.a.

Gender political representative gaps:

- Share of women in parliament: 24.9%[126]
- Share of women in ministerial positions: 4.17%[127]
- Share of women in the Chinese Communist Party (CCP): 30.19%[128]
- Share of women in the National Energy Commission: n.a.

Share of energy poor population that is women: n.a.

3.6.2 Institutional Framework

China used to have an Energy Ministry, but it was dissolved in 1998. Currently, the National Development and Reform Commission (NDRC) is responsible for macro-level national development planning and implementation. The National Energy Administration (NEA), a vice-ministerial agency under the NDRC, oversees formulating energy development strategies, plans, and policies, which are then reviewed by the NDRC and submitted to the State Council for approval.

China does not have a Ministry or governmental body to address women's issues. However, there is the so-called "**National Women's Congress**" (NWC), which is the highest leading body of women's federations, followed by the **Executive Committee of The All-China Women's Federation** (ACWF, 2024). The basic mission of the ACWF is to represent and safeguard the rights and interests of women and promote gender equality.

3.6.3 Legal Framework

In the case of China, policies that integrate the gender inclusion aspect with energy were hardly found. It was possible to either find policies that address social inequalities in the energy sector or policies focused on gender equality, but only one project that combines both was found as an initiative implemented by UN Women in China. Therefore, it was possible to find gender inclusion policies by the Chinese government, but that does not integrate the energy sector aspect.

There are three highly relevant documents for women's rights in China: the **National Program for Women's Development** (2011-2020) (FAO, 2021), the **National Human Rights Action Plan** (SCIO, 2021), and the **Women's Rights and Interests Protection Law** (NPC, 2024). All these laws are updated periodically after some years. Besides

120 https://data.worldbank.org/indicator/SP.POP.TOTL
121 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
122 https://www.weforum.org/publications/global-gender-gap-report-2023/
123 https://www.weforum.org/publications/global-gender-gap-report-2023/
124 https://www.spencerstuart.com/-/media/2023/march/chinaneedsmorewomen/china-needs-more-women-in-executive-leadership-spencer-stuart-bain-english.pdf
125 https://global.chinadaily.com.cn/a/202303/08/WS6407e66ca31057c47ebb3044.html
126 https://www.weforum.org/publications/global-gender-gap-report-2023/
127 https://www.weforum.org/publications/global-gender-gap-report-2023/
128 https://www.statista.com/statistics/249975/number-of-chinese-communist-party-ccp-members-in-china-by-gender/

these, most of the gender initiatives found were led by UN Women in China, which has the support of the Chinese government.

The most recent version of the **National Program for Women's Development in China** is the "2021-2030" period version. The document proposes 75 major goals and 93 strategic measures, focusing on eight areas, including health, education, economy, participation in decision-making and management, social security, family, environment, and law.

Particularly, the proposals aim to deepen the concept of equality between men and women by aiming to ensure fair remuneration for women, reduce the income gap, guarantee the safety and health of female workers, ensure equal political rights, and ensure their level of participation in the management of national, economic, cultural, and social affairs. Rural women will have equal rights to land contractual management and other rights and interests, as well as the right to compensation from land expropriation or resettlement.

Moreover, this document also counts on a **Statistical Monitoring Report** that monitors the implementation and advances of this plan, providing a review by area (National Bureau of Statistics of China, 2024).

The **National Human Rights Action Plan (2021-2025)** covers several areas to ensure gender equality and safeguard women's rights under the human rights umbrella, while also mentioning both the Outline of Women's Development and Women's Rights and Interests Protection Law and important policies to secure these rights on a more specific approach. For instance, the Plan mentions that the country will gradually increase women's representation in political and grassroots organizations while also encouraging their active participation in social decision-making processes offering to train more women for leadership roles and promote gender parity in political and community affairs.

Additionally, women's rights to property, education, and employment will be safeguarded, with measures in place to eliminate gender-based discrimination in the workplace and improve work-life balance. The government will also focus on improving healthcare services for women throughout their life stages and reducing the maternal mortality rate. Support for women in need, such as low-income women, single mothers, and those with disabilities, will be expanded, ensuring their access to health, financial, and childcare services.

The **Women's Rights and Interests Protection Law** is the main legal framework to protect women's rights, with efforts to combat domestic violence, sexual assault, and harassment, along with cybercrimes targeting women. It also seeks to eliminate gender-based discrimination in recruitment, to close the wage gap, and to protect maternity rights, including female employees' birth rights.

As for the projects and initiatives led by UN Women in China, the agency focuses on eight areas: governance and participation in public life, women's economic empowerment, ending violence against women, global partnership, UN coordination, partnerships and resource mobilization, communications and advocacy, operations and management oversight.

Additionally, UN Women's work is channeled through the **China Gender Fund for Research and Advocacy (CGF)**, which operates as a rolling trust fund that provides grants through a competitive process. It addresses gender equality and governance issues in China by supporting projects that use evidence-based research to strengthen and promote gender-responsive laws and policies. Over 20 years, the CGF has funded 75 projects throughout China, and issued nine calls for proposals, and 14 of those projects have resulted in changes to provincial or national laws or policies that support the rights and empowerment of women (UN Women, 2024).

One notable achievement of the CGF is a project in Dongxiang County, Gansu Province, focused on promoting gender equality in education. Through collaboration between the Gansu Xing Bang Social Work Serving Centre and the local Education Bureau, the project led to the issuance of a local regulation aimed at protecting the educational rights of 37,300 minority girls. This regulation ensures that 76,200 students, both girls and boys, in Dongxiang County will have equal access to education (UN Women, 2024).

Nonetheless, UN Women was responsible for a highly relevant project that addressed both energy and gender equality issues. The project **"Women-led Rural Community Renewable Energy Transition and Governance Project"** was launched in partnership with the Rural Revitalization Bureau of the Qinghai Province. Given that the agriculture sector plays an important role in the region of Qinghai, where women represent about 70% of the labor force, the main goal of this project was to address issues faced by women in rural areas of China.

Regarding the energy aspect of this project, the focus was to improve access to (renewable) energy, and energy poverty, and empower women to be an active part of the energy transition. Moreover, solar energy was chosen as the solution given the fact that it is clean and renewable energy while also being efficient and scalable in rural areas. Among other technologies, solar greenhouses, pumps and irrigation systems have also been implemented to improve energy availability, reduce operating costs, and enhance agricultural productivity. These technologies specifically aim to alleviate energy shortages in rural areas and reduce dependence on traditional and less sustainable energy sources.

As for the social and gender aspects, the project focused on closing the gap on gender wage and employment inequality, while also working on poverty reduction. To begin with, the project created a network consisting of local government agents, grassroots organizations, and NGOs to facilitate the process of capacity building and knowledge sharing between the women from these communities. Besides, training sessions were conducted to train women on renewable energy technologies and business skills, as well as discussions on energy transition, carbon-neutral strategies, and how public policies can improve their effectiveness to close gender gaps in green governance and climate action strategies.

Initially, the project was to develop a pilot to showcase the practical benefits of solar technologies in women-led cooperatives. But in the end, the project presented several meaningful results, such as the **Sanjiangyuan Female Environmentalist Network**, which focuses on women's leadership in environmental protection and includes 25 participants. Training sessions for 7 women-led agricultural cooperatives have improved technical knowledge in renewable energy and gender equality. Solar technologies have been implemented at three pilot sites: Junhong Potato Cooperative, which has reduced electricity costs and improved safety; Zhuomuxiang Agricultural Cooperative, which benefits cattle welfare and business efficiency through a solar water heating system; and Ganda Village, where solar mini fridges have streamlined meat storage and reduced labor for herder families.

Overall, the project focused on tackling climate goals related to energy while empowering women in rural areas of China both socially and economically. The project was successful in implementing solar technologies and strengthening women's leadership roles. Moreover, the project's report presented next-step actions to be taken up until 2027 to scale up the project.

To conclude, China's gender policies in the energy sector are still developing, with limited integration between gender inclusion and energy policies, having found just one project that effectively addresses both energy poverty and gender inequality in rural areas, focusing on renewable energy access and employment for women. While broader government policies, such as the National Program for Women's Development and the Women's Rights and Interests Protection Law, focus on gender equality in the labour market and political representation, the energy aspect remains underexplored, except for targeted initiatives like this UN project.

3.7 European Union (EU)

3.7.1 National key figures

Population (2023): 452 million[129]

GDP (2023, current US$): 18.3 trillion[130]

Gender Gap Index (2023): n.a.

Gender employment gaps:

- Total gender employment gap (2023): 10.2%[131]
- Gender employment gap in the energy sector (2023): 24%[132]
- Total share of female senior managers (2023): 34.8%[133]
- Share of female senior managers in the energy sector (2023): 18%[134]

Gender wage gaps:

- Total gender wage gap (2022): 12.7%[135]
- Gender wage gap in the energy sector (2023): 11%[136]

Share of women in STEM graduate attainment (2022): 35.4%[137]

Gender political representative gaps:

- Share of women in national parliaments (2023): 33.2%[138]
- Share of women in national government (2023): 35.2%[139]
- Share of women in the European Commission's Directorate-General for Energy's staff (2022): 21–40 %[140]
- Share of women in the European Commission's Directorate-General Energy's senior management (2022): >81%[141]

Share of energy poor population that is women: n.a.

129 https://data.worldbank.org/indicator/SP.POP.TOTL
130 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
131 https://ec.europa.eu/eurostat/databrowser/view/tesem060/default/table?lang=en
132 https://op.europa.eu/en/publication-detail/-/publication/b31c1aa0-dd36-11ee-b9d9-01aa75ed71a1/language-en
133 https://ec.europa.eu/eurostat/databrowser/view/TQOE1C2__custom_6862785/bookmark/table?lang=en&bookmarkId=aadc1ede-76ba-473c-8d69-d205ca03982f
134 https://op.europa.eu/en/publication-detail/-/publication/b31c1aa0-dd36-11ee-b9d9-01aa75ed71a1/language-en
135 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Gender_pay_gap_statistics
136 https://op.europa.eu/en/publication-detail/-/publication/b31c1aa0-dd36-11ee-b9d9-01aa75ed71a1/language-en
137 Female tertiary education graduates in STEM education fields - % of all tertiary education graduates in STEM education fields: https://ec.europa.eu/eurostat/databrowser/view/tps00217/default/table?lang=en
138 https://ec.europa.eu/eurostat/databrowser/view/sdg_05_50/default/table?lang=en
139 https://ec.europa.eu/eurostat/databrowser/view/sdg_05_50/default/table?lang=en
140 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
141 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html

3.7.2 Institutional Framework

The **European Commission**, through the **Directorate-General for Energy (DG ENER)**, is responsible for formulating and implementing policies that guarantee energy security and drive the transition to renewable energy, aligned with the European Green Deal's goal of achieving climate neutrality by 2050. The Agency for the **Cooperation of Energy Regulators (ACER)** coordinates national regulators to maintain transparency and ensure efficient cross-border energy market operations.

The **Directorate-General for Justice and Consumers**, through the **Gender Equality unit**, addresses gender equality issues, implementing policies and initiatives to promote gender equality in all areas of EU action. **European Institute for Gender Equality (EIGE)** provides strategic guidance to EU institutions and Member States on integrating gender perspectives into public policy, including the energy sector. EIGE operates with a management team, a decision-making Management Board, and an advisory Experts 'Forum, ensuring a comprehensive approach to gender mainstreaming across sectors.

3.73. Legal Framework

In the European Union, gender equality is promoted through a comprehensive legal framework aimed at combating discrimination and enhancing opportunities in the labor market. Although member states are encouraged to integrate gender issues into their energy plans, initiatives regarding energy access and energy poverty do not yet prioritize this aspect. The EU also promotes programs to increase female representation in leadership positions and STEM fields, particularly in the energy sector. These actions underscore the EU's commitment to gender equality, but challenges remain, such as disparities in energy access and participation in the labor market.

The European Union (EU) has implemented the **Gender Equality Strategy 2020-2025**[142], which aims to make tangible progress towards gender equality within the Union, including integrating gender perspectives into all EU policies. The strategy's primary objectives are to eliminate gender-based disparities in the labor market, ensure equal participation across diverse economic sectors, address gender-based pay and pension gaps, and promote gender balance in decision-making positions. The EU has already implemented several measures to support these objectives, including the Pay **Transparency Directive (2023)**[143], the **Work-Life Balance Directive (2022)**[144], and the **Adequate Minimum Wages Directive (2022)**[145].

Equality between women and men and non-discrimination are core values on which the European Union is founded, firmly enshrined in the EU Treaties, the Charter of Fundamental Rights of the European Union, and secondary legislation. The so-called **Recast Directive (2006/54/EC)**[146], issued on July 5, 2006, consolidated earlier directives, reinforcing the prohibition of direct and indirect sex discrimination, harassment, and sexual harassment in relation to pay, access to employment, and occupational social security schemes. This directive set the standard for gender equality in employment, including the participation of women in the energy sector, which has traditionally been male dominated.

With the Gender Equality Strategy, the European Commission pledges to integrate gender equality into all policy areas and refers to upcoming policies under the **European Green Deal**[147]. To meet the 2030 climate goals, the European Green Deal envisions a "fair, competitive, and green transition" through measures such as increased use of renewable energy, energy savings, and tax reforms. Some of the laws and strategies developed later within the Green Deal framework refer to gender, such as the Sustainable and Smart Mobility Strategy and the Social Climate Fund; however, gender issues have not yet been systematically integrated into all climate and environmental policies (EEB, 2022). Additionally, EU Member States are urged to "integrate human rights and gender equality dimensions into their integrated national energy and climate plans (NECPs) and long-term strategies."

EU Member States are responsible for protecting vulnerable consumers and those facing energy poverty under the EU Energy Directives. National measures range from social policies to assist with electricity bill payments, to investments in energy-efficient housing, and incentives for community energy generation through distributed systems. However, the directives do not explicitly incorporate gender as an indicator for monitoring energy poverty.

In this context, the revised **Energy Efficiency Directive (EU/2023/1791)**[148], published in September 2023, is designed to place greater emphasis on reducing energy poverty and empowering consumers. It requires Member States to create

142 https://ec.europa.eu/newsroom/just/items/682425/en
143 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023L0970
144 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2019.188.01.0079.01.ENG
145 https://eur-lex.europa.eu/eli/dir/2022/2041/oj
146 http://data.europa.eu/eli/dir/2006/54/oj
147 https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
148 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202302407

expert networks across various sectors to develop and implement policies that address energy poverty inclusively and effectively, considering gender and the specific needs of affected communities. On October 23, 2023, the European Commission also issued a new **Recommendation on Energy Poverty 2023/2407**[149] alongside a guidance document (SWD (2023) 647), which suggests 13 indicators for identifying energy poverty, with the option to cross-reference gender data to better understand accessibility challenges faced by energy-poor households.

In addition, several cross-cutting EU funding initiatives focus on gender equality within the context of energy transitions and combating energy poverty. **Horizon 2020 Energy Efficiency**[150] allocated approximately US$31.7 million[151] to 16 projects addressing energy poverty between 2014 and 2020 (European Commission, 2024). One of these, **EmpowerMed**[152] (Empowering Women to Act Against Energy Poverty, 2019-2023), focused on reducing energy poverty in Mediterranean coastal regions, with a particular emphasis on women and gender issues. The project empowered over 10,000 vulnerable individuals to better manage their energy consumption.

In addressing the labor market for women in the energy sector, the European Commission's DG ENER established the **Equality Platform in the Energy Sector** [153], as a strategic initiative aimed at fostering knowledge sharing and disseminating best practices. This platform is designed to encourage companies to voluntarily formulate diversity strategies and action plans that promote gender equality within their organizations. Regular meetings serve as a critical mechanism for evaluating the progress of these initiatives, allowing participants to exchange insights and strategies. Notably, the fifth meeting held in May 2024 highlighted the importance of women's entrepreneurship in sustainable energy.

Another initiative that pays special attention to efforts to advance the gender mainstreaming agenda and support equal opportunities in the energy sector is the **EUSEW Woman in Energy Award**[154].This award, launched in 2023 and awarded in 2024, recognizes women who lead outstanding initiatives in the clean energy transition in the European Union or the European Economic. The award evaluates candidates across three areas: profile (originality and leadership), action (contributions to the energy transition), and impact (supporting EU energy goals and gender equality).

The EU also recognizes that inclusive labor markets must leverage everyone's skills, including encouraging women in high-demand fields. In 2011, the EU launched the communication "**An Agenda for the Modernization of Europe's Higher Education Systems**[155]," revised in 2016 to improve skills development and promote a shared vision among Member States. The agenda emphasizes combating stereotypes and removing barriers that still prevent women from reaching advanced levels in education and research, recommending the implementation of the Helsinki Group's recommendations on women in science.

The EU's main research and innovation funding programme, **Horizon Europe**, has played a crucial role in fostering projects that increase women's participation in Science, Technology, Engineering, and Mathematics (STEM). In 2021, the **Women TechEU programme**[156] was launched to support deep tech startups led by women, providing grants of US$82,101[157], along with mentoring and coaching through the EIC's Business Acceleration Services. Since its inception, the programme has benefited over 150 companies and startups.

Another initiative, **Women Entrepreneurs for STEM**[158], coordinated by Friedrich Schiller University Jena in Germany, was launched in 2023 with a budget of €614,298[159]. Its goal is to create evidence-based interventions to identify female graduates and postgraduates in STEM fields who are potential entrepreneurs, strengthen their entrepreneurial intentions, and guide them towards digital entrepreneurial education.

To ensure full and equal access and participation in science for women and girls, the EU also requires that all projects funded by Horizon Europe include an actionable Gender Equality Plan. This initiative aims for a 50% gender balance in all decision-making and evaluation bodies related to Horizon Europe (European Commission, 2022).

Furthermore, the EU promotes balanced participation of men and women in decision-making at all levels of

149 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202302407

150 https://cinea.ec.europa.eu/programmes/horizon-europe/energy-use-horizon-europe/horizon-2020-energy-efficiency_en

151 €$29 million, using an exchange rate of €$ 0,91to $1. (October 10, 2024)

152 https://www.empowermed.eu/

153 https://energy.ec.europa.eu/topics/energy-strategy/equality-platform-energy-sector_en

154 https://sustainable-energy-week.ec.europa.eu/awards/guidelines-awards-2025/woman-energy-award-2024_en#:~:text=The%20EUSEW%20Woman%20in%20Energy,opportunities%20in%20the%20energy%20sector.

155 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0381&from=EN

156 https://womentecheurope.eu/

157 €$75 thousand, using an exchange rate of €$ 0,91to $1. (October 10, 2024)

158 https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-details/43108390/101130969/HORIZON

159 €$561.2 thousand, using an exchange rate of €$ 0,91to $1. (October 10, 2024)

government as part of its commitment to gender equality. The European Commission's Gender Equality Strategy 2020-2025 identifies this as a priority, with initiatives to encourage women's participation as voters and candidates in the 2024 European Elections, supported by funding and best practice exchanges. Current support measures include quantitative targets for female appointments and leadership development programmes (European Parliament, 2023).

In 2012, the European Parliament endorsed gender parity systems and quotas introduced in some Member States, encouraging others to consider similar legislation to promote gender balance in political decision-making. The European Parliament Resolution of 13 March 2012 on **Women in Political Decision-Making – Quality and Equality (2011/2295(INI))**[160] also urged the European Commission and Member States to develop effective policies and strategies that include clear targets, action plans, and monitoring mechanisms to ensure equal participation of men and women in both internal politics and EU external relations.

In a nutshell, the European Union promotes gender equality through its Gender Equality Strategy 2020-2025, which integrates a gender perspective across all EU policies and includes specific actions such as the Pay Transparency Directives. However, despite the EU's efforts to propose common legislation and incorporate a gender perspective into several policy areas, the implementation of these policies and directives is inconsistent across member states. Furthermore, awareness-raising and capacity-building initiatives remain far from what is needed. In the energy sector, gender issues are considered within the discussions surrounding the transition to a low-carbon economy, with initiatives like the Equality Platform in the Energy Sector and the Horizon Europe program playing key roles. Despite progress in integrating gender perspectives, the EU still needs to enhance its approaches to energy poverty to ensure that the energy transition and other policies promote structural changes that benefit women and marginalized groups, making gender equality a reality throughout the Union.

3.8 France

3.8.1 National key figures

Population (2023): 68.1 million[161]

GDP (2023, current US$): 3 trillion[162]

Gender Gap Index (2023): 0.756 (ranked 40th)[163]

Gender employment gaps:

- Total gender employment gap: 1.6% (2018)[164]; 12.8% (2023)[165]
- Gender employment gap in the energy sector: 75.2% (2018)[166]
- Total share of female senior managers (2023): 30.4%[167]
- Share of female senior managers in the energy sector (2023): 36.8%[168]

Gender wage gaps:

- Total gender wage gap: 12.9% (2018)[169]; 11.82% (2023)
- Gender wage gap in the energy sector: - 2% (2018)[170]

Share of women in STEM graduate attainment (2016): 31.8%[171]

Gender political representative gaps:

- Share of women in parliament (2023): 37.8%[172]
- Share of women in ministerial positions (2023): 35.29%[173]
- Share of women in the Ministry of Ecological Transition's staff (2022): 41–60 %[174]
- Share of women in the Ministry of Ecological Transition's senior management (2022): 41–60 %[175]

Share of energy poor population that is women: n.a.

160 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012IP0070&from=EN
161 https://data.worldbank.org/indicator/SP.POP.TOTL
162 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
163 https://www.weforum.org/publications/global-gender-gap-report-2023/
164 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
165 https://www.weforum.org/publications/global-gender-gap-report-2023/
166 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
167 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
168 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
169 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
170 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
171 Female share of graduates from Science, Technology, Engineering and Mathematics (STEM) programmes, tertiary. https://databank.worldbank.org/source/gender-statistics
172 https://www.weforum.org/publications/global-gender-gap-report-2023/
173 https://www.weforum.org/publications/global-gender-gap-report-2023/
174 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
175 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html

3.8.2 Institutional Framework

In France, the **Ministry for Ecological Transition and Territorial Cohesion** (*Ministère de la Transition écologique et de la Cohésion des territoires*) oversees environmental and energy planning, participates in European and international negotiations, and develops and implements government policies related to sustainable development, territorial cohesion, and the reduction of territorial disparities.

The **Ministry for Gender Equality, Diversity and Equal Opportunities** (*Ministère chargé de l'Égalité entre les femmes et les hommes, de la Diversité et de l'Égalité des chances*), usually headed by a minister delegated to the Prime Minister's Office, coordinates interministerial efforts on women's rights and gender equality. It oversees the implementation of the 2023-2027 interministerial plan for gender equality and supports the work of the Interministerial Commission for Women's Rights and Gender Equality.

3.8.3 Legal Framework

France's approach to gender equality is based on a comprehensive strategy covering various sectors, including energy. Initiatives aim to combat the gender pay gap and increase the presence of women in leadership positions. In addition, although there are initiatives related to energy access and energy poverty, they generally do not have a direct focus on gender mainstreaming. Although France has made progress towards gender equality, it is necessary to integrate these considerations more widely into energy policies, especially about energy access, to achieve significant progress.

The **2014 Law for Real Equality Between Women and Men** (Law n° 2014-873/2014)[176] was introduced to combat inequalities in private, professional, and public spheres through practical and collaborative mechanisms. This law introduced mandatory annual agreements *(NAO - Négociations Annuelles Obligatoires)* between companies with more than 50 employees and union representatives. These agreements, publicly available on the French government's website, require companies to commit to equal pay, working conditions, and promotion of equal opportunities in leadership positions. Non-compliance can lead to penalties, including fines or the prohibition of participating in public contracts.

Gender equality in the labor market is also covered by the **2018 Law for the Freedom to Choose One's Professional Future** (Law n° 2018-771/2018)[177], which requires companies with 50 or more employees to ensure equal pay for men and women for identical or equivalent work. They must also publish the gender equality index annually, along with the actions taken to improve it. From 2022, companies must publicly disclose all indicators that make up the final index score, as well as corrective measures and progress targets. Companies scoring below 75% on the index are subject to government-imposed sanctions.

The **2021 Law to Accelerate Economic and Professional Equality** (Law n° 2021-1774/2021)[178] enhanced the transparency of the gender equality index in companies. It targets wage inequalities by mandating companies with over 1,000 employees to publish annual reports on their websites outlining any gender gaps in their executive teams and governing bodies. The law also set quotas, requiring 30% of executive positions and 30% of board members to be women by 2027, increasing to 40% by 2030. Companies failing to meet these quotas have two years to comply after the deadlines, or they face fines of up to 1% of the total payroll.

France also has a law related to the balanced representation of women and men on company boards. The **Copé-Zimmermann Law** (Law n° 2011-103/2011)[179] set a 40% quota for women on the boards of companies listed in the CAC-40, the Paris Stock Exchange index. In 2020, 44.6% of companies had women in leadership positions, compared to just 10% in 2009, making France the leading nation in the EU (and second globally) in promoting diversity on boards.

In the energy sector, as part of the G7 **Equal by 30**[180] Campaign in 2023, France committed to furthering gender equality and diversity. A joint G7 report identified challenges in achieving gender equality in clean energy by 2030 and summarized actions such as collecting gender-disaggregated data, promoting equitable distribution of paid and unpaid care work, and establishing gender impact assessments for policy measures.

While energy access policies in France largely focus on households, they still lack a specific approach that considers the differing needs of men and women. Regarding gender inclusion in energy, in 2014, the French Development Agency (AFD) implemented a Cross-Sectoral Intervention Framework *(cadre d'intervention transversal - CIT)* aimed at promoting gender equality in its activities, including the energy sector. AFD developed a toolkit called **Boîte à Outils**

176 https://www.legifrance.gouv.fr/loda/id/JORFTEXT000029330832?init=true&page=1&query=%28LOI+n%C2%B0+2014-873+du+4+ao%C3%BBt+2014&searchField=ALL&tab_selection=all.

177 https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000037367660

178 https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000044559192

179 https://www.legifrance.gouv.fr/loda/id/JORFTEXT000023487662

180 https://www.equalby30.org/

Genre: Énergie[181]**,** which provides guidance to policymakers and private actors on integrating gender into their energy projects. This toolkit was created through a multidisciplinary collaboration and includes sectors such as transport, sustainable energy, and environmental and social support.

The toolkit focuses on identifying gender-based differences in energy needs and proposes financial instruments like microcredits and subsidies to help low-income households, especially female-headed ones, acquire energy-efficient equipment. The initiative also provides support for projects that encourage female entrepreneurship in the energy sector to break the cycle of poverty and increase women's economic autonomy. The AFD further emphasizes collecting gender-disaggregated data to monitor the impacts of energy projects and ensure that women not only benefit but also take active roles in social and economic changes.

Additionally, France's parity laws were created to ensure equal access for men and women to electoral mandates and elected positions, as well as to professional and social responsibilities. This began in 1999 with amendments to Articles 3 and 4 of the 1958 Constitution, which introduced equal access to electoral mandates and elected positions. The **2000 Law** (Law n° 2000-493/2000)[182] introduced gender quotas, requiring electoral lists for proportional elections to alternate between men and women, although it did not apply to majority elections. The **2007 Law** (Law n° 2007-128/2007)[183] extended these quotas to include parity in elected offices and leadership roles in public boards. The **2014 Law** (Law n° 2014-873/2014)[184] further strengthened these obligations by extending gender parity to majority elections and increasing financial penalties for parties that failed to comply. Finally, the **2019 Law**[185] set parity objectives for executives of public inter-municipal cooperation entities (EPCI) and imposed stricter quotas for both candidacies and public leadership positions.

In addition to electoral parity laws, France has implemented measures to increase the participation of women in public administration. Since 2019, all public employers, including the Ministry of Public Administration, have been required to implement a multi-year action plan for professional equality, following the **2019 Law on the Transformation of Public Service** (Law n° 2019-828/2019)[186].

In 2018, an agreement on equality between men and women in public service was signed to promote equal access to professions, responsibilities, and career advancement. This initiative also created the Professional Equality Fund (FEP), which finances projects to ensure equal access to promotions (FRANCE, 2022a). Most recently, in 2023, the **Law on Women's Access to Responsibility in Public Service** (Law n° 2023-623/2023)[187] introduced a 50% quota for women in leadership positions in public administration.

To conclude, France stands out in promoting gender equality in the labor market with robust legislation imposing stringent requirements for equal pay and female representation in leadership roles. The Copé-Zimmermann Law, for instance, set a significant 40% quota for women on company boards, establishing France as a leader in gender diversity in Europe. In the energy sector, France has made commitments under the G7 "Equality by 30" Campaign to address gender inequality, and the French Development Agency (AFD) has proposed a toolkit to integrate gender perspectives into policy proposals and programs related to the energy sector. Despite these efforts, addressing energy poverty still lacks a specific gender focus, underscoring the need for more targeted and systematic approaches to the challenges faced by women. Overall, France has a responsive attitude towards gender integration in the labor market, but areas crucial to equity are still not addressed.

181 https://www.afd.fr/fr/ressources/boite-outils-genre-energie

182 https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000400185

183 https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000273404?init=true&page=1&query=Loi+n%C2%B0+2007-128+du+31+janvier+2007&searchField=ALL&tab_selection=all

184 https://www.legifrance.gouv.fr/loda/id/JORFTEXT000029330832?init=true&page=1&query=%28LOI+n%C2%B0+2014-873+du+4+ao%C3%BBt+2014&searchField=ALL&tab_selection=all

185 https://www.vie-publique.fr/loi/268675-loi-du-27-decembre-2019-engagement-dans-la-vie-locale-loi-sur-les-maires

186 https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000038889182/

187 https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000047862217.

3.9 Germany

3.9.1 National key figures

- Population (2023): 83.28 million[188]
- GDP (2023, current US$): 4.5 trillion[189]
- Gender Gap Index (2023): 0.815 (ranked 6th)[190]
- Gender employment gaps:
  - Total gender employment gap: 9.3% (2018)[191]; 15.7% (2023)[192]
  - Gender employment gap in the energy sector: 74.6 % (2018)[193]
  - Total share of female senior managers (2023): 19.9%[194]
  - Share of female senior managers in the energy sector (2023): 17.7%[195]
- Gender wage gaps:
  - Total gender wage gap: 18.7% (2018)[196]; 14.2% (2023)[197]
  - Gender wage gap in the energy sector: 7.3% (2018)[198]
- Share of women in STEM graduate attainment (2017): 27,6%[199]
- Gender political representative gaps:
  - Share of women in parliament (2023): 35.1%[200]
  - Share of women in ministerial positions (2023): 50%[201]
  - Share of women in the Federal Ministry for Economic Affairs and Climate Action's staff: 41-60%[202]
  - Share of women in the Federal Ministry for Economic Affairs and Climate Action's senior management (2022): 41-60%[203]
- Share of energy poor population that is women: n.a.

3.9.2 Institutional Framework

The Federal Ministry for Economic Affairs and Climate Action (*Bundesministerium für Wirtschaft und Klimaschutz*) develops and implements energy strategies, promotes the transition to renewable energy sources and ensures the security of energy supply.

The Federal Ministry for Economic Cooperation and Development (BMZ) (*Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung*) promotes economic development in Germany and abroad through international cooperation and partnerships. Through its feminist development policy, the BMZ strives to ensure that women and girls have equal rights, opportunities, and access to resources, recognizing that gender equality is essential for sustainable economic and social progress.

In addition to these ministries, many other actors such as the Federal Institute for **Technology and Renewable Energies** *(Fraunhofer-Institut für Umwelt-, Sicherheits- und Energietechnik)* (FRAUNHOFER UMSICHT, 2024) and the **Federal Environmental Agency** *(Umweltbundesamt)* play important roles in the research and development of energy technologies and in assessing the environmental impact of energy and gender policies.

The Federal Ministry for Family Affairs, Senior Citizens, Women and Youth *(Bundesministerium für Familie, Senioren, Frauen und Jugend)* is responsible for formulating and implementing policies to promote equal opportunities, combat gender-based violence and support work-life balance. The ministry also coordinates the implementation of the Gender Equality Plan and works to integrate a gender perspective into all public policies.

3.9.3 Legal Framework

Germany has developed a comprehensive approach to integrating gender perspectives into its public

188 https://data.worldbank.org/indicator/SP.POP.TOTL
189 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
190 https://www.weforum.org/publications/global-gender-gap-report-2023/
191 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
192 https://www.weforum.org/publications/global-gender-gap-report-2023/
193 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
194 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
195 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
196 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
197 https://www.weforum.org/publications/global-gender-gap-report-2023/
198 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
199 Female share of graduates from Science, Technology, Engineering and Mathematics (STEM) programmes, tertiary. https://databank.worldbank.org/source/gender-statistics
200 https://www.weforum.org/publications/global-gender-gap-report-2023/
201 https://www.weforum.org/publications/global-gender-gap-report-2023/
202 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
203 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html

policies, addressing issues across several key areas. While access to energy and energy poverty are part of broader poverty reduction strategies, efforts in the labor market focus on reducing the gender pay gap, increasing female participation, and promoting entrepreneurship. Additionally, the country is committed to improving women's representation in political decision-making roles, with initiatives supporting structural changes at local and national levels. These measures illustrate Germany's commitment to fostering gender equality, though challenges remain in fully addressing disparities in energy access and workforce participation.

The **General Equal Treatment Act**[204] **(*Allgemeines Gleichbehandlungsgesetz*),** in force in Germany since 2006, is a key legislative tool in the fight against all forms of discrimination, including gender discrimination. This law was created to implement European directives and aims to prevent or eliminate unequal treatment based on race, ethnicity, sex, religion, beliefs, disabilities, age, or sexual identity. It offers protection against discrimination in labor and civil law. For instance, if a worker feels discriminated against, they have the right to file a complaint directly with their employer. If the issue is not resolved, the employee can refuse to work and seek compensation or damages. Additionally, the Federal Anti-Discrimination Agency *(Antidiskriminierungsstelle des Bundes)* provides support and guidance in cases of inequality.

In Germany, initiatives to promote gender equality in the labor market focus on reducing the gender pay gap, balancing work and family life, increasing female participation in leadership roles, and fostering female entrepreneurship. The **Law for the Equal Participation of Women and Men in Leadership Positions *(FüPoG)***[205], introduced in 2015, aims to increase the presence of women in corporate leadership roles in both the public sector and private sector. This law mandates a gender quota of 30% of both women and men respectively, for supervisory boards of companies that are listed on the German stock exchange (Deutsche Börse) and are subject to parity co-determination.

In 2021, the ***FüPoG II***[206] legislation expanded these measures, improving effectiveness by including government-majority companies. Furthermore, it set a minimum participation requirement of one woman for executive boards with more than three members in listed companies with equal co-determination. Currently, the law applies to 160 companies on the DAX, MDAX, and SDAX indices, 20 regulated market companies, and 262 public enterprises.

Regarding wage inequalities, the **Law on the Promotion of Transparency in Pay Structures**[207], in effect since July 6, 2017, prohibits wage discrimination based on gender for equal or equivalent work. Since 2018, German employees have the right to request information about their employers' pay criteria if the company has more than 200 employees, allowing them to verify compliance with the equal pay requirement. Additionally, private companies with more than 500 employees are required to regularly review their pay practices to ensure compliance with equal pay standards and to address any identified discrimination.

Although Germany has made significant progress in promoting gender equity in the labor market, there is still a need to expand and accelerate the impact of these policies. This required an interdepartmental strategy, leading to the launch of the **National Gender Equality Strategy in 2020**[208]. This strategy sets nine objectives, with measures that are to be continuously implemented by the departments responsible. A key focus is increasing female representation in leadership roles in both the public and private sectors, promoting women's entrepreneurship, and ensuring equitable participation in scientific fields. In 2021, a report on the implementation status of the strategy was published, with 67 measures related to gender equality. Of these, 16 were fully implemented, and 46 are ongoing. One of the notable actions was the creation of the **Federal Gender Equality Foundation *(Bundesstiftung Gleichstellung)***[209] in 2021, aimed at gathering data and promoting innovations in gender equality, with an annual budget of €5 million starting in 2022.

Another important initiative, jointly developed by federal ministries, associations, networks, and scientific institutes, is the **More Women Entrepreneurs for SMEs** action plan[210]. Launched in 2023 by the Federal Ministry for Economic Affairs and Climate Action (BMWK), it aims to motivate more women to lead businesses, improve access to financing and venture capital, and encourage female participation in the energy transition, inspiring them to pursue STEM (science, technology, engineering, and mathematics) careers and climate-related professions.

BMWK has a long history of initiatives to address women's

204 https://www.gesetze-im-internet.de/agg/

205 https://www.bmfsfj.de/bmfsfj/service/gesetze/gesetz-fuer-die-gleichberechtigte-teilhabe-von-frauen-und-maennern-an-fuehrungspositionen-in-der-privatwirtschaft-und-im-oeffentlichen-dienst-119350

206 BMFSFJ - Zweites Führungspositionen-Gesetz - FüPoG II

207 https://www.gesetze-im-internet.de/entgtranspg/BJNR215210017.html

208 https://www.bmfsfj.de/bmfsfj/themen/gleichstellung/gleichstellung-und-teilhabe/gleichstellungsstrategie-der-bundesregierung/die-gleichstellungsstrategie-der-bundesregierung-154174

209 https://www.bundesstiftung-gleichstellung.de/

210 https://www.bmwk.de/Redaktion/DE/Dossier/mehr-unternehmerinnen-fuer-den-mittelstand.html

underrepresentation in the labor market. A key example is the ***FRAUEN unternehmen***[211] initiative, launched in 2014 and maintained by the BMWK, where over 220 female entrepreneurs serve as role models for young women and students, promoting self-sufficiency through entrepreneurship. Additionally, the initiative provides resources for startups, such as the ***Gründerplattform***[212], created by the BMWK (Federal Ministry for Economic Affairs and Climate Action) and KfW (Reconstruction Credit Institute) (Gründerplattform, 2024). Another significant BMWK project is ***Unternehmensnachfolge – aus der Praxis für die Praxis***[213], which supports women in taking over established businesses, helping to ensure successful business transitions, and strengthening female leadership in small and medium-sized enterprises.

Moreover, BMWK is at the forefront of Germany's commitments in the **Equal By 30**[214] campaign, adopting concrete measures to promote gender equality in the energy sector by 2030. Germany aims to increase the proportion of women in top management positions within the energy sector through professional development and by strengthening women's networks.

Empowering women to participate in the clean energy workforce is also a focus of the Women Energize Women campaign by BMWK, launched in 2021 and currently implemented by GIZ. The initiative aims to be a platform for technical exchange for female energy experts as well as informing, inspiring, and connecting women working in the energy sector worldwide through interactive events, both on-site and online as well as through social media communications.

In Germany, a crucial aspect of achieving a just and equitable energy transition is attracting and retaining female talent, particularly in academic professions that drive innovation, such as STEM fields. To further increase women's representation and sustainably strengthen women's academic potential in STEM, the Federal Ministry of Education and Research (BMBF) launched the funding guideline **MissionMINT - Women Shaping the Future**[215] in 2021. This funding, available for up to three years, is aimed at universities and research institutions conducting innovative projects to increase the number of women enrolled in STEM courses and to strengthen the creative and innovative potential of women in STEM fields. Between 2016 and 2021, the previous initiative, ***Erfolg mit MINT – Neue Chancen für Frauen***, funded 55 projects with a total of €20.5 million, focusing on creating strategies to improve educational and professional transitions for women (BMBF, 2022).

Germany also has a legal framework to promote gender equality in public research. Established in 2007, the **2007 Framework Act for Higher Education**[216] mandates that universities promote gender equality and work to eliminate existing inequalities as a criterion for public funding. The effectiveness of this policy depends largely on the Implementation Agreement of the **Joint Science Conference (GWK)** signed by federal and state governments. This agreement commits to supporting gender equality in jointly funded research institutions, detailing procedures for recruitment and career advancement, and establishing that, when candidates are equally qualified, the underrepresented gender should be given preference.

Regarding energy poverty, policies in Germany focus on social assistance beneficiaries, income transfer mechanisms, or funding for energy efficiency projects, without specific attention to groups such as women. The current German **National Energy and Climate Plan (NECP)**[217] addresses energy policy from 2020 to 2030, focusing on the energy transition and climate change mitigation. While it recognizes the importance of accessibility and social justice, especially for low-income families, the approach to addressing energy poverty is limited, treating it as part of a broader poverty reduction strategy without considering how different social groups, including women, may be disproportionately affected.

As for female political representation, Germany does not have a national law for gender parity in elections. However, the federal government promotes programs aimed at initiating structural changes and increasing women's participation in local politics, where they are underrepresented. The **Municipal Action Program - Women in Politics**[218], launched in 2021 and funded by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth aims to increase female representation in municipal councils, district offices, and local councils in ten regions of Germany.

The German government aims to achieve equal participation of men and women in management positions by the end of 2025, anchored in the **Federal Equal Opportunities Act (BGleiG)** and the FüPoG II. This

211 https://www.bmwk.de/Redaktion/DE/Dossier/frauen-unternehmen.html
212 https://gruenderplattform.de/?ppid=15795
213 https://www.chance-unternehmensnachfolge.de/
214 https://www.equalby30.org/equal-30-countries-commitments
215 https://www.bmbf.de/bmbf/de/bildung/digitalisierung-und-mint-bildung/mint-bildung/mint-aktionsplan_node.html
216 https://www.gesetze-im-internet.de/hrg/
217 https://www.bmwk.de/Redaktion/DE/Textsammlungen/Energie/necp.html
218 https://www.bmfsfj.de/bmfsfj/aktuelles/alle-meldungen/-aktionsprogramm-kommune-frauen-in-die-politik-startet-189764

requires departments to adopt equality plans with specific targets and timelines. In this context, the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth developed the **FüPo 2025** plan, which aims to create a toolkit to promote gender equality, including measures such as expanding part-time leadership and integrating BGleiG requirements into management training courses.

In addition, the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth launched the project entitled **Part-time Leadership in the Highest Federal Authorities**[219], to investigate and develop practical guidance on how to promote part-time leadership in the highest federal authorities, in view of the fact that few officials at the upper management levels of department heads, including directors, work part-time, even though BGleiG requires the implementation of flexible hours.

To sum up, similarly to other European countries, Germany has a strong legal framework aimed at increasing female leadership and ensuring equal pay in both the public and private sectors. These efforts are closely monitored by specialized bodies to ensure continuous policy improvement and the implementation of best practices. In the energy sector, significant progress has been made in integrating gender issues, with initiatives focused on increasing female participation in leadership roles and fostering the development of women in STEM fields. In terms of political representation, the country has taken steps to address the under-representation of women, particularly in local politics. Overall, Germany's initiatives include gender transformation strategies, but there is still a need to include gender in the energy policy and to promote structural changes that improve equity for women and marginalized groups in the energy sector.

3.10 India

3.10.1 National key figures

Population (2023): 1.43 billion[220]

GDP (2023, current US$): 3.55 trillion[221]

Gender Gap Index (2023): 0.697 (ranked 127th)[222]

Gender employment gaps:

- Total gender employment gap (2023): 62.9%[223]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers (2023): 17.4%[224]
- Share of female senior managers in the energy sector (2023): 16%[225]

Gender wage gaps:

- Total gender wage gap: n.a.
- Gender wage gap in the energy sector: n.a.

Share of women in STEM graduate attainment (2018): 42.7%[226]

Gender political representative gaps:

- Share of women in parliament: 15.1%[227]
- Share of women in ministerial positions: 6.67%[228]
- Share of women in the Ministries of New and Renewable Energy's staff: 22%[229]
- Share of women in the Ministries of New and Renewable Energy's senior management: 10%[230]
- Share of women in the Ministries of Petroleum and Natural Gas's staff: 18%[231]
- Share of women in the Ministries of Petroleum and Natural Gas's senior management: 18%[232]

Share of energy poor population that is women: n.a.

219 https://www.bmfsfj.de/bmfsfj/themen/gleichstellung/frauen-und-arbeitswelt/frauen-in-fuehrungspositionen/oeffentlicher-dienst/projekt-fuehren-in-teilzeit

220 https://data.worldbank.org/indicator/SP.POP.TOTL

221 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017

222 https://www.weforum.org/publications/global-gender-gap-report-2023/

223 https://www.weforum.org/publications/global-gender-gap-report-2023/

224 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

225 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

226 Female share of graduates from Science, Technology, Engineering and Mathematics (STEM) programmes, tertiary. https://databank.worldbank.org/source/gender-statistics

227 https://www.weforum.org/publications/global-gender-gap-report-2023/

228 https://www.weforum.org/publications/global-gender-gap-report-2023/

229 A count and weighting were conducted based on the positions described on the MNRE 's webpage: https://mnre.gov.in/whos-who/

230 A count and weighting were conducted based on the positions described on the MNRE 's webpage: https://mnre.gov.in/whos-who/

231 A count and weighting were conducted based on the positions described on the MOPNG 's webpage https://mopng.gov.in/hi/page/38

232 A count and weighting were conducted based on the positions described on the MOPNG 's webpage https://mopng.gov.in/hi/page/38

3.10.2 Institutional Framework

India has two Ministries to deal with its energy sector, dividing it into one ministry to deal with renewable energy, the **Ministry of New and Renewable Energy** (MNRE), and another with fossil fuels, the **Ministry of Petroleum and Natural Gas** (MOP&NG), (MNRE, 2024; MOPNG, 2024).

Meanwhile, for gender matters, India has the **Ministry of Women and Child Development**, formed in 2006 (WDC, 2024). Under the ministry, there is the National Commission for Women (NCW), designed to deal specifically with women's issues and policies (NCW, 2024).

3.10.3 Legal Framework

In India, there are three pillars for the institutional framework that are somehow extended in the legal framework. India has two energy ministries to handle renewables and fossil fuels separately. It was possible to find policies that address gender gaps and focus on women in both, but mostly, in the Ministry of New and Renewable Energy (MNRE). India has made significant strides in promoting women's participation in renewable energy, including initiatives that improve energy access and foster economic empowerment. However, challenges remain in fully integrating gender considerations across all energy-related efforts.

Moreover, India not only has a ministry dedicated to women's matters, but equal rights to women are guaranteed in the Indian Constitution. As a signatory to various international declarations, such as the Declaration on Human Rights, **Convention on Elimination of Discrimination against Women** (CEDAW), etc. Besides, India is committed to the elimination of discrimination against women, the **74th Constitutional Amendment Act (CAA) of 1992**[233], provides for the inclusion of Scheduled Castes and Scheduled Tribes and women in decentralized urban governance. Therefore, it is possible to confirm that the India has a legal foundation to ensure women's legal rights in the country.

Although the Ministry of Women and Child Development plays a crucial role in promoting women's rights in India, it faces significant challenges, including the effective implementation of policies, cultural resistance, and the urgent need to raise awareness about gender issues throughout society. For instance, the recently passed **Women's Reservation Bill 2023**[234], which has had a tumultuous history since its introduction in 1996, aims to reserve 33% of seats for women in the Lok Sabha and state legislative assemblies. This represents a significant step toward enhancing women's political representation in India. However, the legislation is scheduled to come into force after India publishes its next census, the date for which has not been set.

Another crucial strategy for achieving gender equality in India is the implementation of a gender-responsive budgeting process introduced in 2005-2006. The **Gender Budget Statement (GBS)** serves as a reporting mechanism for ministries and departments to assess their programs through a gender lens and provide information on financial allocations for women. Each year, the government publishes a Gender Budget Statement alongside the Union Budget. Notably, in 2024-25, gender budget allocations are projected to reach 1% of GDP for the first time, with overall funding exceeding 3 trillion Indian rupees (*₹3 lakh crore)* for initiatives aimed at supporting women. Furthermore, in 2021, the Ministry of Women and Child Development reported that 27 states and union territories had adopted gender budgeting practices (Vajuram&Ravi, 2023; 2024).

The MNRE created the initiative **Empowering Women in Renewable Energy** (MNRE, 2022a) in 2022 to promote a series of debates and open dialogue focusing on enhancing gender inclusion in the renewable energy sector, addressing the challenges and opportunities related to women's participation in this field, specifically through skill development and targeted policies aimed at creating green jobs. The role of women entrepreneurs and leaders in the renewable energy space was also another debated topic.

These discussions involved a diverse group of leaders and stakeholders, including representatives from government institutions, grassroots organizations, industry, research think tanks, technology enablers, and academic institutions. The focus was on bridging policy gaps and improving employment opportunities for women in the renewable energy sector through enhanced training and capacity building.

The Secretary of MNRE committed to creating a scheme for decentralized renewable energy applications. Notable contributions included calls for active engagement of women in the renewable energy sector, regular training and capacity building for women entrepreneurs, earmarking funds specifically for women, and awareness campaigns to sensitize financial institutions about the needs of women in the sector. There was also a focus on greater collaboration with the Ministry of Women and Child Development and addressing women-specific issues in industry consultations.

Finally, success stories from women renewable energy entrepreneurs were shared and continue to be updated on the MNRE's website, illustrating the positive impact of clean energy access on women's lives (MNRE, 2024). The goal is to celebrate female role models and explore ways to replicate successful models while building knowledge

233 https://www.india.gov.in/my-government/constitution-india/amendments/constitution-india-seventy-fourth-amendment-act-1992
234 https://prsindia.org/billtrack/the-constitution-one-hundred-twenty-eighth-amendment-bill-2023

networks and partnerships to scale up renewable energy activities for women.

As a result of the abovementioned initiative, after a series of feedback on how to enhance the effective participation of women in the renewable energy sector, the MNRE created a **Committee to promote women-centric policies, programs, and interventions in the renewable energy sector** (MNRE, 2022b). The committee was composed of twelve crucial public entities and agencies to meet regularly and provide recommendations on women-centric policies and programs. The central issues that this initiative addresses are energy poverty, pollution, clean water, and gender inequality, especially women from rural communities, ensuring that these policies target and reach them effectively. It aims to empower women through skill training, promoting decentralized rural energy access by developing women entrepreneurs on a large scale, with coordination between different ministries to provide support.

Moreover, the MNRE dedicates a part of this website to share private initiatives for gender inclusion from energy companies in the country, such as **Project SURYA**, launched in 2022 by ReNew Power in partnership with UNEP and the Self-Employed Women's Association (SEWA). The project aims to transition underprivileged and low-paid women from the salt pan industry in Gujarat into clean energy roles. About 1,000 women are to be trained as solar panel and pump technicians, helping them escape poverty and enter the renewable energy sector (MNRE, 2022c; UNEP, 2022).

It is also worth mentioning the program **PM-KUSUM Scheme**, launched by MNRE in 2019. It aims to provide energy security for Indian farmers while increasing the share of non-fossil fuel energy to 40% by 2030, following India's NDCs (nationally determined contributions) pledges (MNRE, 2019). The scheme has three components: setting up decentralized renewable energy plants, installing solar agriculture pumps to replace diesel pumps, and solarizing grid-connected pumps for farmers to sell excess power to distribution companies. Although it does not have a special focus on women, several women were beneficiaries of the program, and their success stories were shared and displayed on MNRE's website (MNRE, 2024).

Regarding the Ministry of Petroleum and Natural Gas of India, the **Pradhan Mantri Ujjwala Yojana** or "PMUY" (Prime Minister's Lightening Scheme), was launched in 2016. The goal was to provide free LPG (liquefied petroleum gas) to women from poor households and improve access to clean cooking fuel, focusing on rural families. The initial target of 5 crore, later increased to 8 crore connections, was achieved ahead of schedule in 2019. The scheme significantly improved access to clean cooking fuel in rural areas, increasing LPG consumption by 56% by 2019. In 2021, the **Ujjwala 2.0** was introduced to extend the benefits to an additional 1 crore households (MOPNG, 2021).

To sum up, India's gender-sensitive energy policies reflect a growing recognition of the importance of empowering women, particularly in renewable energy and rural development. Efforts such as gender budgeting, the creation of women-focused committees within the MNRE, and successful programs like Project SURYA demonstrate a commitment to addressing gender inequalities. However, structural challenges persist, and while these initiatives represent progress, a more robust integration of gender considerations into broader energy policies is required. Expanding these efforts to include political representation and more comprehensive gender-inclusive strategies will be essential for achieving a truly inclusive energy transition.

3.11 Indonesia

3.11.1 National key figures

Population (2023): 277.5 million[235]

GDP (2023, current US$): 1.37 trillion[236]

Gender Gap Index (2023): 0.697 (ranked 87th)[237]

Gender employment gaps:

- Total gender employment gap[238] (2023): 35.5%
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers: 13.5%[239]
- Share of female senior managers in the energy sector: 8.4%[240]

Gender wage gaps:

- Total gender wage gap: n.a.
- Gender wage gap in the energy sector: n.a.

235 https://data.worldbank.org/indicator/SP.POP.TOTL
236 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
237 https://www.weforum.org/publications/global-gender-gap-report-2023/
238 https://www.weforum.org/publications/global-gender-gap-report-2023/
239 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
240 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

Share of women in STEM graduate attainment (2018): 37.4%[241]

Gender political representative gaps:

- Share of women in parliament: 21.6%[242]
- Share of women in ministerial positions: 20.7%[243]
- Share of women in the Ministry of Energy and Mineral Resources' staff (2021): 27.5%[244]
- Share of women in the Ministry of Energy and Mineral Resources' senior management (2021): 12,7%[245]

Share of energy poor population that is women: n.a.

3.11.2 Institutional Framework

The governmental body responsible for energy in Indonesia is **The Ministry of Energy and Mineral Resources of the Republic of Indonesia** (MEMR) *(Kementerian Energi dan Sumber Daya Mineral Republik Indonesia)* (ESDM, 2024).

Meanwhile, the key institutions driving the country national strategy for gender mainstreaming in development are in the four ministries of Women Empowerment and Child Protection (MoWE-CP SetKab, 2024), National Development Planning (Bappenas), Finance (MoF) and Home Affairs (MoHA). They share tasks in integrating gender perspective in country processes of planning, budgeting, implementation, monitoring, and evaluation of policies, programs, and activities of development

Ministry of Women Empowerment and Child Protection (MoWE-CP) is responsible for the development of policy frameworks addressing gender parity and child welfare. It orchestrates the integration of gender-responsive strategies within governmental plans and enforces regulations aimed at the elimination of gender-based inequality. The ministry also institutes protective measures for children's rights, focusing on the prevention of maltreatment and the safeguarding of their well-being. In its operational capacity, MoWE-CP liaises with both national and sub-national governmental tiers to ensure the enactment and adherence to pertinent legislative measures. It conducts assessments and audits of these interventions to ascertain their impact and necessary adjustments. Additionally, the ministry partakes in cross-sectoral collaborations with global entities, NGOs, and the private sector to mobilize resources and expertise. MoWE-CP's overarching goal is to instill gender and child protection considerations into the national agenda, thereby facilitating an equitable and secure societal infrastructure for these demographics.

Ministry of National Development Planning (Bappenas), is the government body responsible for formulating national development planning and policy. It oversees the strategic direction of Indonesia's developmental goals, aligning them with the President's vision and national priorities. Bappenas coordinates with various ministries, agencies, and sub-national governments to ensure cohesive and comprehensive planning across all sectors of development. The ministry plays a crucial role in the allocation of the state budget, ensuring that funds are directed towards critical development projects and programs. Additionally, Bappenas actively engages with international partners to secure funding and technical assistance for Indonesia's development initiatives.

The Ministry of Finance oversees the country's fiscal policies, budget management, and revenue generation. It is instrumental in ensuring economic stability, managing public debt, and enforcing financial regulations. The ministry also strategizes fiscal policy and engages with global partners to support Indonesia's economic goals.

Ministry of Home Affairs in Indonesia is responsible for overseeing internal governance, including the administration of local governments and the implementation of sub-national autonomy policies. It plays a role in ensuring effective public service delivery and maintaining administrative order across the nation's diverse regions. The ministry also focuses on enhancing local governance capabilities, supporting sub-national development, and ensuring that the political and administrative policies align with national laws. Furthermore, it provides guidance and support for local authorities to improve governance practices and public sector performance.

241 Female share of graduates from Science, Technology, Engineering and Mathematics (STEM) programmes, tertiary. https://databank.worldbank.org/source/gender-statistics

242 https://www.weforum.org/publications/global-gender-gap-report-2023/

243 https://www.weforum.org/publications/global-gender-gap-report-2023/

244 https://aseanenergy.org/post/indonesia-perspective-of-women-towards-inclusive-energy-transition-in-asean/

245 https://aseanenergy.org/post/indonesia-perspective-of-women-towards-inclusive-energy-transition-in-asean/

3.11.2 Legal Framework

In Indonesia, efforts to integrate gender inclusion into the energy sector are being spearheaded by the Ministry of Energy and Mineral Resources (MEMR) and the Ministry of Women Empowerment and Child Protection (MoWE-CP). Policies, programs and initiatives that integrate gender-inclusion in the energy sector were found. It was noticed that in some Indonesian initiatives, there is a presence of international partnership, whether from a Global North country or a regional organisation, such as ASEAN (Association of Southeast Asian Nations).

Indonesia has a policy framework for gender mainstreaming, which is the **Presidential Instruction** No. 9 of 2000 (UN, 2000). but implementation remains a challenge for practical action to integrate women in energy development, especially in leadership and decision-making roles, needs improvement. Despite the growing demand for sustainable energy solutions, women hold only 5% of the decision-making positions, and there are few female energy auditors and managers (UNDP, 2022).

Further to materialize gender mainstreaming perspective in-country processes of planning and implementation, the Indonesian National Medium-Term Development Planning (RPJMN) 2020 – 2024, therefore, recognizes social inclusion, prevention of gender-based violence, child marriage and human trafficking, which significantly contributes to the efforts of improving women quality of life (Setkab, 2020).

Most international donors and organisations have, to varying degrees, integrated gender aspects in their programmatic approach. Some even have dedicated initiatives aiming at increasing gender equality in Indonesia. However, there is no specific project that target gender equality in the energy sector.

To begin with, USAID **Enhancing Equality in Energy for SE Asia** (E4SEA) thorough CORE International running a regional program for RE education, especially for women in the SE region. CORE is partnering with local universities in Indonesia to run STEM mentorship and leadership program, enhance collaboration, learning and linkage with energy players within the region.

British Embassy supported the **ENTARI** program (*Menuju Transisi Energi Rendah Karbon Indonesia*) to promote low-carbon energy and integrate gender inclusion into energy policy and projects. Launched in 2019, by the MEMR. MENTARI aims to enhance Indonesia's transition to renewable energy while ensuring inclusive economic growth and poverty reduction. This program has been instrumental in demonstrating and scaling small-scale solar microgrids in remote areas of Indonesia, such as Central Sumba, and East Nusa Tenggara. The program not only addresses energy poverty by expanding access to renewable energy but also works to involve women and marginalised groups in these initiatives.

MENTARI has actively incorporated gender and social inclusion into its operations by embedding gender considerations in its training and community engagement strategies. As of January 2024, the program has achieved a 41% participation rate of women in its activities, including workshops and training sessions. This involvement is supported by a targeted approach that includes door-to-door outreach and training tailored to women's schedules and needs. For instance, MENTARI uses the Gender Action Learning for Sustainability (GALS) tool to include women with low levels of education and even provides childcare during training sessions to encourage greater participation. These efforts have resulted in a notable increase in women working as Solar Photovoltaic operators, challenging traditional gender roles in the energy sector.

In addition to the above programmes, supported by Germany through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Indonesia and other global south countries such as Afghanistan, Nepal, and Madagascar have developed two study papers on gender mainstreaming on renewable energy: "**Brief Summary of Good Practices and Challenges on Renewable Energy Development in South-South Triangular Cooperation between Afghanistan, Indonesia, Nepal, Madagascar and Germany"** and **"A Concept Paper on Gender Mainstreaming in South-South Triangular Cooperation"** as joint efforts on mainstreaming gender in renewable energy.

Together with the other Global South countries, the papers have been implemented since 2021 through the development of a series of study papers on gender mainstreaming on renewable energy on the **Renewable Energy Mini-grids in South-South Triangular Cooperation in Indonesia (ENTRI)** project. Launched in 2023, this project aims to strengthen the role of women in renewable energy systems across Indonesia, Madagascar, Nepal, and Kenya until 2025.

The ENTRI project has developed a **Concept for Women Professional Development in South-South Triangular Cooperation on Decentralised Renewable Energy** (SSTC DRE), which focuses on gender mainstreaming and leadership in the renewable energy sector. The concept is designed to create platforms for knowledge sharing and professional development among women in the involved countries, thereby contributing to reduced gender and energy inequalities.

In general, both the MENTARI program and the ENTRI project underscore the importance of integrating gender considerations into energy policies and programs. MENTARI focuses on expanding renewable energy access and increasing women's participation in energy projects, addressing energy poverty, gender representation, and workforce inclusion. Meanwhile, the ENTRI project aims to

enhance women's leadership and professional development in the decentralised renewable energy sector across multiple countries. Together, these initiatives represent a significant effort towards a more inclusive and equitable energy transition, highlighting the need for continued focus on gender integration in energy policy and practice.

Another initiative is the **Srikandi BUMN** a community of women leaders from prominent state-owned enterprises including State Electric Company (PLN). The platform aims to retain more women within the industry by supporting women with less than 5-year tenure, addressing gender bias and unconscious bias at workplace and outside workplace and empower women to take role in decision-making positions.

Launched in 2022 by UNDP Indonesia in collaboration with the Ministry of Energy and Mineral Resources (MEMR), the **Srikandi** program seeks to enhance female participation in Indonesia's renewable energy sector. It specifically aims to address gender disparities in the energy sector by equipping women with the skills and certifications necessary for positions such as energy managers and auditors.

The focus on empowering women not only aims to improve their participation but also supports Indonesia's broader goals for renewable energy adoption and energy efficiency. The next steps will involve scaling up the program and fostering continued support for women's advancement in the energy sector.

Women play a critical role for Indonesia's energy transition, particularly in the context of Indonesia's shift from fossil fuels to renewable energy sources. (ASEAN, 2021). Indonesia's National Energy Policy, articulated in **Government Regulation No. 79 Year 2014**, targets a 23% share of renewable energy by 2025 and 31% by 2050.

Women's involvement in energy decision-making is currently limited. However, Women's roles, especially in rural areas, encompass both domestic energy management and contributions to broader energy transition efforts. This perspective underscores the need for gender inclusivity in the energy sector, focusing on both policy and practical implementations. Efforts such as the **Indonesia Domestic Biogas Program** (IDBP), launched in 2009 by the Dutch NGO Hivos in partnership with DGEEU and technical support from SNV, aim to enhance women's access to clean energy and improve household welfare(BIRU, 2019). Ongoing initiatives such as the Solar-Powered Lamp programs in remote areas can improve electrification and support women's economic activities (ASEAN, 2021)

In the MEMR, currently, 11 women are employed as administrators, which comprises 55 units (20%). Compared to 2011, the number of women in director positions has increased, with only 6 women out of a total of 47 units (12.7%). Also, the proportion of women employed in MEMR has increased from 22.8% in 2011 to 27.5% in 2021.

In conclusion, Indonesia's gender-inclusive energy initiatives, such as MENTARI and Srikandi, highlight progress in addressing energy poverty and workforce inclusion, particularly in renewable energy sectors. Programs like ENTRI further enhance women's professional development and leadership in energy. However, despite these advancements, challenges in achieving full gender equality remain, particularly in political representation and decision-making roles within the energy sector. Continued focus on scaling these initiatives and improving the implementation of gender-responsive policies will be critical to ensuring a more inclusive energy transition in Indonesia. The current efforts serve as a foundation, but deeper structural changes are necessary for long-term impact.

3.12 Italy

3.12.1 National key figures

Population (2023): 58.8 million[246]

GDP (2023, current US$): 2.2 trillion[247]

Gender Gap Index (2023): 0.705 (ranked 79th)[248]

Gender employment gaps:

- Total gender employment gap: 15.1% (2018)[249]; 30.4% (2023)[250]
- Gender employment gap in the energy sector: 76.4% (2018)[251]
- Total share of female senior managers (2023): 28.3%[252]
- Share of female senior managers in the energy sector (2023): 24.4%[253]

246 https://data.worldbank.org/indicator/SP.POP.TOTL
247 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
248 https://www.weforum.org/publications/global-gender-gap-report-2023/
249 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
250 https://www.weforum.org/publications/global-gender-gap-report-2023/
251 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
252 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
253 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

Gender wage gaps:

- Total gender wage gap: 4.2% (2018)[254]; 7.64% (2023)[255]
- Gender wage gap in the energy sector: 4.3% (2018)[256]

Share of women in STEM graduate attainment (2016): 39.5%[257]

Gender political representative gaps:

- Share of women in parliament (2023): 32.3%[258]
- Share of women in ministerial positions (2023): 26.67%[259]
- Share of women in the Italian Ministry of Ecological Transition's staff: 41-60%[260]
- Share of women in the Italian Ministry of Ecological Transition's senior management (2022): 41-60%[261]

Share of energy poor population that is women: n.a.

3.12.2 Institutional Framework

The **Ministry of the Environment and Energy Security** (MASE) (*Ministero dell'Ambiente e della Sicurezza Energetica)* is responsible for ensuring the safety of energy and mineral infrastructure, as well as promoting the security of supply, efficiency, competitiveness and renewable energy. It also oversees the activities of the National Agency for New Technologies, Energy and Sustainable Development (ENEA) (*Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile*), the General Directorate for Energy Services (GSE) (*Gestore Servizi Energetici*) and SOGIN (Società Gestione Impianti Nucleari), which manages nuclear power plants.

Regarding gender equality, the **Department of Equal Opportunities** (*Dipartimento per le Pari Opportunità- Presidenza del Consiglio dei Ministri*), under the Presidency of the Council of Ministers, coordinates policies and initiatives to promote women's rights and gender equality. In addition, the **National Council for Gender Equality** (Consigliera Nazionale di Parità), appointed by the Minister of Labour and Social Policies in agreement with the Minister of Equal Opportunities, focuses on handling national cases of gender discrimination in the workplace and promoting equal opportunities for workers.

3.12.3 Legal Framework

In the case of Italy, the government has implemented various policies and initiatives to address gender inequalities across multiple sectors. The focus goes from labor market issues, such as employment and the gender pay gap, to political representation, with measures to promote gender parity in elections. Additionally, Italy has explored the connection between energy access and gender disparities, as energy poverty is still emerging as a topic requiring more focused actions. These efforts highlight the country's commitment to ensuring gender equality in key areas of workforce participation and decision-making.

In July 2021, Italy launched the **National Strategy for Gender Equality**[262], a comprehensive initiative aimed at promoting gender equality from 2021 to 2026, covering essential areas such as employment, wages, and income. The government's strategy focuses on strengthening female entrepreneurship by increasing resources and supporting women entrepreneurs, as well as providing easier access to credit for women-led businesses. Other measures include tax incentives for companies that hire women and the creation of a certification system for businesses that adopt gender equality policies, with monitoring and public disclosure of the results.

With the approval of **Law No. 162 of 2021**[263], Italy implemented measures to combat workplace inequality. The law applies to Italian companies, both public and private, with more than 50 employees, requiring them to submit a bi-annual report. This includes information on the number of male and female employees, gender pay gaps, and gender ratios at various hierarchical levels. In January 2022, Italy introduced the **Gender Equality Certification** to certify the effective implementation of policies and measures that reduce gender disparities.

In the energy sector, as a founding member of the C3E initiative, Italy participates in efforts to promote the role of women in clean energy. Moreover, Italian companies such as ENEL and Edison are involved in the **Equal by 30**[264] initiative, which aims to achieve gender parity in pay, leadership, and opportunities in the clean energy sector by 2030.

254 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
255 https://www.weforum.org/publications/global-gender-gap-report-2023/
256 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
257 Female share of graduates from Science, Technology, Engineering and Mathematics (STEM) programmes, tertiary. https://databank.worldbank.org/source/gender-statistics
258 https://www.weforum.org/publications/global-gender-gap-report-2023/
259 https://www.weforum.org/publications/global-gender-gap-report-2023/
260 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
261 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
262 https://www.pariopportunita.gov.it/it/politiche-e-attivita/parita-di-genere-ed-empowerment-femminile/strategia-nazionale-per-la-parita-di-genere-2021-2026/
263 https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2021;162~art5
264 https://www.equalby30.org/equal-30-countries-commitments

The Italian government acknowledges the importance of increasing female participation in the transition to clean energy, emphasizing that women's presence in careers critical to this transition is directly tied to access to university courses and careers in STEM fields. In the 2022–23 academic year, women represented only 37% of students enrolled in STEM-related courses (Assolombarda, 2024). Since 2016, the Department for Equal Opportunities has promoted initiatives to encourage education in STEM and financial disciplines. These include the ***In Estate si imparano le STEM***[265] program (2016 and 2018), which funded summer courses in STEM. The **National STEM Week**[266], created in 2024 to promote guidance, learning, training, and skill development in STEM areas.

Moreover, Italy does not yet have established policies directly addressing the connection between energy poverty and gender inequality. However, in 2024, the Italian Chamber of Deputies published a dossier titled **Energy Poverty and Gender Impact**[267]. The dossier defines energy poverty, presents studies and data on the gendered effects of the phenomenon, and offers a quantitative analysis of energy poverty in Italy using various indicators developed by Istat, Eurostat, and Oipe. The publication, edited by the Research Service of the Department of Productive Activities, provides a gender-based analysis of the energy crisis and the factors contributing to energy poverty. However, the political objectives and practical applicability of these findings have not yet been clearly defined.

It is worth mentioning that Italy's legal framework includes several national and regional laws aimed at promoting women's participation in politics and access to elective offices. It implements Article 51 of the Italian Constitution, which guarantees equal access for women and men to elective offices at all levels (national, regional, local, and in the European Parliament).

At the national level, **Law No. 165 of 2017**[268], which regulates elections to the Italian Parliament, introduced a mixed electoral system that combines majoritarian and proportional formulas with specific provisions for gender representation. Candidate lists in multi-member electoral districts must alternate genders, and neither gender can represent more than 60% of the candidates in both the Chamber of Deputies and the Senate. At the regional level, **Law No. 15 of 2016**[269] establishes mandatory measures to promote gender equality in elections, ensuring a quota of at least 40% for candidates of each gender or gender alternation in cases where no preferences are expressed. At the local level, the reorganization of provinces and the creation of metropolitan cities resulted in changes to provincial and metropolitan councils, which are now second-tier bodies elected by mayors and councilors. For these bodies, the law imposes a 60% limit on the representation of a single gender in candidate lists, but without the possibility of dual gender preference due to incompatibility with the weighted voting system.

Legislative **Decree No. 165 of March 30, 2001**[270] regulates general provisions on employment in public administrations in Italy, focusing on administrative efficiency and optimal use of human resources. Under this decree, each administration must create internal regulations that ensure gender parity in accordance with the guidelines from the Presidency of the Council of Ministers. Additionally, appointments to leadership positions must follow criteria of equal opportunity, and staff training and development must promote a gender-sensitive culture in public institutions.

In conclusion, while Italy has made progress with initiatives like the "National Strategy for Gender Equality" and Law No. 162, which are important steps towards workplace equity, particularly in supporting female entrepreneurship and promoting equal pay, its approach remains limited. The commitment to including women in the energy sector through initiatives such as Equal by 30 is notable, with ongoing efforts to strengthen governmental support for these initiatives. There is a focus on women's education in STEM, with various programs to increase female participation. However, the connection between energy poverty and gender inequality has not yet been fully addressed, despite ongoing research. Additionally, Italy has implemented strong legal measures to ensure gender parity in political representation, yet it still lacks effective corrective actions to promote structural changes and fully meet the needs of women and marginalized groups.

265 https://www.pariopportunita.gov.it/it/news-e-media/news/archivio/seconda-edizione-del-bando-in-estate-si-imparano-le-stem/

266 https://www.pariopportunita.gov.it/it/news-e-media/news/2024/evento-stem-la-chiave-del-futuro-giovani-donne-imprese/

267 https://documenti.camera.it/leg19/dossier/pdf/AP0151.pdf

268 https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2017-11-03;165

269 https://www.normattiva.it/atto/caricaDettaglioAtto?atto.dataPubblicazioneGazzetta=2016-02-25&atto.codiceRedazionale=16G00028&atto.articolo.numero=0&atto.articolo.sottoArticolo=1&atto.articolo.sottoArticolo1=0&qId=3f262f65-aa39-4b18-8dee-81a466d38aa5&tabID=0.9079521728877911&title=lbl.dettaglioAtto&generaTabId=true

270 https://www.normattiva.it/ricerca/veloce/0?tabID=0.9079521728877911&title=lbl.risultatoRicerca&initBreadCrumb=true

3.13 Japan

3.13.1 National key figures

Population (2023): 124.5 million[271]

GDP (2023, current US$): 4.21 trillion[272]

Gender Gap Index: 0.647 (ranked 125th)[273]

Gender employment gaps:

- Total gender employment gap (2023): 24%[274]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers (2023): 8.9%[275]
- Share of female senior managers in the energy sector (2023): 8.9%[276]

Gender wage gaps:

- Total gender wage gap (2023): 22.1%[277]
- Gender wage gap in the energy sector: n.a.

Share of women in STEM graduate attainment (2023): 16%[278]

Gender political representative gaps:

- Share of women in parliament: 10%[279]
- Share of women in ministerial positions: 8.33%[280]
- Share of women in the Agency for Natural Resources and Energy's staff: n.a.
- Share of women in the Agency for Natural Resources and Energy's senior management: 3%[281]

Share of energy poor population that is women: n.a.

3.13.2 Institutional Framework

In Japan, the governmental body responsible for energy policy is **The Agency for Natural Resources and Energy** (ANRE) (資源エネルギー庁), which is part of the **Ministry of Economy, Trade and Industry** (METI) (経済産業省) (Enecho, 2024)

As for gender policies and matters, there is the Gender Equality Bureau Cabinet Office (GEBCO) (男女共同参画局). The Bureau composes the structure of the Cabinet Office, which is an agency under the jurisdiction of the Japanese Cabinet. It is tasked with the management of the Cabinet's daily operations, with the Prime Minister being the official leader of the Cabinet Office (Cabinet Office, 2024). It is also worth mentioning the e Japan International Cooperation Agency (JICA) (独立行政法人国際協力機構) a governmental agency that delivers the bulk of Official Development Assistance (ODA) for the government of Japan.

3.13.3 Legal Framework

In Japan, there is no policy that directly integrates gender and energy. The closest initiative promotes young girls' participation in STEM fields, alongside a guideline designed to assist policymakers in crafting effective strategies to address gender-related issues. However, Japan has a legal framework for gender equality and women's rights, developed by the Gender Equality Bureau Cabinet Office. This framework includes three laws, four basic plans, and two strategic documents that form the foundation for advancing women's rights and promoting gender equality across various sectors.

To begin with, the **Riko Challenge** campaign, launched in 2016 by Keidanren in collaboration with the Gender Equality Bureau of the Cabinet Office, aims to increase the participation of women and girls in science and engineering fields in Japan (GEBCO, 2016). The initiative focuses on addressing gender imbalances in the labor market by providing opportunities for female students to visit workplaces in these fields. Although the campaign does not specifically focus on energy, it indirectly contributes to energy-related sectors by encouraging women to pursue careers in STEM, which usually has a large gap between the participation of female and male workers (ILO, 2019).

The campaign primarily targets workforce disparities, aiming to reduce the gender gap and improve women's employment prospects in technical professions. Through organized visits and mentorship programs, female students are exposed to role models in science and engineering, inspiring them to consider careers in these fields. While the exact costs of

271 https://data.worldbank.org/indicator/SP.POP.TOTL
272 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
273 https://www.weforum.org/publications/global-gender-gap-report-2023/
274 https://www.weforum.org/publications/global-gender-gap-report-2023/
275 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
276 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
277 https://www.weforum.org/publications/global-gender-gap-report-2023/
278 https://www.weforum.org/agenda/2023/07/japan-encouraging-women-into-stem/
279 https://www.weforum.org/publications/global-gender-gap-report-2023/
280 https://www.weforum.org/publications/global-gender-gap-report-2023/
281 List of Officials at the Agency for Natural Resources and Energy, including the Commissioner's Secretariat, the Energy Efficiency and Renewable Energy Department, the Natural Resources and Fuel Department, and the Electricity and Gas Industry Department: https://www.meti.go.jp/english/aboutmeti/profiles/a_Index_METIliste.html

the initiative are not provided, it continues to operate, with the potential for future expansion into more industries, deepening its impact in energy-related areas. This initiative addresses key issues in the labor market, the gender pay gap, and employment.

Moreover, a crucial document for the gender aspect integration with energy is the **Reference Material for Gender Mainstreaming in the Energy Sector**, a guideline document provided by the Japan International Cooperation Agency (JICA), whose purpose is to support the integration of gender perspectives into the government's energy projects, ensuring gender equality throughout all project stages, from planning, implementation, to evaluation (JICA, 2023).

In terms of energy, the document addresses the need for improved access to electricity and the promotion of low-carbon and decarbonized energy. This includes projects aimed at developing stable electric utility systems, strengthening power transmission and distribution networks, and advancing renewable energy initiatives. In terms of gender, the document points out that energy policies often overlook gender perspectives, such as limited opportunities for female professional development and employment, and their lack of stable energy access increases domestic work burdens and health risks. Additionally, restricted access to energy and resources hampers women's participation in economic activities.

The reference material outlines a structured approach to gender mainstreaming, starting with understanding major gender issues in the energy sector and emphasizing the importance of integrating these perspectives into project cycles. It provides practical steps for conducting gender analyses, planning activities, setting indicators, and monitoring and evaluating projects from a gender-inclusive viewpoint. Although this document is a vital tool for policymakers and stakeholders to develop and assess gender-sensitive energy policies and projects, there remains room for further progress in translating its recommendations into concrete.

Regarding the gender legal foundation in Japan, its initiatives reflect a concerted effort to address critical gender disparities in various domains, including pay equity, work-life balance, and cultural norms. By implementing comprehensive measures aimed at enhancing workplace equality, supporting family responsibilities, and challenging societal stereotypes, Japan strives to create a more equitable society. The official website of the Cabinet divides its legal documents into a few sections, identified as laws, basic plans, main policies, and strategic documents.

Concerning the laws, it is worth mentioning the **Basic Act for Gender Equal Society** effective since 1999, establishes fundamental principles and directs comprehensive efforts towards a gender-equal society, it aims to systematically enhance gender equality across various societal domains (GEBCO, 2024a). Another critical law is the **Act on Promotion of Women's Participation and Advancement in the Workplace** which targets systemic barriers that women encounter in employment, aiming to improve their representation and career advancement (GEBCO, 2024a).

As for the Basic Plans, the Japanese government builds the basis for a gender plan in the country that is updated periodically. For instance, the **Fifth Basic Plan for Gender Equality** introduced in 2021 continues the work of previous plans, including the **Third Basic Plan for Gender Equality (2010)** and the original **2000 Plan** (GEBCO, 2024b). It builds on the Vision of Gender Equality from 1996, incorporating updates to address emerging challenges and opportunities. The plan sets specific objectives to enhance women's participation in decision-making roles and reduce gender disparities in various domains, providing a roadmap for ongoing gender advancement efforts. Additionally, the plan calls on political parties to voluntarily adopt measures such as positive actions, including gender quotas, in alignment with the 2018 **Act on Promotion of Gender Equality in the Political Field**[282].

Key gender policies in Japan focus on improving gender balance and addressing various aspects of gender inequality. The **Positive Action** policy aims to increase female representation in leadership roles and decision-making processes (GEBCO, 2024c). The **Work-Life Balance for Men and Women** policy supports better integration of work and family life, which is crucial for reducing gender disparities in both professional and domestic settings. The **Gender Equality and Disaster Risk Reduction** policy ensures that women's needs and contributions are considered in disaster planning and response. Additionally, the **Elimination of All Forms of Violence against Women** and **Support for the Promotion of Gender Equality in Regions** policies address violence and promote equitable development across the country (GEBCO, 2024c).

Lastly, some strategic documents play an essential role in guiding Japan's gender equality efforts, such as **"Toward the Realisation of a Gender-Equal Society"**, which outlines the progress and ongoing initiatives by the government to achieve gender equality (GEBCO, 2024d). It also identifies twelve critical areas for advancing gender equality that have a crucial impact on women: poverty, education and training, health, violence against women, armed conflict, economy, positions of power and decision-making, institutional mechanisms for the advancement of women, human rights, the media, the environment, and young girls.

282 https://www.japaneselawtranslation.go.jp/en/laws/view/3294/en

Nevertheless, these documents and many more are also compiled and mentioned in a document made by UN Women, the European Union (EU), and ILO named **"Policies, Initiatives, and Tools to Promote Women's Economic Empowerment in the World of Work in Japan"** (ILO, 2019). This work summarized all the legislative frameworks for gender in Japan in three categories of policies and initiatives: gender pay gap, work-life balance and childcare, and culture and stereotypes.

In conclusion, Japan's gender policies demonstrate a robust legal framework supporting women's rights and gender equality across various sectors, there remains an opportunity to further incorporate gender considerations specifically within the energy sector. While frameworks like the Reference Material for Gender Mainstreaming in Energy offer guidance, concrete actions to ensure women's inclusion in energy projects remain limited. Existing initiatives target broader workforce disparities, with limited focus on addressing energy poverty or gender-based challenges in energy access. Initiatives aim to address labour market disparities by promoting women's participation in STEM fields, indirectly benefiting energy sectors. Japan has made progress with legal documents addressing political representation and labor market issues, but additional focus on gender equality within the energy sector would strengthen these efforts.

3.14 Mexico

3.14.1 National key figures

Population (2023): 128.5 million[283]

GDP (2023, current US$): 1.8 trillion[284]

Gender Gap Index (2023): 0.765 (ranked 33th)[285]

Gender employment gaps:

- Total gender employment gap (2023): 42%[286]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers (2023): 10.1%[287]
- Share of female senior managers in the energy sector (2023): 5.3%[288]

Gender wage gaps:

- Total gender wage gap (2023): 12,5%[289]
- Gender wage gap in the energy sector: n.a.

Share of women in STEM graduate attainment (2017): 30.6%[290]

Gender political representative gaps:

- Share of women in parliament (2023): 50%[291]
- Share of women in ministerial positions (2023): 42.11%[292]
- Share of women in the Mexican Secretariat of Energy's staff: n.a.
- Share of women in the Mexican Secretariat of Energy's senior management: n.a.

Share of energy poor population that is women: n.a.

3.14.2 Institutional Framework

The **Secretariat of Energy** (*Secretaría de Energía*) is an entity of the Centralised Federal Public Administration, part of the Executive Branch, responsible for establishing, directing, and coordinating the country's energy policy.

The **National Institute for Women** (*Instituto Nacional de las Mujeres*) is a decentralized public body of the Federal Government, responsible for promoting gender equality in the national policy, as well as for incorporating a gender perspective into government public policies.

3.14.3Legal Framework

In Mexico, a comprehensive framework promotes gender equality and equity throughout the economy, anchored in constitutional guarantees that safeguard women's rights. This legal structure is strengthened by laws targeting systemic inequalities, particularly in the labor market and political representation. In the energy sector, Mexico has introduced initiatives focused on education, employment, retention, and the promotion of women, alongside policies addressing women's energy access needs and gender-responsive budgeting.

Gender equality is embedded in the Mexican Constitution and in various international agreements to which Mexico

283 https://data.worldbank.org/indicator/SP.POP.TOTL
284 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
285 https://www.weforum.org/publications/global-gender-gap-report-2023/
286 https://www.weforum.org/publications/global-gender-gap-report-2023/
287 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
288 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
289 https://www.weforum.org/publications/global-gender-gap-report-2023/
290 Female share of graduates from Science, Technology, Engineering and Mathematics (STEM) programmes, tertiary. https://databank.worldbank.org/source/gender-statistics
291 https://www.weforum.org/publications/global-gender-gap-report-2023/
292 https://www.weforum.org/publications/global-gender-gap-report-2023/

is a signatory, such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). **The 1917 Constitution**[293], in Article 1, prohibits all forms of discrimination, including those based on gender. Article 4 states that "men and women are equal before the law", while Article 34 ensures equal citizenship rights for both men and women. Furthermore, Article 2 mandates that Indigenous peoples respect the dignity and integrity of women, guaranteeing their rights to vote, run for office and hold public and elected positions on an equal footing with men.

Despite these constitutional guarantees, challenges remain in practice, highlighting the importance of implementing additional legislation to address historical inequalities. The **General Law for Equality between Women and Men**[294] (2006), aims to "regulate and ensure equal opportunities and treatment between women and men, propose institutional guidelines and mechanisms to guide the nation towards achieving substantive equality in both the public and private sectors, promote women's empowerment, and combat all forms of discrimination based on sex".

Additionally, various laws explicitly reference women's rights across different areas. For example, the **General Education Law**[295], in Article 8, mandates that state-provided education combat "prejudices, stereotypes, discrimination, and violence, especially against women, girls, and boys". The **Federal Labour Law**[296], in Article 164, states that "women enjoy the same rights and have the same obligations as men", while Article 170 addresses specific rights for working mothers. Other laws, such as the **General Health Law**[297] and the **General Law on Women's Access to a Life Free from Violence**[298], focus on women's physical autonomy.

In terms of political representation, Mexico has seen a progressive evolution of quota laws. Initially, in 1996, a 30% quota was introduced[299], which was increased to 40% in 2008[300], applying to both primary and substitute candidates for proportional representation seats in the Federal Congress. However, some women were registered merely to meet the quota and later resigned in favor of their male substitutes — a practice known as "juanitas". To counter this, the **General Law of Electoral Institutions and Procedures**[301] was enacted in 2014, establishing a 50% gender parity requirement for all legislative candidacies at federal, state, and municipal levels. It also mandated that both the primary candidate and the substitute be of the same gender, with sanctions for parties attempting to circumvent this rule, including the annulment of candidacies. In some contexts, political parties are also required to include indigenous candidates.

Successful public-private initiatives in Mexico include the **Gender Equity Model** (GEM) and **Gender Parity Accelerators** (GPA). GEM, launched in 2004 with World Bank support, set quality standards for recruitment and workplace policies and became a federal program due to high satisfaction levels. It was later integrated into the General Law for Equality between Women and Men (World Bank, 2010). The GPA, introduced by the World Economic Forum, aimed to enhance women's economic participation, focusing on Mexico's tourism, ICT, and agroindustry sectors. As of August 2023, the initiative continued to receive support from various international partners and involved both public and private sector participants (IDB, 2023).

In the energy sector, three notable public-private partnerships stand out. First, the **Network of Women in Renewable Energy and Energy Efficiency** (REDMEREE) brings together key institutional members such as the Institute of Renewable Energies, the University Program for Sustainability Strategies at the National Autonomous University of Mexico, and the National Institute of Electricity and Clean Energies, along with various technological and polytechnic universities. This network aims to promote the renewable energy and energy efficiency sector as a space where both women and men can reach their potential under conditions of equality.

Second, the OECD's **NiñaSTEM** initiative aims to encourage more girls to pursue higher education in STEM fields. The Ministry of Public Education, the Academy of Engineering, and the OECD have agreed to collaborate on a series of actions to achieve this goal. Third, a study was conducted to integrate gender perspectives into energy efficiency measures for industry, addressing barriers and proposing specific instruments. This study was developed in collaboration with the National Commission for the Efficient Use of Energy (Conuee), the European Union Energy Initiative (EUEI PDF), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, and Fundación Bariloche (Sandoval, s.d.).

293 https://www.gob.mx/indesol/documentos/constitucion-politica-de-los-estados-unidos-mexicanos-97187
294 https://www.gob.mx/cms/uploads/attachment/file/704383/LGIMH.pdf
295 https://www.salud.gob.mx/unidades/cdi/nom/compi/l130793.html
296 https://www.gob.mx/cms/uploads/attachment/file/156203/1044_Ley_Federal_del_Trabajo.pdf
297 https://dof.gob.mx/nota_detalle.php?codigo=4652777&fecha=07/02/1984#gsc.tab=0
298 Ley General de Acceso de las Mujeres a una vida libre de violencia.
299 https://oig.cepal.org/sites/default/files/1996_cofipe_ref08_mex.pdf
300 https://oig.cepal.org/sites/default/files/2008_codfedcofipe_mex.pdf
301 https://oig.cepal.org/sites/default/files/lgipe_270117.pdf

Currently, the **National Program for Equality between Women and Men** (PROIGUALDAD) 2020-2024[302] is in effect. This special government program outlines the main strategies and actions that federal entities and agencies must implement to guarantee women's rights and reduce violence against them. PROIGUALDAD 2020-2024 sets six strategic objectives: economic autonomy, health and well-being, care, no violence, equal participation of women in all spheres, and the construction of safe and peaceful environments. Within this framework, specific actions are outlined for the energy sector.

Under Priority Strategy 1.3, "Promote the employment of women under conditions of equality, non-discrimination, and decent and dignified work," there is a specific directive to "Promote actions that support the retention and promotion of women in the public sector in energy, science, technology, communications, and transportation". Under Priority Strategy 2.3, "Encourage increased participation by the state and the private sector in the equitable and responsible organization of care", there is a directive to "Promote strategies that enable access to affordable energy in households and its rational use to reduce energy poverty among women". While these actions are aligned with the goals of gender equality, the details on how integration will be implemented could be further clarified.

Finally, Mexico is actively advancing **gender-responsive budgeting** (GRB) to integrate gender perspectives into its budgetary processes. GRB is a strategy to apply gender mainstreaming in budgetary processes, aiming to allocate resources effectively to address the distinct needs of women and men, ensuring that budget-supported activities equally benefit both and promote gender equality and equal opportunities for all. Although GRB is not yet widely adopted in the energy sector, Mexico, along with several other countries, is prioritizing its application to sustainable energy expenditures.

Gender perspectives are incorporated into public budgets at both state and municipal levels, including for energy and climate change initiatives. Notably, Mexico is one of the few countries that regularly conducts sectoral analyses of government expenditures on gender equality, which has shown that the energy sector ranks among the lowest in terms of spending on gender-targeted activities (UN Women and UNIDO, 2023).

In summary, Mexico has advanced in implementing policies aimed at increasing women's representation in the energy sector and addressing broader issues of inequality. The existing initiatives reflect a commitment to promoting gender equality, though there are still areas that require improvement to ensure a truly inclusive and equitable approach. By integrating gender perspectives into public initiatives, Mexico seeks to reduce energy poverty, create equal opportunities in the workforce, and elevate women's participation in decision-making roles. The adoption of gender-responsive budgeting further guarantees a fairer distribution of resources. Mexico's strong focus on enhancing women's political representation underscores its comprehensive strategy for advancing gender equality across various sectors.

3.15 Russian Federation

3.15.1 National key figures

Population (2023): 143.8 million[303]

GDP (2023, current US$): 2.02 trillion[304]

Gender Gap Index (2021): 0.708 (ranked 81st)[305]

Gender employment gaps:

- Total gender employment gap (2021): 13%[306]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers (2023): 17.5%[307]
- Share of female senior managers in the energy sector (2023): 21.4%[308]

Gender wage gaps:

- Total gender wage gap (2019): 27.9%[309]
- Gender wage gap in the energy sector (2022): 24-29%[310]

Share of women in STEM graduate attainment: n.a.

Gender political representative gaps:

- Share of women in parliament (2021): 19%[311]

302 http://cedoc.inmujeres.gob.mx/documentos_download/Proigualdad%202020-2024%20Web.pdf
303 https://data.worldbank.org/indicator/SP.POP.TOTL
304 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
305 https://www.weforum.org/publications/global-gender-gap-report-2021/
306 https://www.weforum.org/publications/global-gender-gap-report-2021/
307 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
308 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
309 https://womeninenergy.ru/genderniy-balans-v-tek-rf.pdf
310 https://womeninenergy.ru/genderniy-balans-v-tek-rf.pdf
311 https://www.weforum.org/publications/global-gender-gap-report-2021/

- Share of women in ministerial positions (2021): 11%[312]
- Share of women in the Ministry of Energy's staff: n.a.
- Share of women in the Ministry of Energy's senior management: 25%[313]

Share of energy poor population that is women: n.a.

3.15.2 Institutional Framework

In Russia, its governmental ministry responsible for energy matters is the **Ministry of Energy** (*Министерство энергетики Российской Федерации*). It is important to mention that during the Soviet Union, there were several ministries taking care of different energy sources, the USSR had the Ministry of Natural Gas, Oil, Nuclear, etc. After the collapse of the USSR in 1991, those ministries became state-owned companies that are an integral part of the Russian energy strategy and politics in the country, such as Gazprom, Rosneft, and Rosatom respectively.

Russia lacks a ministry dedicated to gender and women; instead, it has the **Union of Russian Women** (СЖР) (*Союз Женщин России*), a semi-independent non-governmental organization that promotes women's rights. It was formed after the Soviet Women's Committee, which had served as the Soviet Union's infrastructure for women, and thus was transformed into the Union of Russian Women after the USSR fell. In response to the 1993 Constitution, the new parliament established the State Duma's Committee on the Affairs of Women, Family, and Youth (and later Children), in collaboration with the government and other agencies (Muravyeva, 2024).

3.15.3 Legal Framework

In the Russian Federation, while a specific national policy made by the government addressing energy and gender issues has not been established, several initiatives promoting gender inclusion in the energy sector have gained government support, particularly within the nuclear energy industry. Russia has made efforts to promote gender inclusion in the energy sector, particularly through initiatives headed by the state-owned nuclear company, Rosatom. While Russia lacks a dedicated gender ministry, organizations like the Union of Russian Women work to promote women's rights. Despite some progress in energy workforce inclusion, there are still significant gaps in addressing energy poverty and political representation for women within the broader energy sector.

One notable initiative is the **Women in Nuclear Community** (WIN Community) by Rosatom, which fosters a professional network that encourages women's participation in science and technical fields, with activities extending to countries outside Russia and engaging a diverse range of female professionals. The WIN community reflects the Russian government's ongoing efforts to support industries like nuclear energy while promoting gender equality. Rosatom's initiative spans several countries, including Russia, Türkiye, Armenia, the UAE, Egypt, India, and Singapore, and engages over 1,500 women professionals across 37 regions of Russia. The process involves collaboration through 21 action teams and international partnerships, with over 140 projects already completed. With over 3,000 active members, Rosatom's initiative has had a wide-reaching impact, both socially and professionally, across the nuclear energy sector.

In terms of energy, the initiative not only promotes the development of nuclear technologies, but also addresses energy access through cooperation between women specialists from different regions. WIN tackles issues related to the labour market, focusing on reducing the gender pay gap and improving women's representation in STEM fields. The initiative offers a range of programs, including mentoring, legal support, and popularisation of STEM among women and girls, as well as promoting women's leadership in nuclear energy projects.

For instance, the **Obninsk Tech Female Summer School** program was held in 2024, and designed for female professionals and senior students aiming to build careers in the nuclear industry. The program combines technical tours, expert guidance, and balanced training to equip women with advanced skills in nuclear technologies, including quantum science and nuclear medicine. The program also emphasises gender empowerment, offering mentorship and leadership training to help women navigate the male-dominated nuclear field. This initiative directly addresses gender disparities in employment by fostering female leadership in nuclear energy, contributing to more inclusive workforce development in the sector.

Nonetheless, in terms of gender equality, Rosatom has over 32% female employees, of which 20% are executives, 47.4% are specialists and white-collar workers, and 20.5% are blue-collar workers (Rosatom, 2022). However, progress towards achieving gender equality in the sector is still needed, given that the average proportion of women in the global nuclear industry is 24.9% (OECD, 2023), the achievement of proportional equality cannot be overlooked. Moreover, according to the Deputy Director General of HR of the company, women are working in senior positions, developing new businesses, taking part in major nuclear power plant construction projects and smart cities. According to ImpactMission (2024), ROSATOM's scientific division employs 35% of its women.

312 https://www.weforum.org/publications/global-gender-gap-report-2021/

313 count and weighting were conducted based on the positions described on the ME's webpage. https://minenergo.gov.ru/en/structure

Besides, Rosatom is part of the **Women's Empowerment Principles (WEPs)**, an initiative developed by the UN Global Compact and the UN Entity for Gender Equality and the Empowerment of Women. Also, WIN hosts events and participates in working groups that promote this initiative, such as the **All-Russian Conference of Women in the Nuclear Industry** aimed at raising awareness of women's contributions to the sector and the **OECD NEA Working Group on Improving Gender Balance in the Nuclear Field**.

It said that Rosatom and the WIN Community have been important drivers in addressing key gender issues in the nuclear energy field, including the gender pay gap, employment, and workforce participation. It highlights the importance of women's involvement in STEM and nuclear energy, fostering collaboration across regions and countries. Moving forward, the initiative is likely to continue expanding its scope, promoting gender equality in nuclear energy and improving women's access to leadership roles within this highly specialized industry.

Similar to these initiatives, the Eurasian Women's Forum, created in 2015 and led by the female Speaker of the Federation Council of the Federal Assembly of the Russian Federation. It is an international platform to address the changing role of women in the 21st century to discuss key issues such as sustainable development, women's empowerment in politics, business, etc. The Forum has promoted women's participation in the energy sector, with initiatives that promote female leadership in the fuel and energy industries, such as the "International Youth Forum Oil Capital" and expanding the role of women in the "Women in Nuclear Industry" (EAWF, 2024).

Another outstanding initiative is **The Alabuga Start Program**, a project launched in 2005 by the Russian Special Economic Zone (SEZ) and supported by the government. The program offers employment opportunities to young people from the Global South, and now with focus on providing training and employment for female participants aged 18-22 from Latin America, the Caribbean, Asia and Africa. The goal is to recruit young females into various industries, from road transport to energy, to address both employment gaps and empower women from underrepresented regions (Alabuga, 2024).

From a gender perspective, the Alabuga Start Program highlights the inclusion of young women from the Global South in industries traditionally dominated by men, aiming to address gender inequality in the labour market. This project provides professional training, language lessons, accommodation, and healthcare, a monthly salary, ensuring that these women are prepared for their roles in various industries.

The energy sector plays a crucial role in the operation of the Alabuga SEZ, having a robust power grid with a capacity of 350 MW, with 240 MW available for free to enterprises operating within the zone. The SEZ features two independent power sources, and has its own gas and heat supply infrastructure, further enhancing its appeal to investors and businesses. This infrastructure not only supports industrial activities but also employs the female technicians that applied for the program, thus benefiting in terms of gender disparity in the job market, especially in the oil and gas sector.

The program is ongoing, with participants employed from 44 countries. The SEZ has already attracted significant investment, totalling US$3.8 billion, and employed over 10,000 participants as of early 2023. This demonstrates the success of the program, thus directly ensuring the continued growth of both the energy and gender equality aspects of the project, especially benefiting the gender gap in the job market for women from the Global South (Alabuga, 2023).

It is also worth mentioning the **Gender balance in the fuel and energy complex of the Russian Federation: current situation and possible solutions** study (Гендерный баланс в топливно-энергетическом комплексе Российской Федерации: текущая ситуация и возможные решения), published in 2022 by the Women in Energy (Women in Energy, 2022). The study focuses on the representation of women in three key industries: oil and gas, coal, and electric power. From 2018 to 2020, women made up about a quarter of the workforce across these sectors, with figures standing at 27.7% in oil and gas, 25.7% in coal, and 25.2% in electric power. However, women's involvement in leadership positions is much lower, with less than 10% in senior management roles and 10-25% in mid-level management.

The study highlights issues such as gender discrimination, with over 62.9% of women facing some form of bias in the workplace. Additionally, the gender pays gap remains one of the largest in the Russian economy, ranging from 24% to 29%. The lack of mechanisms to attract and retain female employees is another concern, as many women are unaware of any supportive policies in place. These findings emphasise the need for targeted measures to improve gender equality in the fuel and energy sector, particularly in addressing the wage gap and enhancing women's opportunities for leadership roles.

Besides, regarding the large gas sector in Russia, the CEO of Gazprom Export, highlighted the progress in gender diversity within the energy sector, particularly at Gazprom. While women represent a quarter of the company's total workforce, they make up one-third of the headquarters staff. It was also noted that the inclusion of women in leadership roles as a significant achievement, with over 8,000 female colleagues in executive positions. Although, the CEO recognises that the O&G sector has been predominantly dominated by men, with Russia being no

exception, she emphasised that enhancing gender diversity in senior leadership can drive innovation and adapt to global trends in the gas industry, ultimately benefiting business success and aligning with gender equality goals (Gazprom, 2015).

Lastly, regarding the legal framework for women's rights in Russia, key initiatives include presidential decrees such as the **National Action Plan for Improving the Status of Women and Enhancing Their Role in Society until 2000** (UN, 2000) and the **2017 National Strategy of Action in the Interests of Women (2017-2022)** (UNECE, 2017). These policies aim to enhance women's roles in the workforce and ensure equal opportunities in federal government bodies and other sectors. Although a bill on gender equality was introduced in 2003, it failed to pass the second reading in the State Duma, underscoring the slow pace of legislative progress in gender equality.

In summary, initiatives such as the WIN Community, Obninsk Tech Female School and the Alabuga Start Program have made strides in advancing gender inclusion. These programs focus on enhancing women's roles in STEM and workforce participation, with a notable emphasis on the nuclear industry. However, despite these efforts, challenges remain in fully addressing the gender pay gap and increasing women's representation in senior leadership roles. Moreover, while workforce inclusion is progressing, there is limited focus on political representation and comprehensive strategies for reducing energy poverty among women, signalling the need for more robust energy policies.

3.16 Saudi Arabia

3.16.1 National key figures

Population (2023): 36.9 million[314]

GDP (2023, current US$): 1.1 trillion[315]

Gender Gap Index (2023): 0.637 (ranked 131st)[316]

Gender employment gaps:

- Total gender employment gap (2023): 55%[317]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers (2023): 3.7%295
- Share of female senior managers in the energy sector: n.a.

Gender wage gaps:

- Total gender wage gap: n.a.
- Gender wage gap in the energy sector: n.a.

Share of women in STEM graduate attainment: 36.82%[318]

Gender political representative gaps:

- Share of women in parliament: 19,9%[319]
- Share of women in ministerial positions: 0%[320]
- Share of women in the Saudi Arabian Ministry of Energy's staff: n.a.
- Share of women in the Saudi Arabian Ministry of Energy's senior management: n.a.

Share of energy poor population that is women: n.a.

3.16.2 Institutional Framework

The **Ministry of Energy** is responsible for developing and implementing the country's energy policy. In terms of gender issues, there is no dedicated ministry for gender equality. However, the **Ministry of Human Resources and Social Development** oversees labor laws and social matters and has recently introduced initiatives focused on empowering women and boosting their participation in the workforce.

3.16.3 Legal Framework

In Saudi Arabia, the intersection of gender and energy policies reveals a significant gap in addressing women's roles within the sector. Although the country has initiated reforms aimed at enhancing women's rights and increasing their participation in the workforce — evidenced by rising female employment and ongoing efforts to reduce the gender pay gap — challenges remain. Women's political representation and participation in the energy industry, particularly in decision-making processes, remain critically inadequate. Furthermore, there is a notable absence of policies that specifically address energy access and energy poverty through a gender lens. This context underscores the urgent need for a more comprehensive approach to integrating gender perspectives into energy policies.

Saudi Arabia is a developing, oil-exporting country that relies heavily on energy exports as its primary source of economic growth and fiscal revenue. While the country is beginning to take steps toward recognizing the importance

314 https://data.worldbank.org/indicator/SP.POP.TOTL
315 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
316 https://www.weforum.org/publications/global-gender-gap-report-2023/
317 https://www.weforum.org/publications/global-gender-gap-report-2023/
318 https://www.weforum.org/publications/global-gender-gap-report-2023/
319 https://www.weforum.org/publications/global-gender-gap-report-2023/
320 https://www.weforum.org/publications/global-gender-gap-report-2023/

of empowering women through greater access to resources, information, and inclusion in decision-making, gender mainstreaming is absent in energy policies.

In 2016, Saudi Arabia launched **Vision 2030**, a national development plan described as "a transformative and ambitious blueprint to unlock the potential of its people and create a diversified, innovative, and world-leading nation". A central goal of this plan is to promote social and economic modernization, specifically aimed at increasing women's contributions to the country's economic and social development. Gender-segregated measures have been lifted to empower women and encourage female entrepreneurship.

Since the launch of Vision 2030, the country has undergone important reforms that have expanded women's rights. Women are now allowed to drive, travel independently, and have greater access to legal processes. This profound societal transformation has resulted in increased female participation in the workforce, bringing a diversity of perspectives and knowledge to Saudi society. In 2017, women made up just 17% of the workforce, but by 2023, this figure had climbed to 35.5%, exceeding the initial target of 30% and setting a new goal of 40% (Saudi Arabia, 2023). For context, women represent 49.6% of the total Saudi population.

In the public sector, the Saudi government has opened new opportunities for women, such as legal researchers at the Ministry of Justice and positions at airports and border crossings. Additionally, Saudi Arabia appointed its first-ever female ambassador, who serves as the kingdom's representative to the United States, marking a historic milestone for women in diplomacy.

Despite these significant gains in integrating women into the workforce in general, much progress is still needed regarding gender integration in energy policies. To date, there is no record of women in leadership roles within energy-related public decision-making, nor a strong female presence in the traditional oil and gas industry, which dominates the Saudi economy. However, in sectors like technology, which have strong synergy with the energy industry, women hold 34.62% of positions and 23.84% of leadership roles (Saudi Arabia, 2023), indicating untapped potential to expand female participation in the energy sector. This scenario highlights the urgent need for more inclusive energy policies that consider the role of women not only as beneficiaries but as active agents of transformation.

3.17 South Africa

3.17.1 National key figures

Population (2023): 60.4 million[321]

GDP (2023, current US$): 377.8 million[322]

Gender Gap Index (2023): 0.787 (ranked 20th)[323]

Gender employment gaps:

- Total gender employment gap (2023): 21%[324]
- Gender employment gap in the energy sector: n.a.

Gender wage gaps:

- Total gender wage gap: n.a.
- Gender wage gap in the energy sector: n.a.
- Total share of female senior managers (2023): 36.4%[325]
- Share of female senior managers in the energy sector (2023): 24.6%[326]

Share of women in STEM graduate attainment: 42.76%[327]

Gender political representative gaps:

- Share of women in parliament: 46.3%[328]
- Share of women in ministerial positions: 48.15%[329]
- Share of women in the South African Department of Mineral Resources and Energy's staff: n.a.
- Share of women in the South African Department of Mineral Resources and Energy's senior management: 33%[330]

Share of energy poor population that is women (2020): 57%[331]

321 https://data.worldbank.org/indicator/SP.POP.TOTL
322 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
323 https://www.weforum.org/publications/global-gender-gap-report-2023/
324 https://www.weforum.org/publications/global-gender-gap-report-2023/
325 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
326 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
327 https://www.weforum.org/publications/global-gender-gap-report-2023/
328 https://www.weforum.org/publications/global-gender-gap-report-2023/
329 https://www.weforum.org/publications/global-gender-gap-report-2023/
330 A count and weighting were conducted based on the positions described on the DRME's webpage. https://www.dmre.gov.za/about-us/dmre-structure
331 https://ieeexplore.ieee.org/document/9219885

3.17.2 Institutional Framework

The **Department of Mineral Resources and Energy** is the national body responsible for South Africa's energy policy.

The **Department of Women, Youth, and Persons with Disabilities (DWYPD)** coordinates gender equality policies. Additionally, the country has the **National Gender Machinery (NGM)**, a multisectoral and interinstitutional framework designed to coordinate and integrate gender equality policies and practices across different levels of government and society. The NGM includes a network of government entities and civil society organizations, such as the DWYPD, the Commission for Gender Equality, parliamentary committees, Gender Focal Points within various levels of government, and civil society organizations. South Africa also is endowed with the **Commission for Gender Equality,** an independent constitutional body tasked with monitoring, investigating, researching, raising public awareness, and advising the government and private sector on gender equality issues.

3.17.3 Legal Framework

In South Africa, the integration of gender considerations within energy policies is evident, although challenges persist. The country has established some initiatives to empower women through economic programs, employment, retention and promotion, capacity building, enterprise development, and the institutionalization of gender-based budgeting to ensure that women's development in the energy sector is achieved. While efforts are underway to enhance women's participation in the labor market and reduce the gender pay gap, political representation in decision-making processes still lags as alleviating energy poverty amongst women.

Gender equality is incorporated in South Africa's Constitution and in various international agreements, including the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). **The 1996 Constitution**[332] guarantees gender equality and prohibits discrimination based on sex and gender. Despite these constitutional guarantees, achieving full equality remains a challenge, necessitating additional legislation to address historical disparities. A key piece of legislation is the **Promotion of Equality and Prevention of Unfair Discrimination Act** (Act No. 4 of 2000[333]), which applies across all sectors.

Currently, South Africa lacks legislation aimed at enforcing equal gender political representation at the national level. An initiative to develop equality legislation was proposed in 2014, but the process expired and needs to be restarted (WEGE Bill). The country now relies on voluntary quotas from political parties to tackle gender equality in political leadership (CGE, 2023).

South Africa's labour laws are designed to prevent discrimination based on gender, sex, or sexual orientation, and employers are mandated to ensure a workplace free from sexual harassment. These standards are outlined in the **Employment Equity Act** (1998)[334] and the **Labour Relations Act** (1995)[335]. Additionally, the Employment Equity Act mandates equal pay for equal work and includes the **Code of Good Practice on Equal Pay/Remuneration for Work of Equal Value**. The Employment Act also aims to ensure equitable representation of women in various occupational categories and at senior management levels, targeting 50% representation. Despite these efforts, significant gender gaps persist in labour force participation, employment levels, earnings, and leadership positions (Frauenrat, 2023).

To support women-owned businesses, South Africa provides targeted funding programs such as the **Industrial Development Corporation's Women Entrepreneurial Fund**, the **Business Partners Women in Business Fund**, and the **NEF Women Empowerment Fund** (Frauenrat, 2023).

The country has also passed extensive environmental legislation and adopted a **Just Transition Framework**, which recognizes that women are disproportionately affected by climate change and emphasizes the importance of including those most impacted in decision-making processes. The **National Climate Change Adaptation Strategy** (2019)[336] incorporates gender-responsiveness as a guiding principle, promoting women's participation, considering gendered vulnerabilities to climate change, and addressing needs and priorities to avoid exacerbating gender inequalities.

The **Climate Change Act** (2024)[337] further stipulates that decision-making must consider those most vulnerable to the adverse effects of climate change, including women, and that the composition of the Presidential Climate Commission should broadly reflect the country's demographics and gender composition. In addition, the Department of Environmental Affairs implemented the **Strategy Towards Gender Mainstreaming in the Environment Sector** (2016-2021) to promote gender equality and ensure equal access and participation in environmental programs (Frauenrat, 2023).

332 https://www.gov.za/documents/constitution/constitution-republic-south-africa-1996-04-feb-1997
333 https://www.gov.za/documents/promotion-equality-and-prevention-unfair-discrimination-act
334 https://www.gov.za/documents/employment-equity-act
335 https://www.gov.za/documents/labour-relations-act
336 https://www.dffe.gov.za/sites/default/files/docs/nationalclimatechange_adaptationstrategy_ue10november2019.pdf
337 https://cer.org.za/wp-content/uploads/2024/07/Climate-Change-Act-22-of-2024.pdf

In the energy sector, the Department of Mineral Resources and Energy (DRME) developed a **Women's Empowerment and Gender Equality Strategy for the Energy Sector** (2021-2025)[338]. This strategy outlines mechanisms and interventions to create an enabling environment, equalize opportunities, and mainstream gender equality in the energy sector. The strategy aims to empower women through economic programs, employment, retention and promotion, capacity building, enterprise development, and the institutionalization of gender-based budgeting to ensure that women's development in the energy sector is achieved.

Key actions of the strategy include: 1) Strengthening women's technical, management, and leadership skills to enhance access to jobs, business ownership, and decision-making in the energy sector; 2) Encouraging the DMRE, state-owned enterprises (SOEs), and the private sector to improve systems for women's empowerment and gender equality; 3) Ensuring oversight by the DMRE and relevant boards to support meaningful progress; and 4) Increasing access and promoting women's economic empowerment while alleviating energy poverty amongst women. Expected outcomes of the strategy include: a) Enhanced women's empowerment and gender equality in the energy sector through better policy, legislation, leadership, support, and actions at both macro and micro levels; b) Increased women leaders, business owners, and decision-makers by 2025; c) Protection of women's rights in policy and practice through the integration of gender aspects in policy, practice, and decision-making in the energy sector; d) A sector-wide commitment to gender equality in the energy sector.

Despite advancements in the green economy, there is still a lack of gender-mainstreamed green industry policies to strengthen gender equality and empower women. Barriers include limited access to technical skills development specific to the field, a lack of awareness about policies and programs designed to benefit women and/or encourage their participation, limited access to technology necessary for starting or expanding green businesses, and the perception that the industry requires strong STEM skills.

This is particularly evident in South Africa's renewable energy sector, where women comprise only 14% of the workforce (Frauenrat, 2023). To address this, the **Green Economy Policy Review of South Africa's Industrial Policy Framework**[339] recommends that green industrial policy explicitly promote sectors offering employment for women and prioritize gender-responsive policies.

In this sense, the joint UN Women-UNIDO program "Economic Empowerment of Women in Green Industry" supported the South African government in assessing the gender-responsiveness of green industry policies, as well as follow-up actions emerging from these assessments. As a result, the **South African Renewable Energy Masterplan** (2022)[340] has become gender-responsive, acknowledging the importance of integrating emerging suppliers into the value chain, with a strong focus on promoting women's active participation in ownership and management, and advancing gender-inclusive transformation within the industry.

Another key initiative is the **Renewable Energy Independent Power Producer Procurement Programme (REI4P)**[341], launched in 2011 by the South Africa Department of Mineral Resources and Energy to encourage private sector participation in electricity generation through renewable sources. The bidding process integrates socio-economic development criteria, with a particular focus on local black communities, especially black women and youth. Criteria include job creation, local content requirements, thresholds for project ownership and management by black people and local communities, contributions to local skills development, and support for local enterprises and suppliers (IEA, 2021). The program has incorporated gender metrics for top management, preferential procurement from women-owned vendors, and overall job creation benefits for women and marginalized groups (IRENA, 2019).

In this context, South Africa began mobilizing stakeholders in 2018 to advocate for preferential procurement policies. President publicly committed to earmarking 40% of preferential procurement for women-owned businesses in both the public and private sectors. To operationalize this commitment, and with a focus on galvanizing the private sector, UN Women collaborated with the National Task Team on **Preferential Procurement** and the Women Economic Assembly (WECONA). As a result, WECONA launched 12 different sector streams to implement the 40% preferential procurement quota in the private sector, including energy, waste management, transport and finance. A database of 304 women-owned businesses, compliant and ready to do business with the government, was created and shared with the Department of Energy (Un Women and UNIDO, 2023).

To support the skills development needed for the green economy, including the demand created by REI4P, the South African government established the South African Renewable Energy Technology Centre (SARETEC) in 2015 to provide specialized training for the renewable energy industry. The centre's application scorecard allocates double points for female applicants to encourage more women to pursue careers in this field (IRENA, 2019; IEA, 2022).

338 https://www.dmre.gov.za/Portals/0/Energy_Website/files/media/Pub/Women-Empowerment-and-Gender-Equality-Strategy2021-2025.pdf
339 https://www.dffe.gov.za/sites/default/files/reports/greeneconomy_policyreview.pdf
340 https://greencape.co.za/assets/SAREM-Draft-March-2022.pdf
341 https://www.dmre.gov.za/energy-resources/reippp-programme

Another initiative addressing the low representation of women in senior management is the **Leadership Training for Women in the South African Water and Energy Sector**. Funded by the Energy & Water Sector Education Training Authority (EWSETA), this program provides advanced leadership training for women with high career potential in these sectors, helping to bridge the gender gap in top management positions.

In conclusion, South Africa is making notable progress in gender mainstreaming across environmental and energy policies, with the environmental sector demonstrating more comprehensive national plans related to gender than the energy sector itself. There is a strong emphasis on enhancing labor market opportunities for women, particularly through training, capacity building, and education in the green industry. Furthermore, there are clear objectives to increase female representation in leadership roles within the energy sector. While existing initiatives recognize the specific needs of women, challenges remain regarding their effectiveness and implementation, necessitating ongoing efforts to ensure tangible results. Furthermore, a substantial gap persists in addressing energy poverty and improving political representation within energy-related contexts.

3.18 South Korea

3.18.1 National key figures

Population (2023): 26.1 million[342]

GDP (2023, current US$): 1.71 trillion[343]

Gender Gap Index (2023): 0.680 (ranked 105th)[344]

Gender employment gaps:

- Total gender employment gap (2023): 25.2%[345]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers:7.5%[346]
- Share of female senior managers in the energy sector (2023): 9.9%[347]

Gender wage gaps:

- Total gender wage gap (2023): 31%[348]
- Gender wage gap in the energy sector: n.a.

Share of women in STEM graduate attainment (2017): 25.2%[349]

Gender political representative gaps:

- Share of women in parliament: 19.1%[350]
- Share of women in ministerial positions: 16.67%[351]
- Share of Women's participation rates for government committees (2017): 40.2%[352]
- Share of female public officials of Level 4 and above (2017): 14.8%[353]
- Share of women in the Ministry of Trade, Industry, and Energy's staff: n.a.
- Share of women in the Ministry of Trade, Industry, and Energy's senior management: n.a.

Share of energy poor population that is women: n.a.

3.18.2 Institutional Framework

The ministry that deals with energy within the Republic of Korea is the **Ministry of Trade, Industry, and Energy** (MOTIE) (산업통상자원부). This ministry is dedicated to the regulation of economic policy, with a particular emphasis on the energy and industrial sectors (MOTIE, 2024).

As for gender-related matters, the responsible governmental body is the **Ministry of Gender Equality and Family** (MOGEF) (여성가족부), a cabinet-level division of the South Korean government established in 2010. Also, in 1998 the **Presidential Commission on Women's Affairs** was created (MOGEF, 2024).

3.18.3 Legal Framework

South Korea has a legal framework supporting women's rights and gender equality, supported by the Ministry of Gender Equality and Family (MOGEF). Key areas of focus include improving women's workforce participation,

342 https://data.worldbank.org/indicator/SP.POP.TOTL
343 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
344 https://www.weforum.org/publications/global-gender-gap-report-2023/
345 https://www.weforum.org/publications/global-gender-gap-report-2023/
346 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
347 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
348 https://www.weforum.org/publications/global-gender-gap-report-2023/
349 Female share of graduates from Science, Technology, Engineering and Mathematics (STEM) programmes, tertiary. https://databank.worldbank.org/source/gender-statistics
350 https://www.weforum.org/publications/global-gender-gap-report-2023/
351 https://www.weforum.org/publications/global-gender-gap-report-2023/
352 https://www.mogef.go.kr/eng/pc/eng_pc_f001.do
353 https://www.mogef.go.kr/eng/pc/eng_pc_f001.do

enhancing political representation, and advancing social inclusion. While gender and energy are occasionally referenced together, they have not yet been formally integrated into public policy. Nonetheless, initiatives by organizations like UN Women emphasize the need to address gender gaps in key sectors, including energy. Additionally, South Korea's trade discussions with the UK indicate that gender and clean energy cooperation are gaining attention, though they have not yet been developed into a unified strategy.

In MOTIE's official website, the press release named **"Korea and UK to hold 2nd official negotiating round on upgrading bilateral FTA"** discusses the update of the **Korea-UK Free Trade Agreement (FTA)** in 2024. The article mentioned that the Republic of Korea will focus on "stabilizing the supply chain and enhancing cooperation in areas like gender and clean energy" (MOTIE, 2024). Therefore, it may be concluded that the South Korean government considered these two topics to be significant, even though it is yet unclear if they will combine as a governmental strategy or public policy.

Moreover, the UN Women's office focused on Asia and the Pacific organized the first round of the **1st Seoul Gender Equality Dialogue Discusses How to Break Gender Barriers in Key Industries** event, held in 2023. The main message of the event was to point out that not integrating women equally in the job market harms the economy, and thus gender inequality and underrepresentation of women in the job market is not a "women's issue" but rather an economic issue. Among the key industries mentioned in the event, the energy sector was highlighted, along with finance, higher education, technology, and public service sectors (UN Women, 2023).

As for the legal foundation on women's rights and gender equality, the Ministry of Gender Equality and Family (MOGEF) has a session exclusively dedicated to gender equality and its policy framework. The documents that build the foundation are the **Basic Plan for Gender Equality Policies** (MOGEF, 2024), which is updated every five years, and the implementation basis policy stated in **Article 7 of the Framework Act on Gender Equality** (ELAW, 2019).

Besides, the MOGEF defines four main objectives for gender equality in the country: to promote mature awareness of gender equality, to achieve work-life balance, to increase women's employment and social participation, and to enhance women's safety and health. The Ministry also outlines 6 Major Projects with 22 Implementation Strategies, these main projects are: promote awareness and culture of gender equality, ensure equal rights to work and opportunities, enhance women's representation and participation, create social infrastructure for work-life balance, eradicate violence against women, and improve women's health, and strengthen the implementation mechanism for gender equality policies (MOGEF, 2024)

The MOGEF also has a session fully dedicated to its commitment to improve women's representation in the public sector, where it shares updated statistics on female representation in several areas as well as updated goals. The Ministry focuses on three areas to expand gender inclusion, being: in policy-making processes, female public officials in the public sector, and women leaders pool. According to MOGEF, in 2012 women's participation rates for government committees was 25.7%, jumping to 40.2% in 2017 (MOGEF, 2024). The government confirms that the preparation of the legal ground that prevents one particular gender from exceeding 60% in the membership of a government committee was enforced in 2014.

South Korea also has a gender quota provision for political representation. In 2005, the Public Official Election Act was revised to encourage greater gender balance in elections. The law urges political parties to recommend that at least 30% of their candidates for both **National Assembly** seats and **local council** elections be women. This applies to candidates in both local constituencies and nationwide proportional representation, though it is not a mandatory requirement

In a few words, while South Korea has made strides in gender equality, especially in terms of political representation and workforce participation, a gap remains in addressing the intersection of gender and energy policies. The country has shown commitment to enhancing women's representation in decision-making and expanding female participation in the labour market, yet energy-specific policies for women are still lacking. Key areas such as access to energy and addressing energy poverty have not been directly linked to gender initiatives, though efforts like the UN Women's dialogues highlight the need for gender inclusion in economic sectors, including energy.

3.19 Türkiye

3.19.1 National key figures

Population (2023): 85.3 million[354]

GDP (2023, current US$): 1.1 billion[355]

Gender Gap Index (2023): 0.638 (ranked 129th)[356]

Gender employment gaps:

- Total gender employment gap (2023): 53.3%[357]
- Gender employment gap in the energy sector: n.a.
- Total share of female senior managers (2023): 12.6%[358]
- Share of female senior managers in the energy sector (2023): 19.8%[359]

Gender wage gaps:

- Total gender wage gap (2023): 9.98%[360]
- Gender wage gap in the energy sector: n.a.

Share of women in STEM graduate attainment: 34.69%[361]

Gender political representative gaps:

- Share of women in parliament: 17.40%[362]
- Share of women in ministerial positions: 5.88%[363]
- Share of women in the Ministry of Energy and Natural Resources' staff: n.a.
- Share of women in the Ministry of Energy and Natural Resources' senior management: 3%[364]

Share of energy poor population that is women: n.a.

3.19.2 Institutional Framework

The **Ministry of Energy and Natural Resources** (*Enerji ve Tabii Kaynaklar Bakanlığı*) is the main governmental body responsible for the energy sector in Türkiye. It oversees the development, regulation, and supervision of policies related to energy resources and energy security.

The **Ministry of Family, Labour and Social Services** (*Aile, Çalışma ve Sosyal Hizmetler Bakanlığı*) is responsible for gender equality, women's rights, and social protection policies. This ministry leads initiatives to improve women's socio-economic status and combat gender-based violence. Additionally, the **General Directorate on the Status of Women** (*Kadının Statüsü Genel Müdürlüğü*) is a key institution under the ministry that implements gender equality policies and supports the coordination of efforts to enhance women's rights at the national level.

3.19.3 Legal Framework

In Türkiye, although some policies have been introduced to promote gender equity across sectors, the integration of gender considerations within the energy sector remains limited. While there are efforts to address the gender pay gap, enhance workforce participation, and implement gender-responsive budgeting, significant challenges persist in achieving political representation and meaningful involvement of women in the energy sector, particularly in decision-making processes. Although existing studies examine energy efficiency and energy poverty through a gender lens, concrete governance actions remain limited. Overall, while there are foundational efforts underway, the comprehensive integration of gender into energy policies is still in the developmental stage.

Gender equality is enshrined in the Turkish Constitution and in several international agreements to which Türkiye is a signatory, including the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), ratified in 1986. **Article 10 of the Turkish Constitution**, which originally addressed "equality before the law," was amended on May 7, 2004, by the Turkish Grand National Assembly to state: "Men and women have equal rights, and the State is responsible for taking measures to implement these rights." Additionally, in October 2001, the Assembly amended **Articles 41 and 66** to guarantee gender equality within the family and before the law. The amendment of **Article 90** in 2004 gave CEDAW precedence over national laws in cases of conflict, making it superior to national legislation (ISDB, 2019).

The Türkiye's **Fifth 5-Year Development Plan (1985-1990)** was the first to address women's issues as a sector and

354 https://data.worldbank.org/indicator/SP.POP.TOTL
355 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
356 https://www.weforum.org/publications/global-gender-gap-report-2023/
357 https://www.weforum.org/publications/global-gender-gap-report-2023/
358 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
359 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
360 https://www.weforum.org/publications/global-gender-gap-report-2023/
361 https://www.weforum.org/publications/global-gender-gap-report-2023/
362 https://www.weforum.org/publications/global-gender-gap-report-2023/
363 https://www.weforum.org/publications/global-gender-gap-report-2023/
364 count and weighting were conducted based on the positions described on the MENR's webpage. https://enerji.gov.tr/kurumsal-organizasyon-semasi

develop policies and priorities focused on gender equality. By the **Tenth 5-Year Development Plan (2014-2018)**, concepts such as "gender equality" and "gender-sensitive budgeting" were introduced, though gender issues were still discussed within the "family and women" chapter (ISDB, 2019). In 2009, the Law for the Committee on Equal Opportunities for Women and Men, Law no. 5840, was adopted. Consequently, an **Equal Opportunities Committee in the Turkish Grand National Assembly** was established (IEMed, n.d.) In 2003, labour Law 4857 was also enacted with enhanced regulations. Article 5 of the labour Law mandates the **Principle of Equal Treatment**, explicitly prohibiting the gender pay gap. The law also protects against termination of employment due to pregnancy or breastfeeding leave (IEMed, n.d.). There are still several laws to combat gender-based violence, yet full equality remains elusive.

More recently, the 12th Development Plan, effective since 2023, has prioritized "ensuring equal opportunities for women and men" and integrating women's empowerment into all plans, programs, and policy development processes. A key focus within the plan is expanding gender-sensitive budgeting. In this context, Türkiye has been developing the **Strategy Document and Action Plan for Gender Responsive Planning and Budgeting**, which will be implemented between 2024 and 2028, and includes 16 strategies and 56 actions in defining, planning-budgeting, implementation, and monitoring-auditing stages. Its aim is to significantly contribute to the successful implementation of gender-responsive budgeting, particularly in relation to the 12th Development Plan (UN Woman, 2024).

In the energy sector, only a few initiatives have been identified, primarily in the form of studies and recommendations, with limited concrete actions in place. Comprehensive legal reforms, combined with strong programs and initiatives, are essential to effectively address historical inequalities and promote gender equality in the energy sector.

The first initiative was a gender assessment aimed at improving access to finance within a Turkish Energy Efficiency Project, developed by the European Bank for Reconstruction and Development. In the context of the Türkiye Residential Energy Efficiency Financing Facility, a comprehensive gender analysis was conducted to understand the supply and demand factors influencing household access to, and use of, financing for energy efficiency improvements and home appliances. The study, based on a national survey and focus group discussions, revealed that energy efficiency knowledge, attitudes, and practices vary significantly by gender. The analysis provided recommendations for improving outreach and access to financing, including communication strategies and addressing barriers to women's participation in the public sphere (EBRD and CIF, 2015).

A second analysis by the Islamic Development Bank identified gender disparities in rural areas, where traditional fuel usage is prevalent, and few households have central heating. The report highlighted that the government's ambitious renewable energy program lacks a critical component: the introduction of improved cook stoves. These cookstoves are vital to renewable energy efforts because of the central role women play in domestic energy consumption in rural Türkiye. Improved cookstoves contribute to fuel savings, reduced household air pollution, lessened labour burdens, and various social and health benefits for women (ISDB, 2019).

In conclusion, Türkiye's gender policies illustrate a commitment to promoting equality, particularly in the labor market and economic participation. Key initiatives focus on addressing the gender pay gap and enhancing women's workforce involvement, yet there are notable shortcomings in political representation and comprehensive energy access. While the country acknowledges the importance of integrating gender considerations into planning and budgeting, the energy sector specifically requires concrete actions and initiatives. Currently, only a few initiatives have been identified, primarily in the form of studies and recommendations. These challenges highlight the need for stronger measures to fully realize gender equality in all areas of public policy, especially within the energy landscape.

3.20 United Kingdom (UK)

3.20.1 National key figures

- **Population (2023): 68.3 million**[365]
- **GDP (2023, current US$): 3.3 trillion**[366]
- **Gender Gap Index (2023): 0.792 (ranked 15th)**[367]
- **Gender employment gaps:**
  - Total gender employment gap: 1% (2024)[368]; 14.2% (2023)[369]
  - Gender employment gap in the energy sector (2014): 75.1%[370]

365 https://data.worldbank.org/indicator/SP.POP.TOTL
366 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017
367 https://www.weforum.org/publications/global-gender-gap-report-2023/
368 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap
369 https://www.weforum.org/publications/global-gender-gap-report-2023/
370 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap

- Total share of female senior managers (2023): 21.5%[371]
- Share of female senior managers in the energy sector (2023): 15.8%[372]

Gender wage gaps:

- Total gender wage gap: 18.9%[373] (2014) 14.35% (2023)[374]
- Gender wage gap in the energy sector: 10.9%[375] (2014)

Share of women in STEM graduate attainment (2019):38%[376]

Gender political representative gaps:

- Share of women in parliament (2023): 34.5%[377]
- Share of women in ministerial positions (2023): 33.33%[378]
- Share of women in the Department of Department for Energy Security and Net Zero's staff: n.a.
- Share of women in the Department of Department for Energy Security and Net Zero's senior management:43%[379]

Share of energy poor population that is women: n.a.

3.20.2 Institutional Framework

The **Department for Energy Security and Net Zero** has primary responsibility for energy policy in the UK. This department is tasked with developing and implementing policies to ensure a secure, sustainable and affordable energy system. The department is supported by 15 agencies and public bodies, including the **Commission on Fuel Poverty**, which assesses the effectiveness of fuel poverty policies and makes recommendations to improve their impact.

The **Government Equalities Office** leads the development and implementation of policies relating to equality for women, sexual orientation and transgender people in the UK. The GEO works closely with the Government Office for Civil Society and the devolved administrations in Wales, Scotland and Northern Ireland to ensure cohesive and inclusive policies. It plays a crucial role in integrating gender considerations across various government departments, including the Department for Energy Security and Net Zero. In addition, GEO supports the **Equality Hub**, which focuses on policies relating to disability, ethnic disparities, gender equality, LGBTQI+ rights and the overarching framework of equality legislation in the UK. The Equality Hub aims to promote an integrated approach to addressing these issues across government policy and practice.

3.20.3 Legal Framework

In the UK, gender equality is supported by a comprehensive legal framework aimed at addressing discrimination and promoting equal opportunities in the labour market. Key topics such as access to energy, energy poverty, and the gender pay gap are acknowledged, though specific policies in the energy sector integrating these aspects remain limited. Initiatives to enhance women's representation in decision-making roles, particularly within the energy workforce, are in place, including campaigns focused on increasing female participation in STEM fields. While the UK has made strides toward gender equality, further integration of these considerations into energy policies is necessary for meaningful progress.

Several laws aim to protect women in the British labour market. Although not specific to the energy sector, the **Equality Act 2010**[380] prohibits discrimination in all aspects of employment, including recruitment, promotions, and working conditions in any industry, while the **Equal Pay Act 1970** establishes the right to equal pay for equal work.

From 2017, any employer with 250 or more employees in England, Scotland, and Wales on a specific date each year must report their gender pay gap data. The employer is required to publish the information on their own website — or intranet, or the parent company's site—and maintain it for a period of 3 years. **Gender Pay Gap Reporting**[381] was introduced in the UK by the Equality Act 2010 (Gender Pay Gap Information), developed by the Department for Business, Energy and Industrial Strategy (BEIS) in conjunction with the Government Equalities Office.

The UK has been part of the **Equal By 30** campaign since 2019, alongside joint commitments with the G7, committing to act according to comprehensive principles of Pay Equality, Leadership Equality, and Opportunity Equality in the energy sector by 2030. This includes

371 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

372 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29

373 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap

374 https://www.weforum.org/publications/global-gender-gap-report-2023/

375 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap

376 https://www.weforum.org/publications/global-gender-gap-report-2023/

377 https://www.weforum.org/publications/global-gender-gap-report-2023/

378 https://www.weforum.org/publications/global-gender-gap-report-2023/

379 count and weighting were conducted based on the positions described on the DESNZ's webpage. https://www.data.gov.uk/dataset/55efc916-edbb-4468-8c71-0786cb9463c1/desnz-organogram-of-staff-roles-salaries

380 https://www.legislation.gov.uk/ukpga/2010/15/contents

381 https://www.gov.uk/government/publications/gender-pay-gap-reporting-guidance-for-employers/overview

supporting groups like **POWERful Women**[382] to increase female representation in managerial and directorial roles in the clean energy sector, with targets of 40% of women in mid-management and 30% in executive director positions by 2030. Additionally, there is a goal to reach 50% women in senior public service roles by 2025 and 40% in the nuclear sector by 2030, ensuring compliance with gender pay gap reporting.

The government is also working to support diversity in the energy sector through incentives that increase the number of girls pursuing STEM subjects. The **WISE Campaign**[383], founded in 1984, is one of the leading initiatives to empower and promote women in the STEM workforce in the country. Originally conceived as a one-year project in collaboration between the Engineering Council and the Equal Opportunities Commission, then managed by the Home Office, the campaign evolved into an independent Community Interest Company.

Besides the WISE Campaign, the government supports and funds other initiatives such as the **Women in Innovation Awards**[384] promoted by Innovate UK since 2016, with the latest campaign in 2024, offering funding for women innovators in technology and science. **STEM Returners**[385], founded in 2017 and co-supported by the Institute of Marine Engineering, Science and Technology, and the Women's Engineering Society, provides specialized support and training for women seeking to return to the STEM sector after a career break. Additionally, the **Returners Fund (2018)**[386], launched in 2018 by the Government Equalities Office with a £1.5 million investment, aims to finance initiatives that engage and support both returners and employers in the private sector. All funding decisions were overseen and approved by the Minister for Women and Equalities. There has been significant participation in projects specifically aimed at supporting women.

More recently, in 2023, the government launched the **STEM Futures Programme**[387]**,** in partnership with industry organizations and academia, to share best practices, discuss common challenges, and offer opportunities for knowledge exchange. Partners can engage with the scheme in ways that best suit their needs, from seeking advice and guidance to offering mentoring, training, or intersectoral secondments.

In addition to these initiatives, the UK funds several international programs for the socio-economic development of women in the Global South. One of them is the **Energy and Economic Growth Applied Research Programme (EEG)**, led by Oxford Policy Management in partnership with the Center for Effective Global Action and the Energy Institute at the University of California, Berkeley. In 2016, the program launched the State of Knowledge on the **"Gender Implications of Energy Use and Access"** in low-income countries. This report reviewed and consolidated both theory and evidence on the gender consequences of energy access in the Global South, analyzing the outcomes of existing programs to identify policy gaps for the Department for International Development (DFID) and guide future practices (Wilhite, 2016).

Another highlight is the **Work and Opportunities for Women Programme (WOW)**[388], funded by the UK's Department for International Development (FCDO) in 2018. Its aim is to improve women's economic opportunities through business interventions in supply chains and economic development programs. WOW is implemented by a consortium of experts, including PwC, Business for Social Responsibility (BSR), CARE International, the University of Manchester, and Social Development Direct. SDDirect leads the WOW Helpdesk, providing technical support and analysis for the FCDO and other UK government departments, helping shape policies and programs geared towards gender equality. Additionally, it manages the £1.8 million WOW Fund, which supports initiatives focused on land tenure security, redistributing unpaid care work, and improving conditions for women in the informal sector.

The UK also funds the **Girls' Education and Skills Programme (GESP)**[389] through the Challenge Fund, which provides grants of between £750,000 and £1.5 million (GBP) for projects operating in Bangladesh and/or Nigeria. GESP projects are expected to run for 3 to 4 years, addressing themes such as employment readiness, 21st-century skills, economic empowerment, and STEM education.

Nevertheless, none of the UK's main energy poverty strategies and policies include actions or recommendations tailored to women's specific needs. Initiatives like the Energy Company Obligation (ECO), Warm Home Discount, Green Homes Grant, Home Upgrade Grant, Social Housing Decarbonization Fund, and the Fuel Poverty Strategy: Sustainable warmth: protecting vulnerable households in England do not include gender-based considerations. Moreover, energy poverty statistics, which form the

382 https://powerfulwomen.org.uk/
383 https://www.wisecampaign.org.uk/about-us/
384 https://apply-for-innovation-funding.service.gov.uk/competition/1894/overview/68cc8452-3251-4a92-9019-006cc790ccf7
385 https://www.stemreturners.com/who-we-are/
386 https://www.gov.uk/government/publications/returners-grant-fund-evaluation
387 https://www.gov.uk/government/news/stem-futures-programme
388 https://www.gov.uk/guidance/work-and-opportunities-for-women
389 https://www.gov.uk/international-development-funding/girls-education-skills-partnership-gesp-challenge-fund-request-for-proposals

evidence base for the Department for Energy Security and Net Zero (DESNZ) (UK, 2024d), do not monitor or incorporate gender as an analysis indicator for the impacts of energy poverty policies.

However, the UK has contributed to international initiatives that explored the connections between gender, energy, and poverty. T**he ENERGIA Gender and Energy Research Programme**[390], funded by DFID and implemented by ENERGIA, an international network on gender and sustainable energy, was a five-year initiative (2014–2019) carried out in 12 countries—Bangladesh, Ghana, India, Indonesia, Kenya, Myanmar, Nepal, Nigeria, Rwanda, Senegal, South Africa, and Tanzania. The research involved 29 universities and research institutions, 21 of which were in the Global South. The study addressed priority topics such as the impacts of electrification, productive uses of energy, the political economy of gender in the energy sector, sectoral reforms, the role of the private sector in expanding energy access, and women's entrepreneurship in energy. This research program built an evidence base to support informed policy and practice on energy access, improving the effectiveness of energy investments by better understanding and addressing the specific needs of women (Energia, 2020).

Besides, the UK Parliament has implemented several initiatives to promote gender equality and increase the participation of women and underrepresented groups within its structure. In 2018, Parliament conducted a **Gender-Sensitive Parliamentary Audit**[391], which reviewed progress in the representation of women in both Houses of Parliament and recommended concrete actions such as improving family policies, supporting women to deal with online abuse, and reviewing working hours. Both Houses of Parliament embraced the report, committing to implementing an action plan to address these barriers.

Workplace equality networks, the report "Improving Parliament", the Women and Equalities Committee, and the Speaker's Conference on Parliamentary Representation are other efforts to address existing barriers and ensure that Parliament is more representative of the UK's social diversity (UK Parliament, 2024).

The Equality Act (2010) applies to all UK government departments and agencies and requires the elimination of discrimination, the promotion of equal opportunities, and good workplace relations. In the UK, the Government Equalities Office (GEO), composed of Ministers such as the Minister for Women and Equalities and the Minister of State (Minister for Women and Equalities), is responsible for supporting equity strategies across government departments. The GEO works closely with the Department for Business, Energy, and Industrial Strategy, overseeing policies related to maternity and paternity leave, flexible working, and the Women on Boards Review.

In the UK, a robust legal framework works to combat discrimination and ensure equal pay, including promoting equal opportunities across all UK government departments, including in the energy sector. The introduction of Gender Pay Gap Reporting, commitments to the Equal By 30 initiative, and campaigns promoting female participation in STEM subjects reflect efforts to tackle gender disparity, particularly in the energy sector. The UK also contributes significantly to the economic development of women in low-income countries and to international research on the intersection of gender and energy. However, UK's main energy poverty policies do not specifically address the unique needs of women. In terms of political representation, while Parliament has made strides to increase women's participation, there is no gender parity law for elections. Therefore, although there is a responsive attitude towards women's participation in the energy sector labor market, crucial areas have not yet been addressed with gender mainstreaming.

3.21 United States of America (USA)

3.21.1 National key figures

- **Population (2023): 334.9 million**[392]
- **GDP (2023, current US$): 27.4 trillion**[393]
- **Gender Gap Index (2023): 0.748 (ranked 43rd)**[394]
- **Gender employment gaps:**
  - Total gender employment gap: 7.9% (2018)[395]; 16.4% (2023)[396]
  - Gender employment gap in the energy sector: 80.4% (2018)[397]

390 https://www.eeoc.gov/statutes/equal-pay-act-1963#:~:text=To%20prohibit%20discrimination%20on%20account,Equal%20Pay%20Act%20of%201963.%22

391 https://www.parliament.uk/business/news/2018/december/gender-sensitive-parliament-audit-published-today--/

392 https://data.worldbank.org/indicator/SP.POP.TOTL

393 https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&start=2017

394 https://www.weforum.org/publications/global-gender-gap-report-2023/

395 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap

396 https://www.weforum.org/publications/global-gender-gap-report-2023/

397 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+employment+gap

- Total share of female senior managers (2023): 21.2%[398]
- Share of female senior managers in the energy sector (2023): 19.0%[399]

Gender wage gaps:

- Total gender wage gap: 16.2% (2018)[400]; 16.86% (2023)[401]
- Gender wage gap in the energy sector: 12.2% (2018)[402]

Share of women in STEM graduate attainment (2019): 34%[403]

Gender political representative gaps:

- Share of women in parliament (2023): 28.6%[404]
- Share of women in ministerial positions (2023): 33.33%[405]
- Share of women in the U.S. Department of Energy's staff (2022): 21-40% [406]
- Share of women in the U.S. Department of Energy's senior management (2022): 21-40%[407]

Share of energy poor population that is women: n.a.

3.21.2 nstitutional Framework

The **Department of Energy** is responsible for overseeing the nation's energy production, distribution, and conservation. It also sets policies to enhance energy efficiency, ensure safety, and promote renewable energy sources.

In the United States, gender equality is addressed through several federal agencies rather than a single dedicated ministry. The **Office of Violence Against Women**, within the Department of Justice, focuses on combating violence against women and enhancing their safety. The **Women's Bureau** established in the U.S. Department of Labor advocates for policies and standards that safeguard the interests of working women. The Equal Employment Opportunity Commission enforces laws against workplace discrimination, including gender-based discrimination. The **White House Gender Policy Council**, established in 2021, coordinates federal efforts to advance gender equity and implements the first National Strategy on Gender Equity and Equality in the U.S.

3.21.3 Legal Framework

In the United States, public policies addressing gender issues are intertwined with broader frameworks that aim to promote equality across various sectors, particularly in the labour market and political representation. Key topics include the gender pay gap and workforce participation, which highlight ongoing disparities in employment. Furthermore, while initiatives related to energy access and energy poverty exist, they often lack a direct focus on gender integration. Overall, these elements reflect a commitment to enhancing women's roles in the workforce and decision-making processes, although significant gaps remain in addressing energy-related challenges.

In the United States, men and women must receive the same pay for substantially equal work in terms of skills, responsibilities, and working conditions, according to the **Equal Pay Act of 1963**[408]. This law applies to any employer covered by the Fair labour Standards Act (FLSA), which includes nearly all businesses and organizations in the U.S., including those in the energy sector. The law is grounded in the Civil Rights Act of 1964 (Title VII), which prohibits employment discrimination based on race, color, religion, sex, or national origin. Following the enactment of this law, other legislation has built on this fundamental principle to not only facilitate the participation and retention of women in paid employment but also ensure they are paid without discriminatory compensation, such as the **Lilly Ledbetter Fair Pay Act of 2009**[409].

The Department of labour, through the **Equity Action Plan 2022**[410], outlines the main strategies for enforcing labour laws, focusing on expanding access to services for workers, sectoral training, and diversifying the federal workforce. Equity is integrated into all government areas in the plan, such as Strategy 2, which aims to ensure that underserved communities have access to good jobs through the Good Jobs Initiative, particularly in sectors like construction and clean energy, requiring collaboration with agencies such as the Department of Energy. The cooperative efforts will

398 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
399 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Senior+Management&Indicator=Share+of+female+senior+managers+%28country+of+headquarters%29
400 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
401 https://www.weforum.org/publications/global-gender-gap-report-2023/
402 https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer?Topic=Employment&Indicator=Gender+wage+gap
403 https://www.weforum.org/publications/global-gender-gap-report-2023/
404 https://www.weforum.org/publications/global-gender-gap-report-2023/
405 https://www.weforum.org/publications/global-gender-gap-report-2023/
406 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
407 https://www.bmwk.de/Redaktion/EN/Artikel/Energy/g7-report-on-gender-equality-and-diversity-in-the-energy-sector.html
408 https://www.eeoc.gov/statutes/equal-pay-act-1963#:~:text=To%20prohibit%20discrimination%20on%20account,Equal%20Pay%20Act%20of%201963.%22
409 https://www.congress.gov/bill/111th-congress/senate-bill/181
410 https://www.dol.gov/general/equity-action-plan/plan

emphasize attracting, training, and retaining a diverse and skilled workforce, including people who have not had the opportunity to access quality jobs in the energy sector, while also supporting workers affected by the energy transition. The Strategy 2 proposes that, through the **Mega Construction Project *Program***[411], the Office of Federal Contract Compliance Programs (OFCCP) will establish Equal Employment Opportunity Committees to discuss hiring barriers and strategies to promote equal employment opportunities for all candidates, including women, people of color, veterans, and people with disabilities.

In the context of the energy transition, the **Inflation Reduction Act**[412], launched in 2022, provides for investment programs in clean energy, climate mitigation and resilience, and agriculture. According to the government, these investments will create millions of well-paying, high-quality jobs, including for workers who have historically been underrepresented in construction and manufacturing. The Act creates more than 20 tax incentives to reduce the costs of building qualified energy projects and equipment or to encourage the production of energy or manufactured goods. Since its launch, some US$380 billion in investment has been announced for 2073 projects (Rhodium and MIT, 2023). Many of the clean energy tax provisions offer bonus credits for quality projects and jobs in underserved communities and energy communities. When it comes to gender mainstreaming, it is only mentioned in the Inflation Reduction Act Guidebook that "investments in clean energy will create enormous opportunities for small businesses, including minority- and women-owned businesses, to create wealth and family-sustaining jobs" (WH, 2023).

Additionally, the **Clean Energy Education and Empowerment Initiative (C3E)**[413], launched in 2010 by the U.S. Department of Energy in collaboration with the MIT Energy Initiative, the Precourt Energy Institute at Stanford, and the Julie Ann Wrigley Global Futures laboratory at ASU, aims to attract more women to rewarding and leadership careers in the energy sector, closing gender gaps. The C3E program operates with four strategic pillars, including the visibility of female role models, prestigious awards, lifetime achievement recognition, and networking opportunities. These actions build a network of connections with a broad interest in sharing gender-based clean energy policies and programs. The program also brings together a group of 40 ambassadors, senior executives, academics, and renowned thought leaders, who work to strengthen the recruitment, retention, and advancement of highly qualified women in the energy sector.

Since 2022, the DOE has required that all Funding Opportunity Announcements (FOAs) include at least one specific **Diversity, Equity, and Inclusion (DEI)** policy factor to prioritize equity-related criteria in awarding financial assistance, ensuring that DEI factors are integrated into the proposal selection and evaluation process. Additionally, in its equity plan, the DOE proposes increasing the participation of women-led small businesses in the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards (DOE, 2022).

The U.S. Department of Energy (DOE) and its predecessor organizations have been dedicated for over sixty years to the training and support of scientists, mathematicians, and engineers. Traditionally, the DOE has focused on supporting undergraduate, graduate, and postdoctoral researchers through research and development awards at universities and national laboratories. Currently, its efforts have expanded to include support for educational and training programs aimed at promoting science and energy literacy. The **Workforce Development for Teachers and Scientists (WDTS)** program uses the expertise of six Office of Science research offices and 17 DOE national laboratories, employing more than 30,000 STEM professionals, to motivate students and educators to pursue careers in science (DOE, 2024).

Some U.S. initiatives are centered on promoting sustainable development globally and helping partner countries become more self-sufficient through the United States Agency for International Development (USAID). Among these initiatives, the **Women in the Sustainable Economy Initiative (WISE)** was launched in 2023 at COP28 to expand women's access to quality jobs, training, and leadership roles. The U.S. government estimates an investment of around US$900 million through a public-private partnership that brings together governments (such as Australia, Canada, Japan, Mexico, and Norway), private companies, foundations, and civil society to reinforce women's economic opportunities (WH, 2023).

WISE aims to improve economic opportunities by expanding investments from USAID's Engendering Industries program, which has existed since 2015. This program uses a lifecycle employee-based methodology to increase economic opportunities for women in profitable, technical, and leadership jobs in male-dominated sectors like energy. The program also trains companies to promote gender equality and women's empowerment within their organizations. Currently, it works with 68 companies in 39 countries across six continents. Results from WISE show that 74% of business partners in the

411 https://www.dol.gov/agencies/ofccp/Mega-Construction-Project-Program
412 https://www.congress.gov/bill/117th-congress/house-bill/5376/text
413 https://c3e.org/

program have increased the proportion of women in their workforce, and 75% report that gender equality has improved their business performance. No data was found on the effect of this program on U.S. energy sector companies (USAID, 2024).

Regarding energy access, the primary initiatives do not explicitly incorporate gender considerations in their guidelines, recommendations, or actions. The Department of Energy (DOE), through its Office of Energy Justice and Equity, works to promote equity through research, assessments, and technical assistance, particularly in the areas of energy and environmental justice. However, these efforts have primarily targeted racial and ethnic minorities, as well as disadvantaged communities, including migrant workers and Native American groups, without explicitly addressing gender-specific challenges (DOE, 2024).

However, the Office of Community Services, which promotes the **Low-Income Home Energy Assistance Program (LIHEAP)**, is working to adopt equity in all its programs, including collecting demographic data to ensure that programs equitably serve individuals and families across the country. In FY 2023, LIHEAP grant recipients began reporting demographic data on race, ethnicity, and gender. The program provides federally funded assistance to reduce costs associated with home energy bills, energy crises, weatherization, and minor energy-related home repairs (OCS, 2022).

Besides, with regards to political representation, since 2021, the U.S. government has committed to promoting women's civic and political leadership as part of the Presidential Initiative for Democratic Renewal. These actions include substantial investments from USAID and the Department of State in initiatives like the "**Advancing Women's and Girls' Civic and Political Leadership Initiative"**, "**SHE PERSISTS" (Supporting Her Empowerment: Political Engagement, Rights, Safety, and Inclusion Strategies to Succeed)**, and **Leading Effective and Accountable Democracy in the Digital Age (Women LEAD)** (WH, 2023). LEAD, launched in 2024 by USAID, aims to reduce the gender leadership gap, prevent technology-facilitated gender-based violence, and establish a global Community of Practices (CoP) for coordination and collaboration among partners. Partners, including governments, the private sector, foundations, civil society, and multilateral organizations, are invited to collaborate by making direct commitments or aligning new actions and funds with the Women's goals.

Regarding public service, **Executive Order 14035**[414], signed on June 25, 2021, sets guidelines from the White House Domestic Policy Council to promote Diversity, Equity, Inclusion, and Accessibility (DEIA) in the U.S. federal government. Agencies must conduct detailed assessments of their current practices and develop strategies to recruit, hire, and retain a more diverse workforce. This includes continuous DEIA training for all employees and monitoring mechanisms to report progress toward diversity and inclusion goals. The DOE established its DEIA Strategic Plan in 2022, including, among other measures, data collection and analysis on gaps/disparities, barriers, and root causes in employment processes or practices (DOE, 2022).

Moreover, initiatives such as **Women @ Energy**[415], the DOE Women's Leadership Initiative, and the DOE Mentorship Programs focus on developing and advancing its female employees, offering training and mentorship opportunities, as well as promoting support networks and workshops for leadership skills development for women (UNITED STATES, 2024d). However, there are no specific policies aimed at increasing female representation in the Department or senior positions related to energy.

In the United States, foundational legislation ensures equal pay and addresses workplace discrimination. Initiatives like C3E and efforts by the Department of Energy promote greater female participation and leadership in the energy sector by highlighting female role models. While there are initiatives supporting diversity and addressing gender disparities in the sector, gender considerations are not explicitly integrated into federal energy access funding policies. Although the U.S. lacks a national gender parity electoral law, there are funding initiatives to encourage women's civic and political leadership. Additionally, specific policies to increase female representation within the Department of Energy or senior energy-related roles are limited, with mentoring programs focused on supporting women's professional development through training and guidance. Therefore, although there is a responsive attitude toward gender integration in the labor market and in national energy sector development plans, crucial areas are still not addressed by this integration.

414 https://www.commerce.gov/cr/programs-and-services/executive-orders-diversity-equity-inclusion-and-accessibility#:~:text=On%20June%2025%2C%202021%2C%20President,%2C%20and%20accessibility%20(DEIA)

415 https://www.energy.gov/women-energy

4. Comparative analysis

The comparative analysis is structured into three main components, following the logic of the previous chapter. The first section examines the national key figures, comparing quantitative data related to the gender gap and the level of female participation in the economy and energy sectors across all G20 members. The second part compares the institutional frameworks of each country, identifying similarities and differences about the levels of government responsible for gender and energy issues. The third topic focuses on the legal framework, assessing how each nation incorporates gender considerations into its energy policies, programs, frameworks, and practices.

4.1 National Key figures

This section presents seven distinct analyses:

1) Gender Gap Index;

2) Gender Employment Gap - Total vs. Energy Sector;

3) Total Gender Wage Gap – Total vs. Energy Sector;

4) Female Senior Managers - Total vs. Energy Sector;

5) Share of Women in STEM Graduate Attainment;

6) Women in Parliament and Ministerial Positions;

7) Share of Women in Energy Ministerial (Senior Management).

Through this data, significant gaps can be identified in the labour market, skills development, and political participation. Regarding energy access or energy poverty, data for most countries was unavailable, preventing a comparative analysis of this indicator.

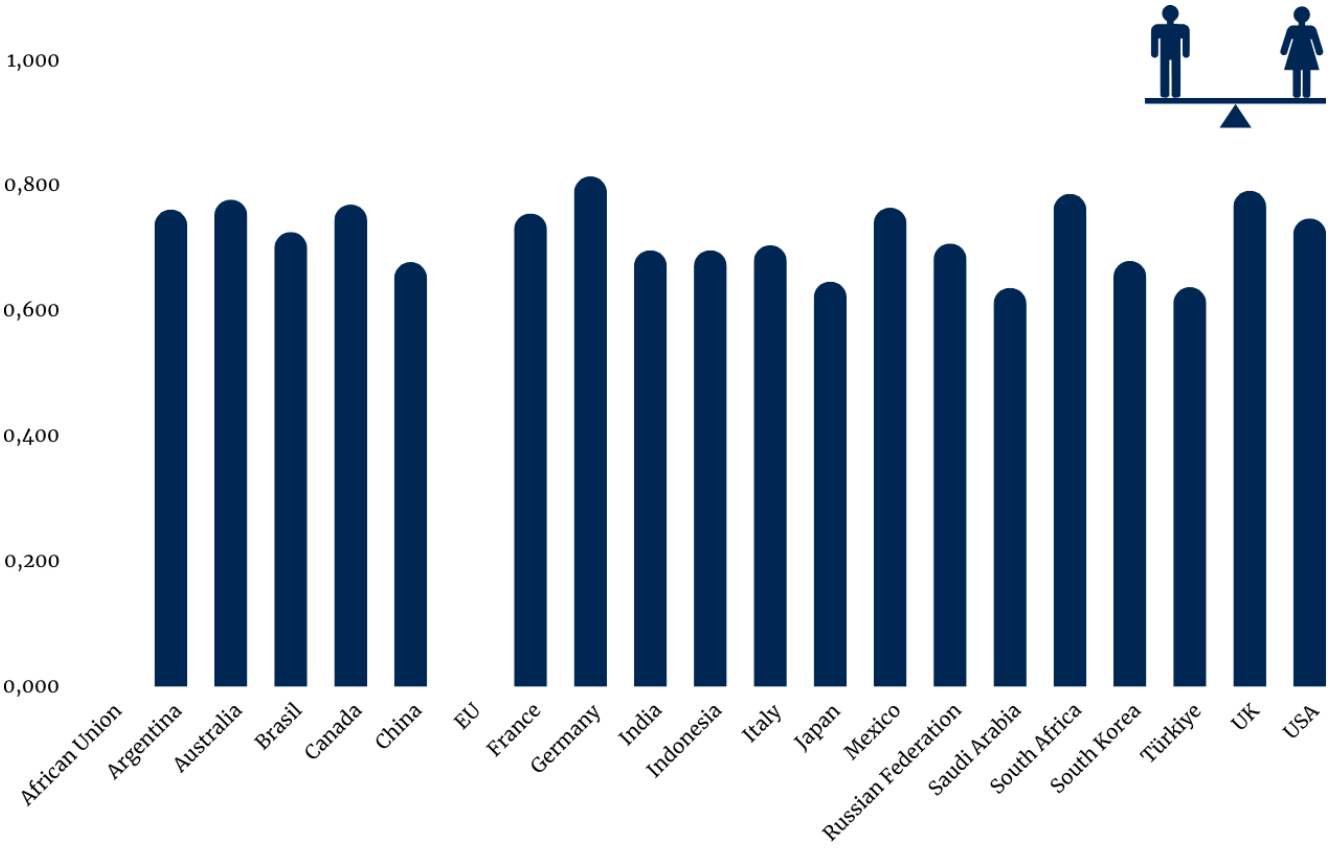
In general, countries in the Global North demonstrate better results in closing the gender gap compared to those in the Global South, which continue to face greater challenges. The Global North has smaller employment gaps, and a higher percentage of women employed in the energy sector, although female participation in this sector remains significantly lower than that of men. In the Global South, while female participation in Science, Technology, Engineering and Maths (STEM) graduate attainment is higher, countries encounter more pronounced challenges related to gender equality in employment and politics, especially in the energy sector, where women are underrepresented. Despite some advancements in certain regions, data indicate that gender equality remains an elusive goal for many countries. The lack of energy policies that integrate a gender perspective and the absence of accurate data—particularly in Global South countries—regarding wage disparities and female participation complicate both diagnosis and the formulation of effective measures.

Countries with the smallest employment disparities between men and women, such as Canada and the United Kingdom, exhibit reasonable proportions of female participation in senior management positions, particularly in the energy sector. Additionally, initiatives to include women in STEM are apparent in these nations. However, even in countries with high levels of gender equality, such as Germany, there is still a significant gap in female leadership positions within the energy sector. In Latin America, Mexico and Argentina achieve some of the best results concerning gender equality, particularly in political representation, with high rates of women in parliament and progress in initiatives promoting female inclusion in the labour market. Nevertheless, the presence of women in senior management roles and the energy sector remains limited, indicating a need for equity integration across all political areas.

On the other hand, countries facing the greatest challenges include Saudi Arabia, Japan, and India. These nations report low rates of female participation in employment and leadership positions, especially within the energy sector, alongside significant wage gaps between men and women. These countries require ambitious and transformative policies that entail a fundamental shift in the underlying concepts of governance, including a strong intersectional approach that promotes energy and gender justice.

To begin the comparative analysis of the indicators, the focus will be on the **Gender Gap Index**, developed by the World Economic Forum (WEF), which annually benchmarks the current state and evolution of gender parity across four key dimensions: Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment. The Gender Gap Index enables governments and organizations to assess progress and identify areas needing improvement across these dimensions. By identifying specific areas with the largest disparities, policymakers can develop targeted strategies to close these gaps. Figure 1 illustrates the indices for all G20 members, excluding the European Union and the African Union.

Figure 1 - Gender Gap Index



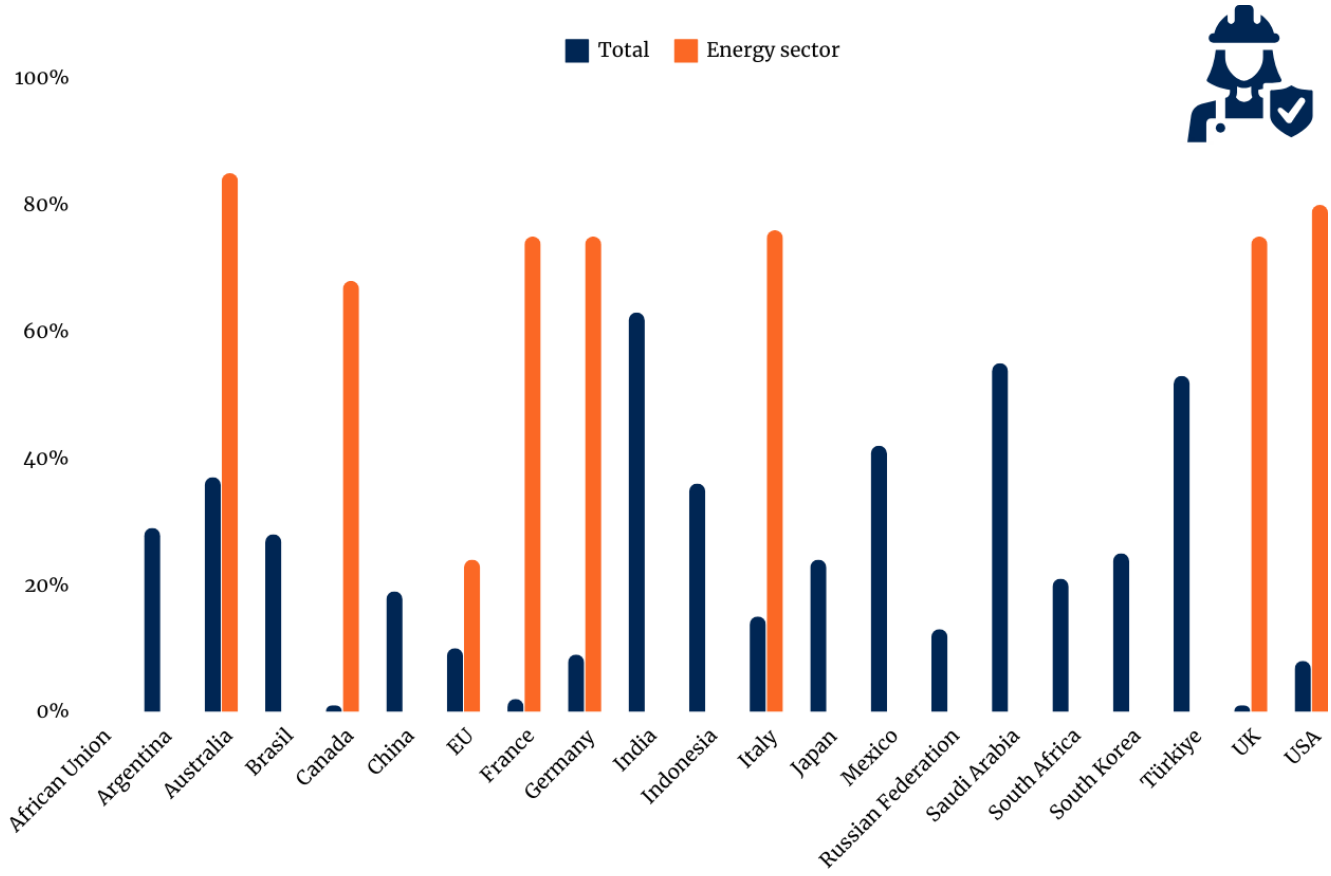
Source: WEF(2023)

In the G20 ranking, Germany stands out with an index of 0.815, making it the country with the smallest gender disparity among those mentioned. In contrast, Saudi Arabia and Japan exhibit the largest gender gaps, with indices of 0.637 and 0.647, respectively. Brazil is positioned with an index of 0.726, indicating progress but still facing significant challenges in terms of gender equality. Countries such as Mexico (0.765) and Argentina (0.762) demonstrate similar performance levels, suggesting moderate progress in Latin America.

The average Gender Gap Index for countries in the Global North is 0.747, while for the Global South, it is 0.707. In the Global North, countries like Germany (0.815), the United Kingdom (0.792), and Canada (0.770) have higher scores. In contrast, indices in the Global South tend to be lower, with China (0.678) and India (0.697) showing more pronounced disparities. These differences reflect how transformative gender policies in certain countries have facilitated greater advancement in gender equality. Meanwhile, the lower-performing countries underscore the necessity for increased investment and prioritization of public policies that promote gender equality in critical areas.

The **Gender Employment Gap** is a crucial indicator that measures the proportion of employed women compared to men, considering the working-age population. The comparison between the Total Gender Employment Gap and the Gender Employment Gap in the Energy Sector (Figure 2) highlights significant disparities in employment between genders, providing a foundation for policymakers to develop targeted strategies that promote gender equality in the labour market.

Figure 2 - Gender Employment Gap: Total vs. Energy Sector



Source: EU (2024), IEA (2024), WEF (2023).

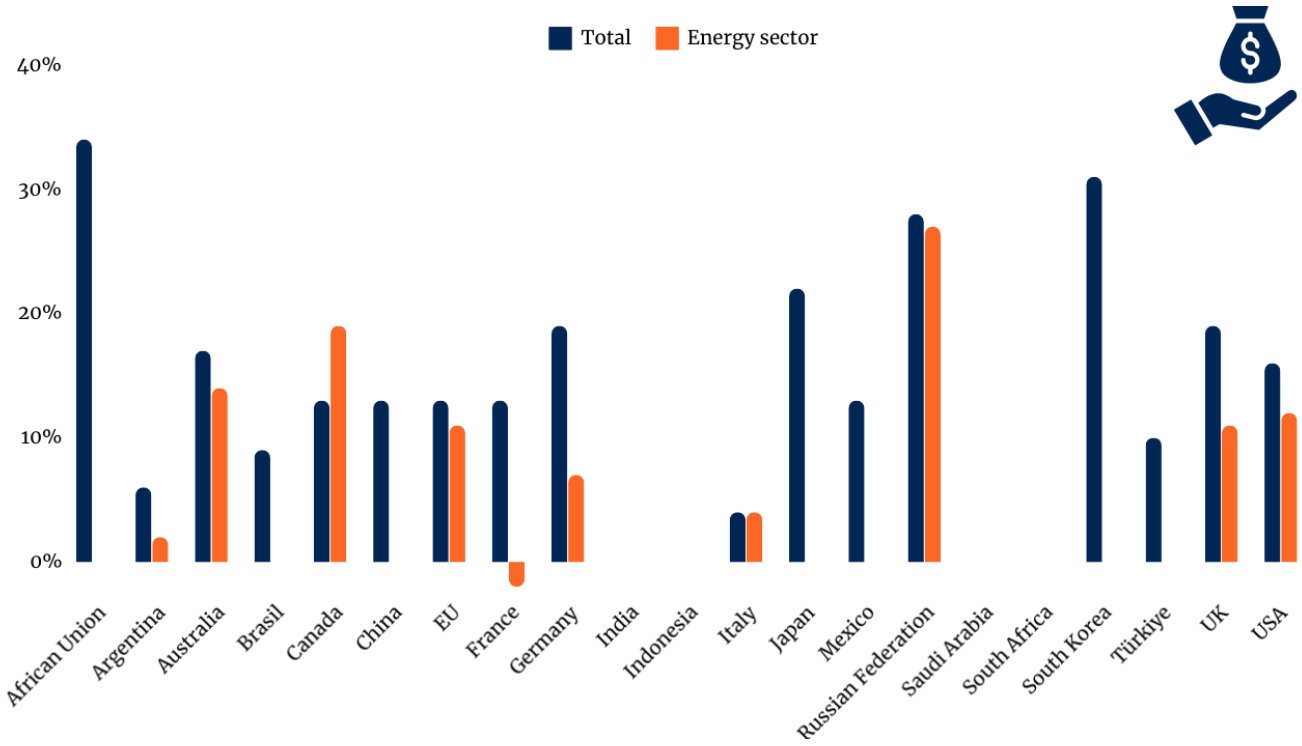
In G20 nations, female employment is 25% lower than male employment; however, this gap triples in the energy sector, underscoring the urgent need to incorporate a gender perspective into energy policies. Additionally, significant regional discrepancies exist, with a 13% gap in the Global North compared to a 36% gap in the Global South across all sectors. In the energy sector, the disparity in the Global North is even more pronounced at 70%. For the Global South, the lack of data on the gender gap in the energy sector emphasizes the need for improved monitoring and transparency in the collection and dissemination of gender-related statistics.

Countries with the largest disparities in the energy sector include Australia (85%), the United States (80%), the United Kingdom (75%), France (75%), and Italy (76%), despite the relatively low overall gender employment gaps in these nations. This suggests that even in countries that have made progress in generating employment across various sectors, women remain underrepresented in the energy industry, comprising less than a quarter of the workforce. All these countries have committed to the global "Equal By 30" initiative, which aims to implement policies and programs designed to increase the recruitment, promotion, and participation of women in the energy sector by 2030. Australia stands out with its "National Energy Workforce Strategy," aimed at creating equitable job and leadership opportunities for women while leveraging these initiatives to meet its climate goals.

In contrast, Global South countries like India (63%) and Saudi Arabia (55%) exhibit the lowest levels of gender parity in local participation across all sectors of their economies, reflecting the need for specific programs to promote women's inclusion in the workforce. In the energy sector, India has been developing initiatives to empower and enhance women's employability, while Saudi Arabia still lacks energy policies that address gender issues, as such policies remain virtually non-existent.

Continuing with the labor market, the **Gender Wage Gap** serves as an indicator for measuring earnings disparities between men and women for the same or comparable work. By comparing the Total Gender Wage Gap with that of the Energy Sector (Figure 3), policymakers and business leaders can identify priority areas for pay equality initiatives, ensuring that the inclusion of women in the energy sector is accompanied by fair compensation.

Figure 3 - Gender Wage Gap: Total vs. Energy Sector



Source: CHENG SI (2023), EU (2024), IEA (2024), WEF (2023).

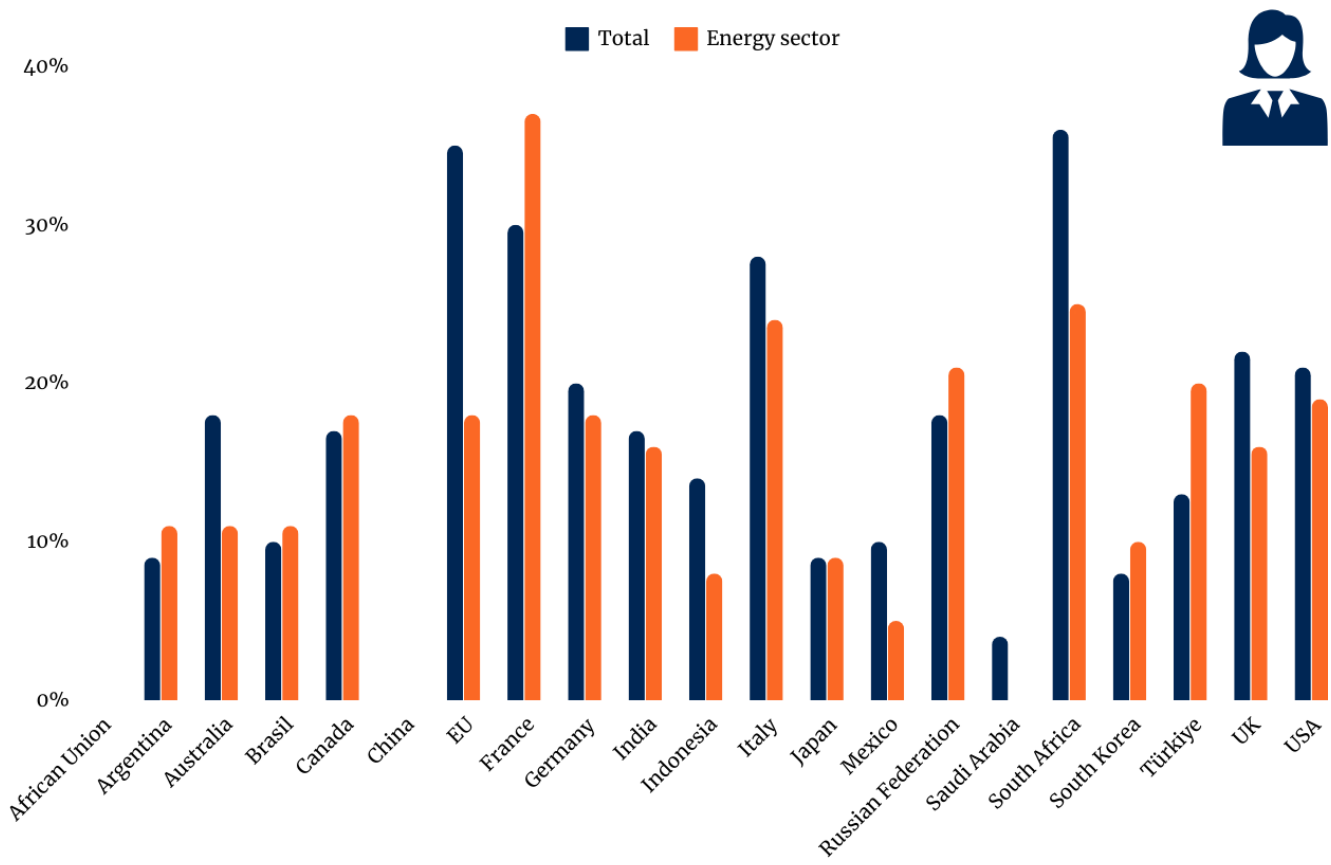
On average, women in G20 economies earn 14% less than men, with an average wage gap of 11% in the energy sector. Interestingly, the wage gap in the energy market is smaller relative to the overall average, except in Canada, where the total gender wage gap is 13%, increasing to 19% in the energy sector. This disparity justifies Canada's efforts to expand the female workforce in this area through transformative policies.

The presence of women in well-paying and technical positions can help reduce wage disparities in the energy industry; however, entry barriers for women still persist. Even among developed countries such as the United States (11%), Canada (19%), and Australia (14%), the gender wage gap remains significant. This indicates that economic development alone is insufficient to achieve gender wage equality; active policies are necessary. Conversely, France stands out with a -2% wage gap, suggesting a reversal of this trend due to effective policies promoting equality. In France, legislation mandates companies to ensure professional and wage equality, with gender equality recognized as a public policy supported by all ministries.

Another critical issue is the lack of data on the gender wage gap, particularly in the energy industry, in developed countries like South Korea and Japan, as well as in emerging nations such as China, Brazil, Mexico, India, Indonesia, Saudi Arabia, and South Africa. This creates a significant gap in understanding how gender disparity manifests across different economic and industrial contexts.

Another key indicator is the representation of **Female Senior Managers**. Analyzing the participation of women in senior management positions sheds light on how various countries and sectors confront barriers to women's advancement in leadership roles, thereby guiding the development of more effective public policies for equal opportunities. Figure 4 presents data comparing the share of female senior managers across all industries and within the energy sector.

Figure 4 - Female Senior Managers: Total vs. Energy Sector



Source: IEA (2024).

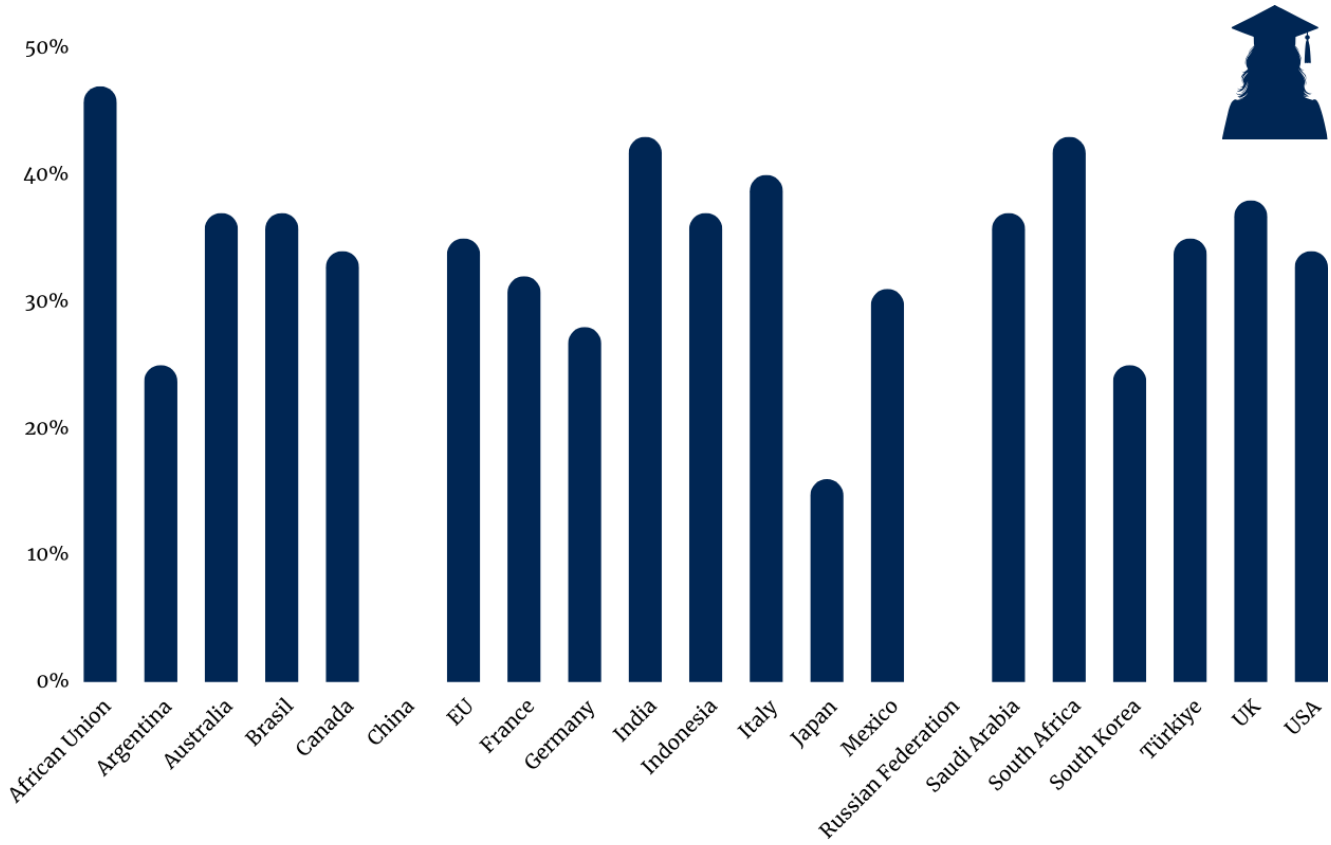
The average representation of women in senior management positions across G20 members stands at 17.84%, revealing a challenging landscape for gender equality in corporate leadership. The lower percentage of 16.5% in the energy sector indicates a lack of mobility for women compared to other industries. Moreover, energy companies in the Global South (16%) exhibit low percentages of female workers, like those in the Global North (18%). This highlights the urgent need for strategies that ensure transparency and fairness in recruitment and performance evaluation processes to attract and retain more women in the energy industry, creating opportunities for growth, including leadership training programs and other professional development initiatives.

In the Global South, Indonesia shows a low female participation rate in senior management positions in the energy sector, with only 8% of women, compared to a national average of 14%. The situation is even more critical in Mexico, where just 5% of women hold leadership positions in the energy sector, compared to a national average of 10% in other industries. However, initiatives such as Indonesia's ENTRI (*Renewable Energy Mini-Grids in South-South Triangular Cooperation in Indonesia*) program are actively working to advance women's leadership and professional development within the renewable energy sector. Likewise, Brazil's National Pact for More Women in Energy and Mining and South Africa's Women's Empowerment and Gender Equality Strategy for the Energy Sector are dedicated to promoting gender equity in leadership and management roles.

Some countries, such as France, report more promising figures, with 37% of women in the energy sector, and South Africa, with 25% female participation. Nevertheless, even in contexts where female representation is relatively higher, further progress is necessary. Therefore, these countries are planning to promote policies and actions aimed at strengthening the technical, managerial, and leadership skills of women.

STEM education is among the most sought-after fields within the energy sector. Therefore, analyzing the share of **women attaining STEM degrees** across G20 members (Figure 5) is crucial. This indicator reflects the level of inclusion and representation of girls and women in STEM careers, enabling an assessment of disparities in access and retention in educational areas that are vital for building the workforce in energy sectors.

Figure 5 - Share of Women in STEM graduate attainment



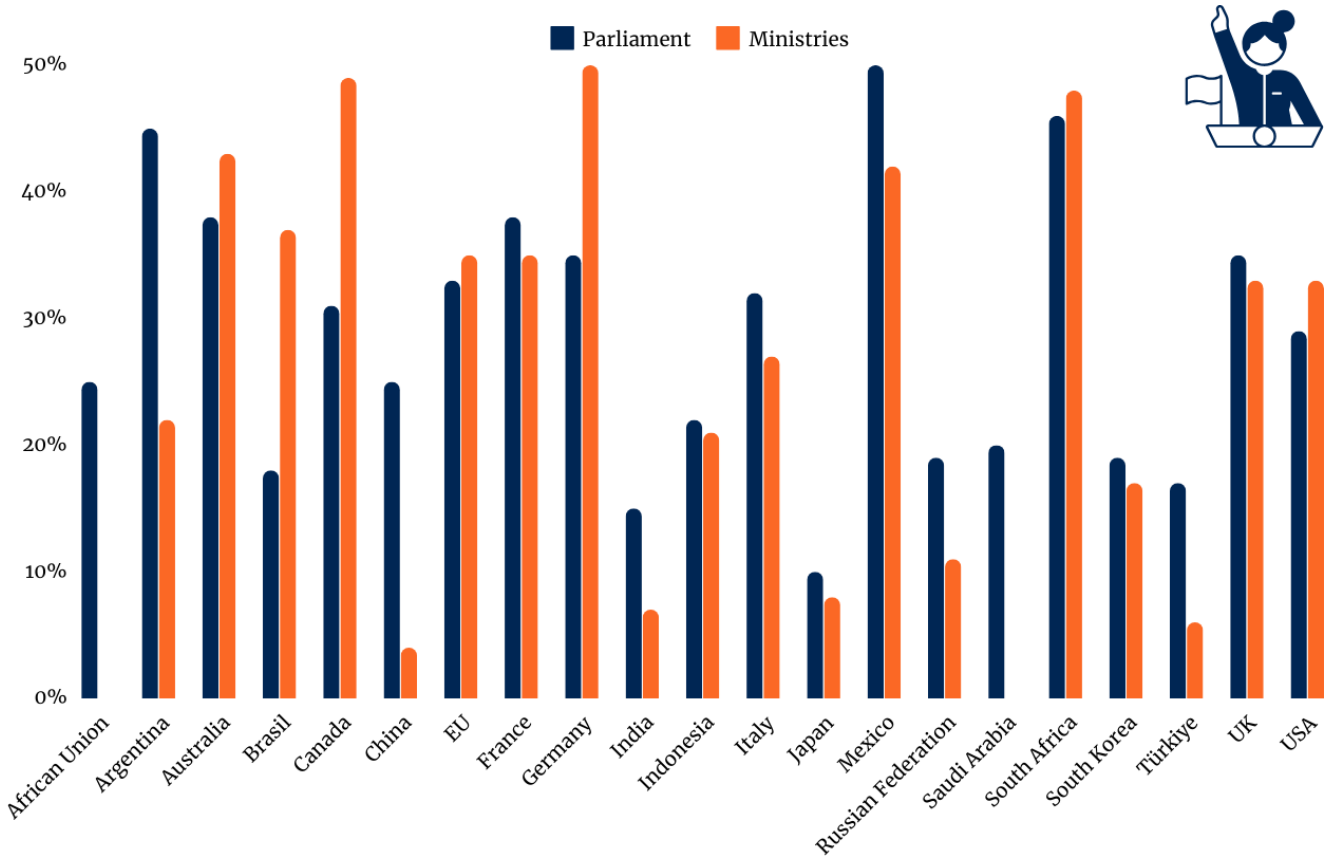
Source: DISR (2023), Enargas (2022), EU (2024), MI (2021), WEF (2023), World Bank (2024), WSA (2022).

The low employment rate of women in the energy sector largely stems from a pipeline problem, indicated by the disproportionately low number of women obtaining STEM degrees. This reality diminishes the pool of potential candidates for various positions within companies. In the G20, female participation in STEM stands at 34%, primarily driven by the Global South, which achieves 37%, while the Global North averages 31%.

In the Global South, the African Union stands out with an impressive 47% female participation rate among STEM graduates, closely followed by India and South Africa at 43%. Other countries, such as Brazil, Indonesia, Saudi Arabia, and Mexico, also demonstrate notable participation rates ranging from 31% to 37%. These figures indicate that governmental initiatives aimed at reducing gender disparities are yielding positive results in emerging countries. Noteworthy programs like the Indonesia's MENTARI (*Menuju Transisi Energi Rendah Karbon Indonesia*) are contributing to this progress. In the Global North, the United Kingdom leads with a relatively high female participation rate in STEM at 38%, while Canada (34%), the United States (34%), and the European Union (35%) hover around a moderate average. However, aside from African Union, South Africa and India, these proportions suggest that many of these nations still require targeted policies and increased financial initiatives to effectively promote female participation in STEM fields.

Regarding political participation, the analysis focuses on the representation of **women in parliamentary and ministerial positions** (Figure 6), revealing levels of female involvement in public decision-making. This representation is vital for ensuring that policies and public services effectively address the diverse needs and realities of men and women from various backgrounds.

Figure 6 - Women in parliament and ministerial positions



Source: WEF (2023).

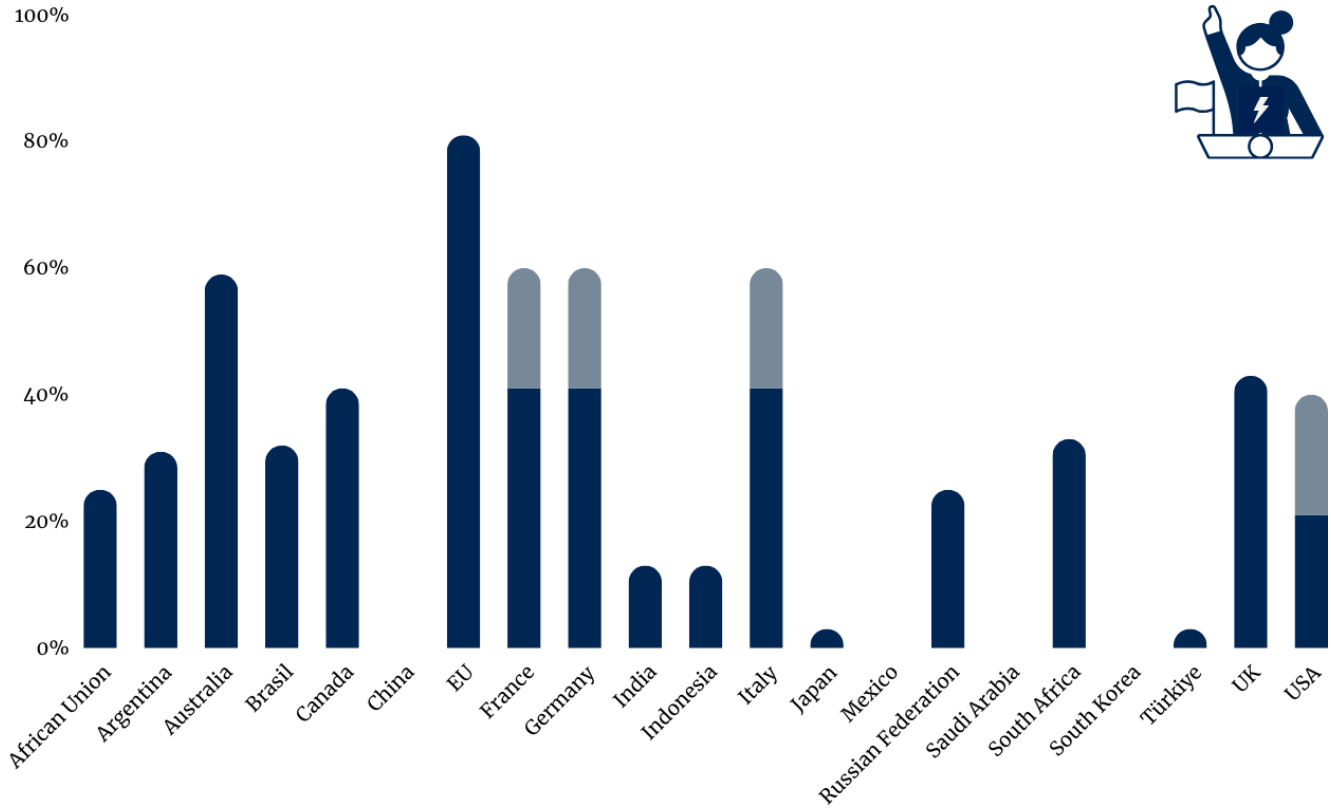
Female political representation in the G20 remains below ideal levels, with women occupying only one-third of parliamentary and ministerial positions. This statistic highlights a significant underrepresentation of women in political careers. In the Global North, the average percentage of women in these roles is higher (32%) than in the Global South (24%), reflecting the effects of affirmative policies aimed at promoting gender equality. For instance, countries like Canada and Germany exemplify this trend, with female participation rates around 40%. In contrast, countries such as India (11%) and Japan (9%) show considerably lower averages, limiting women's influence in policy formulation. South Africa stands out with 46% of women in parliament and 48% in ministerial positions, representing some of the highest levels of gender equality in global politics. This achievement reflects deliberate efforts by political parties to promote gender equality in leadership roles

In terms of parliamentary representation, Latin American countries like Argentina (45%) and Mexico (50%) demonstrate significant female presence, largely due to affirmative measures such as gender quotas that encourage greater inclusion of women in politics. Australia and France lead the Global North in female parliamentary representation, both at 38%. Conversely, Asian countries, including Japan (10%) and India (15%), illustrate considerable underrepresentation, underscoring the urgent need for gender-sensitive policies in elected positions.

Regarding ministerial roles, Argentina, despite its notable female presence in parliament, has only 22% of ministerial positions occupied by women. This suggests that while women have gained more legislative seats, their progression to higher executive roles is slower. A similar trend is observed in China, where women hold 25% of parliamentary seats but only 4% of ministerial positions. In contrast, Brazil has lower parliamentary representation (18%) but a relatively high rate of female participation in ministerial roles (37%) due to direct appointments by political leaders. Countries like Germany (50%), Canada (49%), and South Africa (48%) have the highest shares of women in ministerial positions.

Finally, assessing the participation of **women in senior positions within energy ministries** (Figure 7) reveals the level of diversity in political decision-making within the sector. This analysis can enrich energy policies with more inclusive and innovative perspectives. It is worth noting the challenge of finding readily available data; identifying leadership positions across various country ministry websites was necessary, as few countries have already compiled this data in a disaggregated manner.

Figure 7 - Share of women in senior management of energy ministries



Source: The count and weighting were based on the positions listed on the official ministry websites, except for France, Germany, Italy, and the USA, where data were sourced from the BMWK (2022).

Among Global North countries, the average participation of women in management positions is 41%. The European Union leads significantly with 81%, followed by Australia at 59% and the United Kingdom at 43%. France, Germany, and Italy fall within the estimated range of 41% to 60%, indicating a greater gender balance. The United States averages 30.5%, placing it in an intermediate position among Global North countries.

In contrast, approximately 22% of senior officials in energy departments or ministries in the Global South are women. Countries such as India and Indonesia each report a mere 13% female representation, while Türkiye has an even lower figure at 3%. Brazil shows a participation rate of 32%, which is above the average for the Global South, but still lags the levels observed in Global North countries. South Africa (33%) and the African Union (25%) also demonstrate moderate efforts toward gender equality, although they remain below the averages of more developed countries.

The lack of data for some nations, including China, Mexico, Saudi Arabia, and South Korea limits the scope of a comprehensive analysis. Nevertheless, global trends reveal a contrast between developed nations, which are actively advancing gender equality initiatives, and developing countries, which continue to face substantial barriers. For example, the European Union impressively reports a female participation rate of 81%. Additionally, Australia and Canada are notable for their effective initiatives designed to enhance gender equity within their energy departments, having established capacity-building programs to support these efforts.

Despite some advancements, achieving gender equity in energy ministries remains an elusive goal for many nations. This reality emphasizes the pressing need for targeted policies and inclusive initiatives, especially in developing countries, to enhance female participation in pivotal sectors that shape energy policy.

To conclude, this data and analysis emphasize the critical role of disaggregated gender data in producing meaningful assessments. Truly transformative policies, frameworks, and programs must be grounded in an accurate understanding of current realities to effectively, responsively, and proactively address existing challenges. Without high-quality data to pinpoint gaps, the rationale for policy initiatives weakens, making it harder to achieve targeted results

Achieving a high level of data integrity has required extensive research across multiple databases, yet many critical data points remain out of reach. Databases such as those from the IEA, Eurostat, and the World Economic Forum could be expanded and refined for country-specific data collection to fill these gaps. The persistent lack of sex-disaggregated data continues to pose a significant barrier to designing effective interventions and accurately monitoring their outcomes.

4.2 Institutional framework

The G20 members represent a range of governance systems, including parliamentary democracies, presidential republics, constitutional monarchies, and even a communist regime, which shape their diverse approaches to gender policies, each reflecting their unique institutional structures.

Among the 21 members, 8 countries have ministries or equivalent institutions specifically dedicated to promoting women's rights. These entities are tasked with proposing, developing, and implementing policies within their respective domains. Brazil, Canada, and France stand out for having ministries exclusively focused on gender issues. In countries such as Germany, India, Indonesia, South Korea, South Africa, and the African Union, gender issues are incorporated into broader ministries addressing multiple social concerns. For example, in India, the "Ministry of Women and Child Development" plays a pivotal role, while in Germany, the "Federal Ministry for Family Affairs, Senior Citizens, Women, and Youth" oversees policies related to gender equality alongside other social issues.

In 7 member-countries—Australia, the European Union, Italy, Japan, the United Kingdom, the United States, and Türkiye—gender issues are managed by specialized departments within larger ministries. For instance, in the United Kingdom, the "Government Equalities Office" collaborates with the "Cabinet Office", while in the United States, the "Women's Bureau" operates under the "Department of Labor". Meanwhile, countries like China, Mexico, and Russia employ decentralized structures, addressing gender issues through specialized agencies or bodies. In Mexico, the "National Institute for Women" is affiliated with the "Ministry of Welfare", while China's "National Women's Congress" gathers representatives to discuss and propose policies aimed at improving women's conditions across the nation.

Saudi Arabia and Argentina stand apart as the only G20 countries lacking a formalized structure specifically dedicated to gender issues. However, Saudi Arabia has recently introduced guidelines an initiative within the "Ministry of Human Resources and Social Development", which oversees labor laws, aimed at enhancing women's participation in the workforce. In Argentina, the Ministry responsible for gender issues was downgraded to a sub-secretariat of gender violence under the "Ministry of Justice and Human Rights" in 2023, which was dissolved in 2024.

This diversity of institutional structures reflects varying degrees of formalization and priority given to gender issues. While some governments have created dedicated ministries or consultative bodies, integrating gender into the core of their national policies, others approach gender equality within broader agendas. Countries with dedicated ministries or secretariats tend to demonstrate a stronger commitment to social transformation, whereas those integrating gender with other policy areas often face institutional or cultural barriers that slow progress toward gender equality.

When it comes to energy, countries adopt different approaches to organizing their ministries, departments, and secretariats, reflecting their economic and environmental priorities. Nations like Mexico, Russia, China, India, Saudi Arabia, the European Union, and the United States have institutions dedicated exclusively to energy policy, such as the "Ministry of Energy" in Saudi Arabia and Russia, and the "Department of Energy" in the United States. Other countries explicitly integrate energy management with the exploitation of natural resources, as in Brazil with its "Ministry of Mines and Energy," Canada with "Natural Resources Canada", and Indonesia, Türkiye, and South Africa, which combine both sectors under their "Ministry of Energy and Natural Resources."

This is because, in these countries, energy production is deeply connected to the exploitation of their vast natural resources, such as oil, gas, and minerals. In Brazil, for instance, large oil reserves and the predominance of hydropower justify this integration, while in Canada, wealth in oil, gas, and hydroelectricity plays a central role in both the economy and the energy sector. In these nations, the interdependence between energy and natural resources is so significant that separating the two sectors becomes impractical.

On the other hand, countries like Australia, France, Germany, the United Kingdom, and Italy — all developed economies — approach energy policy within a broader scope that encompasses sustainability, energy transition, and climate change. This is evident in the structure of their ministries, such as the "Department of Climate Change, Energy, Environment and Water" in Australia, the "Ministry for Ecological Transition and Territorial Cohesion" in France, and the "Department for Energy Security and Net Zero" in the United Kingdom.

The creation of ministries that combine energy with climate change, environment, and energy security reflects these countries' priorities, which face specific challenges due to the transition to low-carbon economies. These countries have, in general, completed most of their industrial transitions and are now focused on mitigating the impacts of climate change and driving technological innovation to achieve a sustainable future.

In contrast, nations like Argentina, Japan, South Korea, and the African Union integrate their energy policies with areas related to economic development, infrastructure, and industrial policy. This is reflected in ministries like the

"Ministry of Economy" in Argentina and the "Ministry of Trade, Industry and Energy" in Japan and South Korea. In these contexts, energy is seen as a driver of economic and industrial growth, requiring an integrated approach to ensure competitiveness while managing their energy transitions in line with their economic realities.

4.3 Legal framework

To analyze the integration of gender policies within the energy sector across G20 members, it was established eight distinct categories. Countries are evaluated based on the presence of policies, laws, programs, frameworks, or initiatives—including public-private partnerships—designed to promote gender equity. Table 2 provides a summary of the existing policies for each country across the analyzed groups. The categories are as follows:

Labor Market: This category considers policies and laws related to employment, wages, and leadership positions across the broader economy. This includes salary equity policies, national equity plans, and equality laws that, while not specifically targeting the energy sector, apply to the entire economy, thereby affecting the energy sector as well.

Labor Market in the Energy Sector: This second aspect focuses exclusively on the energy sector, encompassing renewables, oil and gas, utilities, and mining. Here, the policies must be directly tied to employment equity, leadership positions, salaries, opportunities, and overall workplace fairness within the sector.

Political Representation: The analysis then shifts to political representation, examining laws related to quotas for parliamentarians. Although these laws may not directly address the energy sector, energy regulatory frameworks often require parliamentary approval, highlighting the importance of political representation in shaping energy policies.

Political Representation in Energy Ministries: Additionally, it assessed the representation within energy departments or ministries, with a specific focus on quotas, targeted training, and institutional capacity programs aimed at increasing the presence of women in these roles.

Access to Energy for Women: The presence of frameworks, programs, and initiatives aimed at improving energy access for women was also evaluated, particularly concerning gender-specific issues related to energy poverty.

Training and Education Programs: The availability of programs for training, knowledge acquisition, and education was examined, including operational, technical, undergraduate, and postgraduate courses, as well as leadership training in the energy sector or STEM fields.

Financial Aspects: The analysis encompassed financing projects and budgeting practices, focusing on efforts to encourage more women to lead businesses, improve access to financing and venture capital, and implement gender-responsive budgeting. If these aspects directly address the energy sector, including in STEM, they are included as is, however, if they pertain to the broader economy, they must influence specific policies and laws to demonstrate a targeted impact.

Energy Policies' externalities: Lastly, energy policies and their externalities were examined, assessing whether they consider gender impacts, gender roles, and the transformations that gender equity can bring. This includes national energy development plans, short-, medium-, and long-term plans, energy transition strategies, and specific programs, such as those focused on energy efficiency. Additionally, tools and frameworks for integrating gender into energy projects were considered.

Table 2 - Policies, Laws, Programs, Frameworks, and Initiatives for Gender Integration in the Energy Sector

Countries	Labor market	Labor market - Energy	Political representation	Political representation Energy	Energy acess	Skills and knoledge	Project financing & budgeting	Energy policies externalities
African Union	✓					✓		
Argentina		✓	✓		✓	✓	✓	✓
Australia	✓	✓	✓	✓		✓	✓	✓
Brazil	✓	✓	✓		✓	✓		
Canada	✓	✓	✓	✓		✓		✓
China	✓		✓		✓	✓	✓	
European Union	✓		✓		✓	✓	✓	✓
France	✓	✓	✓				✓	✓
Germany	✓	✓	✓			✓	✓	
India		✓			✓	✓	✓	✓
Indonesia	✓	✓	✓		✓	✓	✓	✓
Italy	✓	✓	✓			✓		
Japan	✓					✓		✓
Mexico	✓	✓	✓		✓	✓	✓	
Russia	✓	✓				✓		
Saudi Arabia	✓							
South Africa	✓	✓			✓	✓	✓	✓
South Korea	✓		✓					
Türkiye	✓						✓	
United Kingdom	✓	✓	✓			✓	✓	
United States of America	✓	✓	✓			✓	✓	

Source: elaborated by authors (2024)

The table highlights significant diversity in gender policy approaches across G20 countries. In terms of the labor market, the vast majority (19) have established gender-equity policies and laws addressing employment, wages, and leadership roles in the broader economy. Specifically in the energy sector, this number drops slightly to 14, but still represents a strong majority, indicating a growing recognition of the importance of gender inclusion in these fields.

Similarly, 14 countries have implemented specific initiatives to enhance political representation in parliament, ministries, and other institutions, though the countries in these two categories are not entirely the same. However, only two countries—Australia and Canada—have developed targeted policies for political representation specifically within energy ministries or departments, signaling a gap in gender-focused leadership within this sector.

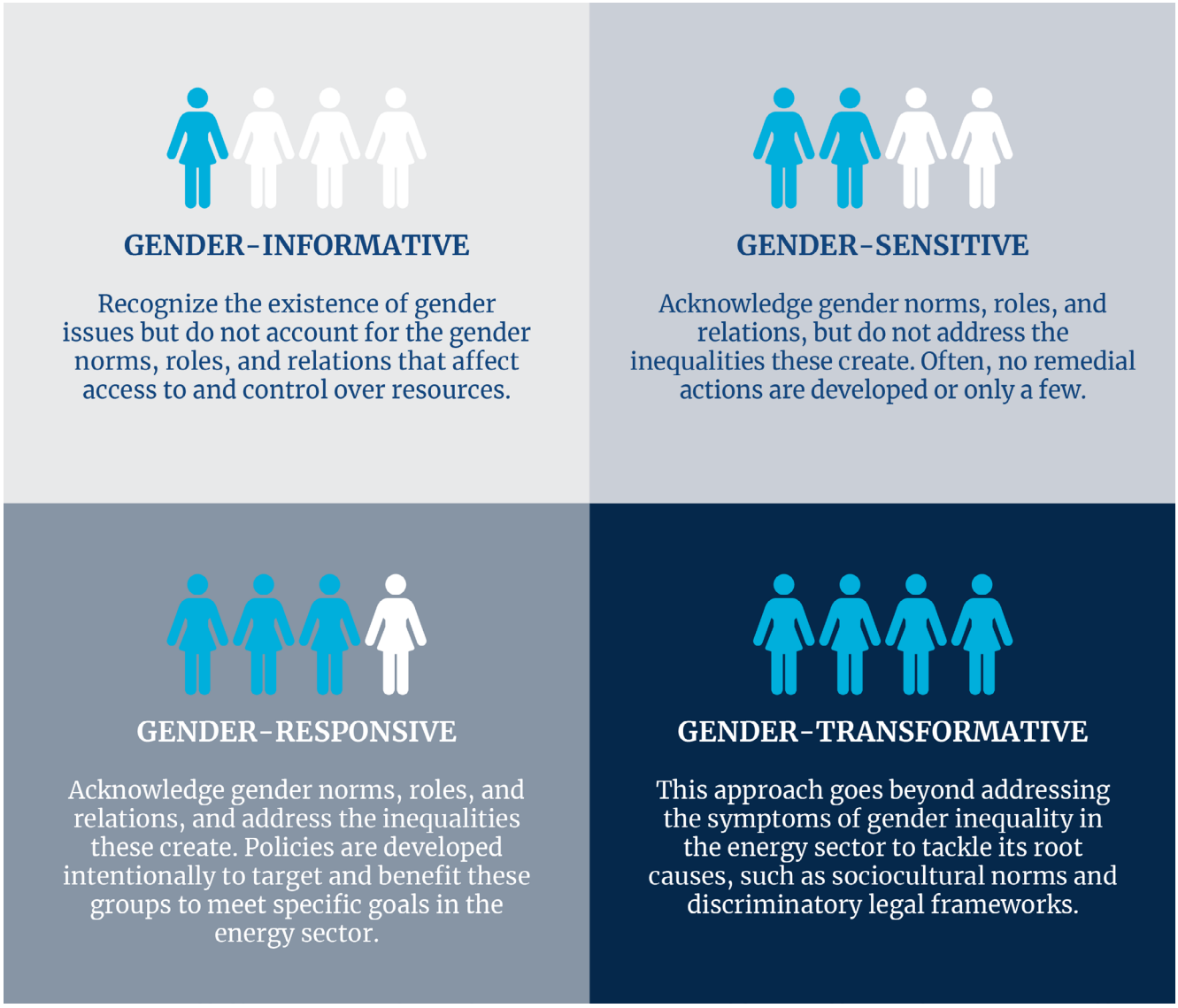
When it comes to energy poverty, only a few countries (8) recognize the need to address this issue through a gender lens—Argentina, Brazil, China, India, Indonesia, Mexico, South Africa, and the European Union. Notably, these countries are from the Global South, where rigid gender roles often exacerbate inequalities in energy access.

Regarding skills and knowledge, the majority of G20 members (17) have programs aimed at improving education and training, particularly in STEM fields. Additionally, 13 countries have frameworks within the financial sector, some of which are actively adopting or planning to adopt gender-responsive budgeting, such as India, Mexico, Indonesia, South Africa, Türkiye, and Argentina.

Finally, it is worth noting that only 9 countries incorporate a gender-integrated perspective into their energy policies and the associated externalities—Argentina, Australia, Canada, the European Union, France, India, Indonesia, Japan, and South Africa.

To deepen the analysis, countries were classified into four levels—Gender-informative, Gender-sensitive, Gender-responsive, and Gender-transformative.

Table 3 - Definitions of Gender Integration Categories in the Energy



Source: elaborated by authors (2024)

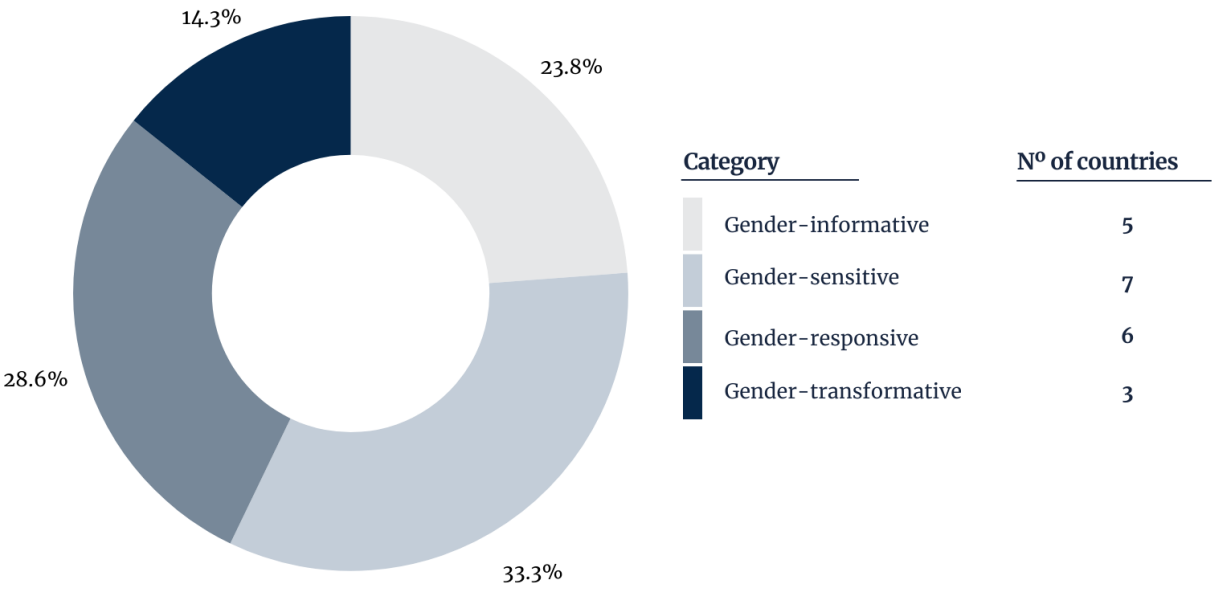
This classification is crucial as, while it has been identified whether countries have gender policies in place, there is still lack insight into their intensity, significance, and potential impacts. By using this framework, it is possible to assess the extent to which each country integrates gender into its energy policies and practices. Table 3 presents the classifications for each country, and Figure 8 illustrates the distribution of countries within each category.

Table 4 - Classification of G20 Members by Level of Gender Integration in the Energy Sector

Gender-informative	Gender-sensitive
Gender-sensitive	Gender-sensitive
Gender-responsive	Gender-responsive
Gender-sensitive	Gender-sensitive
Gender-transformative	Gender-informative
Gender-informative	Gender-responsive
Gender-transformative	Gender-informative
Gender-responsive	Gender-informative
Gender-transformative	Gender-responsive
Gender-sensitive	Gender-responsive
Gender-sensitive	

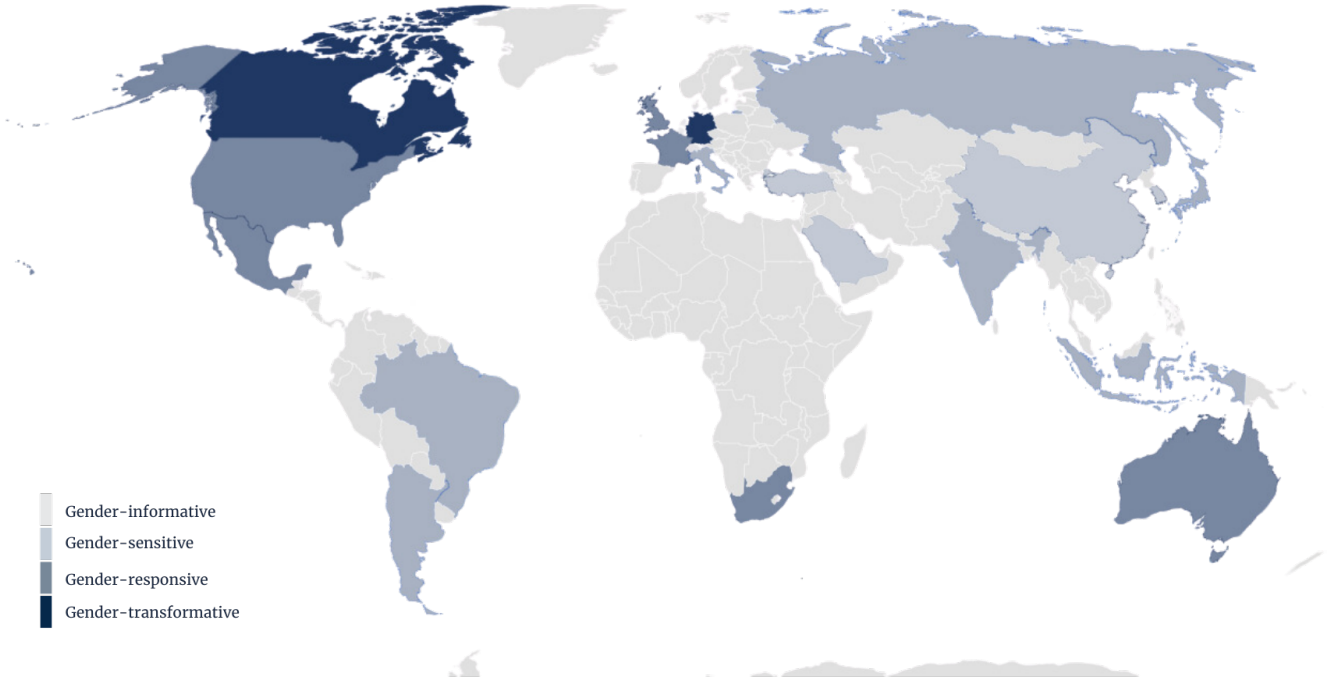
Source: elaborated by authors (2024)

Figure 8 - Distribution of countries by Level of Gender Integration in the Energy Sector



Source: elaborated by authors (2024)

Figure 9 - Geographical distribution of the level of gender integration in the energy sector



Source: elaborated by authors (2024)

Countries classified as Gender-Informative recognize the existence of gender issues but do not account for the gender norms, roles, and relations that affect access to and control over resources. Five countries fall into this category, representing 24% of the G20 members. Of these, the majority are from the Global South— African Union, China, Saudi Arabia, and Türkiye—while only one, South Korea, is from Global North. Given that three of the five countries are in Asia and Middle East, this may indicate that parts of the region are progressing more slowly toward comprehensive gender inclusion in the energy sector. The political, economic, and social dynamics in these countries likely play a role in this trend, where traditional gender roles remain influential, and the focus on gender equity has not yet been integrated into policy frameworks.

The **African Union**, despite formally committing to gender equality in its legal frameworks and development strategies, lacks targeted interventions in the energy sector, indicating early-stage efforts. In **China**, gender policies in energy remain underdeveloped, with limited integration between gender inclusion and energy policies, apart from one project focusing on renewable energy access and women's employment in rural areas. **Saudi Arabia**, despite reforms to boost women's rights and workforce participation, has yet to meaningfully integrate gender perspectives into its energy sector. In **South Korea**, although gender and energy are occasionally linked in discussions, they have not been formally integrated into public policy. Trade talks with the UK hint at future cooperation in clean energy and gender, but a unified strategy has yet to materialize. Similarly, **Türkiye** recognizes the importance of gender in planning and budgeting, but concrete initiatives in the energy sector are limited, mainly in the form of studies and recommendations.

Moving up the scale, countries classified as **Gender-Sensitive** acknowledge gender norms, roles, and relations, but do not address the inequalities these create. Often, no remedial actions are developed. The largest share of countries —7, or 33%— fall into this category, with the majority being from the Global South, including Argentina, Brazil, India, Indonesia, and Russia, and only two economies from the Global North— Italy and Japan. This suggests that many Global South countries are still in the early stages of recognizing gender inequalities in the energy sector, where awareness of gender issues exists but barriers persist to implementing more inclusive and responsive policies in the energy sector.

In **Argentina**, efforts to address gender inequality in the energy sector are still limited, with notable initiatives emerging only in 2021. While there has been promising research, concrete actions to promote equity in leadership, pay, and access to resources remain underdeveloped, focusing more on awareness and capacity building. **Brazil** has made progress over the past two years, especially in promoting education and training for women in STEM, yet a more structured approach is needed to fully integrate gender inclusion into energy policies. In **India**, gender-sensitive energy policies highlight progress, particularly in renewable energy and rural development, though structural challenges persist, requiring stronger integration of gender considerations. **Indonesia** has shown advancements in addressing energy poverty and workforce inclusion,

especially in renewables, but still faces challenges in political representation and decision-making within the sector. In **Russia**, while progress has been made in advancing women's roles in STEM and increasing workforce participation, particularly within the nuclear industry, challenges remain in addressing the gender pay gap, political representation, and comprehensive strategies for reducing energy poverty among women. **Italy**'s initiatives promote workplace equity and female entrepreneurship, though the approach remains limited, with a focus on education without fully addressing gender inequalities in the energy sector. **Japan** has frameworks in place for gender equality, but concrete actions in energy policies remain scarce, and a stronger focus on gender inclusion would enhance existing efforts.

Countries classified as **Gender-Responsive** account for 29% of the sample. These countries consider the specific needs of women, men, and marginalized groups, and how gender norms, roles, and relations affect their access to and control over resources. Policies are developed intentionally to target and benefit these groups to meet specific goals in the energy sector. Most countries in this category are from the Global North—Australia, France, the United Kingdom, and the United States—while only two are from the Global South—Mexico and South Africa. This suggests that economies in the Global North tend to have greater institutional and economic capacity to develop more inclusive and sophisticated policies in the energy sector.

Australia has demonstrated a clear commitment to embedding gender equality in energy policies and the labor market. However, while progress has been made, deeper structural changes are needed to challenge existing gender norms. **France** has developed a toolkit to integrate gender perspectives into energy policies and has a responsive attitude towards gender integration in the labor market, but areas crucial to equity are still not addressed, as energy access. Similarly, the **United Kingdom** has made strides in promoting women's participation in STEM and in the labor market, but key issues like energy poverty and political representation have yet to be addressed through gender mainstreaming. In the **United States**, although there is a responsive attitude toward gender integration in the labor market and in national energy sector development plans, crucial areas, like political representation, are still not addressed by this integration. **Mexico** is advancing gender equality by reducing energy poverty among women, create equal opportunities in the workforce and promoting their participation in decision-making roles, supported by gender-responsive budgeting, though further improvements are needed for a fully inclusive approach. **South Africa** has made notable progress, focusing on women's opportunities in the labor market and leadership within the energy sector, but challenges remain in the effectiveness and implementation of these initiatives.

At the top of the scale are the **Gender-Transformative** countries. This approach considers gender norms, roles and relations for women, men and how these affect access to and control over resources; addresses harmful gender norms, roles and relations; includes strategies and implementations to foster progressive changes in power relationships between women, men, and marginalized groups. This approach goes beyond addressing the symptoms of gender inequality in the energy sector to tackle its root causes, such as sociocultural norms and discriminatory legal frameworks. Three countries, representing only 14% of the sample, fall into this category. All of them are from the Global North: Canada, the European Union, and Germany. This suggests that countries with strong institutional capacity, robust economies, and likely greater social and political pressures are more likely to achieve this level of gender integration.

Germany has made significant progress in integrating gender issues into the energy sector, with initiatives focused on increasing female leadership and promoting women's participation in STEM fields. Its approach includes transformative gender strategies. Similarly, the European Union has adopted comprehensive policies to embed gender equality across all sectors, including energy, aiming not only to recognize but also to transform gender inequalities through concrete actions. Canada also stands out for its policies, which go beyond acknowledging inequalities by actively implementing strategies to address and reshape them. However, achieving true equality requires ongoing monitoring and effective implementation. While these countries have made strides with transformative policies, there is still room for improvement. It is crucial to continually assess their effectiveness, make adjustments, and develop new strategies, as some areas remain unaddressed.

In summary, the analysis of gender integration in the energy sector across G20 members reveals a stark contrast between Global North and Global South countries. Most countries classified as **Gender-Responsive** or **Gender-Transformative** are from the Global North (78%), with only a small fraction of Global South countries achieving these higher levels of gender integration. Notably, 7 out of 10 countries from the Global North in the sample fall into these categories, highlighting their greater ability to implement transformative and inclusive policies, supported by more robust institutional and financial structures. These countries are generally better equipped to address and shift gender norms in the energy sector.

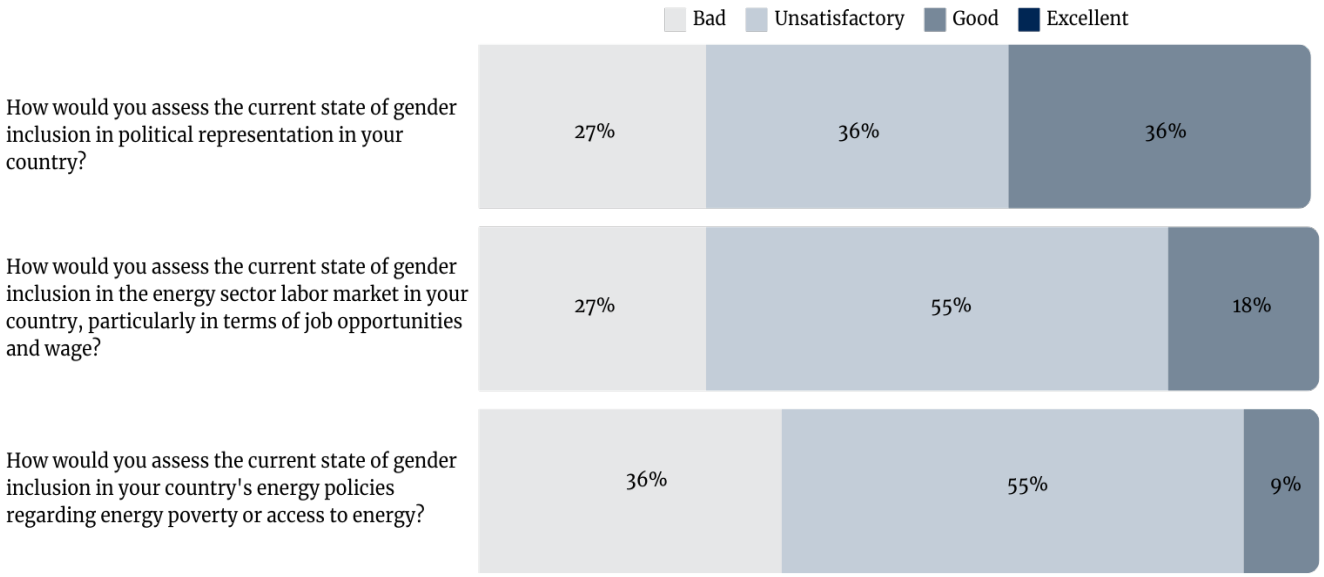
In contrast, most countries classified as **Gender-Informative** or **Gender-Sensitive** are from the Global South (75%). This suggests that economies in the Global South continue to face significant challenges in fully integrating gender considerations into energy policies. Of the 11 Global South countries in the sample, 9 fall into these lower categories, indicating that many emerging economies are still struggling to move beyond the recognition of gender inequalities due to economic and institutional constraints. For these countries, greater international support and targeted investments may be necessary to enhance gender inclusion in the energy sector.

5. Stakeholders interview analysis

This chapter presents key insights from interviews with 11 experts in energy or gender from public and private sectors across nine G20 countries. Representing diverse roles—researchers, presidents, and directors—these interviewees offered valuable perspectives on the current state of gender inclusion in energy policies, identifying best practices, challenges, and actionable recommendations for advancing gender equality in the sector.

The analysis of the data obtained from the Likert scale reveals a concerning scenario regarding gender inclusion in the energy sector (Figure 9). Although there are policies aimed at this issue, their implementation and effectiveness remain largely unsatisfactory. In the context of gender integration in policies that address energy poverty and access to energy, most of the interviewees (55%) consider these policies "unsatisfactory", and 9% rate them as "poor". In the energy sector labor market, the situation is alarming as well: 55% of the interviewees find gender inclusion "unsatisfactory", and 18% rate it as "poor". Political representation received the most critical feedback from the interviewees, with 36% rating it as "poor", 36% rating it "unsatisfactory", and 27% offering a "good" evaluation. None of the respondents from any country provided a grade of 4 ("excellent") for any of the questions.

Figure 10 – Interviewees responses



Source: elaborated by authors (2024)

Regarding individual interviewees countries' analysis, in the energy sector labor market, Australia and France stand out with positive evaluations, reflecting greater female participation, alongside policies that promote equal pay and opportunities. In contrast, Brazil, Japan, Italy, and Russia received unsatisfactory or mixed evaluations. In Brazil, although there is a growing number of women in administrative roles, their presence in technical and leadership positions in the energy sector is still limited. India and South Africa, on the other hand, face cultural and structural challenges that hinder female inclusion in the labor market, reflected in their unsatisfactory or poor evaluations.

Brazil has seen some companies adopt gender inclusion initiatives, while Australia is integrating broader workplace safety policies, equal pay, and flexible work arrangements that impact the energy sector. India and Australia are also focusing on sector-specific efforts, such as training women in solar energy and initiatives to increase women's participation in managerial roles in the energy sector. In contrast, Japan has fewer visible cases of gender inclusion, with foreign companies playing a larger role in implementing gender-friendly policies. In South Africa and Italy, most gender inclusion initiatives are emerging from private sector efforts rather than public policies, highlighting a gap in state-led frameworks.

In terms of energy policies and energy poverty, countries like Australia, India, and the Russian Federation received positive evaluations. In contrast, countries like

Brazil, France, Italy, Japan, and South Africa were rated unsatisfactory. South Africa and Italy emphasize the intersectionality of race and gender, where initiatives focus more on racial equity, which also plays a significant role in Brazil.

Regarding political representation, South Africa, Australia, and France were positive highlights, suggesting reasonable representation of women in decision-making positions related to the energy sector. In Brazil, Italy, India, Japan, and Russia, female representation was rated as scarce. As for barriers, cultural norms and the male-dominated nature of the energy sector are recurring themes in Brazil, Japan, South Africa, and Russia, were traditional gender roles limit women's participation. India highlights broader social inequalities, such as the overlap of caste and gender, which further complicate gender inclusion in energy policies. Australia highlights the challenge of attracting and retaining women in male-dominated roles.

The comments and responses from the interviewees generally converge on the main challenges and recommendations, despite being from different contexts. A common point highlighted by the interviewees is the underrepresentation of women in technical and leadership positions within the energy sector. This observation was widely mentioned across different regions, suggesting that while the scenario varies in local nuances, the problem is global. Interviewees from Australia, South Africa, Brazil, and France, for instance, emphasized that the energy sector continues to be focused on traditional engineering, with technical careers often regarded as "male domains," making it challenging to attract and retain women. Moreover, it was noted that women may face inequalities in accessing appropriate education, jobs, and promotions due to the perception that such roles are "arduous" and "technical."

There is a widespread perception that cultural and social factors hinder the inclusion of women in traditional sectors. This inequality is linked to socially constructed gender roles, which affect both the choices and career progression of women. Some interviewees reported that many women in the sector face challenges in advancing their careers, partly due to time constraints. This is due to the difficulties of balancing professional and personal lives, as domestic and family care responsibilities are predominantly assigned to them.

Regarding energy poverty, the interviews indicate that its origins are multifaceted and cannot be simplified to the question of "access" or "non-access" to basic energy services. It was emphasized that a more inclusive approach should consider the social and economic needs of women. This goes beyond merely providing energy; to reduce inequalities and significantly improve the quality of life for women, it is essential to offer training that helps them manage and utilize energy as a means of achieving economic empowerment.

Inequalities amplify the negative effects of the lack of energy services. When disparities related to gender, age, ethnicity, sexual orientation, disabilities, and other factors are not recognized as issues to be addressed, policies tend to perpetuate these inequalities. It was pointed out that in South Africa, despite the existence of inclusion policies focused on race and gender, the benefits often skew more toward Black men than Black women. In general, inclusion policies in Africa prioritize race over gender. As for Russia, while the issue of energy access is not a large concern in the country as whole, it was highlighted that certain remote regions in the country struggle with access to clean cooking and heating, often relying on coal or wood as energy sources, and that the most vulnerable population to energy poverty in the country are elderly women.

Another aspect of the gender issue related to energy is the underrepresentation of women in decision-making spaces and in the formulation of energy policies. In G20 countries, women are minorities in the political arenas that define the distribution and use of energy, and they rarely have a voice in discussions about energy infrastructure. As an example it was highlighted that the low representation of women in the Japanese parliament directly affects the absence of role models for younger generations. In the case of Russia, it was noted that women in ministries often occupy press secretary positions, which are not decision-making roles, working in areas such as ESG and communications, while major business decisions are made by others. On the other hand, it was pointed out that in South Africa, female representation is influenced by the proportional representation electoral system and party policies, with the African National Congress being the most progressive by establishing quotas for women in parliament.

Despite these challenges, several best practices and success stories were cited, such as examples of initiatives by private companies in Brazil, implementing specific programs to create opportunities for women in technical fields or the "Champions of Change Coalition" in Australia, a private sector initiative to increase female participation in the energy industry.

All interviewees agree that the energy sector needs to adopt more effective measures to ensure gender inclusion, especially in leadership positions. Among the suggestions presented are the imposition of quotas, conditions for financing projects that include gender equality criteria, and the creation of political incentives,

such as tax exemptions for companies that meet inclusion guidelines. Additionally, there was an emphasis on the need for greater oversight and penalties for those who do not comply with gender inclusion policies.

To increase female participation in the energy sector, one of the main recommendations is to ensure that educational systems encourage the interest of both girls and boys in STEM fields. However, in addition to fostering this interest, it is crucial to develop specific curricula that enhance and sustain girls' engagement throughout their academic journeys. One example that was mentioned was that when the curriculum or even the name of a course is changed to be more inclusive and emphasize real-world impact—such as focusing on social applications, collaborative projects, or using more accessible course titles— there is a significantly different enrollment of women in those disciplines.

The interviewees emphasized the fundamental role of universities in adapting their programs to meet the equity demands of the energy sector. This includes creating more versatile curricula and offering courses focused on women's empowerment, preparing female students for a wide range of opportunities in the sector. Another important aspect is collaboration with the private sector and professional associations, enabling students to connect with female role models in the job market and receive career support through mentoring networks and internship programs.

Above all, a conducive environment for women's participation in the energy sector requires adopting a gender-sensitive approach in planning, policy formulation, and regulation, accompanied by continuous monitoring of progress. In this regard, it was emphasized that it is essential for policymakers to have the necessary technical capacity to create energy policies that consider gender issues. This involves not only viewing the energy sector through the lens of infrastructure but also its connection to areas such as education, employment, and entrepreneurship. For gender inclusion to be more than just a political aspiration, it is crucial to establish goals and instruments that integrate these aspects into energy policies. Furthermore, the need to promote "literacy" in the sector was highlighted, organizing meetings with demonstrations of examples, best practices, and lessons learned.

It was also pointed out that imposing KPIs (Key Performance Indicators) for state-owned enterprises could be an effective measure to engage women in discussions and the development of energy policy, especially with the plans for nationalizing the energy sector. She also recommends introducing KPIs for CEOs of publicly traded companies; however, it is necessary to recruit women and then support their promotion through mentoring and aiding them in attaining higher positions.

Monitoring gender-disaggregated data becomes essential for seeking solutions that overcome historical barriers and ensure the inclusion and retention of women in the energy sector, both in technical roles and leadership positions. The importance of monitoring the impacts of energy policies through gender indicators was highlighted, as it is crucial to create specific metrics that assess women's participation and empowerment in energy initiatives.

In conclusion, the interviews reveal that while there are initiatives and policies aimed at promoting gender inclusion in the energy sector, cultural and structural challenges, along with a lack of practical application of these policies, pose obstacles across all regions. The interviewees suggest that the path to meaningful inclusion requires specific incentives, penalties for non-compliance, and the implementation of best practices already observed in some countries and companies. Thus, achieving true gender inclusion in the energy sector will require a coordinated and ongoing effort from both the public and private sectors.

6. Best practices and recommendations

This chapter explores the best practices adopted by G20 countries to promote gender equity in the energy sector. These initiatives encompass a wide array of strategies, including enhancing female participation in STEM fields, ensuring equitable pay, cultivating leadership opportunities, and implementing financial mechanisms to empower women economically. Additionally, the chapter offers insightful recommendations aimed at inspiring policies that harmonize sustainable energy development with equitable opportunities. Ultimately, this chapter provides a practical guide to fostering gender inclusion throughout the energy value chain.

In analyzing these best practices, it becomes evident that integrating gender into the energy sector does not follow a one-size-fits-all approach. Instead, various strategies reflect the unique economic, social, and political contexts of each country, ranging from gender-informed policies to initiatives that drive transformative change. The best practices are organized into distinct categories: Energy Plans, Gender Strategies and Laws; Forums, Discussion Networks, and Global Initiatives; Training and Capacity Building; Financing; and Tools. By examining the intersections of energy policies and gender integration, several initiatives emerge that not only enhance women's representation but also ensure the incorporation of gender perspectives in decision-making, planning, and policy implementation processes.

Energy Plans, Gender Strategies and Laws

- **France**: The 2011 Copé-Zimmermann Law introduced a 40% quota for women on the boards of companies listed on the CAC-40, the Paris Stock Exchange index.
- **France:** The 2018 Law for the Freedom to Choose One's Professional Future requires companies with 50 or more employees to ensure equal pay for men and women performing identical or equivalent work. Companies must publish an annual gender equality index, disclose progress targets, and face sanctions if scoring below 75%.
- Mexico: The General Law of Electoral Institutions and Procedures (2014) mandates 50% gender parity for all legislative candidacies at federal, state, and municipal levels, with sanctions for violations.
- **Argentina:** The Energy Transition Plan 2030 Guidelines include gender equality in developing skills for the energy transition and ensuring universal access to modern, quality energy services.
- **Argentina:** In 2023, a guide was published as part of the development of the National Gender, Diversity, and Climate Change Strategy. The guide provides examples and recommendations for incorporating gender into energy sector policies and measures.
- **Australia:** The National Energy Workforce Strategy focuses on equipping the workforce with the skills needed to meet net-zero targets by 2050, with a strong emphasis on diversity and inclusion. This includes measures to boost women's participation in the clean energy workforce, including employer-led initiatives to enhance gender representation in recruitment processes.
- **South Africa**: The Renewable Energy Masterplan (2022) adopts a gender-responsive approach, emphasizing the integration of emerging suppliers into the value chain. It prioritizes promoting women's active participation in ownership and management roles, while driving gender-inclusive transformation across the renewable energy industry
- **South Africa**: The Women's Empowerment and Gender Equality Strategy for the Energy Sector (2021-2025) aims to empower women through economic programs, employment, retention and promotion, capacity building, enterprise development, and the institutionalization of gender-based budgeting.

Forums, Discussion Networks, and Global Initiatives

- **Brazil**: The Permanent Committee on Gender Issues within the Ministry of Mines and Energy promotes gender equity in Electro-Energetic and Mineral Sector Public Companies, as well as regulators agencies and the Ministry as the leading institution, through debates and targeted projects.
- European Union: The Equality Platform in the Energy Sector promotes workplace diversity and inclusion. It serves as a forum for discussing equality issues, exchanging experiences, and showcasing best practices, while acting as a catalyst for concrete actions to advance gender equality.
- **India**: Empowering Women in Renewable Energy fosters debates and open dialogue to address policy gaps and improve women's employment opportunities through training and capacity building.

- **United Kingdom**: The POWERful Women is a professional initiative to advance gender diversity in the UK energy sector. It targets of 40% of women in mid-management and 30% in executive director positions by 2030. Additionally, it aims for 50% female representation in senior public service roles by 2025 and 40% in the nuclear sector by 2030, while ensuring compliance with gender pay gap reporting.
- **United States**: The Clean Energy Education and Empowerment Initiative (C3E) focuses on attracting, retaining, and promoting women through senior-executive-level ambassadors, awards programs, symposiums, and online communities.
- **Australia, Canada, Italy, UK, Japan, Germany, USA and France**: The Equal by 30 Initiative urges organizations, companies, and governments to endorse key principles and take concrete actions to enhance women's participation in the clean energy sector, effectively closing the gender gap.

Training and Capacity Building

- **Russian Federation:** The Obninsk Tech Female Summer School (2024) provides training for female professionals and senior students aspiring to build careers in the nuclear industry. It offers expert guidance, advanced training in nuclear technologies, and mentorship, along with leadership training to empower women in this male-dominated field.
- **Indonesia:** The MENTARI program supports Indonesia's transition to renewable energy and integrates gender considerations into training and community engagement. It offers targeted outreach, flexible training schedules, and tools like the Gender Action Learning for Sustainability (GALS) to engage women with lower education levels, along with childcare during sessions to boost participation.
- **United Kingdom:** The STEM Returners program supports and trains women returning to STEM careers after career breaks.
- **Canada:** Natural Resources Canada has implemented capacity-building initiatives to promote Inclusion, Diversity, Equity, and Accessibility (IDEA) across workforce development, departmental culture, corporate services, and policy administration.

Financing

- **Türkiye:** The Strategy Document and Action Plan for Gender Responsive Planning and Budgeting (2024-2028) aims to implement gender-responsive budgeting in national development plans.
- **Mexico:** The country has adopted gender-responsive budgeting and is prioritizing its application in sustainable energy expenditures.
- **South Africa:** Two preferential procurement policies have been developed. The Renewable Energy Independent Power Producer Procurement Programme incorporates gender metrics for top management and prioritizes procurement from women-owned vendors. The Women Economic Assembly has launched 12 sector streams to implement a 40% procurement quota for women-owned businesses in the private sector, including energy.
- **Germany:** The More Women Entrepreneurs for SMEs action plan encourages women to lead businesses, improves access to financing and venture capital, and supports their pursuit of STEM careers and climate-related professions.

Tools

- **Canada:** Gender-Based Analysis Plus is an analytical tool that supports the development of inclusive policies and programs. It is mandatory for all federal ministries and agencies, including those managing energy policy.
- **Brazil:** The Gender and Race Equity Seal certifies companies committed to gender equality. Participating companies must implement approved action plans to qualify by 2026.
- **Australia:** The STEM Equity Monitor tracks the participation of women in STEM fields, ensuring that gender equity efforts are effective and targeted.

Acknowledging that each G20 country has its unique starting point, Table 4 presents a series of targeted recommendations designed to guide policymakers and relevant stakeholders. These recommendations cover a wide array of strategic areas, from education and capacity building to policy reform and the creation of equitable working conditions, all with the goal of fostering an environment that promotes women's participation and equity in the energy sector. Focus is placed on four key outcome areas that hold significant potential for creating value: Economic Empowerment, Access to Energy and Affordability, Public-sector and Political Representation, and Gender Mainstreaming.

Strategic actions are recommended to enhance Economic Empowerment by prioritizing women's employability in the energy sector through education, capacity building, training, retention, and promotion, while cultivating a more inclusive organizational culture. Additionally, targeted interventions are proposed to support women entrepreneurs, addressing the barriers they face.

Regarding Access to Energy and Affordability, the emphasis is on ensuring that energy policies and infrastructure are not only accessible but also effective for women. This includes improving data collection, refining tariff-setting processes, enhancing project financing, and designing infrastructure that is accessible, affordable, and inclusive for women, particularly those from vulnerable communities.

Regarding Public Sector and Political Representation, the focus is on advancing policies that ensure a substantial presence of women in senior public and political roles, promoting their equitable and meaningful participation in decision-making processes.

Finally, under Gender Mainstreaming, political and structural measures are recommended to strengthen institutional capacities and energy policies and strategies, with the goal of adequately addressing women's needs and reducing existing disparities. These measures aim to create a more responsive and inclusive energy sector that actively works to close gender gaps.

Table 5 - Recommendations for strategies for gender equity and equality in the energy sector

Potential Value	Focus Area	Targeted Interventions	Strategies for Gender Equity and Equality in the Energy Sector
Gender mainstreaming	Policy	Improvements in gender-blind energy policies and strategies	• Incorporate a gender perspective from the outset in the design, implementation, and monitoring of energy policies ensuring that the needs and challenges faced by women are adequately addressed. • Integrate an intersectional approach into gender analysis and policy development by considering factors such as race and income. This will help avoid the misconception that all women experience gender issues in the same way. • Develop a comprehensive national strategy to increase women's participation in the energy sector, addressing barriers and fostering career advancement. • Reform national labor laws to protect women's rights, guarantee equal employment opportunities, and ensure equal pay for equal work. • Implement gender-responsive budgeting in the energy sector, to apply gender mainstreaming in budgetary processes, aiming to allocate resources effectively to address the distinct needs of women and men, ensuring that budget-supported activities equally benefit both and promote gender equality and equal opportunities for all. • Establish mandatory reporting requirements on gender equality metrics for both the public and private sectors. • Implement accountability measures to monitor gender-sensitive policies and strategies, including the creation of oversight mechanisms and regular reporting, sanctions at failure to comply, and tax benefits or similar if successfully implemented. • Invest in research and documentation that highlights the economic and social benefits of increasing women's participation in the energy sector and promote these findings through public awareness campaigns.

Gender mainstreaming	Polity	Gender-responsive institutional reforms	• Institutionalize and promote collaboration among all government agencies and energy departments to develop energy policies that are sensitive to gender considerations. • Establish formal partnerships with civil society organizations and women's advocacy groups to ensure that the voices and needs of women are included in energy policy discussions and decision-making processes. • Establish mandatory collection of gender-disaggregated data across all government sectors, with the data publicly accessible on an online portal. • Establish a permanent committee on gender issues within energy-related government bodies. • Enhance the capacity of energy ministries, government regulatory agencies and related public institutions to address gender issues by allocating/contracting gender specialists (with substantial experience) to policy development teams. Ensure that all team members have a basic understanding of gender issues and that job descriptions include responsibilities related to integrating a gender perspective into energy initiatives and policies. • Implement mandatory gender training programs for policymakers in energy ministries, government regulatory agencies and related public institutions to enhance their understanding of gender issues and the importance of gender-responsive policies, ensuring these trainings are ongoing and updated regularly. • Establish capacity-building programs for institutions on understanding energy technologies and the benefits they bring to women and girls.
Economic empowerment	Women's employment in the energy sector	Education	• Establish scholarship and internship programs aimed at young women in STEM fields, with an intersectional focus, as part of a national effort to increase diversity in these strategic areas. • Training programs for teachers and educators about social and gender stereotypes, considering intersectionality, to reduce unintentional discouragement of girls and women from participating in STEM fields. • Implement gender policies among faculty and staff in educational institutions e.g including specific instruments such as quota, accompanied by a monitoring system and public reporting of data to promote transparency and gender equity in the educational environment. • Establish Partnerships and mentoring programs with companies and associations to connect female role models with students. • Provide career support for students and alumni by offering professional guidance, access to job opportunities, and networking connections, with a focus on ensuring the inclusion of women.
		Capacity Building and Training	• Implement a national program to promote the creation of targeted, versatile, and interdisciplinary technical training programs aimed at increasing employability, particularly in energy-related sectors, including exclusive women training in rural areas • Implement measures to ensure gender parity in technical and executive training programs. • Develop and promote mentorship and networking networks specifically for women in the energy sector, facilitating access to career opportunities and professional development. • Direct inclusion policies to encourage female participation in technical and vocational education and training (TVET) programs in energy-related fields.

Economic empowerment	Women's employment in the energy sector	Retention and Promotion	• Establish policies including instruments such as quota, considering intersectionality, to increase the number of women employed in strategic sectors, promoting greater diversity and inclusion in the workforce. • Implement a mandatory equal pay clause for equal work, along with penalties for companies that fail to comply. • Institute a national gender policy for boards of directors, with concrete targets for gender representation, to promote gender balance in leadership positions. • Establish a system for tracking disaggregated gender data on salaries and job positions to monitor and address inequalities in the labor market. This should include transparency policy on salaries. • Create programs that encourage experienced women to return to the workforce after a period dedicated to e.g. family care, allowing them to reintegrate without having to restart their careers from scratch. • Provide equal access to reskilling programs for men and women, with a focus on specific initiatives aimed at women, particularly in sectors like technology, science, and energy.
		Organizational Culture	• Require all public and private institutions to adopt human resources policies, practices, and procedures that are gender sensitive. • Implement and expand care-related benefits, such as childcare and eldercare assistance, to address the personal needs of workers and managers. • Establish flexible work options in labor policies, allowing workers to choose schedules and modalities that best fit their personal needs. This includes offering comprehensive paid parental leave, including maternity and paternity leave. • Develop a robust Sexual Harassment Protection Policy that mandates both public and private companies to establish comprehensive training programs, secure reporting mechanisms, and transparent disciplinary procedures.
Economic empowerment	Women Energy Entrepreneurs	Addressing the Barriers Faced by Women Entrepreneurs in the energy sector	• Create education and training programs aimed at women entrepreneurs and owners of sustainable energy businesses at the community level and beyond, focusing on business, strategic, and economic management to strengthen their leadership and business capabilities. • Facilitate networking and business opportunities for women entrepreneurs in sustainable energy through dedicated platforms and events, with special attention for rural areas. • Implement programs to provide access to entrepreneurship and business development services for women-owned and led businesses. • Reform public bidding criteria to include quotas ensuring the procurement of energy products and services from women-led SMEs. Facilitate collaboration between businesses and reduce the size of bids to make them more accessible to SMEs. • Create financing programs that favor sustainable energy companies led by women, especially those with over 30% of women in senior management positions or on boards of directors, and that adhere to gender equality policies in their operations and supply chains. • Invest in companies that produce and supply sustainable energy technologies and products designed with a gender perspective, aiming to benefit women. • Create specific funding calls for startups and women-led businesses. • Establish platforms such as accelerators, incubators, and support networks that offer targeted training, mentorship, benchmarking models, and networking opportunities for women entrepreneurs in the energy sector.

Access to Energy and Affordability	Data collection and reliability	Research and Gender-Disaggregated Data	• Incorporate a typology of household energy users that captures the diversity of vulnerable consumers, such as disaggregated data by gender, race, and other social factors, to avoid a one-size-fits-all approach to addressing energy poverty. • Require utility companies and regulatory agencies to collect disaggregated gender and income data at the customer level to support the creation of tariff structures that make electricity more affordable for low-income households, focusing on vulnerable groups such as female heads of households. • Support and finance research that assesses why women are disproportionately affected by energy poverty. The program should explore how social dimensions such as race, age, and economic status, when intertwined with gender, exacerbate this vulnerability, enabling the development of more effective and inclusive policies.
	Energy Infrastructure	Energy Policy and Programs	• Establish clear objectives, targets, and actions in policies aimed at improving women's use and access to energy, services, and appropriate technologies. Ensure that the indicators used to measure progress are measurable, realistic, and aligned with the policy or action plan timeline. • Adopt policies that consider gender issues in the development of off-grid energy access solutions and microgrids. • Launch a program that allows utility companies to offer additional services tailored to the specific needs of women, such as education in energy management, access to efficient equipment and O&M for off-grid systems. • Create an energy development program that surpasses traditional energy supply by encouraging the design of energy systems that support women's productive activities. This initiative should include comprehensive training, attractive incentives, accessible financing, and resources for small and medium-sized enterprises to innovate technologies that effectively integrate decentralized renewable energy with income-generating activities.
	Energy Regulatory Policy	Tariff-setting	• Create tariffs that reflect service costs while considering the ability of consumers to pay, especially low-income consumers, who are often women. • Utilize disaggregated gender and income data to develop tariff structures that offer more affordable electricity rates for low-income households.
		Project financing	• Restructure project financing schemes to include explicit criteria that increase the participation of women in benefiting sectors such as construction, renewable energy, and prosumer models. • Introduce clauses that require energy project developers to incorporate local content into their bidding proposals, promoting the inclusion of local workers and suppliers, with a specific focus on women and women-led small businesses. • Ensure that investment decision-making committees and teams involved in managing funds and projects in the energy sector are diverse in terms of gender.

Public-sector and Political representation	Female representation	Decision-making participation	• Implement specific targets to ensure balanced gender representation in decision-making bodies within the energy and climate sectors. • Ensure that women are equally represented in political negotiations and discussions at all levels of government and in relevant forums. • Implement mentorship programs aimed at women aspiring to careers in politics and the energy sector, offering training in leadership, negotiation skills, and policy formulation.
		Equitable representation	• Establish quotas to ensure the presence of women in high political positions within energy ministries, national agencies, and relevant entities. • Advocate for gender parity laws that mandate equal representation at all levels of government, including the compulsory inclusion of a minimum proportion of women on candidate lists. • Establish mechanisms to assess and monitor female representation, such as regular reports that analyze the current situation and identify areas needing improvement to advance gender equality.

Source: elaborated by authors (2024)

7. Conclusions

This study aimed to conduct a detailed analysis of the strategies adopted by G20 countries to incorporate gender components into their energy policies, identifying best practices, challenges, and opportunities for improvement. Through comprehensive research, which included interviews with sector experts, a literature review, and an analysis of existing policies, the study maps significant progress in various countries, highlighting initiatives that promote gender inclusion in the energy transition. The findings indicate that while there is a growing recognition of the importance of integrating gender perspectives into energy policies, the implementation of these strategies remains uneven and often lacks adequate institutional support.

The energy sector is deeply and systemically influenced by gender dynamics, making gender integration into energy policies essential for a truly just, inclusive, and efficient energy transition. Historically, women have been marginalized in both the energy sector and policy discussions, facing systemic barriers that limit their full participation. Not integrating gender as one of the cornerstones necessary in every energy policy thus perpetuates existing inequalities and furthermore undermines the potential contributions of women, who play a crucial role in driving the energy transition forward. Historically, women have been marginalized in these discussions, facing systemic barriers that limit their full participation. It is therefore critical to map effective strategies for embedding gender into energy policies to promote equality and advance the Sustainable Development Goals (SDGs).

This document provides a comprehensive analysis of the strategies adopted by G20 countries to incorporate gender components into their energy policies, showcasing how countries like Canada have successfully implemented a gender-sensitive approach in the development of its energy policies. Through a detailed examination of best practices, challenges, and opportunities, the study aims to offer insights into the progress made and the steps still needed. It explores a range of initiatives, programs, frameworks, laws, and projects promoting gender equality across the entire economy, with a specific focus on the energy sector. The primary areas of interest included labor market participation (employment rates, wage gaps, leadership roles), political representation (parliamentary and ministerial positions, especially within energy ministries), and access to energy.

The findings indicate that, while most G20 members have initiatives and laws aimed at promoting gender equality across their countries, some members still lack tailored gender government policies specifically designed for the energy sector. For instance, NRCan collaborated with the IEA to enhance data collection in the energy sector, developing a reporting framework to track progress on gender equality and publishing its results. Despite notable efforts, progress varies significantly across countries. Some exhibit well-structured advances, while others are only beginning to recognize and address gender disparities in energy. These variations reflect differences in institutional capacity, political will, and prioritization of gender issues.

The classification of G20 countries highlights a broad spectrum of gender integration. Nine members were classified as "Gender-Transformative" or "Gender-Responsive", showing a clear commitment to shifting gender norms and promoting equitable participation in energy. These countries have made significant strides in inclusive policies that address access, opportunities, and leadership in the sector. In contrast, twelve countries, classified as "Gender-Informative" or "Gender-Sensitive," face significant challenges in moving beyond surface-level initiatives. While they acknowledge the importance of gender integration, many struggle to implement policies that tackle the root causes of gender inequality.

A regional pattern also emerges: Countries with lower levels of gender integration in the energy sector are mostly from the Global South, with few exceptions, while most gender-responsive or transformative countries are from the Global North.

Women's economic empowerment, particularly in relation to the labor market, is a prominent focus in G20 gender policies. Significant efforts have been made to address gender gaps in employment, especially within the clean energy workforce, and to enhance women's participation in STEM fields. However, substantial disparities persist in workforce participation, pay equity, and leadership. Even in countries that have made progress, women remain underrepresented in energy jobs, with limited career mobility.

Energy access is another critical area, yet it remains under-addressed. While some countries, such as Argentina, Brazil, China, India, Indonesia, Mexico, South Africa, and the European Union, acknowledge the gendered nature of energy poverty, much remains to be done to meet the specific energy needs of women. Additionally, a disconnect between general gender inclusion policies and their

application within energy ministries and regulatory bodies was observed. While quota laws have increased women's representation in parliament, these initiatives rarely extend to energy-related institutions.

Based on the analysis, which includes best practices, interviews with women in the sector, and a comprehensive literature review, strategic recommendations were proposed to achieve full gender equality in the energy sector. These recommendations are centered on four key areas: Economic Empowerment, Access to Energy, Public Sector and Political Representation, and Gender Mainstreaming.

Specifically, actions to boost women's employability in the energy sector by focusing on education, capacity building, training, retention, and promotion, while fostering a more inclusive organizational culture are recommended. The importance of supporting women entrepreneurs through targeted interventions was emphasized. In terms of energy access, one proposal is to improve data collection as well as refining tariff-setting processes, enhancing project financing, and ensuring that infrastructure is designed to be accessible, affordable, and inclusive for women, particularly those in vulnerable communities. To strengthen equitable governance, an increased representation of women in public-sector roles and political decision-making processes is key. Finally, comprehensive gender mainstreaming in energy policies and strategies, including gender-responsive institutional reforms, is of utmost importance.

However, the research process presented several challenges. One of the main obstacles was the lack of gender-disaggregated data in many of the policies and initiatives analyzed, making it difficult to assess the impact of the measures adopted accurately. Additionally, the differences in countries' approaches to gender integration in energy policies created challenges in comparing strategies and outcomes. While conducting qualitative interviews with women in the sector, which provided important insights into their experiences and perspectives, there was still some resistance in certain sectors to openly discuss gender issues. This resistance limited access to additional information that could have enriched our analysis. These difficulties underscore the need for a greater global commitment to gender-disaggregated data collection and promoting discussions on gender equality in the energy sector.

In conclusion, achieving gender equality in the energy sector requires long-term policies, capacity-building initiatives, and institutional reforms, but also an urgent commitment from all G20 countries to implement these strategies. Collaboration and sharing best practices, ensuring that gender perspectives are integrated into energy policies at all levels are key for G20 members. While G20 members must tailor their approaches to their national contexts, laws and mechanisms that address gender disparities in employment, political representation, and energy access should be adopted. By embracing these practices, the energy sector can contribute not only to a just transition but also to broader social justice, sustainable innovation, and improved working conditions. This integration will not only empower women but also enhance the overall effectiveness and resilience of the energy sector in addressing climate change.

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