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The Gender and Energy Nexus: A Regional Overview from Central Asia

SECCA
Sustainable Energy Connectivity in Central Asia

IMPRESSUM

Authors
This research is based on national gender assessments produced in the scope of the European Union-funded Sustainable Energy Connectivity in Central Asia (SECCA) project. It was compiled under the coordination of gender specialist Silvia Sartori by the following gender equality and social inclusion (GESI) analysts:

- Raigul Bulekbayeva (Kazakhstan)
- Azhar Boobekova (Kyrgyzstan)
- Nasrullo Naimov (Tajikistan)
- Jemal Durdykova (Turkmenistan)
- Iroda Chilek (Uzbekistan)

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This publication is dedicated
to the memory of our colleague
Raigul Bulekbayeva,
a very committed and generous
member of the project team,
whose dedication and expertise significantly
shaped this research.

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1 Introduction

Introduction

Gender equality and clean and affordable energy are closely interconnected. They are both Sustainable Development Goals (SDGs) under the *2030 Agenda for Sustainable Development*, respectively: 'Achieve gender equality and empower all women and girls' (SDG 5) and 'Universal access to affordable, reliable, sustainable and modern energy (SDG 7). Equally, they are also enablers and pre-conditions for the achievement of the 2030 Agenda as a whole.

Girls and women have specific needs and make use of energy in different ways than boys and men, due to their specific activities and responsibilities resulting from social norms and cultural beliefs linked to gender roles. For instance, girls and women usually tend to be assigned domestic chores and care-taking responsibilities which, amongst others, lead them to spend more time indoors around cooking devices, using energy to prepare meals, wash clothes and heat water.

As such, access to reliable, affordable and clean energy is a major enabler for girls' and women's empowerment. When available, it reduces drudgery and saves time for girls and women in managing their domestic chores and enables them to pursue education, study after sunset, engage in income-generating activities such as starting small businesses or working outside the home. Access to electricity also increases women's safety and improves mobility after dark.

Additionally, clean cooking fuels play a critical role in protecting the health and safety of girls and women as the main users of cooking stoves. Burning wood and coal – common alternatives for households with no access to clean cooking fuels - exposes domestic users to the hazardous, indoor air pollution generated by inefficient cooking stoves and is responsible for a variety of short and long-term diseases, including respiratory problems, eye irritation, allergic reaction, heart diseases and cancer. The World Health Organization (WHO) estimates that, in 2020, 3.2 million people died globally due to indoor air pollution.[1] In addition, in the absence of clean cooking fuels, or their steady availability, it is usually women who are tasked with procuring firewood, which implies a significant physical drudgery and increases women's time-poverty, as the daily time invested into collecting firewood cannot be invested into income-generating or educational activities.

As a result, the degrees to which energy policies, products and services are designed and delivered to acknowledge, integrate and respond to the needs and views of women impact the effectiveness of energy programmes and policies as well as women's empowerment.

In turn, different degrees of women's empowerment in society affect the development and resilience of communities at large: global research has demonstrated that the higher the level of education and economic empowerment of women in society, the higher the wellbeing of households and communities, with documented positive impacts on children's education, households' healthcare, environmental preservation, corporate innovation and profitability and societal resilience.

The present report builds on five national gender assessments conducted by the European Union (EU)-funded SECCA project for the Republic of Kazakhstan, Kyrgyz Republic, Republic of Tajikistan, Turkmenistan and Republic of Uzbekistan[2]. Despite an overarching challenge in the availability of gender-disaggregated data, and differences in the quantity and type of information available per country, the report intends to provide an overview of where the five countries stand in the gender and energy nexus, by examining four main dimensions:

1. the policy dimension of the gender and energy nexus, i.e. whether and how gender considerations are acknowledged and reflected in current energy policies and programmes, and whether dedicated authorities or entities are in place, to ensure the mainstreaming of gender in the energy policy-making space;
2. access to electricity and clean cooking fuels: assessing the share and profile of a population with access to electricity and clean cooking fuels allows the identification of those most exposed to energy poverty and related side-effects (such as health hazards and livelihood constraints);
3. girls in science, technology, engineering and

1 WHO, *Indoor air pollution*, 2023. Available at: https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health
2 Also referred to as Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.

mathematics (STEM) education: an analysis of the gender distribution in STEM disciplines, to investigate potential imbalances and related implications on the sector's sustainability and resilience, and on talent acquisition and development;

4. women's employment in the energy sector: an analysis of the distribution of employment of male and female professionals in the energy industry, and the type of jobs they tend to perform respectively, is a further avenue to assess whether and how women's talents, views and needs are reflected in and contribute to the design, development and management of energy services and products.

While this report focuses on the interconnections between access to clean energy and gender, it also acknowledges that, in order to achieve a truly just and inclusive green transition, it is imperative to support the integration of vulnerable groups into the green economy. Climate actions and varying degrees of access to electricity and clean fuels have unequal impacts on different social groups. It is crucial to recognise that the effects of climate change, energy access and climate and energy policies are not evenly felt and disproportionately affect disadvantaged individuals such as the poor and people with lower education and skills, as well as other vulnerable groups including women, people in rural areas, and people with disabilities.[3] Consequently, it is important to design dedicated safeguarding measures that ensure that existing inequalities are not perpetuated or exacerbated and are rather overcome when developing gender-responsive and socially inclusive energy transition policies and programmes.

The participation of women in the design and implementation of energy products, services and policies is key to ensure that they are not gender-blind and to account for the needs and views of all users and consumers. To this end, it is crucial that women are equally engaged in all fields that contribute to the development of energy products, services and programmes, including:

- energy-related disciplines that build up future professionals,
- energy-related policy-making,
- employment in the energy sector's workforce.

It is a matter not only of the ratio of women included in these fields but also of the roles they are enabled to perform therein, especially in management and leadership, so as to contribute to shaping and driving the energy agenda.

Creating a gender-responsive energy sector starts early in the process, by building the talent force that manages and works in it, particularly in STEM studies. Globally, girls are substantially under-represented in these disciplines, primarily due to persistent gender stereotypes that discourage girls from undertaking studies in traditionally men-dominated fields. This results in a gender gap that is detrimental not only to diversity and inclusiveness in society but also to the sustainability and resilience of the energy sector itself.

In fact, if it is to meet its ambitious goals, the global energy transition cannot afford to deprive itself of the talents of all members of society. It needs to ensure it has sufficient qualified professionals ready to drive and power the energy transition. Young people are a critical factor driving the feasibility, resilience and sustainability of the energy transition and the participation of girls is to be particularly supported and promoted.

The first chapter of this report summarises the key findings, identifying common challenges, examples of best practices and potential entry points for a more gender-responsive energy sector in Central Asia. It is then followed by country-specific overviews of the gender and energy nexus and, finally, a chapter illustrating promising best practices and steps forward for making Central Asia's energy sector more gender-responsive.

3 World Bank Group, 2023. *Uzbekistan: Country Climate and Development Report*. Available from: https://documents1.worldbank.org/curated/en/099111423124532881/pdf/P1790680f452f10ba0a34c06922a1df0003.pdf

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Regional Findings

Regional Findings

A preliminary analysis of the gender-energy nexus across energy policies, access to electricity and clean fuels, energy-related education and employment in the five Central Asian countries reveals that, despite national specificities, the region shares a number of common features and trends.

Gender-disaggregated data in the energy sector are largely unavailable. This applies to the gendered distribution of students across fields of study at different levels of education, the gendered breakdown of the energy sector workforce, pay grids in the energy industry as well as the demographics of people with and without access to electricity and clean fuels. While data are at times available for some sub-sectors, a systematic and regular collection of gender disaggregated data is lacking and, at best, replaced by estimates.

In the energy policy field, references to gender equality and/or social inclusion remain limited. When available, they are more frequent in climate-related policies, documents and regulations than in the energy sector.

Generally, Ministries of Energy do not yet have separate, dedicated resources (including budgets) to mainstream gender. While the ministries of energy in Kyrgyzstan and Uzbekistan have recently established a Gender Committee and a Gender Council respectively, very little information is available on their actual scope of work and impacts to date. In line with an assessment conducted by the Asian Development Bank (ADB) in 2020 concerning gender mainstreaming within the Ministry of Energy in Uzbekistan, it is assumed that limited capacity within ministries to mainstream gender is common across the region.

Gender imbalances are already visible in STEM-related studies, which are mostly undertaken by men. While no accurate, up to date or comprehensive statistics are available on this, current estimates and partial figures (from Kazakhstan) indicate that, at best, girls account for 45% of STEM graduates. It is noteworthy that:

- in Kazakhstan and the Kyrgyz Republic, girls are underrepresented in STEM despite studying longer and being more qualified than boys; this indicates that women's under-representation in these fields is not due to a lower retention of female students in education;
- in Uzbekistan, the share of girls in STEM is increasing promisingly.

Studies conducted in Uzbekistan and the Kyrgyz Republic indicate that, more than teachers, it is the influence of parents and family environments that plays a key role in directing girls' selection of fields of study and then careers.

The gender imbalance across fields of study and employment is relevant also because it confines women to less well-paid jobs and positions.

Awareness about the importance of building the talent force in sectors related to the energy transition is increasing, however not fast enough. While there are multiple international initiatives that promote girls in STEM, there are no domestic programmes explicitly aimed at attracting more girls to these fields because countries remain focused on ensuring equal opportunities in access to education, with no dedicated girls-only initiatives.

While countries in the region have generally achieved universal electrification, stable, affordable and reliable access to electricity is still not universally guaranteed. This applies particularly to populations living in rural and remote areas, which still account for a large share of the population in countries, such as Kyrgyzstan and Tajikistan, where urban residents are a minority. There is no comprehensive information on the gendered profile of people without stable access to electricity and clean fuels, except for in the Kyrgyz Republic, where women exceptionally have a slightly higher access rate to electricity than men. Nonetheless, women generally remain particularly impacted by energy poverty for the nature of the roles and tasks that they are socially expected to perform, especially domestic chores and care-taking responsibilities.

The energy sector displays one of the highest gender imbalances in its workforce compared to other industries, with women accounting on average for only 16% of the energy workforce. With a 25% share, Kazakhstan displays the highest ratio of female employment in the sector, while Tajikistan has the lowest, with women constituting only 10% of its energy workforce.

The gendered imbalance in energy employment applies also to the renewable energy sector which, however, offers a more nuanced picture: women's employment in the renewables sector is estimated to be higher than in the traditional energy sector in

Kyrgyzstan, Tajikistan and Uzbekistan. In Kazakhstan, renewable energies employ fewer women than the traditional energy sector, whereas no notable difference in women's employment between the two sectors was identified in Turkmenistan.

Women in the Energy Sector Workforce in Europe

Women's under-representation in the energy sector workforce is a global challenge, in conjunction with difficulties in the availability of updated and gender-disaggregated data.

In the EU, the share of women working in the energy sector has increased from 19% in 2010 to 24% in 2022. Women's employment is slightly lower in the renewable energy sector, particularly for comparatively new sub-sectors such as hydrogen and heat pump energy. On the other hand, about 28% of managerial positions in the energy sector in Europe are held by female professionals.

These figures and trends confirm that, also in Europe, energy remains a very male-dominated sector. For it to achieve minimal gender balance, estimated at a 40% inclusion of women, the sector in Europe is estimated to need an additional 200 000 women to enter its workforce by 2050.[4]

While women's employment in energy corporations is significantly lower than men's, the share of women employees is generally higher within energy ministries. Also in that context, however, leadership roles are mostly occupied by men.

As well as being significantly fewer than men, women's employment in energy companies is also characterised by:

- an over-representation of women across lower paid and administrative positions,
- barriers in career advancement opportunities,
- an under-representation of women in managerial and leadership roles.

The gender pay-gap remains an issue across the region. Although specific figures about the gender pay within the energy sector are mostly unavailable, general information about respective compensation according to gender in the labour market indicates that the difference applies to the energy sector too.

Common barriers preventing or limiting women's access, retention and progression within the energy sector workforce include cultural and societal norms, beliefs and expectations around gendered roles, gendered stereotypes about male and female capacities and aspirations, conservative role-model projections, women's low self-confidence, biased human resource and retention practices, corporate policies not aligned to work-life balance, lack of women-oriented coaching, mentoring, networking and job placement opportunities and gender imbalances in STEM education.

A 2024 Organization for Security and Co-operation in Europe (OSCE) study conducted in collaboration with the Global Women's Network for the Energy Transition (GWNET) and the International Renewable Energy Agency (IRENA) examined the socio-economic advantages of the energy transition for the five participating states in the Central Asia with a specific focus on gender perspectives. The results of the study indicate that women face the following obstacles to entry and develop in the renewable energy sector[5]:

4 Source: European Commission. *Equality Platform for the energy sector*, available at: https://energy.ec.europa.eu/strategy/equality-platform-energy-sector_en

5 OSCE, 2024. *Advancing a Just Energy Transition in Central Asia: Women's Key Role in the Energy Sector.* Available from: https://www.osce.org/files/f/documents/f/f/561811.pdf

Regional Findings

Barriers to entry into the renewable energy sector (ranked most significant to least significant)

1. Prevalent hiring practices (preference for male candidates)
2. Cultural and social norms (gender stereotypes)
3. Lack of gender diversity targets (hiring quotas, overall workforce target)
4. Lack of awarness of opportunities (among women)
5. Limited ability to move or travel for work (family support, social responsabilities)
6. Prejudices about women's capabilities (technical capabilities, physical strengh requierement
7. Inedequate workplace policies for work-life balance
8. Self-perception (lack of confidence)
9. Lack of the right STEM background
10. Lack of the right non-STEM background

Barriers to advancement in the renewable energy sector (ranked most significant to least significant)

1. Cultural and social norms (gender stereotypes)
2. Lack of flexibility in the workplace (flexible working hours, job sharing, remote work)
3. Lack of gender diversity targets (overall workforce target)
4. Limited mobility (family support expected, social responsabilities)
5. Glass ceiling
6. Lack of role models
7. Lack of mentorship opportunities
8. Lack of childcare facilities
9. Lack of required skills and qualifications
10. Discouraging workplace practices (exclusion, harassment)
11. Lack of training opportunities

Regional Findings

Most energy companies do not currently have specific policies or programmes to assess and improve their gender equality status. Awareness-raising programmes, anti-harassment measures, gender equality targets and gender mainstreaming trainings are mostly missing. The few corporate initiatives that do exist to improve internal equality and inclusion performance remain individual, voluntary measures.

Despite the large share of common issues, regional initiatives, exchanges and cooperation in the field are very few and at an early stage of development.

The List of Prohibited Professions

In 1978, the Soviet Union compiled a list of about 430 jobs that were considered dangerous for women's reproductive capacity and that were therefore banned to women. The prohibition referred to industries such as mining, metal, oil, construction and installation, and a variety of jobs, including – amongst many others, in both technical and non-technical positions – welding, communications technician, drilling oil wells, antenna technician at heights and excavator operator.
Over the years, the list underwent several reforms and, following the collapse of the Soviet Union, was inherited by Central Asian countries.

Uzbekistan was the first country in the region to abolish it, in 2019. Kazakhstan followed suit in 2021. The list is no longer in place in Turkmenistan. However, it remains in force in Tajikistan, where a December 2023 Decree reformed it, decreasing the number of prohibited professions to 194 across 22 economic sectors. The reform was justified on the basis of 'automatisation of production processes and improvement of working conditions' and 'increased access of women to relevant professions and increased income.'[6]

In the Kyrgyz Republic, however, 446 jobs are still banned to women. A new draft Labour Code has been submitted to the Supreme Council for consideration, with plans to revise the list and retain restrictions only for pregnant women and nursing mothers.

Besides being a form of discrimination against equal access to opportunities and employment, the list prevents women from accessing jobs in industries that are often highly paid, thus jeopardising their economic empowerment.

6 Anti-Discrimination Centre. *Tajikistan has reduced the list of professions prohibited to women, 2024.* Available at: https://adcmemorial.org/en/news/tajikistan-has-reduced-the-list-of-professions-prohibited-to-women/

3

Republic of Kazakhstan

3.1. Gender and Energy: The Policy Dimension

Currently, Kazakhstan lacks specific measures aimed specifically at promoting gender equality and social inclusion (GESI) within the energy sector. The Ministry of Energy has a limited capacity to address GESI issues and, to date, the government does not have separate human, technical or financial resources allocated to GESI in the energy sector.

A number of major overarching policies include references to both energy and gender.

- *The Concept on Family and Gender Policy 2030 (6 December of 2016)*[7]*:* this document promotes gender equality across various sectors, including energy. It aims to enhance women's economic opportunities, including in sectors of the economy traditionally dominated by men as well as in innovative, infrastructure, and high-tech government projects and programmes.[8] The *Action Plan for Implementing the Concept (Second Stage 2020-2022)* included a target of 30% of women to be included in all companies top-management, including in the energy sector by 2030.[9]
- The Order *On the approval of the list of jobs prohibited for workers under the age of eighteen, the maximum norms for carrying and moving weights for workers under the age of eighteen, and the maximum norms for lifting and moving weights manually for women*[10]*:* in 2021, the country's labour code was revised to remove restrictions on 219 professions previously banned for women, with over 30% of these newly accessible professions relating to the energy sector.[11] This move provides women with access to occupations and roles that had been traditionally deemed male-only and unsuitable for women, representing a major advance in breaking down gender barriers in the workforce. Examples of such professions include installation, maintenance and repair of oilfield equipment, drill operators, and underground oil extraction services.
- *The 2023 Nationally Determined Contribution (NDC) to the global response to climate change,* which includes the following articles:
  - 8.1 Institutional arrangements and legal frameworks: since 2019, the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan has been responsible for developing and coordinating climate change policy. Adaptation activities planned by the government envisage the involvement of stakeholders, and the support and inclusion of measures to promote gender equality in project portfolios.
  - 8.3 The general objective of the adaptation chapter of the Environmental Code is to promote the reduction of climate risks in Kazakhstan by building climate resilience while addressing the impacts of climate change, minimising climate risks, and implementing measures enabling adaptation of natural ecosystems, economic activities and infrastructure, safeguarding public health, and ensuring food security, access to water and gender equality.
  - 8.5 The implementation of the national adaptation policy – including gender issues –will undergo periodic review and revision in 5-year cycles, in line with the government policy monitoring and evaluation cycles.
  - 8.7 The role of women in the adaptation of agricultural practices to climate change, participation in decision-making processes, planning and implementation of projects, awareness-raising and shifting public behaviour towards more responsible use of water and energy, climate risks understanding, and other identified challenges will be addressed by relevant state programmes on priority areas of public and local administration for adaptation to climate change.[12]

7 Decree of the President of the Republic of Kazakhstan *On approval of the Concept of family and gender policies in the Republic of Kazakhstan until 2030*, dated December 6, 2016 No. 384, https://adilet.zan.kz/rus/docs/U1600000384

8 Ibid

9 Decree of the Government of the Republic of Kazakhstan On invalidation of the Decree of the Government of the Republic of Kazakhstan dated May 21, 2020 No. 315 - On approval of the Action Plan for the Implementation of the Concept of Family and Gender Policy in the Republic of Kazakhstan until 2030 (second stage: 2020 – 2022), dated June 20, 2022 No. 408, https://adilet.zan.kz/rus/docs/P2000000315

10 Order of the Minister of Health and Social Development of the Republic of Kazakhstan No. 944 dated December 8, 2015 *On the approval of the list of jobs prohibited for workers under the age of eighteen, the maximum norms for carrying and moving weights for workers under the age of eighteen, and the maximum norms for lifting and moving weights manually for women* (with amendments and additions as of December 10, 2021), https://online.zakon.kz/Document/?doc_id=35844164&show_di=1

11 Ibid. The list had been disseminated since 1932.

12 The Ministry of Ecology and Natural Resources of RK, *Updated National Determined Contribution*, 2023, https://unfccc.int/sites/default/files/NDC/2023-06/12updated%20NDC%20KAZ_Gov%20Decree313_19042023_en_cover%20page.pdf

Republic of Kazakhstan

In addition, general programmes and strategies promoting sustainable development also refer to social inclusion and/or gender equality, as indicated in the table below.

Sustainable development and inclusive growth	*Strategy Kazakhstan 2050 - a new political course of the established state*, Message of the President of RK - Leader of the Nation N.A. Nazarbayev to the people of Kazakhstan, Astana, December 14, 2012)[13]: the main aim of this strategy is the creation of a welfare society based on a strong state, a developed economy and opportunities for universal labour, and Kazakhstan's entry into the top 30 most developed countries in the world. One of the challenges identified by the strategy is to transform the energy sector towards sustainable development and inclusive economic growth. The strategy emphasises the need to ensure equitable access to energy resources for all citizens of the country. National Concept on Transition to a Green Economy (Decree of the President of RK *On the Concept of the transition of the Republic of Kazakhstan to a "green economy"*, dated May 30, 2013 No. 577)[14]: the concept addresses the need for sustainable and inclusive development, which includes measures for energy efficiency and renewable energy adoption. The concept focuses on social aspects such as job creation and improving the living conditions of the population. While not explicitly gender-focused, it provides a framework that can incorporate GESI principles.
Rural electrification programmes	The government of Kazakhstan is actively implementing rural electrification programmes aimed at improving access to electricity in remote and rural areas. These programmes contribute to reducing social inequality and improving the standard of living of the rural population. The programmes include the modernisation and expansion of power supply networks, as well as the introduction of renewable energy sources (RES). The Decree of the Government of Kazakhstan *On approval of the Concept of rural development of the Republic of Kazakhstan for 2023-2027*, dated March 28, 2023 No. 270[15] was developed in order to develop institutional support and improve the effectiveness of approaches to rural development, as well as improve the quality of life and create a comfortable living environment in rural areas. The Action Plan of the Concept (task 5) provides for 'The use of alternative and renewable energy technologies for the electrification of rural settlements within the framework of the implementation of the Concept of Development of the fuel and energy complex of the Republic of Kazakhstan for 2023-2029 (small-scale renewable energy sources)' (Decree of the Government of Kazakhstan, dated June 28, 2014 No. 724).[16] The responsible state body for execution is the Ministry of Energy of the Republic of Kazakhstan.

13 Message of the President of RK - Leader of the Nation N.A. Nazarbayev to the people of Kazakhstan, Strategy *Kazakhstan-2050: a new political course of the established state, Astana*, December 14, 2012, https://adilet.zan.kz/rus/docs/K1200002050

14 Decree of the President of RK *On the Concept of the transition of the Republic* of Kazakhstan to a "green economy", dated May 30, 2013 No. 577, https://adilet.zan.kz/rus/docs/U1300000577

15 Resolution of the Government of RK On approval of the Concept of rural development of the Republic of Kazakhstan for 2023-2027, dated March 28, 2023 No. 270, https://adilet.zan.kz/rus/docs/P2300000270

16 Resolution of the Government of RK *On approval of the Concept of development of the fuel and energy complex of the Republic* of Kazakhstan for 2023-2029, dated June 28, 2014 No. 724, https://adilet.zan.kz/rus/docs/P1400000724

Republic of Kazakhstan

Renewable energy programmes	Kazakhstan is implementing local renewable energy initiatives and projects aimed at improving access to energy for all segments of the population. These projects contribute to reducing dependence on fossil fuels and support sustainable development. Renewable energy programmes include the installation of solar panels, wind turbines and other RES in rural and remote areas. In June 2024, the Head of State signed the Law of the Republic of Kazakhstan *On Amendments and Additions to some Legislative Acts of the Republic of Kazakhstan on support for the use of renewable energy sources and electric power industry*.[17] In particular, the concept of 'small-scale renewable energy installations' was introduced for the development of small-scale renewable energy. The capacity of small-scale renewable energy installations was increased to 200 kW from 100 kW, and the sale of surplus electricity at the marginal tariff to energy supply organisations was allowed without differentiation by consumer groups. These amendments stimulate the use of small-scale renewable energy facilities by households, small- and medium-sized enterprises, including settlements remote from the electric grid infrastructure. The development of distributed generation (microgeneration) based on small-scale renewable energy facilities – such as solar panels, solar collectors and heat pumps – used primarily to meet the needs of households and small and medium-sized businesses, not only contributes to achieving the country's energy security, reducing CO_2 emissions within the framework of the commitments made under the Paris Agreement, but also improves the level of comfort in citizens' homes, especially in the countryside.

3.2. Access to Electricity and Clean Cooking Fuels

In 2023, the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, together with IRENA, conducted a study of fuel and energy consumption in households within the framework of the To strengthen bioenergy data for monitoring SDGs and ONUV in Kazakhstan project.[18]

According to the survey, electricity is the most common source of energy, with almost 100% of households in Kazakhstan connected to electricity. However, fossil fuels are still a preferred source to power autonomous space and water heating systems both among households and for industrial uses. For residential heating, natural gas is the most common throughout the country, being used by 40% of all households equipped with an autonomous heating system. Hard coal is the second most widespread, used by 28% of all households. It is also worth noting that 30% of households combine several types of fuel, for example, coal with biofuels or natural gas with electricity.

The study also indicates that, in general, Kazakhstan has a high level of equipment with basic household appliances. Almost all households are equipped with refrigerators (100%) and televisions (96%), 27% of households use freezers, and 88% use a washing machine. There is a low proportion of use of clothes dryers – which are considered a less environmentally friendly way of drying laundry – and of dishwashers (6% in urban areas and 2% in rural areas). Two out of five households use a laptop, and 17% use a desktop computer. 58% of households use electric kettles to heat water, and only 2% of all households have an electric coffee machine. In addition, 44% of households use other household appliances.

Furthermore, the study reveals a significant potential for reducing greenhouse gas (GHG) emissions through the alteration of household energy habits in Kazakhstan. Despite the low use of coal, households show high dependence on fossil fuels for cooking, with 1.7% using coal, but 72% relying on natural or liquefied gas, and 42% on electricity. In addition, nearly one-third of household lamps are incandescent, and

17 The Law of Kazakhstan *On Support of the Use of Renewable Energy Sources*, dated 4 July 2009 No. 165-IV, https://adilet.zan.kz/rus/docs/Z090000165_

18 https://stat.gov.kz/upload/iblock/500/1f6pr1hg7hn15y3lyskr3hk05iy3r2ih/%D0%9E%D1%82%D1%87%D0%B5%D1%82%20%D0%A2%D0%BE%D0%BF%D0%BB%D0%B8%D0%B2%D0%BE%20%D0%94%D0%A5%20%D0%9C%D1%83%D1%85%D1%82%D0%B0%D1%80%D0%BE%D0%B2%20[RU].pdf

homes lack efficient temperature regulation, limiting energy efficiency improvements.

In conclusion, it is recommended that energy-efficient appliances and rational heat usage be promoted to reduce energy consumption and support the transition to a low-carbon economy. Expanding the use of RES and encouraging eco-friendly cooking methods, such as solar stoves and biofuel, are crucial. Targeted energy efficiency measures are also needed, particularly in aging housing stock, and especially in rural areas, coupled with continued modernisation programmes. Developing the biofuel sector, implementing energy-efficient technologies, and raising public awareness through information campaigns would help create a more sustainable and environmentally friendly energy system in Kazakhstan.

3.3. Girls in STEM

Women make up about 32% of graduates in energy-related fields in Kazakhstan, and different sources estimate that girls account for 10-25% of students in energy-related university programmes.[19] Although women researchers in Kazakhstan make up 53% overall, their representation in STEM is less than 45%,[20] which indicates that 'leakage' from the STEM pipeline begins early. At the same time, among those who do pursue STEM studies, women in the energy sector tend to have a higher level of education than their male counterparts, with 64% holding advanced university qualifications compared to 48% of men.[21]

Several gaps have been identified regarding gender inclusion and empowerment in STEM fields. Recent research[22] revealed that only about 15% of texts used in secondary schools in Kazakhstan were authored by women, suggesting to students that knowledge is primarily male-dominated. Textbooks in Russian, Kazakh and English for 7th and 8th graders reinforce traditional stereotypes of what it means to be a boy/man and a girl/woman. These textbooks often use images and descriptions that emphasise gendered standards of beauty for women and intelligence for men. The research's authors conclude that such portrayals and a lack of female role models in STEM leadership roles can influence girls' interest in and access to science education in higher education and beyond. This gender bias also extends to major scientific events, such as the 2017 Astana Expo, where pavilions curated by European and Asian countries lacked equal representation of men and women in scientific images.

Another study shows a significant gender imbalance in faculty staff in STEM disciplines, with men heavily outnumbering women despite the large number of female researchers in STEM fields. In physics-related disciplines, 91% of the faculty are men and in mathematics the proportion is 73%.[23] Barriers to women in STEM faculties identified by the study include disrupted work-life balance, cultural stereotypes, poor self-assessment, and institutional gender-based discrimination. Additionally, factors such as access to research facilities, job autonomy, participation in decision-making processes, and institutional support are identified as critical facilitators for effective female careers in STEM.

In 2023, Almaty Management University, in collaboration with researchers from the International University of Ecuador (Ecuador) and NorthCap University (India), conducted Kazakhstan's first large-scale study on the *Gender Gap in STEM Education*. In total, 1,425 students from Kazakhstani universities participated in the survey, including participants from both rural and urban areas. 75% of the respondents were female and 1,085 respondents were studying technical specialties. The study included students pursuing their studies in different languages, including Kazakh, Russian, and English.

19 OSCE (2024). Advancing a Just Energy Transition in Central Asia. Available at : https://www.osce.org/oceea/561811 ; UNDP (2023) *Gender Balance in the Renewable Energy Sector in Kazakhstan: current status, challenges and solutions*, https://www.undp.org/kazakhstan/publications/gender-balance-renewable-energy-sector-kazakhstan-current-status-challenges-and-solutions

20 Tsakalerou, M., Perveen, A., Ayapbergenov, A., Rysbekova, A., & Bakytzhanuly, A. (2022, April). Understanding the Factors Influencing Women's Career Trajectories in STEM Education in Kazakhstan. In *International Conference on Gender Research* (Vol. 5, No. 1, pp. pp230-239), https://www.researchgate.net/publication/359941989_Understanding_the_Factors_Influencing_Women's_Career_Trajectories_in_STEM_Education_in_Kazakhstan

21 EBRD. *The Role of Women in the Energy Sector in Kazakhstan* Report. (2020), https://www.kazenergy.com/upload/document/development/zh_rol_2023_en.pdf

22 CohenMiller, A., Saniyazova, A., Sandygulova, A., & Izekenova, Z. (2021). Gender equity in STEM higher education in Kazakhstan. In *Gender equity in STEM in higher education* (pp. 140-157). Routledge.

23 Understanding the Factors Influencing Women's Career Trajectories in STEM Education in Kazakhstan, Tsakalerou, Mariza In *International Conference on Gender Research*, 2022, Vol.5 (1), p.pp230-239 https://www.researchgate.net/publication/359941989_Understanding_the_Factors_Influencing_Women's_Career_Trajectories_in_STEM_Education_in_Kazakhstan

The research showed that factors such as gender, language of instruction, and place of birth have the greatest influence on students' understanding of gender equality issues and the prevailing level of gender stereotypes. The most significant bias against women in STEM was found among male students; female students, on the other hand, rated their abilities and opportunities in STEM education and careers much more highly. Overall, the respondents expressed greater doubt about girls' aptitudes in mathematics and mechanical engineering but gave more positive assessments of women's abilities in information technology and physics. While views on mechanical engineering can be linked to the high representation of men in this industry, the differing assessments of women's success in mathematics and physics require further analysis. Students from rural areas are also more likely to believe that boys are more inclined towards STEM disciplines and professions compared to girls. This view is generally shared equally by students studying in Kazakh. At the same time, students studying in English feel gender inequality more acutely and have the most positive attitudes towards girls in STEM.[24]

The Ministry of Education has implemented several initiatives to encourage both genders to pursue studies in STEM. No dedicated programme that is intended to enhance girls' participation in STEM has yet been designed or promoted by the Ministry of Education, because equality in access to education is considered to be guaranteed by core legal acts in the Kazakh educational system.

Promoting Girls' Engagement in STEM

While there are no national programmes targeting girls' engagement in STEM, several bottom-up and international initiatives are ongoing in the country.

- *STEM Sisters*: in 2021, the mentorship volunteering community STEM SISTERS.KZ was launched, to encourage opportunities for young women in STEM in Kazakhstan. The community is active at the time of writing.
- *Accelerator Lab for Girls in STEM:* in 2021, the United Nations Development Programme (UNDP) in Kazakhstan launched the Accelerator Lab for Girls in STEM. More than 100 girls from the cities of Satpayev and Zhezkazgan participated in a two-week online course. This pilot initiative aimed to develop digital and leadership skills among girls in Kazakhstan to enhance their employment opportunities in STEM.[25]
- *Techno Women:* in 2022, the non-profit organisation Techno Women was founded in Kazakhstan, bringing together women working in technology industries who joined the Global Tech Network in 2023. This initiative is expected to provide Kazakhstani girls with a unique opportunity to enter the international networking scene and gain free access to mentors.[26]
- *Women in Tech:* in 2024, Women in Tech opened a branch in Kazakhstan, offering Kazakhstani girls an opportunity to join international networking and gain access to mentors completely free of charge.[27]
- *TechWomen:* TechWomen is a U.S. Department of State initiative intended to advance the status of women and girls around the world, including in Kazakhstan, and to enable women to reach their full potential in the STEM field. The programme is implemented in partnership with innovative companies in the USA to host emerging women leaders and provide them with mentorship, professional growth and cultural exchange opportunities.[28] More than 100 women from Kazakhstan's energy sector participated in its 2023 session on women's potential development, hosted by KazMunayGas as a part of a visit by a US delegation to the Kazakh TechWomen programme.

3.4. Women's Employment in the Energy Sector

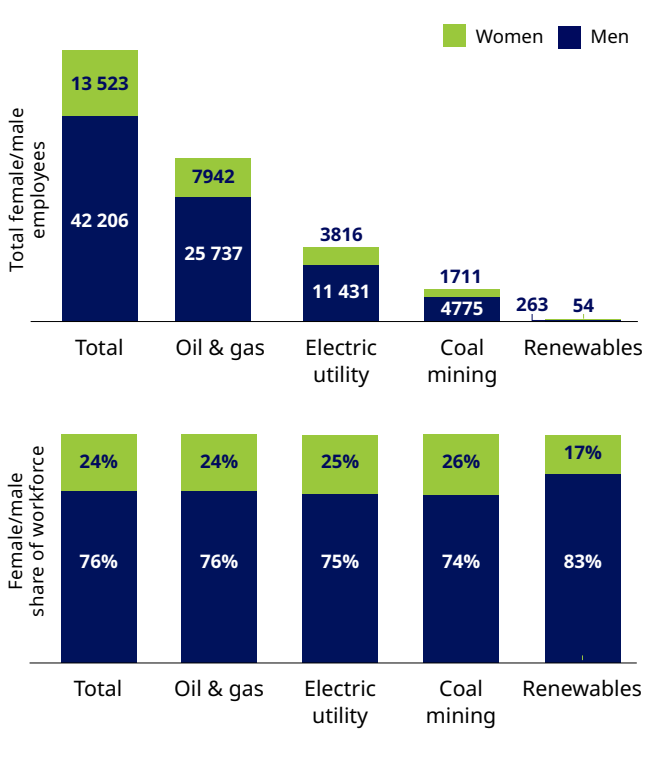
According to a national survey, the share of female employment in the electricity, gas and steam subsector in Kazakhstan is very low, at only 30% compared to sectors such as finance and trade, in which women

24 Arguments and Facts News. *The first large-scale study of the gender gap in STEM education in the Republic of Kazakhstan* 2023, https://kzaif.kz/edu/stud/pervoe_massovoe_issledovanie_gendernogo_razryva_v_stem_obrazovanii_rk
25 UNDP. 2021. *UNDP supports the development of STEM education in the regions of Kazakhstan*, https://www.undp.org/ru/kazakhstan/news/proon-podderzhivaet-razvitie-stem-obrazovaniya-v-regionakh-kazakhstana
26 Techno Women. Mission, https://technowomen.kz/en/home/
27 Women in Tech Kazakhstan Ambassadors, Country Leaders, https://www.womentech.net/en-ca/in/Kazakhstan
28 U.S. Embassy in Kazakhstan. TechWomen Program 2023, https://kz.usembassy.gov/techwomen-program/

account for about 60% of the workforce.[29]

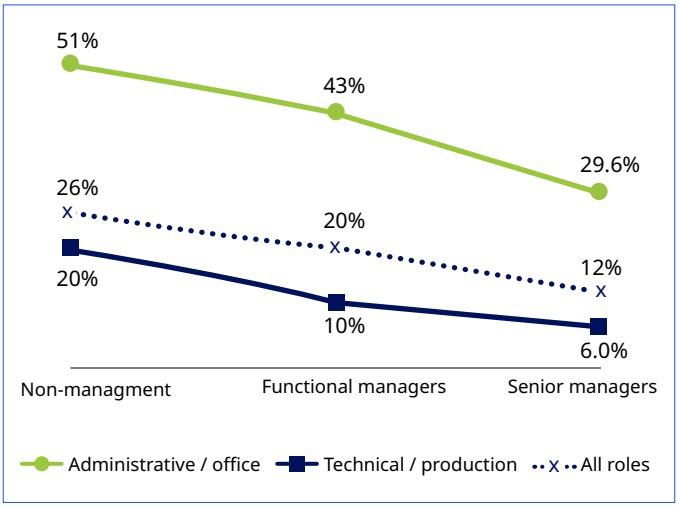
In the report *The Role of Women in the Energy Sector in Kazakhstan*, produced by the European Bank for Reconstruction and Development (EBRD) in partnership with KAZENERGY Association and based on a study conducted between 2016-2019, women account for approximately 25% of the total workforce in Kazakhstan's energy sector.[30] Their representation is relatively stable across subsectors, with women making up 24% in oil and gas, 25% in electric utilities, 26% in coal mining and 17% in renewables.[31] The share of employment decreases when moving from non-management roles (26%) to board positions (17%) and senior management (12%). In addition, between 2016 and 2019, the number of female employees in the energy sector declined by 14.3%, resulting in a net loss of 2,174 female employees. By comparison, the total number of male employees remained relatively stable over the same period.

Women and men in the workforce, by subsector (2018)[32]



Another key finding of the EBRD research is that women predominantly have office-based roles and are under-represented in technical roles. While women account for 50% of business and administration roles, their presence in technical and operational roles, where most job opportunities are found, is less than 20%. The report notes interestingly that women who enter technical and operational roles in the energy sector do so primarily at higher skill levels, especially as 'specialist professionals' (engineers and similar). However, more than 60% of technical jobs in the sector are in non-specialist roles, where women's share of employment is just 12% (compared to 31% among 'specialist professionals').

Women in leadership roles, by occupational category (2018)



29 EBRD. *The Role of Women in the Energy Sector in Kazakhstan* (2020), https://www.kazenergy.com/upload/document/development/zh_rol_2023_en.pdf
30 Ibid
31 Atakhanova, Z., & Howie, P. (2022). Women in Kazakhstan's energy industries: Implications for energy transition. In Energies, 15(13), 4540, https://www.mdpi.com/1996-1073/15/13/4540
32 EBRD. *The Role of Women in the Energy Sector in Kazakhstan*. (2020), https://www.kazenergy.com/upload/document/development/zh_rol_2023_en.pdf. In the EBRD report, renewables accounted for just 317 workers in the sample and thus provide only a weak basis for drawing wider generalisations about the subsector.

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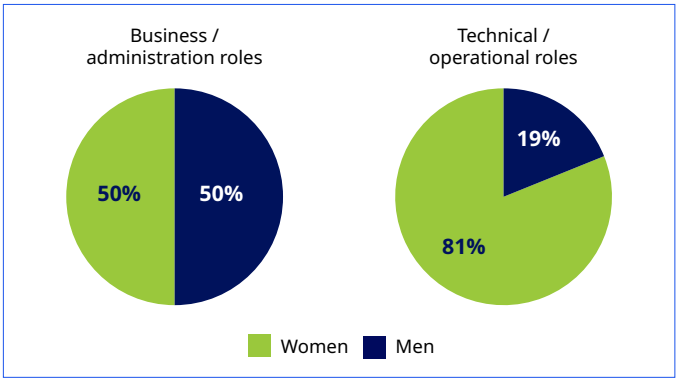
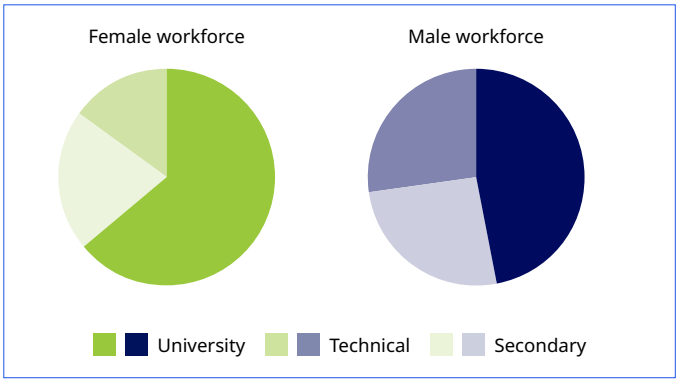
Occupational fields of women and men (2018)[33]



Level of formal education, by gender (2018)[34]



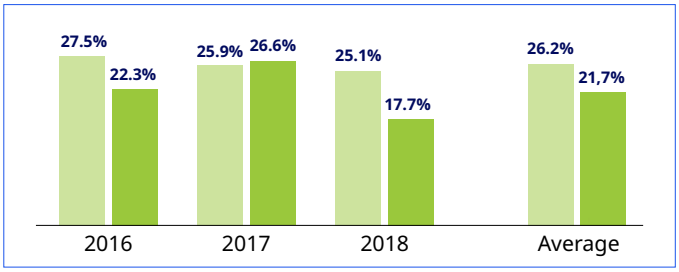
The report also shows that women's participation in the workforce is notably lower among early-career (23%) and late-career (22%) age groups, compared to mid-career groups (26%).

The share of women among new recruits is consistent across the years considered by the survey, indicating little prospect for a fundamental change in women's representation across the sector in the absence of proactive policies and practical measures from companies and policymakers.

The drop-off among older, more experienced workers may contribute to women's under-representation in senior leadership roles, which is not caused by a shortage of talent, as 64% of women working in the energy sector have advanced university qualifications (compared to 48% of men) or an absence of qualified women. These data suggest that the Kazakh energy sector could therefore potentially count on a wide pool of high-skilled women.

The share of new promotions of women is broadly in line with women's current share of the total workforce, while the share of women's promotions to management and senior leadership positions is below women's share of the 'eligible' employee categories. These trends indicate little prospect of women increasing their representation at more senior levels in their organisations.[35]

Women's average promotions (2018)



Women's Employment in the Renewable Energy Sector

Based on openly available resources, UNDP conducted a study of the gender balance in Kazakhstan's renewable energy sector in 2019-2021, and identified a 30% share of female employment in the sector.[36] The research found that women generally express more concern about climate change and decarbonisation than men. Despite this, and although the renewable energy sector (RES) offers significant and attractive employment opportunities for women in Kazakhstan, the green energy sector remains male-dominated.

33 Ibid
34 Ibid
35 Ibid
36 UNDP (2023) *Gender Balance in the Renewable Energy Sector in Kazakhstan: current status, challenges and solutions*, https://www.undp.org/kazakhstan/publications/gender-balance-renewable-energy-sector-kazakhstan-current-status-challenges-and-solutions

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In her speech on gender balance in RES in Kazakhstan in 2021, Julia Shamis, Director of Development at the New Energy Advancement Hub (NEAH) in Kazakhstan, noted that women make up 32% of the workforce in the renewable energy and green energy sectors. Shamis also highlighted that attracting talented women will be crucial for the industry and the economy.[37]

According to a 2022 report, the Kazakhstan Ministry of Energy reported that its 130 renewable energy facilities – with a total capacity of 2,388 MW – generated 1,615 jobs, of which only 16% were held by women.[38] This was supported by a 2024 OSCE report indicating that Kazakhstan is the only Central Asian country in which RES attracts fewer female professionals than the overall energy sector. Quoting a 2020 joint study by KazEnergy and the EBRD, the report estimates that RES has a 17% female employment rate, compared to 24% in the general energy sector.[39]

In a report focusing on employment in coal mining, petroleum extraction, and power and heat generation, transmission and distribution (also called the power industry), Atakhanova and Howie analysed data from 2010, 2014, 2018 and 2020.[40] The report highlighted that female representation among managers and the overall workforce in the energy sector has been declining over time. In addition, women in Kazakhstan's coal mining, petroleum extraction and power industries are predominantly found in low-skilled and non-core occupations. Analysing labour compensation data within energy occupations, they found evidence of persistent vertical discrimination, which may discourage women from upgrading their skills. Furthermore, the study revealed that major shocks, such as the COVID-19 pandemic, have exacerbated these issues. The employment patterns of women changed significantly from their pre-COVID levels in the energy sector. Before the pandemic, women were present in about two-thirds of occupations in coal mining and petroleum extraction, and in all occupations in the power industry. However, by 2021, women's occupation had dropped to 37% in coal mining, 35% in petroleum and 40% in the power industry.[41] This decline might be attributed to the demands of caregiving activities that women are often responsible for, in addition to their professional careers.

The same research also found that Kazakhstani women held 30% of jobs in the power industry, 22% in coal mining, and 18% in petroleum extraction between 2010 to 2021.[42] The study found that women were under-represented in the most in-demand jobs, particularly equipment operators and semi-skilled workers in coal mining and petroleum extraction. On the other hand, they made up over 60% of other workers, in roles not directly involved in operations, such as office and administrative jobs across all three sectors. Additionally, women constituted 32% of unskilled labourers in petroleum extraction and over half of unskilled labourers in coal mining and the power industry. Importantly, women accounted for 20–30% of engineering, surveying, and science/IT professional positions in all three sectors.[43] Within the Ministry of Energy, currently women make up 49% of the total number of employees.[44]

The analysis of the change in women's representation over time shows steady growth of 3–7% per year in female-held unskilled labourer positions across all sectors, and high growth of 13–15% in science/IT professional roles in petroleum extraction and the power industry.

37 International Center for Green Technologies and Investment Projects. *Gender Equality in the Energy and Water Sectors* 2024, https://igtipc.org/ru/news/2560-20240227-065932

38 Omarkhanova, 2022. Round table on *Promoting Women's Participation in the Energy Sector*

39 OSCE (2024). *Advancing a Just Energy Transition in Central Asia*. Available at : https://www.osce.org/oceea/561811

40 Atakhanova, Z., & Howie, P. (2022). Women in Kazakhstan's energy industries: Implications for energy transition. In *Energies, 15*(13), 4540, https://www.mdpi.com/1996-1073/15/13/4540

41 Ibid

42 Ibid

43 Ibid

44 QazaqGreen. *Women leaders in Renewable Energy Sector awarded in Kazakhstan.* 2023, https://qazaqgreen.com/en/journal-qazaqgreen/education-and-science/1661/

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Percentage of female representation across Kazakhstan's energy sectors

SECTORS IN KAZAKHSTAN (2010-2020)			
SECTOR / OCCUPATION	COAL INDUSTRY	OIL AND GAS INDUSTRY	ELECTRICITY (Including related RES sectors)
Unskilled workforce	56%	32%	53%
Scientists / IT Specialists	33%	31%	38%
Engineers	26%	22%	30%
Managers	16%	14%	56%
High school-educated workforce	14%	10%	15%
Technicians	12%	17%	19%
Equipment operators	15%	6%	19%
Sector average	22%	18%	30%

Source: Ministry of economy of Kazakhstan (2020); Atakhanova and home (2022)

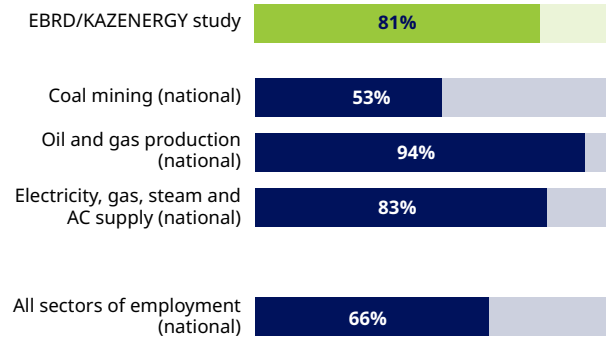
The share of women in managerial roles decreased in coal mining and the power industry, as well as among engineers and surveyors in petroleum extraction and the power industry. Overall, the share of women across all occupations remained stable in the power industry but declined by 1% per year in coal mining and 4% per year in petroleum extraction.[45]

Pay Gap in the Energy Sector

An EBRD study showed that women's total average pay is approximately 81% of men's total average pay across the entire workforce in Kazakhstan, including management positions.[46]

Studies conducted in 2017 and 2019 in the coal and petroleum sectors indicated that the relative salary distributions for men and women across all occupations by sub-sector are nearly identical.[47] In coal mining and petroleum extraction, women's and men's salaries are similar in the lower range, but in the higher range for men, there are no comparable observations for women. The pay gap was smallest in petroleum extraction, where women earned 99% of men's salaries on average for the same occupations. In the other sectors (coal mining, power and heat generation), women earned 91–92% of men's salaries for the same roles. Finally, in petroleum extraction, women's and men's salary changes were closely related. However, in coal mining and the power industry, women's salaries changed at a slower rate than men's.

Women's average pay rate proportion (2018)[48]



45 Ibid
46 EBRD. *The Role of Women in the Energy Sector in Kazakhstan.* (2020), https://www.kazenergy.com/upload/document/development/zh_rol_2023_en.pdf
47 Atakhanova, Z., & Howie, P. (2022). Women in Kazakhstan's energy industries: Implications for energy transition. *In Energies, 15*(13), 4540, https://www.mdpi.com/1996-1073/15/13/4540
48 EBRD. *The Role of Women in the Energy Sector in Kazakhstan*. (2020), https://www.kazenergy.com/upload/document/development/zh_rol_2023_en.pdf

Data and research available to date confirm that in the energy sector's labour market operational segregation is still very high as women are concentrated in office-based roles (50% of business and administration roles) and are under-represented in technical and operational roles, where they account for less than 20% of roles in these areas. Additionally, turnover rates for women are higher, suggesting challenges in retaining female employees, particularly in mid- and late-career.[49]

In 2022, the President of the Republic of Kazakhstan mandated all state companies[50] to gradually increase the average proportion of women on boards, boards of directors, and supervisory boards across all companies in the Samruk Kazyna Fund (see below), to reach 30% by 2030.[51]

Overview of the Current Status of Women's Employment in Some of the Country's Main Energy Companies

- The national Samruk-Kazyna Joint Stock Company (JSC) was established in 2008 by a decree of the President of the Republic of Kazakhstan, with the sole shareholder of the fund being the Republic of Kazakhstan government. The group of companies included in the Samruk-Kazyna JSC includes oil, gas, energy, real estate, transport and logistics companies, chemical and nuclear industries, and mining and metallurgical complexes. The fund's assets amount to approximately US$69 billion.[52] Samruk-Kazyna JSC includes core state companies in the energy sector such as KazMunayGaz (KMG), Kazakhstan Electricity Grid Operating Company (KEGOC), KazAtomProm and Samruk-Energo. By 2022, women made up 28% of the total workforce in these companies. The administrative and managerial staff constitutes 7% of the workforce, of which 58% is women. In the production staff, which makes up 93% of the workforce, 25% are women.[53] In 2022, the Samruk-Kazyna National Welfare Fund, in cooperation with the Alliance of Women of Kazakhstan, launched a gender equality programme for the development of managerial competencies for women in its portfolio of energy companies.[54]
- In 2024, Samruk-Kazyna JSC signed an agreement
- for UNDP to provide expert support for a gender assessment of the fund's activities, leading to the development of an action plan, and a programme of educational training on due diligence policies in the areas of human rights and gender equality.[55]
- The Tengizchevroil energy company is a joint venture between Chevron, ExxonMobil, KazMunayGas and LukArco formed in April 1993, when the government of Kazakhstan granted exclusive 40-year rights for exploration. At the time of writing, 30% of middle management at Tengizchevroil is women.[56]
- KEGOC – the Kazakhstan unified power system (UPS) operator - was established in 1996.[57] The company conducts internal research and monitoring as part of its HR inclusiveness policy, which includes indicators of women's involvement.[58] It publishes a detailed annual report on its share of female employees; in 2023, the share of female employees was 23%.[59] KEGOC has committed to increase these indicators, and has also signed a commitment to the UN Global Compact principle to promote human rights and equality.
- In 2023, KMG – the national operator of the oil and gas industry of Kazakhstan – signed the Women's Empowerment Principles (WEP) initiative, which was created by UN Women and the UN Global Compact and based on international labour and human rights standards. The

49 Ibid
50 International Finance Corporation (IFC). *The Value of Diversity: Women on Boards of Directors in Kazakhstan.* World Bank Group Report, https://www.ifc.org/content/dam/ifc/doc/mgrt/ifc-women-in-kazakhstan-corporate-leadership-rus.pdf
51 Samruk Kazyna. ESG Report Samruk Kazyna. 2022, https://sk.kz/investors/OUR-2023_SC/download/SK_OUR_2022_RU.pdf
52 Samruk Kazyna. General Information, 2024, https://sk.kz/investors/portfolio-companies/?lang=ru
53 ESG Report Samruk Kazyna, 2022, https://sk.kz/investors/OUR-2023_ Samruk Kazyna. SC/download/SK_OUR_2022_RU.pdf
54 KazMunayGaz. ESG Report,2022, https://www.kmg.kz/interactive/report_2022/016-razvitie_personala.php
55 Samruk Kazyna. ESG Report Samruk Kazyna, 2022, https://sk.kz/investors/OUR-2023_SC/download/SK_OUR_2022_RU.pdf
56 Petroleum. Kazakhstan Analytical Journal, February 2024, https://www.petroleumjournal.kz/index.php?p=article&aid1=168&aid2=931&id=2170&outlang=3
57 KEGOK. General Information, 2023, https://www.kegoc.kz/en/about/
58 KEGOK. ESG Targets, 2023, https://www.kegoc.kz/ru/corporate-governance/ustoychivoe-razvitie/kadrovaya-politika/
59 KEGOK. HR Policy and Targets, 2023, https://www.kegoc.kz/ru/corporate-governance/ustoychivoe-razvitie/kadrovaya-politika/struktura-personala/

initiative recognises that businesses have an interest in and responsibility for gender equality and women's empowerment. As a result, KMG committed to conduct a self-assessment using the WEP Gender Gap Analysis Tool. This tool evaluates the strategic approach to gender equality, identifies gaps and opportunities for continuous improvement, and helps set goals and objectives. The company also committed to disclose gender-disaggregated data in sustainability reports to inform their stakeholders about their progress.[60] In 2023, KMG reported that 19% of its employees were women, representing a 1% increase from previous years. The proportion of women in leadership positions decreased by 3% in 2023, however, constituting 15% of all leadership roles within the KMG Group (down from 18% in both 2022 and 2021). Women make up 38% of specialists (a decrease from 39% in 2022 and 40% in 2021), and 14% of workers. Notably, women receive more average training hours (30) compared to men (19).[61]

An EBRD report, based on a survey of 36 energy companies, found that by 2020 only 32% of companies have implemented active initiatives to promote equal opportunities beyond what is legally required.[62] According to the EBRD report, only 16% have established specific policies and mechanisms to address physical and verbal sexual harassment. Additionally, only 11% have policies that provide support for care responsibilities and flexible work beyond legal requirements. Examples of supportive initiatives include workplace childcare centres, partnerships with local care providers, and flexible or remote working options.

Some of the key energy companies have integrated gender balance and inclusiveness into their HR and human rights policies, aligned with their commitment to the UN Global Compact, or highlighted these aspects in separate inclusiveness and diversity policies.[63] Achieving gender parity in industries and companies in Kazakhstan is often perceived as part of social policy rather than as a diversity and inclusion business strategy.

Major energy companies in Kazakhstan, such as Samruk-Kazyn, Samruk-Energy, KMG, Tengizchevroil and Qazaq Green RES Association have started adopting diversity and inclusion policies to increase female representation in management and technical roles, promote a more inclusive workplace, and eliminate gender-based discrimination. They have also set environmental, social and governance (ESG) targets and report on the progress related to gender equality.

One of the drivers for energy companies to increase gender balance is their participation in the Kazakhstan Stock Exchange (KASE). In 2018, the KASE updated its methodology and regulations to monitor the companies listed on the KASE and introduced indicators for monitoring annual progress towards gender equality.[64] While no official information is published, exchanges with the chief sustainability officers of two energy companies have indicated their efforts to increase the percentage of women in leadership positions, provide professional development opportunities for female employees, ensure gender-responsive workplace practices and show annual growth on gender indicators for ESG ratings. Some have also set a key performance indicator (KPI) for some positions to increase the share of women, or at least to avoid it decreasing. Nonetheless, these are not yet official, public commitments.

60 KazMunayGas SDGs Progress Report, 2023, https://www.kmg.kz/upload/medialibrary/f18/bgmwo7az4j17lfpdy41zxu9j5y5nucbf/O%20ВКЛАДЕ%20КМГ%20В%20ДОСТИЖЕНИЕ%20ЦУР%20ООН_rus.pdf

61 KazMunayGas. Sustainability Report, 2023, https://www.kmg.kz/upload/iblock/94a/kpjf005wrrq5m9pzuvq6djwyz392wwvm/KMG_2023_RU.pdf

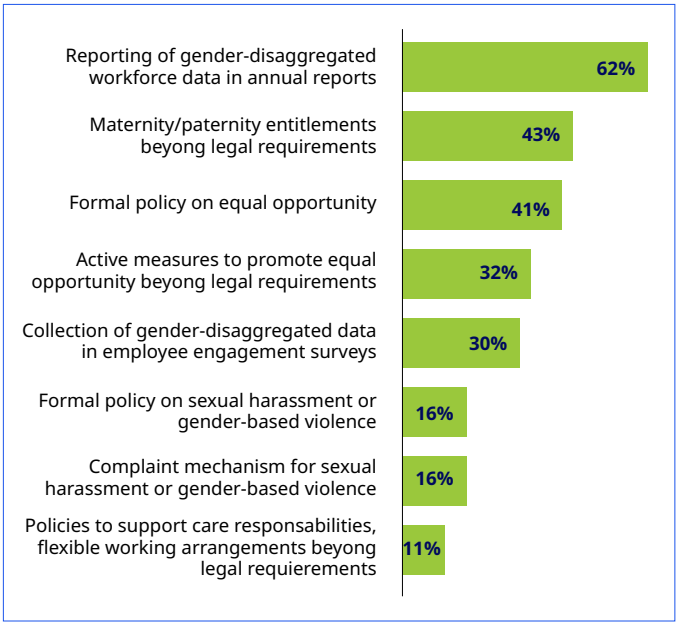
62 EBRD. *The Role of Women in the Energy Sector in Kazakhstan* Report. (2020), https://www.kazenergy.com/upload/document/development/zh_rol_2023_en.pdf

63 Tsakalerou, M., Perveen, A., Ayapbergenov, A., Rysbekova, A., & Bakytzhanuly, A. (2022, April). Understanding the Factors Influencing Women's Career Trajectories in STEM Education in Kazakhstan. In *International Conference on Gender Research* (Vol. 5, No. 1, pp. pp230-239).

64 KASE. ESG Finance. https://kase.kz/files/presentations/ru/02_03_2022_CFO_ESG.pdf

Republic of Kazakhstan

Company initiatives related to gender equality / equal opportunity (2019)[65]



EBRD's Support to Gender Inclusion into Kazakhstan's Energy Companies

The EBRD has implemented a comprehensive strategy to promote equal economic opportunities in Kazakhstan's energy and mining sectors. Collaborating with both private and state-owned enterprises and the Kazakh government, the EBRD approach utilises investment, technical assistance and policy engagement. The initial engagement in 2016 involved a €100 million loan and technical assistance to Samruk-Energy, the national energy company. This was the first Kazakh energy sector project to address youth and gender inclusion, aiming to enhance gender reporting standards, increase the number of women in senior positions, and establish partnerships with local educational institutions and universities.[66]

The EBRD has also engaged in policy dialogue with the Ministry of Labour and KazEnergy to develop and implement policy recommendations to remove legal barriers to women's employment in the energy sector and encourage more women to enrol in STEM disciplines.

- As a result of this project in the energy sector, the EBRD has developed a dual learning programme with Samruk-Energy to train over 120 students annually through partnerships with local technical universities and institutions.
- Four new National Occupational Skills Standards have been established to improve skills and standards for 22 professions based on employers' requirements, in collaboration with KazEnergy and the Association of Mining and Metallurgical Enterprises.[67] These standards are part of the National Qualifications Framework, informing the curricula of all vocational colleges and universities with relevant courses on mining and energy.

To support the project, the Kazakh government allocated €200,000 for these activities in 2021.

Initiatives Promoting Women's Employment in Kazakhstan's Energy Sector

Women in Energy Club:

In 2013, KAZENERGY founded the Women in Energy Club, to unite influential female representatives from the oil, gas, and energy sectors in different countries, and to address gender policy issues within the industry. The club organises annual activities to promote gender balance and address relevant issues, including corporate leadership programmes and STEM education at schools and universities.[68]

In 2023, the club held the EmpowerHER Energy Forum in Kazakhstan, which focused on fostering equal opportunities in the energy sector.[69] In this forum, core energy companies addressed the gender balance importance for their companies. For instance, Tengizchevroil described how, since 2013, they have a women's community aimed at developing and supporting women in the organisation and which has been a platform for collaboration, knowledge transfer and mentoring at Tengizchevroil and, paying an important role in

65 EBRD. *The Role of Women in the Energy Sector in Kazakhstan*. (2020), https://www.kazenergy.com/upload/document/development/zh_rol_2023_en.pdf
66 EBRD. *Towards equal opportunities for all in Kazakhstan's energy and mining sectors* (2022), https://www.ebrd.com/what-we-do/country-snapshot/kazakhstan-inclusion-case-study
67 Ibid
68 KAZENERGY. *Concept of Women in Energy Club.* 2013, https://www.kazenergy.com/upload/document/conception_ru.pdf
69 KAZENERGY. *Women in Energy* Annual Meeting Report. 2023, https://www.kazenergy.com/ru/operation/the-development-of-human-capital/51/173/

promoting women's leadership in the energy sector. Discussions within the women's community aim to create a favourable working environment for women, their professional development and personal growth, increase competitiveness, career and personal life balance, and raise awareness of gender equality issues.

One of the major initiatives for promoting gender equality and a culture of diversity and inclusion is the introduction, in 2022, of the Men Advocating for Real Change (MARC) education programmes, developed by the non-governmental organisation (NGO) Catalyst and used by many global companies, including Chevron. This two-year educational programme aims to raise awareness among workers, particularly men, about the challenges women face in the workplace. MARC participants explore issues such as bias in the workplace, equality advocacy, inclusion and other issues, and engage in group discussions through which they learn to challenge gender stereotypes, support female colleagues and become advocates for change in their workplaces and society.

Ladies in Green Women's Committee:

In 2022, the renewable energy association Qazaq Green established the Ladies in Green Women's Committee to develop an expert assessment and promote a set of measures to empower women and achieve gender equality in the Republic of Kazakhstan energy sector, and coordinate interaction between government and public structures.

With the active support and cooperation of the committee with international organisations, several events have been held.

- An educational seminar held in 2022 on Gender mainstreaming in organizations, aimed at women professionals in the Kazakh energy sector. The seminar, organised in partnership with UNDP, was joined by members of the Committee and dealt with gender issues such as barriers to women's representation in Kazakhstan's energy sector, including gender stereotypes, low involvement in STEM and career building, discrimination in personnel practices, and the gender pay gap.[70]
- A Regional workshop on fostering women's participation in the energy sector in Central Asia, held in 2022 in partnership with the OSCE and with the support of UNDP Kazakhstan. The workshop brought together female representatives from state energy industries and companies, NGOs, women's committees, and scientists from Kazakhstan, Uzbekistan, Tajikistan and the Kyrgyz Republic.
- The Women in the Renewable Energy Sector award, launched in September of 2023 – in collaboration with EY (previously Ernst & Young), the KAZENERGY Women's Energy Club and the Qazaq Green Renewable Energy Association, and in the framework of the EBRD and Green Climate Fund (GCF) partnership – to support the renewable energy sector and promote gender equality in Kazakhstan. The award identified and recognised the achievements of women who actively contribute their professionalism, enthusiasm and commitment to institutional changes in the renewable energy sector in Kazakhstan. The award aimed to develop the potential of the renewable energy sector in the country by identifying role models among women working in this industry, and drawing attention to the issue of equal opportunities for women in the renewable energy sector, in government agencies, business and public organisations.[71]

In October 2023, the Committee was renamed as 'Women for the Just Transition Network' and it continues to run initiatives – including publishing a magazine and holding a yearly festival – to attract more girls to STEM studies, support women-friendlier corporate practices, promote female role models in energy, support female professionals through networking, mentoring and training, collect data on women in energy, and educate on renewable energies through a dedicated Renewable Energy Academy.

Women's 'Oil Girl' Club:

In 2018, the Embamunaigas JSC – an oil and gas branch of KMG in Western Kazakhstan – launched the Women's 'Oil Girl' Club (Munayshy Kyz). Still running today, the club held a forum in Atyrau,

70 QazaqGreen. *Involving women in decision-making levels benefits both companies and the economy* 2022, https://qazaqgreen.com/news/kazakhstan/702/
71 The Women in the Renewable Energy Sector Award in Kazakhstan. In *QazaqGreenNews* 2023, https://qazaqgreen.com/news/kazakhstan/1396/

attended by representatives of subsidiaries and affiliates of KMG JSC, major oil companies, government agencies, the public, women's activists and employees of production structural units (PSUs) of the Embamunaigas JSC. Its 2023 edition was themed around ESG, gender equality and women's empowerment in the oil and gas sector.

Women's Awards:

In 2021, Petrocouncil in Kazakhstan – a collaborative platform that brings together key stakeholders in the oil and gas industry – launched the annual Top 20 Women Leaders in the Oil and Gas Industry award to popularise women's involvement in the energy sector, and to promote success stories of women with very successful career paths in the sector, ranging from specialist to senior management positions.[72] Some companies such as Mangystau Regional Power JSC have also introduced annual initiatives to popularise success stories about female employees, with the aim of promoting women in their company and to fight stereotypes.[73]

Dedicated Executive MBA Programme:

In 2022, the first dedicated Executive MBA programme – Women's Leadership in the Energy Industry – was launched at the Atyrau Oil & Gas University, to prepare women for becoming highly professional, proficient managers and business partners in the energy sector.[74] The programme's mission is the formation and development of a professional community of competent women who are ready to participate in solving significant social and economic problems within Kazakhstan's energy industry.

Joint EBRD-GCF Initiative:

In 2023, the EBRD and the GCF implemented an initiative that included the development of a national roadmap outlining key priorities and proposed activities to enhance women's participation in renewable energy. This roadmap provides a basis for coordinated action by the Government of Kazakhstan, the EBRD and other relevant stakeholders.[75] In the frame of this roadmap, a baseline assessment of women's economic participation in the sector has been conducted, providing an overview of specific trends, challenges, and opportunities. Field trips to renewable energy facilities have been organised for female university students to raise awareness about employment opportunities for women in the renewable energy sector. Technical assistance was provided in developing dual education programmes to offer practical work experience and on-the-job training. The FemEnergy mentorship programme was also organised to support and promote young female leaders in the renewable energy sector. Practical knowledge products for government agencies and companies have been developed, including a guide on ensuring equal opportunities, a gender action plan, and job descriptions for equal opportunity officers.[76]

International Projects:

The USAID Power the Future project (2017 – 2022)[77]: in 2018, this project launched a professional internship programme for 14 women power engineering students from different universities in Kazakhstan. In 2021, it conducted a virtual workshop to provide local and international female leaders with a platform to share their experiences and build the awareness of female students about potential professional opportunities in the energy sector. The team identified prominent female leaders and profiled them through USAID channels to improve the visibility of women leadership within the sector. One of the key components of the project was empowering and improving visibility of women in energy, to promote women leadership and demonstrate the energy sector's attractiveness to young women.

The UNDP / Global Environment Facility (GEF) Derisking Renewable Energy Investment in

72 Top 20 Women Leaders in Kazakhstan's Oil and Gas Industry. In *PetroCouncil Info 2024* , https://petrocouncil.kz/top-20-zhenshhin-liderov-neftegazovoj-otrasli-kazahstana-2024/

73 *Woman Bringing Power*, Mangystau Regional Electric Grid Company, https://www.mrek.kz/smi-o-nas/zhenshhina,-nesushhaya-svet.html

74 The Executive Women Leadership in Energy Sector MBA Programme at Safi Utebayev Atyrau Oil and Gas University, in Kazakhstan 2022, https://diplomaticinformer.com/the-launch-of-excecutive-mba-program-women-leadership-in-energy-sector-at-atyrau-oil-and-gas-university-safi-utebayeva-in-kazakhstan/ /

75 The first Women in Renewable Energy award ceremony in Kazakhstan. Government of Republic of Kazakhstan Website News 2023, https://www.gov.kz/memleket/entities/energo/press/news/details/638199?lang=ru

76 In Astana, the Women in the Renewable Energy Sector award was presented for the first time in Kazakhstan. Forbes Kazakhstan. 2023, https://forbes.kz/articles/v_astane_vpervyie_v_kazahstane_vruchili_nagradu_jenschinyi_v_sektore_vie

77 UNDP Final Report *Power the Future*. 2022, https://pdf.usaid.gov/pdf_docs/PA00ZQ2X.pdf

Republic of Kazakhstan

Kazakhstan (DREI) project (2018-2024)[78]: the project provided training and seminars, as well as support for women entrepreneurs in the field of renewable energy. Within the framework of this project, an analysis of the gender balance in the renewable energy sector of Kazakhstan was carried out. Published in December 2023, the *Gender Balance in the Renewable Energy Sector in Kazakhstan: Status, Challenges, and Solutions*[79] report highlights imbalances in the renewable energy sectors and identifies measures for improving the situation and enhancing gender equality.

78 UNDP Program for support in the field of renewable energy and promotion of gender equality in Kazakhstan 2021, national seminar, https://www.undp.org/ru/kazakhstan/projects/snizhenie-riskov-investirovaniya-v-vi

79 UNDP *Gender Balance in the Renewable Energy Sector in Kazakhstan: Status, Challenges, and Solutions* 2023, https://www.undp.org/ru/kazakhstan/publications/gendernyy-balans-v-sektore-vozobnovlyaemoy-energetiki-v-kazakhstane-status-problemy-i-resheniya

4

Kyrgyz Republic

4.1. Gender and Energy: The Policy Dimension

As of late 2022, the Kyrgyz Republic Ministry of Energy includes a dedicated Gender Council.[80] The Council's mission – which is aligned with the *National Gender Equality Strategy until 2030* and the *National Action Plan for 2022-2024* – aims to strengthen women's participation in the energy sector.[81] The ADB will provide a gender expert to the Gender Council, to support the Ministry of Energy in mainstreaming gender across its policies, providing analytical support, assisting in developing a gender strategy, gender-sensitive policies in the workplace and in further implementation of ministerial policies.

Several Kyrgyz policy documents in the fields of energy and climate include references to the principles of GESI, including:

1. *Concept for long-term actions to achieve carbon neutrality of the Kyrgyz Republic by 2050, adopted by the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic in 2023*[82]: the document aims to identify priority areas of action to reduce GHG emissions in accordance with the obligations of the Kyrgyz Republic under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, in the context of more general actions on sustainable development. As an adaptation measure, the Concept prescribes the need to develop a development policy and legislation for the energy sector, taking into account climate change issues, gender aspects and the interests of vulnerable groups. The Concept also highlights that 'women bear the brunt of the consequences of limited access to modern energy in everyday household activities (e.g. growing, preparing food and doing laundry), and similar situations are observed in education and employment'.[83] Supported by the UNDP, the Concept integrates a gender plan to assist the Ministry in its implementation.
2. *National Determined Contribution (2021)*[84]: the overall mitigation goal of the Kyrgyz Republic is to unconditionally reduce GHG emissions by 16.63% by 2025 and by 15.97% by 2030, under the business-as-usual scenario. Should international support be provided, GHG emissions will be reduced by 36.61% by 2025 and by 43.62% by 2030, under the business-as-usual scenario. The primary mitigation capacity is concentrated in the energy, agriculture, forestry and other land use sectors. However, around 60% of all GHG emissions in the country are concentrated in the energy sector. The mitigation capacity in this sector will be achieved through a decrease in the consumption of fossil fuels and an increase in the generation of energy based on RES, as well as the modernisation of energy supply systems. The promotion of a set of energy efficiency actions will also contribute to GHG emissions reduction.
3. The *National Determined Contribution* covers the issues of GESI by referring to challenges such as high levels of discrimination of vulnerable groups, lack of access to the decision-making on environmental issues, access to clean water and the importance of sex-disaggregated data, gender and food security, water management, energy use and waste management.
4. *National Adaptation plan for medium and long-term planning and implementation of measures to adapt to climate change*: this plan has been under development since 2021 within the framework of the Advancing the process of developing a National Adaptation Plan for medium and long-term planning and implementation of adaptation measures to climate change in the Kyrgyz Republic project, implemented by UNDP with financial support from the GCF. Gender equality and the importance of women's participation in decision making processes were stressed by the Member of Parliament Dinara Ashimova during the roundtable dedicated to the interim results of the project, held on 31 May 2024.[85]
5. *Beijing+25: National-Level Review of the Kyrgyz Republic on the Implementation of the Beijing Declaration and Platform for Action. Progress and*

80 Until recently, the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic also had a Gender Focal Point. At the time of writing of this report, it is not clear whether the position will continue.

81 https://www.adb.org/projects/57293-001/main

82 *Concept for long-term actions to achieve carbon neutrality of the Kyrgyz Republic by 2050*, available at: https://st-1.akipress.org/cdn-st-0/qea/M/14514.a0f66c26ff-5fb37621a8cf5cfe7280ad.docx

83 *Concept for long-term actions to achieve carbon neutrality of the Kyrgyz Republic by 2050*, available at: https://st-1.akipress.org/cdn-st-0/qea/M/14514.a0f66c26ff-5fb37621a8cf5cfe7280ad.docx

84 *Updated Nationally Determined Contribution 2021*, available at: https://unfccc.int/sites/default/files/NDC/2022-06/%D0%9E%D0%9D%D0%A3%D0%92%20ENG%20%D0%BE%D1%82%2008102021.pdf

85 https://www.undp.org/kyrgyzstan/press-releases/advancing-national-adaptation-plan-climate-change-kyrgyzstan

Kyrgyz Republic

Challenges[86]: submitted by the Ministry of Labour and Social Development in 2019 with the support of UNDP, UN Women, United Nations Children's Fund (UNICEF) and several civil society organisations (CSOs), the review highlights that 'Women and girls are mainly responsible for home heating and fuel (dry manure) collection. During winter, they spend more time on heating, cooking, and laundry, sacrificing leisure and self-education. Energy-saving technologies can reduce this burden. Projects like UNDP's Jashyl Ayil and UNISON Group's initiatives have improved energy efficiency with a gender focus. Despite progress, a gender gap persists in formal education for energy and infrastructure experts. Informal education by organizations like KYRSEFF (see below) provides women with training in energy-saving technologies.'

The information available in the policy area indicates that currently gender aspects are better acknowledged and elaborated in the climate change context than in the energy context, with a larger engagement on gender-related matters from the Ministry of Natural Resources, Ecology and Technical Supervision compared to the Ministry of Energy. Most of the available research and surveys covering gender and/or other vulnerable groups in climate and energy documents were developed by international organisations, NGOs and external donors.

With specific reference to the energy sector, the Kyrgyz government has however engaged in various projects and programmes that also reference gender equality and the social inclusion of more vulnerable or marginalised groups (see text box below).

Development of Small HPPs in Kyrgyzstan project[87] Implemented by the Government of the Kyrgyz Republic in 2010-2015, the project was financed by the GEF and UNDP. The main implementing partners were the Ministry of Energy and Industry, the State Agency for Environmental Protection and Forestry, the Directorate for Small and Medium Hydropower Development, and the Centre for RES Development and Energy Efficiency public foundation.	The project accelerated the process of sustainable electricity generation by small hydropower plants (SHPPs) in Kyrgyzstan by investing US$20 million in the private sector and by introducing a competitive private energy component in the electricity sector. The project included strategic approaches for addressing equal opportunities and social inclusion, and focused on eliminating discrimination and creating an inclusive environment aimed at the equal participation and representation of all groups, including women, vulnerable groups and minorities. In 2011, the project published the Study of the potential impact of small and micro HPPs on social and gender development of local communities of the Kyrgyz Republic in places of their planned installation which identified a more flexible and in-depth social inclusion in the RES sector.
Sustainable Energy Financing Program in the Kyrgyz Republic (KyrSEFF)[88] Implemented between 2013 and 2022, and developed by the EBRD.	The EBRD launched KyrSEFF II, a US$35 million initiative which aimed to enhance energy and water efficiency in the Kyrgyz Republic. This expansion of the Kyrgyz Sustainable Energy Financing Facility included significant donor funding and focused on both residential and business sectors. Since 2013, KyrSEFF has successfully improved the energy efficiency of hundreds of households and businesses, making substantial energy savings and reducing CO2 emissions. The new phase, launched in 2016, also supported water-saving measures, aiming to increase resilience to climate change and improve living standards. While the project does not explicitly mention gender equality and includes no explicit measures to ensure their equal access, it does promote women's economic advancement through support for small- and medium-sized businesses. Additionally, the project addresses vulnerable groups, as support for energy and water efficiency helps reduce utility costs and improve access to resources for low-income and vulnerable groups.

86 *Beijing+25: National-Level Review of the Kyrgyz Republic on the Implementation of the Beijing Declaration and Beijing Platform for Action Progress and Challenges*, available at; https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/CSW/64/National-reviews/Kyrgyzstan_en.pdf

87 https://www.undp.org/sites/g/files/zskgke326/files/migration/eurasia/MGES-broshure.pdf , p. 14

88 http://www.donors.kg/en/3066-ebrd-and-eu-support-energy-and-water-efficiency-in-the-kyrgyz-republic

Kyrgyz Republic

Kyrgyzstan Renewable Energy Development (KRED) project The project is planned to be implemented by the Ministry of Energy of the Kyrgyz Republic with international financial assistance from the International Development Association (IDA)[89] for its first phase (2024-2028).[90]	**Component 1:** Rehabilitation and Construction of Small and Medium-scale Hydropower Plants (estimated US$39 million of IDA financing) **Component 2:** Technical Assistance to Preparation of Kambarata-1 Large Hydropower Plant (estimated US$2 million of IDA financing) **Component 3:** Preparation and Grid Integration of Renewable Energy Projects. This component will prepare the power system for increased deployment and integration of variable renewable energy, with a focus on supporting the solar pilot project, which is planned for Phase 2 using the World Bank guarantee instrument. **Component 4:** Institutional strengthening and project implementation support (estimated funding: US$1.5 million, including US$1 million from IDA, and US$0.5 million as a GCF grant). This Component will finance activities aimed at strengthening the technical, operational and managerial functions of energy companies and ensuring efficient implementation by strengthening the technical and operational capacity of HPP electricity stations through targeted training and technical assistance; as well as conducting activities aimed at raising gender awareness and closing the gender gap in energy companies through instruction, training and supervision of female staff and trainees in energy companies.

Further examples of GESI references in the energy policy field in Kyrgyzstan include the Environmental and Social Commitment Plan of the Renewable Energy Development project - Phase 1[91] which foresees measures to hire a social specialist who will also be responsible for issues related to gender-based violence, and for monitoring the compliance of service providers with relevant social requirements. It also provides for the development of social, environmental and labour standards, standards for interaction with stakeholders in the implementation of project activities, including provisions on non-discrimination based on age, religion, ethnicity, gender, physical and other characteristics. It also contains measures for increasing the participation of women in the energy sector.

Green Skills Training in Rural Areas (G-STAR)

The aim of this project was to increase the green skills and know-how of young, previously unemployed people and potential migrants through a sustainable vocational training system, which would subsequently lead to employment or self-employment and increased income in the field of energy efficient construction. It was implemented between 2016 and 2018 by Helvetas in partnership with AMETiS, AVEP PF, SEEVA and Unison Group.[92]

4.2. Access to Electricity and Clean Cooking Fuels

Electricity is available throughout Kyrgyzstan, with the exception of a few remote small villages situated in inaccessible mountainous areas.[93] According to the data provided by the National Statistics Committee, in 2020, 88.5% of population in urban settlements had access to electricity, with Bishkek and Osh reaching 99.6 and 100% respectively, whereas this number is only 64% for rural areas.[94] As illustrated below, 71.8% of the male population and 73.7% of the female population had access to electricity, which presumably can be explained by the fact that it is more important to women to have clean and convenient facilities at home, since women spend more time at home and with children.

89 Information about the project, available at: https://minenergo.gov.kg/media/uploads/2023/03/22/esmf-kred_final.pdf

90 https://www.worldbank.org/en/news/press-release/2023/06/28/the-kyrgyz-republic-to-boost-its-renewable-energy-potential-with-support-from-the-world-bank-and-the-green-climate-fund

91 Information about the project: https://www.chakanges.kg/uploads/download/149939934f2ec5055dc5168ff7a9d1fe.pdf

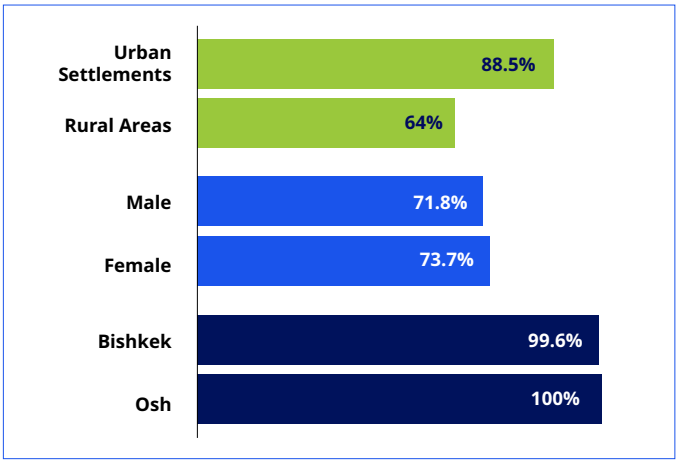
92 https://www.unisongroup.org/ru/content/obuchenie-zelenym-navykam-v-selskoy

93 *The Voluntary National Review of the Sustainable Development Goals in the Kyrgyz Republic,* 2020: https://mineconom.gov.kg/froala/uploads/file/5b-407b817a664e275fd0cf00565b46d4bc58eef8.pdf

94 The National Statistic Committee SDG digest 2022 p.78: https://stat.gov.kg/media/publicationarchive/241662c8-5bf6-46ab-a3f6-398c3c3dcdd4.pdf

Kyrgyz Republic

Proportion of population with access to electricity, 2020[95]



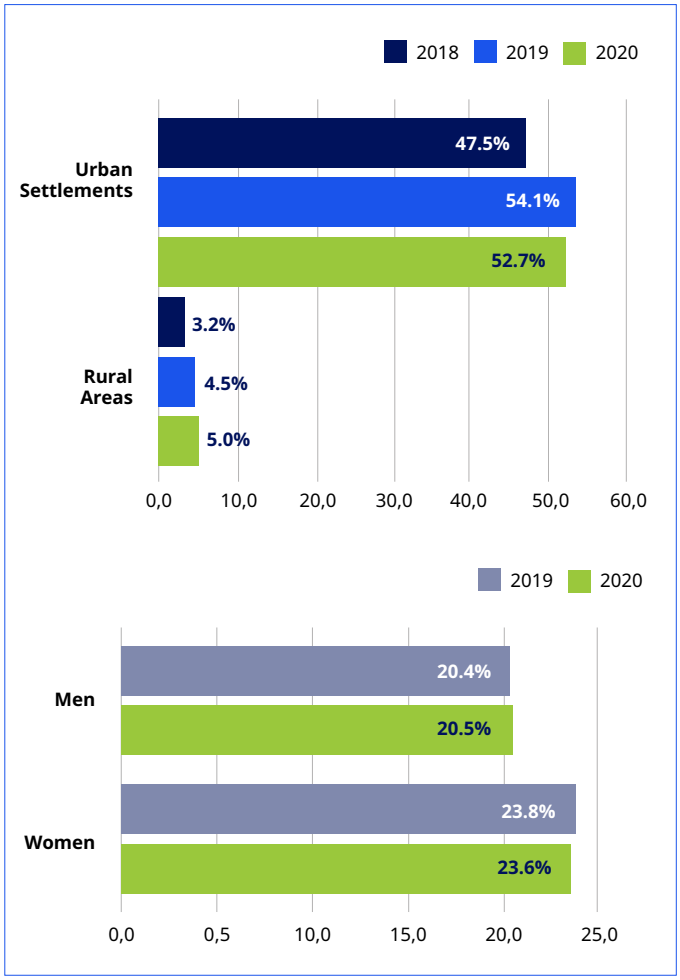
However, having an electricity connection in a household does not necessarily guarantee that the supplied energy is of adequate quality, reliability or affordability.

For the purposes of research for the current document, stable access is determined as a reliable, uninterrupted supply of electricity with acceptable frequency of outages, occurring only a few times a year. As evidenced in the statistical publication prepared by UN Women in 2023, *Sustainable development goals and gender in Kyrgyzstan*[96], only about 71% of the population had stable access to electricity. This figure drops to 62% in rural areas, with the lowest rates in Batken and Jalal-Abad regions in the South, and Issyk-Kul and Talas in the North, where only around 54% of the population have stable access.[97] At the same time, 11.2% of households reported uninterrupted electricity supply without any power outage.

A notable impact of reported power interruptions is that they affect the stability of water supply services, particularly in rural areas. Rural women are the most affected by these disruptions, as they bear a greater burden of household chores, childcare, and caring for elderly family members.[98]

In terms of access to clean fuels and technologies, the National Statistics Committee reports that, in 2020, 22% of the population used them, primarily for cooking and heating.[99] Despite some fluctuations, there is a general trend towards increased use of clean fuels and technologies over the years. As illustrated in the graphics below, the use of clean fuels and technologies was significantly higher in urban areas compared to rural areas. It was also slightly higher among women compared to men.

Use of clean fuels and technologies by location and by gender, 2019 – 2020[100]



The results of the 2023 *Multiple Indicator Cluster Survey* (MICS)[101] illustrate that 79% of households use clean fuels for cooking, with a higher prevalence in urban areas (92%) compared to rural areas (70%). While 49% of urban households use stoves connected to

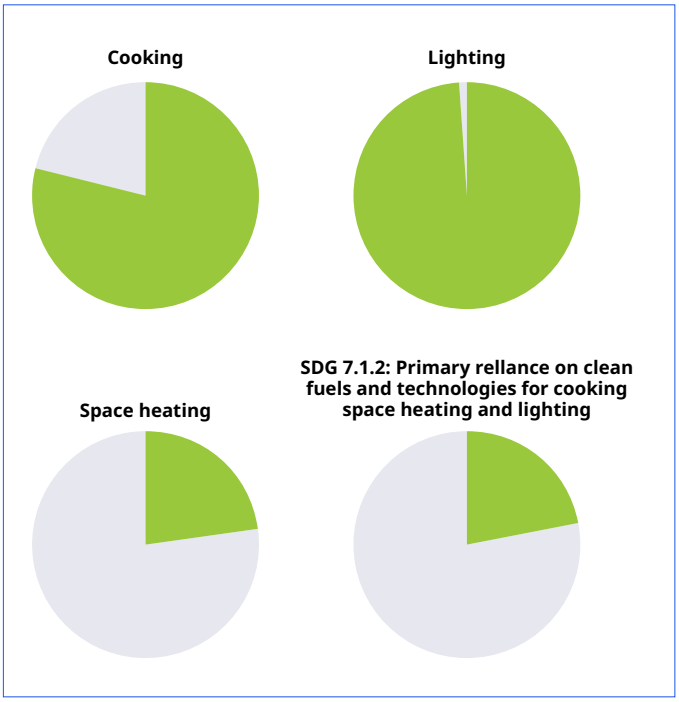
95 The National Statistic Committee SDG digest 2022 p.78: https://stat.gov.kg/media/publicationarchive/241662c8-5bf6-46ab-a3f6-398c3c3dcdd4.pdf
96 https://data.unwomen.org/sites/default/files/documents/Publications/2023/Kyrgyz-SDG-gender.pdf, p. 43
97 https://data.unwomen.org/sites/default/files/documents/Publications/2023/Kyrgyz-SDG-gender.pdf p. 43
98 https://data.unwomen.org/sites/default/files/documents/Publications/2023/Kyrgyz-SDG-gender.pdf p.43
99 The National Statistic Committee SDG digest 2022 p.79: https://stat.gov.kg/media/publicationarchive/241662c8-5bf6-46ab-a3f6-398c3c3dcdd4.pdf
100 https://stat.gov.kg/media/publicationarchive/241662c8-5bf6-46ab-a3f6-398c3c3dcdd4.pdf, p. 79
101 https://www.unicef.org/kyrgyzstan/media/8986/file/MICS%20Statistical%20Snapshots%20EN%20KGZ%202023%20v1.4%20(with%20cover).pdf.pdf, p. 57

centralised gas systems, the majority of the population relies on electric stoves.

As for heating, 66% of the population relies on coal as their primary fuel and 9% use firewood and charcoal, against 23% using clean fuels. To save on heating costs, many households heat only part of the house or a single room, which significantly reduces living space and creates particular inconveniences for young women and girls.[102]

The 2023 MICS[103] also shows that 78% of household members in Kyrgyzstan relied on polluting fuels for cooking, heating and lighting. 30% of rural household members and 8% of urban residents used solid fuels and open fire for cookstove for cooking. The lack of a separate room for cooking remains a concern when polluting fuels are used, posing significant health and safety risks for households. This issue affects 15% of all household members in Kyrgyzstan. As for heating, 92% of rural and 47% of urban households heavily relied on polluting fuels.

Percentage of household members living in households using clean fuels and technologies for different purposes[104]



The Climate and Gender Nexus

In 2013, the UNDP conducted a *Climate profile of the Kyrgyz Republic*[105] focusing on the primary sources of GHG emissions. The research drew several conclusions.

- The main GHG emissions are the energy sector (74%), agriculture (16.1%), waste (5.5%), industrial processes (4.2%) and land use change (0.2%).
- Employment in these sectors is gender-biased: men dominate the energy sector (83%), while women are more prevalent in agriculture (61%).
- Household tasks such as heating, cooking and transport, contribute significantly to emissions and are also gender-divided, with men primarily handling home heating, while women spend more time cooking.
- Household heating is mainly secured through coal (74.7%), wood (68.4%), electricity (47.5%) and dung-based fuel (46.8%).
- Women and children often collect these fuels, exposing them to health risks from toxic emissions and infections. Indoor air pollution from burning biomass increases the risk of respiratory diseases. Women and children are particularly vulnerable due to the longer time they spend at home and exposure to inefficient heating methods.

Gender differences in activities and household responsibilities highlight the need for adaptation and mitigation strategies that consider the distinct roles and impacts on men and women.

Most of the population with no access to clean cooking fuels is in rural areas, which often lack the infrastructure and resources to support cleaner cooking technologies.[106] These populations rely on traditional biomass fuels such as wood, charcoal and dung, which can have significant health, environmental and social impacts.

8% of urban households, including new settlements near Bishkek and Osh and those in informal settlements, also lack access to clean cooking fuels.107

102 https://data.unwomen.org/sites/default/files/documents/Publications/2023/Kyrgyz-SDG-gender.pdf p.44
103 https://www.unicef.org/kyrgyzstan/media/8986/file/MICS%20Statistical%20Snapshots%20EN%20KGZ%202023%20v1.4%20(with%20cover).pdf.pdf, p. 57
104 https://www.unicef.org/kyrgyzstan/media/8986/file/MICS%20Statistical%20Snapshots%20EN%20KGZ%202023%20v1.4%20(with%20cover).pdf.pdf, p. 57
105 https://www.undp.org/sites/g/files/zskgke326/files/migration/kg/kgz_Kyrgyzstan-Climate-profile_ENG_for-web-opt.pdf
106 https://stat.gov.kg/media/publicationarchive/241662c8-5bf6-46ab-a3f6-398c3c3dcdd4.pdf p.79.
107 https://www.unicef.org/kyrgyzstan/media/8986/file/MICS%20Statistical%20Snapshots%20EN%20KGZ%202023%20v1.4%20(with%20cover).pdf.pdf

The reason is that households with limited financial resources are less likely to be able to afford clean cooking technologies and fuels. They often rely on cheaper, more readily available biomass fuels.

As for heating fuels, women and children are predominantly affected by the lack of clean cooking fuels. They are often responsible for gathering biomass fuels, which is time-consuming and physically taxing. Additionally, they face higher health risks from indoor air pollution caused by burning these fuels.

The Climate and Gender Nexus in the Batken Oblast

In 2021, the UNDP in Kyrgyz Republic released the *Summary Report on the Research Results Climate Change and Gender Issues in the Batken Oblast*.[108] The Batken oblast (region) is a remote region in the southwest of the country, with a population of 474,600 people. The study involved a focus group discussion – including 161 people, 36% women and 64% men – across 7 pilot rural administrations. It concluded that women are prevented from taking part in resource management due to the excessive burden of household chores.

The research describes that 'women are responsible for household chores and caring for family members, which often limits their mobility and increases their vulnerability during sudden weather-related natural disasters. Droughts and irregular rainfall patterns force women to work even harder to provide their families with food, water, and energy. Girls often drop out of school to assist their mothers in these tasks'.

The results of the report demonstrate that electrical power – the most affordable power source – is the main energy resource for heating, lighting and cooking in the pilot administrations. Theoretically, residents of all rural administrations have access to bottled gas, but in fact it is used less than the so-called 'dirty' fuels. Of particular concern is the widespread use of dung, since it can be a source of infectious diseases. It is most often women and adolescents who are responsible for collecting, drying and storing it.

4.3. Girls in STEM

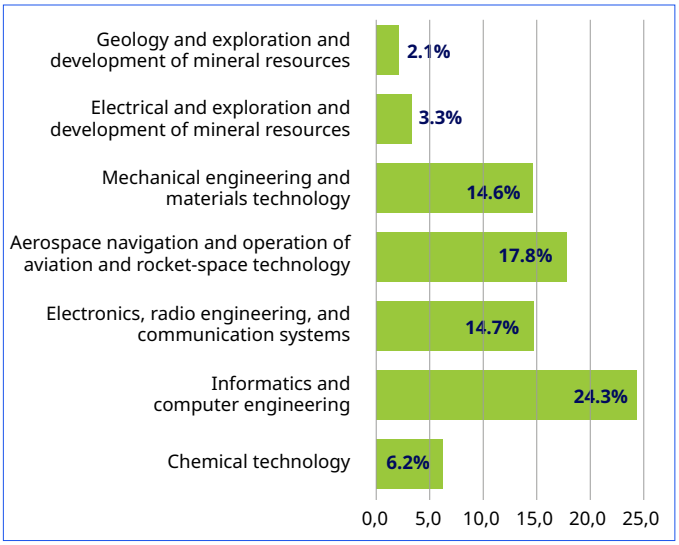
According to the National Statistical Committee of the Kyrgyz Republic, while girls in Kyrgyzstan study longer and have a higher level of professional education than men, boys enter into their profession earlier. Girls are more likely to be educated up to secondary school: girls account for more than 54% in grades 10-11, while boys drop out after grade 9, mainly to enter a profession at an earlier age. 69% of primary vocational education students are boys, whereas 52% of higher educational institution students and 58% of secondary vocational educational institution students are girls. According to the *Strategy for the Development of Education in the Kyrgyz Republic for 2021-2040*, 58% of college students are women.

The highest proportion of women studying in secondary vocational education pursue studies in education (89.5%), consumer goods technology (88.5%), healthcare (77.2%), culture and art (66.5%), and service industries (55.9%). Girls' enrolment is much lower in areas such as architecture and construction (5.6%) and mineral development (3.7%). In contrast, boys tend to choose professions related to construction and architecture, mechanical engineering and materials technology, mining, electronics, energy, and other traditionally 'male' specialisations.

Gender segregation persists in the choice of higher educational profiles. For instance, at bachelor's and master's levels, a high proportion of women study in pedagogical education (88% of total students), natural sciences (over 65%) and service industries (about 61%). Conversely, men predominantly choose specialisations related to architecture and construction (over 82%), technical sciences (approximately 76%), agricultural sciences (75%) and healthcare (over 62%).[109]

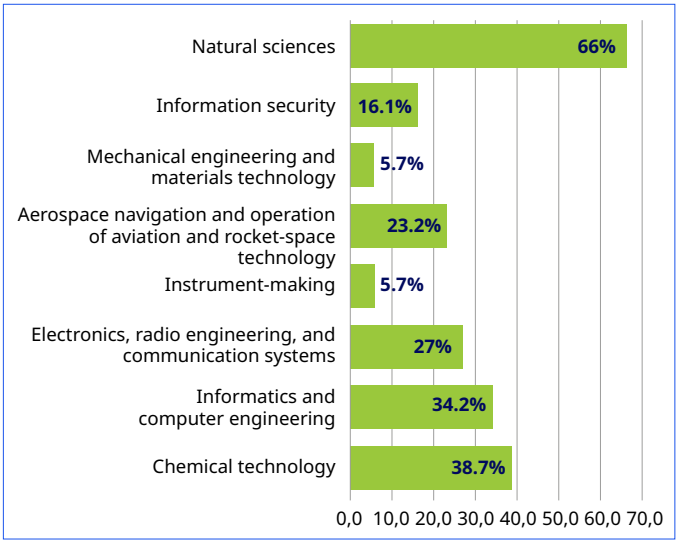
108 https://www.undp.org/sites/g/files/zskgke326/files/2022-09/Short%20report%20EN.pdf , p. 57
109 The report by National Statistic Committee, p.144-145, available at: https://stat.gov.kg/media/publicationarchive/197e5d29-1a02-4078-b91d-782be10c9ded.pdf

Percentage of girls in various educational fields as a proportion of total students[110]



The proportion of female graduates in STEM fields is 31.3%. At the beginning of the 2021-2022 academic year, girls focusing on power engineering at secondary vocational level only accounted for 3.1% of all students, and 23.4% in electrical engineering.[111] At the beginning of the 2021-2022 academic year, girls in bachelor's, diplomas and master's studies in power engineering and electricity amounted to 29% of all students.[112]

Share of women in higher education in different majors as a percentage of the total number of students. Data for the beginning of the academic year 2022/2023[113]



According to the *Assessment of Women's Needs in-STEM in Kyrgyzstan in 2022*, children generally choose professions agreed upon or suggested by their parents.[114] Teachers and school representatives do not play such an important role, and therefore children choose a profession not based on their abilities, but on how their parents or relatives see them in the future. With the advent of the digital era, many professions are becoming obsolete, and schoolchildren may often not know about new professions that they could study for. The study also showed that women in STEM chose this direction only thanks to additional extracurricular activities and training, confirming the fact that such knowledge is not provided at school, further exacerbating gender stereotypes preventing girls from going into technical professions.[115]

A UNDP study lists several challenges that confront women in the STEM fields. Firstly, there is a lack of awareness among key stakeholders about the importance of STEM, which limits the participation of women and girls in these areas. Secondly, many women and girls lack confidence in their abilities in STEM, discouraging them from pursuing careers in these fields. Lastly, there is a gap between the gender policies that exist to support women in STEM and their actual implementation, which hinders women's full participation and advancement in these disciplines.[116]

The Ministry of Education and Science of Kyrgyzstan periodically organises events with the support of donors to promote STEM. For example, in 2021, the Ministry and the Republican Design Institute of Technology and Automation Altyn Tuyun held the international STEM Education: Platform for High-Tech Development in the Future scientific-practical conference. The conference aimed to develop and further integrate STEM technologies into the educational process, as well as to promote accumulated practical experience and scientific research on the issue. It was dedicated to the 30th anniversary of the independence of the Kyrgyz Republic and the 60th anniversary of

110 The report by National Statistic Committee, p.144-145, available at: https://stat.gov.kg/media/publicationarchive/197e5d29-1a02-4078-b91d-782be10c9ded.pd
111 *Gender and SDGs in the Kyrgyz Republic*, p. 27, available at: https://data.unwomen.org/sites/default/files/documents/Publications/2023/Kyrgyz-SDG-gender.pdf
112 *Gender and SDGs in the Kyrgyz Republic,* p. 29, available at: https://data.unwomen.org/sites/default/files/documents/Publications/2023/Kyrgyz-SDG-gender.pdf
113 The report by National Statistic Committee, p.146, available at: https://stat.gov.kg/media/publicationarchive/197e5d29-1a02-4078-b91d-782be10c9ded.pdf
114 UNDP (2023), *Needs Assessment of STEM Women in Kyrgyzstan 2022.* Bishkek p.7, available at: https://www.undp.org/kyrgyzstan/publications/needs-assessment-stem-women-kyrgyzstan-2022
115 *STEM Women's Needs Assessment in Kyrgyzstan,* 2022, available at: https://www.undp.org/sites/g/files/zskgke326/files/2023-12/eng_stem_report_2023_0.pdf p.31
116 https://www.undp.org/ru/kyrgyzstan/blog/proon-v-kyrgyzstane-rasshiryaet-vozmozhnosti-zhenschin-v-stem-dlya-obespecheniya-dostoynogo-budusche-go-v-sfere-truda

the Republican Design Institute of Technology and Automation Altyn Tuyun.[117]

In 2023, with the support of UNDP, the Ministry of Education and Science of Kyrgyzstan, along with the STEM4ALL[118] community, organised the STEM4ALL for Future Professions conference. The goal of this conference was to promote STEM education to prepare young people for the future job market.[119]

In Kyrgyzstan, a number of projects promoting STEM are also being implemented with the support of international donors, for example:

- In 2019, the International Public Fund Roza Otunbayeva's Initiative, with financial support from the Democratic Commission of the U.S. Embassy in the Kyrgyz Republic, implemented the Expansion of Opportunities and Enhancement of Women's Role in STEM project aimed at motivating girls to engage in science and new technologies, attracting them to engineering and technical specialties. The project included a range of initiatives aimed at enhancing the potential of young professionals, female students in technical universities and high school students, expanding opportunities for active participation in promoting innovative technologies and fully realising their knowledge and talents.[120]
- In 2020, UNICEF launched the *Girls in Science* programme in partnership with the International Public Fund Roza Otunbayeva's initiative, the Center for Child Protection and Enactus Kyrgyzstan NGOs, and the Innovative College of the American University of Central Asia (AUCA), and funded by the Shiseido Clé de Peau Beauté brand.[121] *Girls in Science* aimed to expand rights and opportunities for girls to excel in STEM. In the first phase of the programme (2020-2022), 652 schoolgirls from over 80 schools in the cities of Bishkek, Osh, and Kara-Suu (Osh region) received specialised training in STEM and leadership, educating their peers and inspiring them to become active and effective agents of change. UNICEF launched the second phase of the *Girls in Science* programme in 2023, targeting over 10,000 students from 50 schools in the Osh, Jalal-Abad, Batken, Naryn and Chui regions. Training sessions on STEM, future professions, gender equality, effective communication, internet safety and leadership will be organised, as well as various mentorship programmes.
- In 2021, the Education Transformation and Professional Development through STEM Education project was launched, supported by the U.S. Embassy in Kyrgyzstan and implemented by the Public Fund for Innovative Education Lingva. It aimed to train teachers in interdisciplinary and integrated teaching methods to teaching STEM, as well as to spread knowledge and skills through innovative teaching methods in STEM education.[122] Forty STEM teachers from state and private schools, universities and NGOs across various regions of Kyrgyzstan were selected to participate in the project.
- In 2022, the UNDP's STEM4ALL platform facilitated the engagement of 32 organisations, including governments, international and national organisations, UN agencies, academia, civil society organisations, private sector entities, and unconventional partners such as arts, religious communities and feminist groups, who came together for the first time. This diversity allowed UNDP to incorporate various perspectives into the agenda, as advancing gender parity, facilitating dialogue and creating a conducive environment to expand opportunities for girls and women in STEM requires collaboration with all key stakeholders.[123]
- In 2024, the outcomes of the UNDP STEM4ALL x Mentoring Her mentoring programme – which aimed to enhance the participation of girls and women in STEM fields and involved 320 mentees and 251 mentors – were presented. Participants received training from experienced mentors on time management, leadership, emotional intelligence, critical thinking and financial literacy. Additionally, participants developed their own development roadmaps, identifying key steps toward achieving their professional goals.[124]

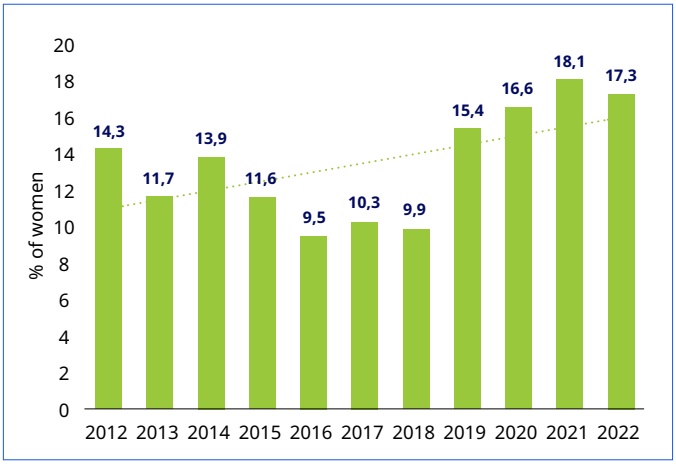
117 https://www.rdita.kg/index.php?module=news&show=STEMobrazovanie_platforma_razvitiya_vysokih_tehnologiy_v_buduschem
118 STEM4ALL Is a joint platform by UNDP and UNICEF Europe, Asia and the Pacific: https://stem4alleurasia.org/about/about-stem4all
119 https://www.akchabar.kg/ru/article/it-tehnologii/stem4all-kakie-navyki-prokachivat-chtoby-byt-vostrebovannymi/#:~:text=В%20Кыргызстане%20можно%20укрепить%20инклюзивное,й%20сессии%20Генеральной%20Ассамблеи%20ООН.
120 http://stem.roza.kg
121 https://www.unicef.org/kyrgyzstan/ru/girls-in-science
122 https://kaktus.media/doc/434945_dlia_ychiteley_startoval_proekt_po_obycheniu_prepodavaniu_stem_disciplin.html
123 https://www.undp.org/ru/kyrgyzstan/press-releases/platforma-proon-stem4all-priglasila-osnovnye-zainteresovannye-storony-k-sovmestnoy-razrabotke-resheniy
124 https://www.undp.org/ru/kyrgyzstan/press-releases/571-uchastnic-proekta-stem4all-x-mentoring-her-stroyat-buduschee-zhenskogo-liderstva-v-stem

STEM4ALL x Mentoring Her provided participants with access to the experimental Stem4allmentoring Her digital platform, which opens new opportunities for girls' education and development, ensuring training and support from regional mentors.

4.4. Women's Employment in the Energy Sector

As evidenced in the Country Gender Assessment published by the ADB in 2019,[125] women dominate the labour force in sectors such as health and social services (83.6% of the labour force being female), education (80.6%), and hotels and restaurants (58.4%). On the other hand, men account for 84.4% of employees in the mining industry, 90.5% in the production of gas, electricity and water, 89.3% in the transport and communication sector and 96.5% in the building industry. This aligns what the National Statistical Committee reports in the Kyrgyz Republic *Women and Men in the Kyrgyz Republic 2018-2022*,[126] [127] i.e., that the employment of women in the sector of electricity, gas, steam and air conditioning supply in 2022 amounted to 17.3%. While the employment of women in the energy-related sectors remains disproportionately low compared to men, as the graph below illustrates there is an increasing trend of share of women employed in this sector.

Share of women employed in electricity, steam, gas and AC supply[128]



Furthermore, a joint survey carried out by OSCE, GWNET and IRENA estimates that the proportion of women working in the renewable energy sector in Kyrgyzstan is higher than in the energy sector overall, which would indicate a potential for wider engagement of female professionals in clean energies compared to traditional energy.[129]

However, not only do men prevail in higher paying technical sectors, but the gender pay gap also remains large, with women receiving on average only 74% of men's pay in 2023.[130]

The Association of Women in Energy of Kyrgyzstan

In 2022, the 'Association of Women in Energy' was established by female role models in the energy sector in the Kyrgyz Republic. To date, the association unites women working in the fuel and energy complex by providing a platform for promoting the principles of gender balance in the country's energy system, developing international cooperation, and educational and mentoring initiatives in order to increase the number of women leaders in the energy sector.[131]

Over the past two years, the Association of Women in Energy has implemented several significant initiatives. It has conducted training and educational programmes for women seeking career advancement in energy, and launched mentoring programmes to support professional development. The association actively participates in international projects, contributing to the empowerment of women through knowledge exchange and the creation of professional networks. In addition, it has organised events to promote gender equality and enhance the role of women in the country's energy sector.[132]

125 *Country Gender Assessment of the Kyrgyz Republic,* 2019, available at: https://www.adb.org/sites/default/files/institutional-document/546966/kyrgyz-republic-country-gender-assessment-2019.pdf
126 https://kaktus.media/doc/503056_nazvany_srednie_zarplaty_myjchin_i_jenshin_v_kyrgyzstane.html
127 https://sta.kg/wp-content/uploads/2024/06/197e5d29-1a02-4078-b91d-782be10c9ded.pdf, p. 95
128 https://kyrgyzstan.un.org/sites/default/files/2022-04/women_and_men_publication.pdf p.89; http://gender.cawater-info.net/publications/pdf/kg_wm_2012-2016.pdf , p.64; https://sta.kg/wp-content/uploads/2024/06/197e5d29-1a02-4078-b91d-782be10c9ded.pdf p.95
129 OSCE, 2024. *Advancing a Just Energy Transition in Central Asia: Women's Key Role in the Energy Sector.* Available from: https://www.osce.org/files/f/documents/f/f/561811.pdf
130 https://kaktus.media/doc/503056_nazvany_srednie_zarplaty_myjchin_i_jenshin_v_kyrgyzstane.html
131 https://womeninenergy.kg/content/view/4
132 https://womeninenergy.kg

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No comprehensive or up-to-date information or figures were found on the ratio of female and male enrolment in STEM studies, on gender-disaggregated access to clean fuels and workforce distribution within the energy sector, no on gender-specific references in energy policies and programmes for Tajikistan. As a result, the following sub-sections were compiled based on the limited information available.

5.1. Gender and Energy: The Policy Dimension

Tajikistan's *Nationally Determined Contributions* make references to women-specific vulnerabilities as well as the need for women's economic empowerment and access to new skills.[133] However, no reference to GESI were found in energy policies or programmes.

5.2. Access to Electricity and Clean Cooking

Hydropower is the main source of Tajikistan's energy supply, accounting for 41.4% in 2021, followed by oil (28.4%), coal (25%) and natural gas (5.2%). While Tajikistan has been successful in providing universal access to electricity, it continues to face substantial challenges in ensuring consistent and reliable access, especially for rural populations – who account for 71% of the country's population – and for those living in more remote and isolated areas.

As the country heavily relies on hydropower for electricity generation, it is vulnerable to seasonal fluctuations in water levels, especially during winter months. Additionally, the electricity infrastructure, including transmission and distribution systems, is outdated and in need of significant upgrades. These factors cause frequent power outages and shortages, particularly in rural areas, affecting the livelihoods of hundreds of thousands of people. In the absence of electricity, or during power shortages, rural residents rely on coal, dung or firewood to meet their energy needs, especially in winter.

The World Bank reports that 'Tajikistan's electricity system is in a state of crisis. Approximately 70% of the Tajik people suffer from extensive shortages of electricity during the winter. These shortages are estimated at about 2,700 GWh – about a quarter of the winter electricity demand – impose economic losses estimated at over US$200 million per annum or 3% of Gross Domestic Product.' This situation is caused by insufficient investments in new electricity supply capacity, inadequate maintenance of existing assets, and lack of financial incentives for electricity consumers to reduce their consumption as Tajikistan's electricity prices are among the lowest in the world. The World Bank predicts that, in the absence of prompt action to remedy these factors and with growing demand for electricity, the shortages could increase.[134]

Challenges in access to electricity have also severe health impacts on domestic users, who are exposed to the hazardous, indoor air pollution generated from burning wood and coal in homes. This applies particularly to girls and women, who are traditionally assigned to manage domestic chores and family caretaking responsibilities and are thus disproportionally affected. Indoor pollution from inefficient cooking stoves is responsible for a variety of short and long-term diseases, including respiratory problems, eye irritation, allergic reactions, heart diseases and cancer. Additionally, women are usually tasked with procuring firewood, which implies a significant physical drudgery and increases women's time poverty, as the daily time invested into collecting firewood cannot be invested into income-generating, educational activities or leisure.

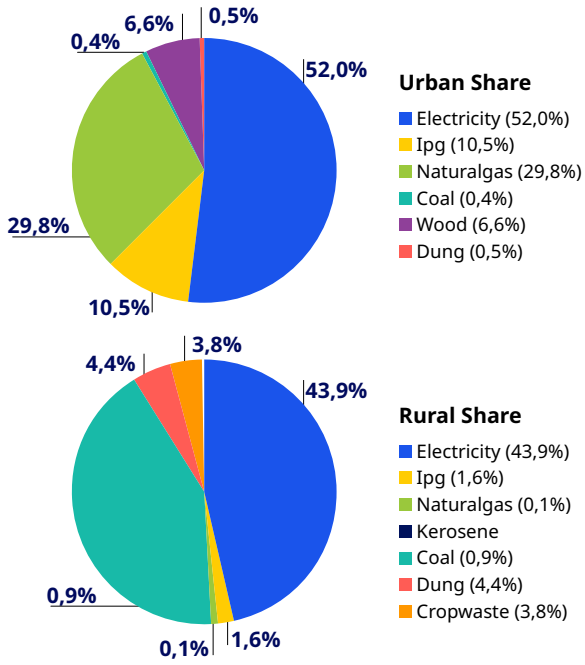
While most of Tajikistan's population lives in rural areas, urban residents are confronted with energy-inefficient buildings, especially reinforced concrete houses, which increase the energy costs for heating (in winter) and cooling (in summer).

Energy costs have a significant impact on a household's financial capacity. As reported by the GERES NGO, 'In Tajikistan, 29% of households live below the poverty line (US$1.9/day) and the majority of them relies on remittances (49% of the GDP). Long and cold winters generate strong needs in energy for heating: 80% of the energy consumed by houses is for heating. Limited access to fuel and changes in lifestyle combined with low energy performance of buildings and poor quality of equipment contribute to high energy vulnerability for households: during the heating season families spend from 14% to

133 OSCE, *Advancing a just energy transition in Central Asia,* 2024. Available at: https://www.osce.org/oceea/561811
134 World Bank Group, *Tajikistan's winter energy crisis: electricity supply and demand alternatives,* 2013. Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/500811468116363418/tajikistans-winter-energy-crisis-electricity-supply-and-demand-alternatives

25% of their monthly budget on energy while the most vulnerable ones cannot afford heating'.[135]

Share of Energy Types on Cooking Energy in Urban and Rural Areas of Tajikistan[136]



Source: WHO Household Energy Database 2010

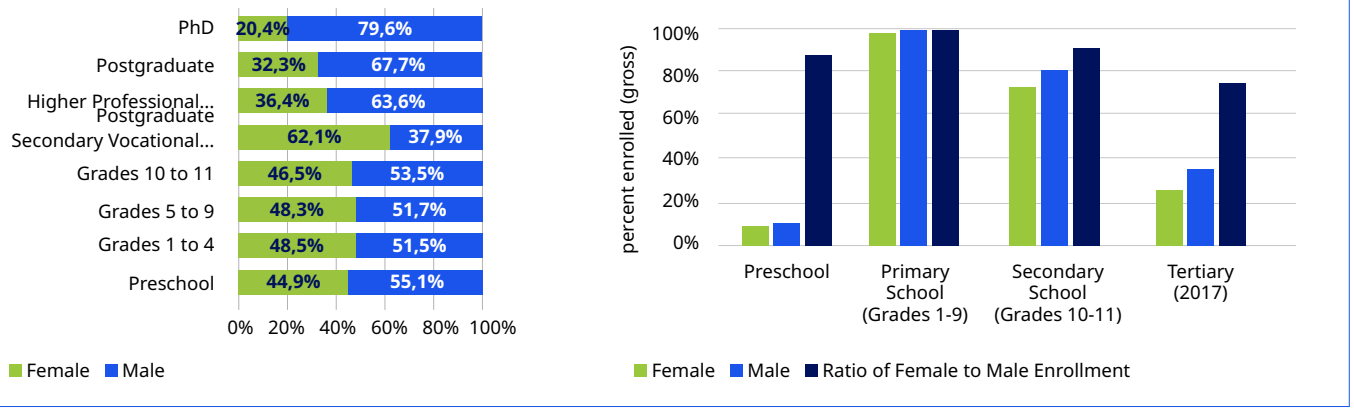
In addition to the rural-urban divide, differences exist between rural areas in terms of energy access and energy sources used, with some regions relying on wood and others on coal.

5.3. Girls in STEM

Tajikistan displays a significant gender imbalance with a very low number of girls pursuing higher education as well as a gender segregation in the selection of fields of study.

The country has achieved gender parity for gross basic education enrolment, and has witnessed an overall increase in educational levels. Based on Tajik statistics, the World Bank reports that 'between 2012 and 2017, women's median number of years of schooling has risen from 8.6 to 8.9, while that of men rose from 9.3 to 9.5'.[137] Yet gender gaps are more prevalent the higher the level of education, as illustrated in the table below.[138] Compared to secondary vocational education, where women significantly outnumber men, male students account for the majority of those pursuing higher and post-graduate education.

Share of Women in Education (left) and School Enrolment by Gender (right), 2018-2019 Academic Year



One very concerning trend is the large share of women in the 15-24 age group who are neither in employment nor in education (NEET). Despite geographical differences across the country, there is a consistent trend indicating a significantly higher share of women in NEET compared to men. At the national average, 49.3% of Tajik girls are

135 GERES, *Energy efficiency for improved living conditions in Tajikistan.* Available at: https://www.geres.eu/en/our-actions/our-projects/energy-efficiency-in-tajikistan/
136 Energypedia, *Tajikistan Energy Situation.* Available at: https://energypedia.info/wiki/Tajikistan_Energy_Situation#Household_Energy_Situation
137 World Bank Group, *Tajikistan – Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment
138 Source of the table: World Bank Group, *Tajikistan – Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

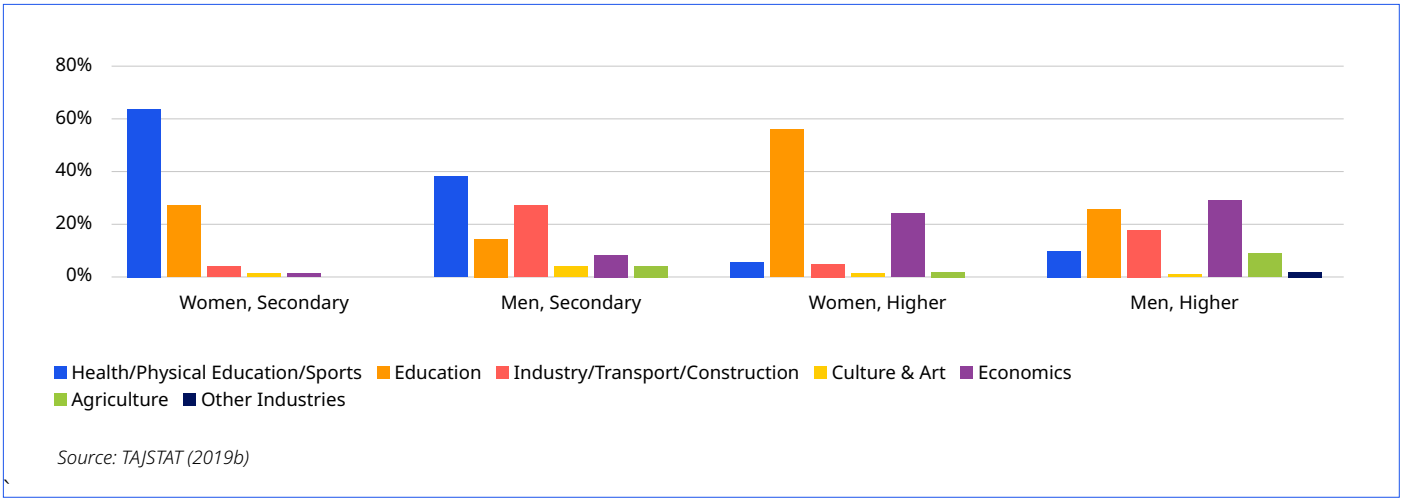
in NEET, compared to 7.2% of Tajik boys. This is one of the largest gender gaps in NEET globally.[139]

In particular, there is a significant drop in female students in the transition from secondary to higher education, where the ratio of female and male students is almost reversed. It is however noteworthy that the gender gap in tertiary education, the largest across the education system, is progressively diminishing: between 2009 and 2017, the share of female enrolment in tertiary education has increased at a faster rate than that of male enrolment, from 16 to 27% for women compared to 30 to 35% for men.[140]

While substantial geographical differences apply also in this context, 56% of women in Tajikistan have on average at least a secondary level of education.[141]

However, despite the comparatively high rate of female enrolment in secondary vocational education, it is concerning that it is almost exclusively limited to traditionally female-dominated sectors, linked to low-paid jobs. In the 2018-2019 academic year, at the level of secondary vocational education, girls studied only education and healthcare, whereas in higher education they focused on education and economics. Boys, in comparison, approached a more diversified range of disciplines, including also industry, transport and construction. These gendered differences, closely linked to traditional cultures and social norms, in turn nurture persistent occupational segregation that sees women eventually employed in traditionally women-dominated and lower paid jobs.

Distribution of Female and Male Secondary and Higher Education Students by Industrial Specialisation (2018-2019 Academic Year)[142]



Source: TAJSTAT (2019b)

Referring to secondary vocational education in the 2013-2014 academic year, the ADB noted that 'In technical subjects, such as economics and management, construction, transport, agriculture, energy, metallurgy, and mechanical engineering, men made up virtually 100% of the student population.' In higher education, women's preferential fields of study remain education, culture and the arts, followed by economics.[143]

139 Data and figure from World Bank Group, *Tajikistan – Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

140 Data and table from: World Bank Group, *Tajikistan – Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

141 World Bank Group, *Tajikistan – Country Gender Assessment*. Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

142 Source of the figure: World Bank Group, *Tajikistan – Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

143 Data and figure from: ADB, *Tajikistan: Country Gender Assessment,* 2016. Available at: https://www.adb.org/documents/tajikistan-country-gender-assessment-2016

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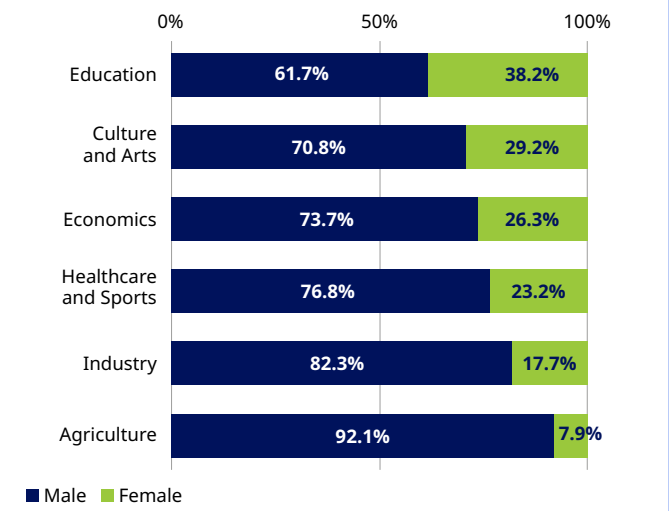
Distribution of Male and Female Students in Higher Education by Academic Subject in the 2013-2014 Academic Year



Source: Government of Tajikistan, State Statistics Agency. 2014. Women and Men of the Republic of Tajikistan. Dushanbe p.82

Attracting More Girls to STEM

Several initiatives, especially in the fields of training and awareness-raising, are ongoing in Tajikistan, aiming to raise the dramatically low proportion of women in energy-related fields of study. Jahoni Mo is an NGO specifically focused on empowering women and girls through STEM, providing IT skills and knowledge to help them pursue successful careers in the field. The Shams NGO supports schoolgirls from rural areas to pursue higher education in STEM. UNICEF's Skills4Girls initiative runs 15 innovation labs across the country and targets rural adolescent girls who are not in school or work, training them in digital and soft skills through a tailored curriculum.

In December 2023, the ADB approved a US$40 million grant to support the Government of Tajikistan in strengthening STEM subjects in secondary education, including developing climate change awareness and promoting girls' participation in STEM studies. The initiative is expected to impact 5,600 grade 5-11 girls in 20 schools, in 4 regions. As described by the ADB Principal Social Sector Specialist, Xin Long, 'To expand girls' participation in STEM studies and help steer more women's careers towards high-productivity sectors, the project will offer stipends and scholarships to girls studying at the schools and higher education institutions targeted by the project. It will also prioritize women STEM teachers and teacher candidates for information and communication technology (ICT) courses.'[144]

Acknowledging the lower overall enrolment in tertiary education, the Government of Tajikistan has taken measures to address it, such as increasing the amount of educational infrastructure in rural areas and launching a Presidential Quota System in 2006, offering girls and boys from disadvantaged families and remote mountain areas free places to access higher education. The number foreseen by the quota is limited but increasing. In the 2014/2015 academic year, 3.4% of students in higher education institutes were awarded scholarships under this quota and 21 out of 38 higher education institutes received places funded from the state budget for quotas. Most of quota seats are distributed among medical, pedagogical and two regional universities (KhSU and KTSU), with lower numbers to train physicians, teachers and engineers.[145]

While the Quota System has contributed to increasing the number of women in higher education, it has been noted that:

a. it reinforced female enrolment in traditionally women-dominated and lower-paid fields, such as education and healthcare,
b. women had a lower completion rate, due to the lower quality they received in earlier grades in their disadvantaged residential areas.[146]

5.4. Women's Employment in the Energy Sector

The skewness in education inevitably impacts on the labour market where women remain under-represented in sectors and roles with better paid jobs.[147]

144 ADB, *$40 Million ADB Grant to Strengthen STEM Secondary Education in Tajikistan*, 2023. Available at: https://www.adb.org/news/40-million-adb-grant-strengthen-stem-secondary-education-tajikistan#:~:text=MANILA%2C%20PHILIPPINES%20(8%20December%202023,the%20Government%20of%20Tajikistan%20strengthen

145 DeYoung, A.J., Kataeva, Z., Jonbekova, D. (2018). Higher Education in Tajikistan: Institutional Landscape and Key Policy Developments. In: Huisman, J., Smolentseva, A., Froumin, I. (eds) *25 Years of Transformations of Higher Education Systems in Post-Soviet Countries.* Palgrave Studies in Global Higher Education. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-52980-6_14

146 World Bank Group, *Tajikistan – Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

147 World Bank Group, *Tajikistan – Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

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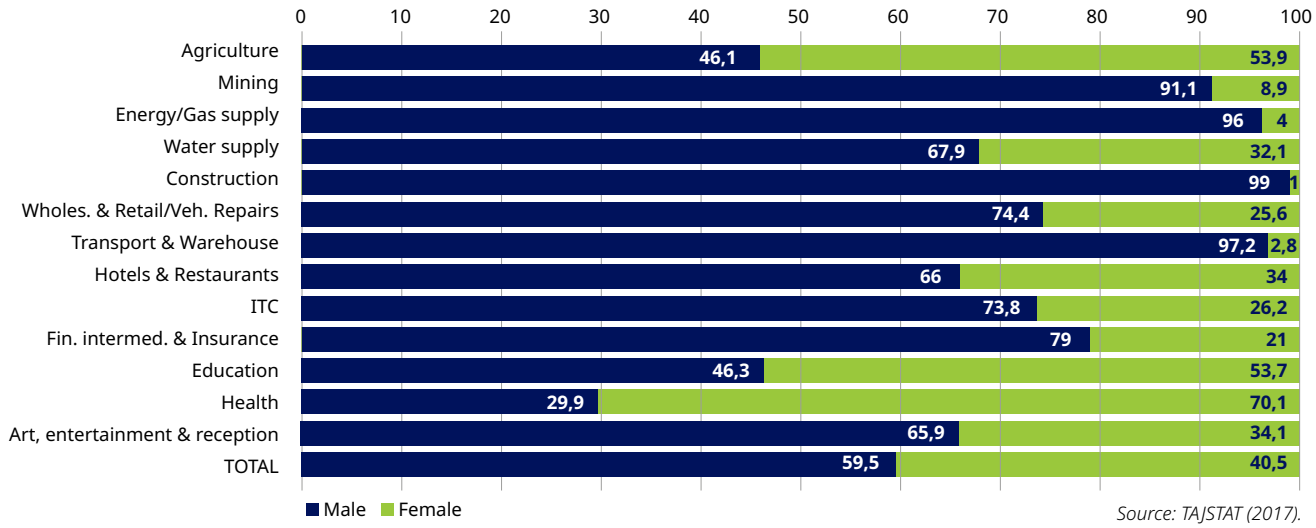
In its *Tajikistan Gender Assessment*, the World Bank reported that 'the most gender-unequal sectors of economy are mining, energy and gas supply, transport, warehousing, and construction'.[148] In the absence of comprehensive and updated gender disaggregated data about employment in the energy sector, estimates about women employment energy sector range between 4%[149] and 10%.[150]

Key Economic Activity Employment by Gender (%), 2016

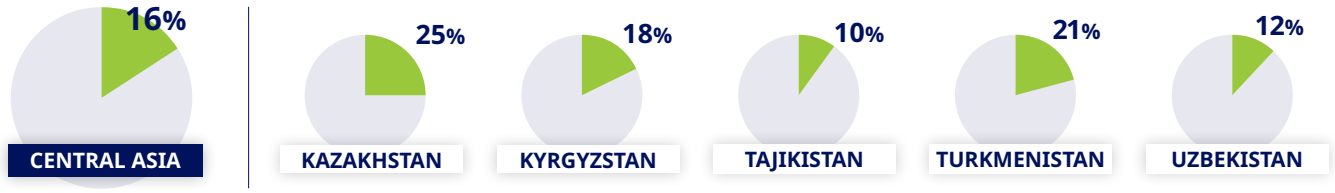


Source: TAJSTAT (2017).

A 2024 survey conducted by the OSCE, GWNET and IRENA concerning the participation of women in Central Asia's renewable energy sector found that, in Tajikistan, this sector employs a higher number of women compared to the traditional energy sector.[151]

Data published in the same study, however, also indicates that Tajikistan has the lowest share in Central Asia of women working in the energy sector, estimated at 10% compared to a regional average of 16%.

Estimated Share of Women in the Energy Sectors in Central Asia[152]



Source: Findings from the OSCE Regional workshop on 'Fostering Womens Participation in the Energy Sector in Central Asia' Astana, 7-8 December 2022

In addition to a low participation of women in the labour market and especially in the energy sector, women are usually over-represented in low-paid roles and occupy very few managerial and leadership positions.

148 World Bank Group, *Tajikistan – Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

149 World Bank Group, Tajikistan – *Country Gender Assessment.* Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/874641637562869105/tajikistan-country-gender-assessment

150 OSCE, *Advancing a just energy transition in Central Asia*, 2024. Available at: https://www.osce.org/oceea/561811

151 OSCE, *Advancing a just energy transition in Central Asia*, 2024. Available at: https://www.osce.org/oceea/561811

152 Data and following graph published in: OSCE, *Advancing a just energy transition in Central Asia*, 2024. Available at: https://www.osce.org/oceea/561811

6

Turkmenistan

Turkmenistan

Very little comprehensive, updated and gender-disaggregated data related to Turkmenistan is available. The following sub-sections have been compiled based on the limited data available.

6.1. Gender and Energy: The Policy Dimension

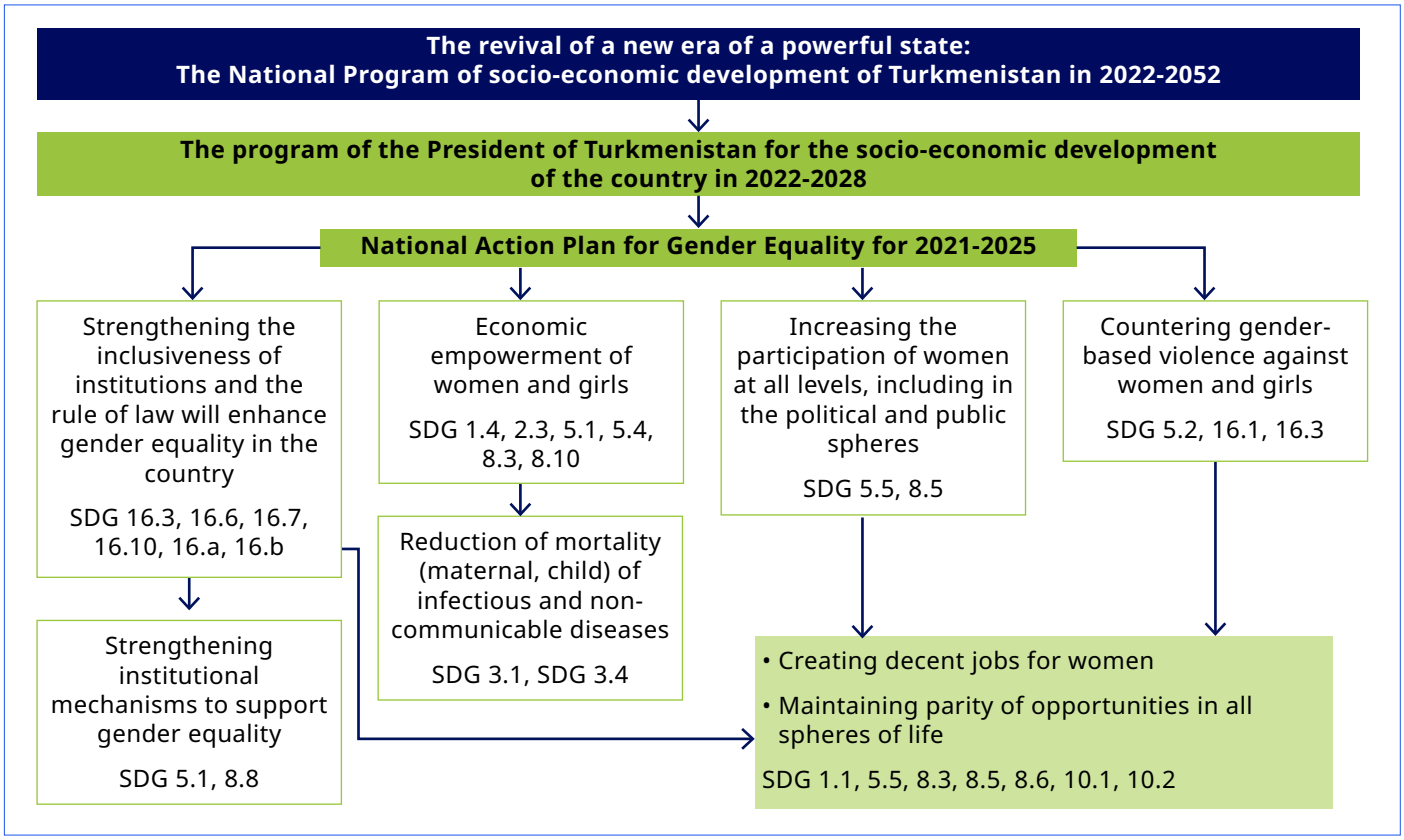
From a review of existing policies in the energy sector, no specific legislation was found concerning the nexus between energy and gender equality. References to gender are however found in overarching national policies and strategies as well as international commitments. Additionally, several programmes in Turkmenistan, funded by and implemented in partnership with international donors, such as the ADB and UNDP, aim to promote gender equality and women's empowerment in general. These could indirectly contribute to mainstreaming gender equality in the energy sector.

The Government of Turkmenistan has adopted a second *National Action Plan on Gender Equality* (NAP) for 2021-2025. It defines the state gender policy, its goals, objectives and principles, directions and priorities within the framework of the country's development strategy aimed at ensuring stable economic growth and sustainable development. The main objective of the NAP is the further development of mechanisms for introducing a gender approach in state policy specifically in the following:

- strengthening and improving the legal framework for achieving gender equality
- providing gender-sensitive health care
- promoting equal access to education
- preventing gender-based violence against women and girls
- economic empowerment of women and girls
- increasing women's participation at all levels, including in the political and public spheres
- strengthening institutional mechanisms to support gender equality.

It is noteworthy that the *NAP for Gender Equality* includes efforts to encourage and increase the representation of women and girls in non-traditional fields of study, such as STEM, in partnership with international organisations. This could contribute to further enhancing women's participation in the energy field as well.

The following figure illustrates how commitments to the UN SDG 5 on gender equality intersect with other national goals and policy documents of Turkmenistan.[153]



153 *Voluntary national review of Turkmenistan's Sustainable Development Goals*, https://turkmenistan.un.org/sites/default/files/2023-07/VNR-2023%20Turkmenistan%20Report%20EN.pdf

Developing Civil Servants' Gender Mainstreaming Capacity

In July 2024, the UNDP in Turkmenistan launched the Specialized Gender Mainstreaming Online Course for Public Servants in Turkmenistan.

The course is primarily intended to empower civil servants with the necessary knowledge and skills to promote gender equality. It is however also accessible to professionals, advisors, students and anyone interested in gender equality and human rights. The course covers topics such as gender definitions, international standards, gender mainstreaming in public policies, gender analysis tools, local gender stereotypes, strategies for achieving gender equality, national frameworks, prevention of gender-based violence, and engagement of men in gender equality efforts. Available in English, Russian and Turkmen, the course is designed to be user-friendly and accessible, with diverse and interactive content, including tests, quizzes and presentations. Upon successful completion of the course, participants receive a digital certificate.

6.2. Access to Electricity and Clean Cooking

Turkmenistan boasts universal access to electricity (powered by natural gas), and almost universal access (99.9% in 2021)[154] to clean cooking fuels. No gender-disaggregated data are available about the access of and use of electricity and clean cooking fuels.

6.3. Girls in STEM

In the scope of the current document, no comprehensive information and figures were found on the ratio of female and male enrolment in STEM studies. Information about the new training programme on 'Non-traditional and renewable energy sources', launched in 2014, indicates that 25% of graduates were women, which would further corroborate the international trend of female under-representation in these fields.

No information was found on national initiatives dedicated to promoting female enrolment in these disciplines in Turkmenistan. However, the country does participate in several initiatives addressing this topic, as outlined in the text box below.

Supporting Women in STEM

Several international initiatives are present in Turkmenistan, to support existing and aspiring female professionals interested in pursuing and advancing their education and careers in STEM fields, including:

Empowering Central Asian Women in Renewable Energy:
The OSCE in partnership with GWNET is currently running the second edition of the Empowering Central Asian Women in Renewable Energy mentorship programme, including participants from Turkmenistan. The programme consists of one-on-one mentoring sessions, workshops and training sessions, and a study tour to Vienna, to equip young female professionals in the clean energy field with the skills and knowledge necessary to advance the energy transition in their country and beyond. The initiative is part of OSCE's project on Promoting women's economic empowerment in the energy sector for energy security and sustainability in Central Asia.

TechGirls:
Sponsored by the U.S. State Department, TechGirls is an international summer exchange programme intended to empower and inspire young women from around the world to pursue careers in science and technology. Operated through the American Embassy in Turkmenistan, the programme targets girls aged 15-17 who are interested in pursuing higher education and/or careers in STEM, especially technology. The programme offers hands-on skills development with American technology experts, a 24-day long exchange in partnership with Virginia Tech University, an interactive technology and computer camp, and travel to another American city (Austin, Chicago, Cincinnati, Denver, Detroit or Seattle) for community and career exploration. The three-week international exchange is followed by six months of project work in the home country.

154 Our World in Data, *Turkmenistan: What share of the population have access to clean fuels for cooking?* https://ourworldindata.org/energy/country/turkmenistan#what-share-of-the-population-have-access-to-clean-fuels-for-cooking

TechWomen:
Another popular programme sponsored via the U.S. Embassy in Turkmenistan is TechWomen, a five-week mentoring programme for women professionals in STEM fields, which includes a series of hybrid workshops focused on leadership skills, innovation and design thinking, followed by individual 15-day fellowships at leading innovation companies and organisations in Silicon Valley, the San Francisco Bay Area or Chicago. Each participant completes a mentorship, and each participating country works as a team with 'impact coaches' to formulate an action plan to address a specific challenge. Participants engage in community service projects in California and participate in cultural and recreational activities. TechWomen 2024 concluded with a three-day programme in Washington, D.C., including a visit to the State Department to allow participants to debrief state representatives on their exchange experiences and team projects.

STEM4ALL:
STEM4ALL is a joint platform established by UNDP and UNICEF in Europe and Central Asia, dedicated to accelerating gender equality and the representation of women and girls in engineering and technology fields to meet the future work demands in the region. It addresses a wide audience from the public and private sectors, and strives to bridge the gender gap in STEM via a virtual, public space for advocacy, research and news updates. Turkmenistan joined the Stem4all launch in 2022.

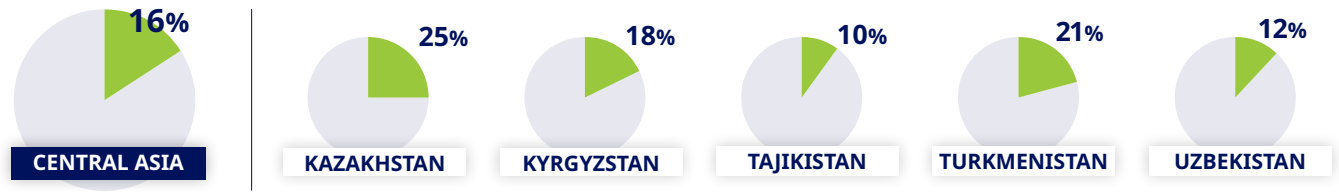
6.4. Women's Employment in the Energy Sector

No comprehensive public data were available on the ratio and types of female employment in the energy sector, either.

Referring to Turkmenistan, the ADB reports that 'Women are working in the energy sector although in fewer numbers than men', quoting the example of the Serdar substation where women hold 10% of the technical positions.[155] In the Central Asian context of women's employment in energy, Turkmenistan stands out for:

a. having the second highest rate of female employment in the energy sector, after Kazakhstan[156];
b. having an equal share of female employment in the renewable energy sector compared to the energy sector as a whole – in comparison, in Kyrgyzstan, Tajikistan and Uzbekistan, renewable energies seem to attract more women, whereas in Kazakhstan they employ fewer women than in the overall energy sector.[157]

Estimated Share of Women in the Energy Sectors in Central Asian countries



Source: Findings from the OSCE Regional workshop on 'Fostering Womens Participation in the Energy Sector in Central Asia' Astana, 7-8 December 2022

The limited available data would suggest that there is potential for further growth and development.

155 ADB, *National Power Grid Strengthening Project, Summary Poverty Reduction and Social Strategy.* Available at: https://www.adb.org/sites/default/files/linked-documents/49370-002-sprss.pdf
156 OSCE, *Advancing a just energy transition in Central Asia,* 2024. Available at: https://www.osce.org/oceea/561811
157 OSCE, *Advancing a just energy transition in Central Asia,* 2024. Available at: https://www.osce.org/oceea/561811

7

Republic of Uzbekistan

7.1. Gender and Energy: The Policy Dimension

To date, the inclusion of vulnerable groups has not been integrated into Uzbekistan's renewable energy policies. Equally, a review of national concepts, policies and development strategies until 2030 indicates that gender is not systematically integrated in any of them.

In the sphere of economic development,[158] gender is mentioned only in the *Concept of Water Sector Development until 2030*. The *Concept of Electricity Supply in Uzbekistan until 2030*[159] does not address gender issues, although the Ministry of Energy has addressed this by adopting a *Gender Equality Roadmap*[160] in 2020. It is one of the first ministries to adopt a separate roadmap on gender equality.[161]

The Ministry of Energy *Gender Equality Roadmap* envisages a number of activities which are described in the table below.

NO	ACTIVITY NAME	DEADLINE	ASSESSMENT BY THE ADB OF THE ROADMAP PROVISIONS (2020)
1	Development of a human resource policy based on international energy practices, taking into account gender relations	IV quarter of 2020	'The baseline assessment revealed that there is no evidence that recruitment practices are transparent and competency-based' and 'No gender dimensions integrated into human resources policies and procedures, including targeting and recruitment of women professionals'.
2	Collect and analyse gender-related data at the level of the Ministry of Energy and energy companies to regularly monitor progress towards achieving gender indicators	I quarter of 2021	It was not organised as of 2020 as 'They [Ministry of Energy staff] are not aware of the existence of gender-related policies, strategy, goals, objectives, or indicators within the Ministry of Energy' and 'lack of gender disaggregated statistics in the energy sector'.
3	Implementation of gender-based violence prevention, non-discrimination and equal opportunity policies by energy project contractors	1 September 2020	'During the orientation, staff members revealed that they never had gender-related discussions.'
4	Introduction of the position of Expert on gender issues in the Ministry of Energy of the Republic of Uzbekistan	II quarter of 2021	Apparently not in place; otherwise, it would be mentioned on the Ministry of Energy website or in the ADB study.
5	Amendments to be made to the procurement manual for private sector investment projects to promote gender equality in order to achieve the target of 5% total female employment	II quarter 2021	No information available.
6	Organisation of regular trainings of employees of the Ministry of Energy and energy companies	Since 1 September 2020	Not mentioned in the ADB study. However, specialists from the Ministry of Energy of Uzbekistan participated in the first training session on energy regulation organised by the Energy Regulators Regional Association (ERRA) and the World Bank.[162]

158 *Concept of integrated socio-economic development of the Republic of Uzbekistan until 2030; Concept of water sector development until 2030; Concept of Electricity Supply of Uzbekistan until 2030; Concept of tax policy of the Republic of Uzbekistan; Concept of Customs Service Reform; Concept of development of the forestry system of the Republic of Uzbekistan until 2030; Concept of oil and gas industry development; Concept for the development of nuclear energy.*

159 Ministry of Energy of Uzbekistan, 2019. *Concept Note for Ensuring Electricity Supply in Uzbekistan in 2020-2030.* Available from: https://minenergy.uz/en/lists/view/28

160 Ministry of Energy, 2020. *A road map for the implementation of the gender action plan*. Available from: https://minenergy.uz/uploads/197d806d-b854-eedb-0356-973eaa6c7c5e_media_.pdf [in Uzbek]

161 Shukhrat Rakhmanov and Firuza Khamdamova, 2023. *Gender mainstreaming as the most important principle in the concepts and strategies of development of Uzbekistan until 2030.* Available from: https://insonhuquqlari.uz/ru/news/m10252 [in Russian]

162 Ministry of Energy, 2020.The first training on energy regulations was held.

Based on these activities, the following results were expected:

- problems related to the workforce composition of the energy sector of Uzbekistan will be identified and measures will be taken to achieve gender equality,
- gender relations will be taken into account in the implementation of personnel policy, and a policy of equal opportunities will be introduced,
- gender indicators will be introduced into the general management information system,
- a corporate culture and image of socially responsible energy companies will be formed,
- a system will be created to minimise the risk of negative impacts related to gender issues in energy and infrastructure projects,
- in line with the Law of the Republic of Uzbekistan *On Guarantees of Equal Rights and Opportunities for Women and Men*, a mechanism will be created to implement guarantees of equal rights and opportunities,
- a system of continuous professional development for employees of the Ministry of Energy and energy companies will be established in accordance with the best international practices accumulated in the field of gender mainstreaming in the energy sectors.

However, while activities were scheduled to be implemented in 2020/2021, not all of them have yet been put in place. For example, the *Gender Equality Roadmap* foresaw a Gender Specialist within Ministry of Energy, but this focal point is not yet established.

In 2020, the Ministry of Energy established a Gender Council.[163] In 2022, the Gender Council and the Association of Women in Energy of Kyrgyzstan signed a memorandum of cooperation and understanding. According to the Ministry of Energy, the parties intend to cooperate to expand opportunities and increase the role of women in the energy sector in Uzbekistan. The memorandum calls for the creation of favourable conditions for the development of cooperation between the parties in terms of learning and applying the work experience of women working in the energy systems of Kyrgyzstan and Uzbekistan, promoting gender-oriented professions in the energy sector, engineering and ICT, providing consulting, information assistance to the younger generation, as well as organising joint projects and analytical work.[164]

Very little other information is, however, available about the Gender Council and its role remains unclear. As a result, a systematic, holistic approach to promoting gender equality and women's empowerment in the energy sector still appears to be missing in Uzbekistan.

The other economic development concept documents do not address gender.

ADB's Power Sector Reform Programme

Through its Power Sector Reform programme, launched in 2020, ADB has been actively promoting gender equality in the energy sector of Uzbekistan. By improving access to affordable and reliable electricity for the population of Uzbekistan, this programme aims to support the government's efforts to implement the development agenda, which is geared towards enhancing the electricity system and fostering a favourable business environment to attract private sector funding in the power sector over the medium term.[165]

Analysis carried out in the framework of the programme focused on the existing institutional frameworks, the distribution of gender mainstreaming responsibilities in the energy sector, and the institutional culture and attitudes of energy service providers with the aim of evaluating how these factors could impact the formulation and implementation of gender-sensitive and inclusive interventions in support of the energy sector policy reform goals.

In particular, the analysis focused on evaluating key Ministry of Energy personnel to determine the extent to which gender mainstreaming concerns have been incorporated into their roles, the

163 Ministry of Energy, 2020. Elmira Bekmuradova is appointed as a Chairperson of the Gender Council of the Ministry of Uzbekistan. Available from: https://minenergy.uz/ru/news/view/888 [in Russian]

164 Ministry of Energy, 2022. The Association of Women in Energy of Kyrgyzstan and the Gender Council of the Ministry of Energy of Uzbekistan signed a memorandum of cooperation and understanding. Available from: https://minenergy.uz/ru/news/view/2102 [in Russian]

165 ADB, 2020. *Power Sector Reform Program: Gender Assessment.* Available from: https://www.adb.org/sites/default/files/linked-documents/54269-001-sd-04.pdf

diversity of staff to gauge the current levels of inclusivity, human resources policies to determine if gender-related barriers have been acknowledged by the institutions, staff competencies in identifying and addressing gender mainstreaming issues, and the assessment of organisational performance.

Key findings from the 2020 gender assessment of the Ministry of Energy include:[166]

- women's representation in the energy sector remains below the critical threshold of 30%,
- widespread perception that utilities are predominantly male-dominated workplaces,
- systemic unconscious bias is present within the institution,
- gender-based violence issues are often covered up or not reported,
- lack of female students studying technical areas relevant to the energy sector,
- workplace indicators are not disaggregated by sex, hindering decision-making processes,
- women are underrepresented in top and middle management positions,
- traditional stereotypes perpetuate the idea that energy is a male-dominated field,
- female energy workers lack a positive image in society,
- lack of gender disaggregated statistics in the energy sector,
- lack of understanding and knowledge about gender concepts and mainstreaming in the energy sector, including national gender policies and strategies,
- human resources policies and procedures do not integrate a gender dimension, including in the targeting and recruitment of women professionals.

The Ministry of Energy acknowledged the importance of directing its initiatives towards increasing female participation in the energy sector while implementing the National Gender Policy. In May 2020, interviews were conducted with staff members of the Ministry of Energy – the majority of whom were male, with 60% under the age of 30 and the remaining 40% above 40. The positions held by the respondents varied from senior managers to specialists and project managers. This initial assessment has shown a lack of transparency and competency-based criteria in recruitment practices.

The institutional assessment highlighted several key findings related to the Ministry of Energy:

- comprehension regarding gender concepts such as gender mainstreaming is lacking,
- internal gender-related training programmes within the organisation are missing,
- there is a general lack of personal interest in promoting gender equality,
- male respondents had a negative reaction when asked about the presence of gender discrimination,
- staff members had never engaged in discussions related to gender,
- addressing gender-related issues is considered a responsibility of the Human Resources Department,
- employees seem to be unaware of any gender-related policies, strategies, goals, objectives or indicators within the Ministry of Energy,
- female participants were the only ones who expressed willingness to have a designated gender advisor or focal point in the workplace,
- there is a lack of interest among respondents, particularly males, in accessing materials to enhance self-awareness and skills regarding the energy-gender nexus and integration,
- men generally perceive gender mainstreaming as having little to no impact on career advancement, whereas women view it as having a moderate effect,
- staff members, men in particular, do not welcome the requirement to report gender-related accomplishments and challenges, while women tend to do so,
- gender-specific indicators are absent within the Ministry of Energy for the purpose of reviewing, monitoring, evaluating and reporting on progress related to gender issues.

The findings also highlighted how staff orientation sessions should cover topics such as definitions, legal frameworks and analytical tools related to

166 ADB, 2020. *Power Sector Reform Program: Gender Assessment.* Available from: https://www.adb.org/sites/default/files/linked-documents/54269-001-sd-04.pdf

gender equality.

7.2. Access to Electricity and Clean Cooking Fuels

The electrification rate of households in Uzbekistan is nearly 100%, but the aging infrastructure and equipment require modernisation and restoration, particularly in rural areas. Key concerns revolve around the unsustainability of power supply due to frequent outages, poor power quality, and voltage fluctuations.

Unreliable electricity supply impacts women in particular and their ability to fulfil their traditional social roles and to work. Time-use studies conducted in Uzbekistan reveal that women spend nearly three times more time than men on unpaid work. Women allocate approximately 63% of this time to household chores as cooking, cleaning, laundering, ironing and repairing clothing, while men only spend 11.5% on similar tasks.

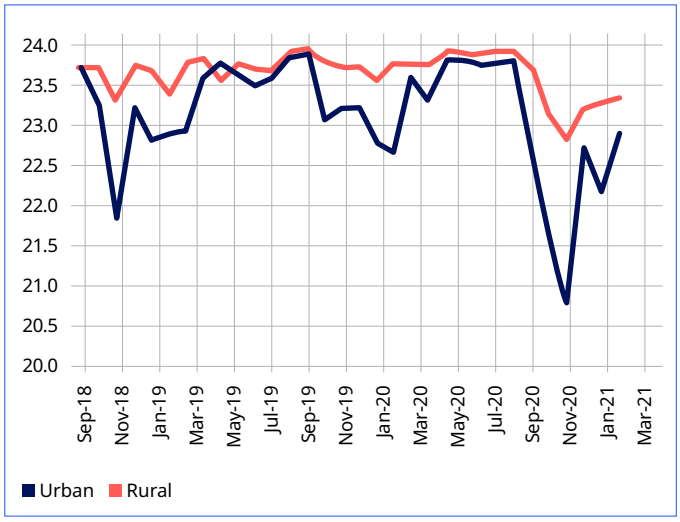
Electricity plays a crucial role in facilitating women's tasks. Without dependable energy sources women are unable to use time-saving devices such as washing machines, electric stoves and vacuum cleaners. Enhancing the quality and dependability of the power supply would thus decrease constraints to the use of time-saving home appliances. This improvement would also result in reduced expenses on alternative power sources such as batteries and candles, while simultaneously enhancing residents' safety through better availability of streetlights.

Moreover, a reliable power supply has the potential to empower women by easing their traditional reproductive labour: allowing them to use time- and labour-saving household appliances enables them to operate small businesses and actively participate in income-generating – such as farming, handicraft and selling dairy products – and community initiatives.[167] Baking and sewing are examples of home-based productions that are mostly performed by women and require the use of electric devices such as ovens and sewing machines.

Energy inefficiencies are therefore a constraint to women's opportunities for income generation.[168] In 2017, the Women's Committee of Uzbekistan identified 'social and municipal infrastructure, family and home-based business development among the key issues for rural women's income-generating opportunities[169].

Frequent winter power supply interruptions have a significant impact on poverty levels. The annual cost of power outages to Uzbekistan's economy is estimated to be US$6 billion. The rural population in the country relies heavily on power supplies due to factors such as hot climate, high dependence on electric heating, and limited alternative options. However, with the rapid growth in power demand, transmission and distribution systems are facing high losses and frequent, long power outages due to overloading and an aging infrastructure. As a result, rural regions experience daily shortages ranging from 2 to 6 hours during winter, which negatively impacts economic and social development.[170]

Hours of electricity outage, previous day[171]



167 ADB, 2020. *Power Sector Reform Program: Gender Assessment* (p. 15). Available from: https://www.adb.org/sites/default/files/linked-documents/54269-001-sd-04.pdf

168 ADB, 2018. *Uzbekistan Country Gender Assessment Update* (p. XIV). Available from: https://www.adb.org/sites/default/files/institutional-document/479841/uzbekistan-country-gender-assessment-update.pdf

169 Ibid., p.2.

170 ADB, 2020. *Power Sector Reform Program: Gender Assessment.* Available from: https://www.adb.org/sites/default/files/linked-documents/54269-001-sd-04.pdf

171 Source: World Bank Group, 2022. *Towards prosperous and inclusive future. Uzbekistan: The second systematic country diagnostic.* Available from: https://documents1.worldbank.org/curated/en/933471650320792872/pdf/Toward-a-Prosperous-and-Inclusive-Future-The-Second-Systematic-Country-Diagnostic-for-Uzbekistan.pdf

Number of hours household had access to electricity the day before the survey was administered[172]

SURVEY ROUND	HEAD OF HOUSEHOLD	0 TO 12 HOURS	13 TO 23 HOURS	24 HOURS
		n(%)		
1 (Sept 2018)	Male	8 (0.6)	129 (10.4)	1,103 (89.0)
	Female	1 (0.4)	29 (11.0)	234 (88.6)
4 (Dec 2018)	Male	8 (0.6)	344 (27.6)	895 (71.8)
	Female	2 (0.6)	61 (23.1)	201 (76.1)
7 (Mar 2019)	Male	9 (0.7)	470 (37.6)	770 (61.6)
	Female	0 (0.0)	8' (31.6)	182 (68.4)

Source: L2CU monthly panel survey (September 2018 / December 2018 / March 2019). There was little difference between female-headed households and male-headed households in the number of hours that they had access to electricity.

With regard to energy and social inclusion, prices for gas and electricity increased on 1 May 2024, and the government decided to support socially vulnerable families in Uzbekistan.

1. The minimum consumer expenditure (MCE), which is used to determine the poverty line in the country, was reviewed and increased. As a result, the minimum pensions and allowances for about 1 million people were revised to bring them above the new poverty line.
2. A lump-sum compensation of UZS270,000 (around US$21) is allocated for additional social protection of the vulnerable population during the heating season (in November 2024).
3. The government intends to provide additional support to low-income families in the heating season by partially reimbursing their costs in the case where they exceed the social norm for electricity and gas (up to 250 cubic meters and 150 kWh above the baseline).[173]

These new measures are expected to provide social protection to about 1.5 million low-income families.

7.3. Girls in STEM

In line with global patterns, girls in Uzbekistan are under-represented in STEM fields. According to the findings of the International Labor Organization (ILO),[174] in 2018, 42% of female graduates pursued careers in the field of education, whereas 45% of male graduates were in STEM subjects.

While the disparity persists, the Statistics Agency under the President of the Republic of Uzbekistan reports a steady increase in the percentage of women who have graduated in higher education STEM programmes in Uzbekistan. In 2017, this figure was 32.6%, rising to 40.2% in 2021.[175] According to the latest available data at the time of writing, the proportion of female graduates in disciplines such as natural sciences, mathematics, statistics, social security, information and communication technologies, engineering, mechanical processing and construction was 27.3% in 2022.[176]

The 2022 UNDP *Negative Impact of Gender Stereotypes and Patriarchal Attitudes on Gender Equality in Uzbekistan* study described the perception of gender stereotypes in education and STEM fields to be multifaceted. While a significant number of individuals believe that women are better at teaching, medicine, culinary arts and sewing (62%), there is also a prevailing view that men excel in programming, physics and mathematics (58%). However, there is a notable disagreement with the ideas that sons should have priority in obtaining a university degree (50%), women are not proficient in exact sciences and STEM careers (49%), and that women should not pursue higher education (43%).[177] The respondents' place of residence, whether urban or rural, did not impact the outcomes of the responses. However, the level of education did have a positive influence on the prevalence of

172 Source: World Bank Group, 2019. *Energy Vulnerability in Female-headed households. Findings from the Listening to Citizens of Uzbekistan Survey.* Available from: https://documents1.worldbank.org/curated/en/768871580801924356/pdf/Energy-Vulnerability-in-Female-headed-Households-Findings-from-the-Listening-to-Citizens-of-Uzbekistan-Survey.pdf

173 Gazeta.uz, 2024. *How needy families will be helped due to the increase in gas and electricity tariffs.* Available from: https://www.gazeta.uz/ru/2024/04/16/social-help/ [in Russian]

174 ILO, 2020. *Women and the World of Work in Uzbekistan. Towards Gender Equality and Decent Work for All.* Available from: https://webapps.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---sro-moscow/documents/publication/wcms_776476.pdf

175 UNDP, 2023. *Social* and psychological determinants of behavioral changes in girls and women in STEM education and STEM employment. Available from: https://www.undp.org/uzbekistan/publications/girls-stem-report

176 The Statistics Agency under the President of the Republic of Uzbekistan, 2023. *Proportion of graduates of science, technology, engineering, and mathematics programs in higher education who are women*. Available from: https://stat.uz/en/official-statistics/social-protection

177 UNDP, 2023. *Negative Impact of Gender Stereotypes and Patriarchal Attitudes on Gender Equality in Uzbekistan.* Available from: https://www.undp.org/uzbekistan/publications/negative-impact-gender-stereotypes-and-patriarchal-attitudes-gender-equality-uzbekistan

stereotypes: the more educated the respondents, the more they tend to support educated women.

Gender stereotypes concerning access to higher education and technical professions, as well as attitudes about women working in fields typically dominated by men, continue to hinder opportunities for women and girls to pursue education. In 2023, the UNDP Uzbekistan Accelerator Lab conducted a study on *Social and psychological determinants of behavioural changes in girls and women in STEM education and STEM employment*, based on focus-group discussions with 29 people and 61 in-depth interviews with female STEM students, those working in STEM field, as well as parents and spouses of female students and those working in the realm of STEM.[178]

The study found that the decision to pursue a specific profession and specialisation (i.e. STEM) can be influenced by various individuals, including parents (both father and/or mother), siblings, grandmothers and teachers. Moreover, factors such as participating in competitions, reading popular science literature, and watching scientific TV shows also influenced their career choices. The main drivers for choosing STEM professions were a genuine passion for the field and the desire for self-fulfilment. It was also highlighted that social support from a person's environment, including parents and spouses, plays a crucial role in STEM identity[179] and STEM engagement.[180]

Measures taken in Uzbekistan to tackle gender differences in girls' and women's access to higher education, employment and participation in STEM include initiatives such as the Technovation Girls Uzbekistan competition. The objective of the competition is to address significant social issues within communities with the help of technology. It does this by cultivating critical thinking, entrepreneurship and programming skills among girls aged 10-18, boosting the engagement of female participants and stakeholders in technical domains, ultimately raising the representation of girls in technical careers.[181] Uzbekistan has been hosting the Technovation Girls competition since 2016, in collaboration with the NGO Tech4Impact. Between 2016 to 2019 , the programme was initiated by the Association for Support of Children and Families of Uzbekistan. The partners of the 2019 Technovation edition in Uzbekistan included the Ministry of Innovation Development, the Uzbekistan Youth Union, the Center for Advanced Technologies and Inha University in Tashkent.

If the *Concept of Development of the Higher Education System of Uzbekistan*[182] emphasises the importance of nurturing women's access to STEM fields, it does so in a general way, with no gender-specific references or targets. In fact, there is no specific policy that promotes the role of women or girls in STEM.

On the other hand, the *National Program for Enhancing Women's Participation in Economic, Political, and Social Life of the Country for the period of 2022-2026*,[183] which was approved in 2022, highlights the objective of providing additional opportunities for women's education and further amplifying the role of women in the realm of science. One of targets specified in this programme is the training and appointment of women for leadership positions in science. It is foreseen to be implemented through organisation of a training course based on the *Innovation Management Program* to develop innovative management competencies of women leaders in science and education. Following the successful completion of the programme, top and middle-level managers do targeted internships in foreign countries. In terms of education, the programme specifies the introduction of a system for teaching science, technology and mathematics to students in grades 10-11 in general education schools on the basis of variable curricula.

178 UNDP, 2023. *Social and psychological determinants of behavioral changes in girls and women in STEM education and STEM employment.* Available from: https://www.undp.org/uzbekistan/publications/girls-stem-report

179 The level of self-identification with the professional field is evident through the presence of positive emotional experiences associated with the profession and the successful execution of professional duties.

180 The level of inclusion of an individual in a relevant professional sector is reflected in their understanding of innovations and activities linked to the profession. Criteria for engagement consist of positive encounters stemming from the acquisition of new information, enhanced expertise, skills, and the chance to take part in professional events.

181 Tech4Impact, 2019. Technovation Girls Uzbekistan. Available from: https://tech4impact.uz/en/programmes/technovation/about-5/

182 The Republic of Uzbekistan, 2019. *Presidential Decree on approval of the Concept of higher education system of the Republic of Uzbekistan until 2030*. Available from: https://lex.uz/ru/docs/4545887 [in Russian]

183 The Republic of Uzbekistan, 2022. *Presidential Decree on measures to further accelerate work on systematic support for families and women*. Available from: https://lex.uz/docs/5899500 [in Russian]

7.4. Women's Employment in the Energy Sector

Gender disparities in STEM are inevitably also reflected in employment. As an example, women account for only 14% of the workforce of Uzbekhydroenergo, a company that manages 51 renewable energy projects in Uzbekistan and has a workforce consisting of 4,423 individuals. Similarly, only 17% of Uzbekenergo's employees are women.[184] Women's underrepresentation in the energy sector can be attributed to factors such as a lack of adequate education, a lack of awareness regarding potential and available job options, limited chances for skills advancement, and enduring stereotypes that view this industry as a high-risk profession unsuitable for women.

The Gender Pay Gap

Despite decreasing slightly from 35.6% in 2021 to 34.0% in 2022,[185] the gender pay gap persists. While no specific data are available about the gender pay gap in the energy sector, on average women in Uzbekistan earn approximately 66% of what men earn, or 34% less when calculated as a percentage of total payroll.

Jobs predominantly held by women continue to be undervalued and underpaid. This applies specifically to the education sector – where the average nominal wage in 2021 was 86.7% of the average nominal wage across all sectors – and the healthcare and social services sector, where it was 78.8%.[186] On the other hand, the sectors with the highest wages, such as information and communication (181.9%) and finance and insurance (294.2%), have a disproportionately low representation of women.[187]

The ADB took the state-owned energy corporation Uzbekenergo's workforce as a representation of the broader energy sector employment when conducting gender assessment research in the country.[188] In the period from 2014 to 2017, women comprised only 17% of Uzbekenergo's employees, with no female representation in senior management roles. Similar to other countries in the region, women were predominantly employed in administrative and lower-level positions. Consequently, their influence on significant policy decisions remains limited.

The table below provides a breakdown of the gender distribution among Uzbekenergo JSC staff between 2014 to 2017.

Sex-disaggregation of Uzbekenergo JSC staff (%)

YEAR	TOTAL		MANAGEMENT		TECHNICAL STAFF		MAINTENANCE	
	Women	Men	Women	Men	Women	Men	Women	Men
2014	17.2	82.8	23.1	76.9	44.8	55.2	14.7	85.3
2015	16.9	83.1	21.9	78.1	51.3	48.7	14.5	85.5
2016	17	83	20.2	79.8	46.5	53.5	15	85
2017 (Jan-June)			23.3	76.7	12.9	87.1		

Source: Ministry of Employment and Labor Relations. 2017. Uzbekenergo JSC data. Tashkent.

Each branch of Uzbekenergo JSC is associated with its own trade union tied to the Republican Council of Trade Union of Energy Workers. These unions are responsible for safeguarding the overall welfare and benefits of employees, as well as addressing any grievances that may arise. They also oversee work schedules and service regularity, and arrange workshops for capacity development. Additionally, each unit union includes a Commission on Women's Issues, which ensures the protection of female employees' rights.[189]

Fostering Gender Equality and Inclusion at Uzbekhydroenergo

Uzbekhydroenergo established a Gender Equality Board in 2021, with the following main responsibilities:

- providing working women extensive support, which encompasses promoting their social and

184 OSCE, 2024. *Advancing a Just Energy Transition in Central Asia: Women's Key Role in the Energy Sector.* Available from: https://www.osce.org/files/f/documents/f/f/561811.pdf

185 Statistics Agency under the President of the Republic of Uzbekistan, 2023. *Gender gap in wages*. Available from: https://gender.stat.uz/en/additional-indicators/economic-resources

186 ILO, 2023. *Women and the World of Work in Uzbekistan: Towards Gender Equality and Decent Work for All.* Available from: https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---sro-moscow/documents/publication/wcms_907344.pdf

187 Ibid., p. 44.

188 ADB, 2018. *Uzbekistan Country Gender Assessment Update.* Available from: https://www.adb.org/sites/default/files/institutional-document/479841/uzbekistan-country-gender-assessment-update.pdf

189 Ibid., p.20.

political engagement, boosting their morale and empowering them to contribute significantly towards reinforcing ethical principles within families,
- assisting in the effective execution of critical government initiatives focused on enhancing the family institution and supporting working women,
- taking measures to safeguard the rights and welfare of employed women, enhancing their involvement in social and political affairs, promptly recognising issues that impact both families and working women, and organising the delivery of social, legal and psychological assistance to those encountering challenging social situations.

Since its establishment, the Uzbekhydroenergo Gender Equality Board has been actively promoting gender equality at the company. In the last meeting of the Board, in February 2024, it set such goals as collection and analysis of sex-disaggregated data about employees of the company, participation in local and international conferences, seminars and training devoted to gender equality. Moreover, the Gender Equality Board plans to organise further seminars and trainings to promote the concept of gender equality, and legal regulations on the prevention of gender violence among the employees.[190] Uzbekhydroenergo also undertakes initiatives to recognise and support talented young people, providing systematic training for leadership roles, and creating a pool of potential candidates for future positions. In 2022, 10 females and 21 males employed at the company's establishments have been enrolled as distance learning students at university, based on the endorsement of the Chairman of the Board of Uzbekhydroenergo JSC. In the same year, the company concluded employment contracts with 12 university graduates for practical training and subsequent employment.[191] 13 students (including 6 girls) of the Tashkent State Institute of Architecture and Civil Engineering, the Tashkent University of Irrigation and Agricultural Mechanization Engineers, and the Tashkent State Polytechnic Institute became scholarship holders of Uzbekhydroenergo. These students are included in the pool for future personnel.

In addition, in 2022 the company organised a training seminar explaining the concept of gender equality and the content of normative legal documents on the prevention of gender-based violence. Roundtable and workshops were held under the slogan "16 days against violence" and "Protection of women and girls and support for families".[192]

As of January 2024, 11 persons with disabilities (seven men and four women) were working at Uzbekhydroenergo JSC enterprises and organisations, as part of the company's efforts to encourage diversity, inclusion and equal opportunities.[193]

The number of women working for Uzbekhydroenergo has grown from 586 in 2021 to 644 in 2022, including an increase in the number of women in leadership positions from 10 to 14 over the same time period. This progress can be attributed to various factors, including the establishment of a Gender Equality Advisory Board and the implementation of a comprehensive programme aimed at fostering gender equality. The company has also prioritised empowering women in society and has identified a pool of talented women to prepare for leadership roles. In addition, through collaboration with higher education institutions, the company is forging practical partnerships, and has introduced a scholarship programme for both male and female students.[194]

Women's Council

In 2021, Thermal Power Plants JSC approved the *Charter of the Women's Council*, which was established to uphold the socio-economic rights and interests of women in the workforce, as outlined in the *Decree of the President of the Republic of Uzbekistan* dated 18 February 2020, No. 5938 – *On measures to improve the social and spiritual environment in society, to further support the mahalla*

190 Uzbekhydroenergo JSC, 2024. Minutes of the meeting on the work carried out by the Gender Equality Board in 2023. Available from: https://upload.uzgidro.uz/upload/files/2024_04_29_07_50_03662f512be8291.pdf [in Uzbek]
191 Uzbekhydroenergo JSC, 2024. *Supporting the United Nations Sustainable Development Goals.* Available from: https://uzgidro.uz/post/view/138
192 Uzbekhydroenergo JSC, 2024. *Diversity and Inclusion.* Available from: https://uzgidro.uz/post/view/150
193 Uzbekhydroenergo JSC, 2024. LIST of disabled employees who carry out their activities at enterprises and organizations of the system. Available from: https://upload.uzgidro.uz/upload/files/2024_02_01_13_24_1865bb9b8257485.pdf
194 OSCE, 2024. *Advancing a Just Energy Transition in Central Asia: Women's Key Role in the Energy Sector.* Available from: https://www.osce.org/files/f/documents/f/f/561811.pdf

institution and bring the system of working with families and women to a new level.[195]

The Women's Council operates publicly in accordance with the *Charter* and is led by a female chairperson from Thermal Power Plants JSC. Women who meet specific criteria – such as higher education, significant experience, organisational skills, socio-political literacy, knowledge of reforms and are aged over 30 but not yet retired – can be elected as chairperson.[196]

The Women's Council has the following key objectives:

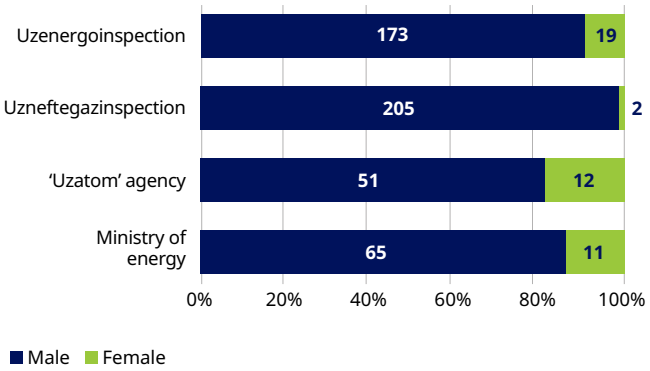
- expanding the opportunities available to women working in the central office and system enterprises of Thermal Power Plants, ensuring their safety, enhancing their legal knowledge, facilitating their participation in cultural and educational activities, and empowering them to oversee the implementation of these endeavours,
- creating favourable conditions for women, particularly young women, to showcase their intellectual potential and realise their innate abilities,
- promoting women's active participation in society and establish the necessary conditions for their professional development.

As part of its activities, the Women's Council conducts social analyses to examine issues pertaining to women's rights, freedoms and legitimate interests, and devises appropriate measures to address any violations identified. Moreover, the Women's Council is responsible for:

- offering psychological and financial aid to women in need or facing difficult social circumstances,
- examining issues concerning women's rights, freedoms and lawful interests,
- providing support in strengthening the protection of socio-economic and legal interests of women requiring social protection, specifically those from vulnerable groups like low-income individuals, large families or those who are orphaned or disabled.[197]

According to data from May 2020, the Ministry of Energy along with its subsidiaries, employed a total of 538 staff members. Among them, 8.2% were women, while 91.8% were men (see the figure below). The Nuclear Development Agency, Uzatom, demonstrated the highest female representation at 19%, whereas the lowest representation – less than 1% – was observed in Uzneftegazinspection (the Inspectorate for the control of the use of petroleum products and gas).[198]

Gender representation in the Ministry of Energy



Source: Ministry of Energy of the Republic of Uzbekistan

The Ministry of Energy itself has a female representation of 14.5%, with women holding about 1% of top and mid-level managerial positions (see the table below).[199]

Gender representation by Ministry of Energy Department

MINISTRY	SENIOR MANAGEMENT		HEAD OF DEPARTMENT		SPECIALISTS WITH SPECIALIZED EDUCATION IN THE ENERGY SECTOR		TECHNICAL STAFF	
	Male	Female	Male	Female	Male	Female	Male	Female
Ministry of Energy	4	0	22	2	35	w6	8	3

Source: Ministry of Energy of the Republic of Uzbekistan.

195 Republic of Uzbekistan, 2020. *Presidential Decree on measures to improve the social and spiritual environment in society, to further support the mahalla institution and bring the system of working with families and women to a new level*. Available from: https://lex.uz/ru/docs/4740347 [in Russian]
196 Thermal Power Plants JSC, 2024. *Gender Policy.* Available from: https://tpp.uz/en/page/gender-tenglik
197 Ibid.
198 ADB, 2020. *Power Sector Reform Program: Gender Assessment* (p. 18). Available from: https://www.adb.org/sites/default/files/linked-documents/54269-001-sd-04.pdf
199 Ibid., p. 19.

8

Promising Steps and Potential Best Practices

Promising Steps and Potential Best Practices

This section offers an overview of some of the practices identified in the five Central Asian countries covered in this document. Despite the limited information available about their impacts to date, their concept, objectives and potential are considered to be strategic for a just and inclusive energy transition.

GENDER COUNCIL WITHIN THE MINISTRY OF ENERGY

In Uzbekistan and the Kyrgyz Republic, the Ministry of Energy incorporates a Gender Committee (or Council). They have both been established quite recently – first in Uzbekistan, in 2020, followed by Kyrgyzstan in 2022 – and information about their scope of work and impacts to date remain limited. While it is not possible to fully assess the impact of their work, their existence is in principle a step in the right direction. They have the potential to play a critical role in creating a more inclusive and equitable energy sector, by contributing to:

- advocacy for gender equality: a gender council or committee can actively foster policies and initiatives that promote gender equality and women's participation in the energy sector,
- capacity building: a gender council or committee can initiate and support training and development opportunities to raise awareness about gender equality in the sector and tools and approaches to mainstream it effectively. for women to enhance their skills and knowledge in the energy field,
- research and analysis: a gender council or committee can expand research and analysis to identify gender-specific challenges and opportunities within the energy sector.

Based on the findings and results from these initiatives, the gender councils or committees can propose and design dedicated measures to fill current gaps and address current challenges, such as gender mainstreaming in energy policies and projects, mentorship programmes to support women's career advancement and leadership development, national and international collaborations with other stakeholders to advance gender equality and women's empowerment in the energy sector.

GENDER EQUALITY ROADMAP

In 2020, Uzbekistan's Ministry of Energy developed a *Gender Equality Roadmap* which foresaw a series of activities intended to render the energy sector in the country more inclusive and equal. Practices such as gender mainstreaming, gender indicators, women-friendlier corporate practices and work environments, and equal opportunities were expected to be implemented between 2020 and 2021.

An assessment conducted by the ADB in 2020 reported that a number of the planned activities had either not been scheduled or there was no information about them. While at present it is not clear to what extent the planned activities have been carried out, or with what results, the concept of a gender equality roadmap is potentially a valid tool in enhancing awareness, capacities and implementation of gender equality and women's empowerment in the public and private energy sector.

GENDER MAINSTREAMING COURSE FOR CIVIL SERVANTS

In July 2024, UNDP launched a specialised online course on gender mainstreaming for civil servants in Turkmenistan to raise awareness and capacity among civil servants about the importance of gender equality, and gender mainstreaming as a methodology to implement gender equality in public policies. The course, which was also open to other stakeholders, is not specific to the energy sector. However, the principles and methodologies it promotes are valid for and applicable to the energy sector. Equipping the public sector with the knowledge and tools to understand and apply gender equality is in fact instrumental in effectively translating it into policies, projects and programmes across different industries and fields.

QUOTA SYSTEM FOR ENROLMENT IN TERTIARY EDUCATION

Acknowledging the gaps in enrolment in tertiary education, the government of Tajikistan launched in 2020 a Presidential Quota System that offers free places to access higher education to girls and boys from disadvantaged families and remote mountain areas.

The number of beneficiaries foreseen by the quota system has been increasing over years. In the 2014/2015 academic year – the last for which data are available – 3.4% of the students in higher education institutes were awarded scholarships under this quota and 21 out of 38 higher education institutes received places funded from the state budget for quotas.

The measure has contributed to the improvement of social inclusion in access to specialised tertiary education, but has been less effective in distributing students across

different disciplines – most of the quota seats are given to medical and pedagogical students, and mostly to two regional universities, – or in raising the proportion of girls studying STEM subjects. It rather led to a reinforcement of female enrolment in traditionally women-dominated and lower-paid fields, such as education and healthcare, and has also witnessed a lower completion rate among female students, due to the lower quality of previous education received in their disadvantaged residential areas. However, acknowledging these weaknesses and adjusting the system accordingly, the quota system could be leveraged as an avenue to specifically address the imbalance of female students in STEM fields.

STEM FOR GIRLS

International initiatives – such as UNICEF's Skills4Girls and the joint UNDP-UNICEF STEM4All platform – are designed specifically to break gender stereotypes and attract more girls into STEM fields by raising girls' awareness about STEM disciplines, exposing them to female and international professionals in the area, and running innovation labs.

Skills4Girls is currently active in Tajikistan and STEM4All in Turkmenistan and Kyrgyzstan.

MBA PROGRAMME FOR WOMEN IN ENERGY

In 2022, the first dedicated Executive MBA programme on Women's Leadership in the Energy Industry was launched at the Atyrau Oil & Gas University in Kazakhstan, to prepare women to become highly professional, proficient managers and business partners in the energy sector. Designed to address the substantial gender inequalities in the energy sector, the programme aims to develop a professional community of competent women who are ready to participate in solving significant social and economic problems within the energy industry.

SCHOLARSHIPS FOR WOMEN IN RENEWABLE ENERGY AND ENERGY EFFICIENCY

In 2023, the OSCE initiated a fully-funded scholarship programme in partnership with the Kazakh-German University (DKU) to assist young Central Asian women's careers in the sustainable energy sector. The initiative provides scholarships for the Master's programme in Strategic Management of Renewable Energy and Energy Efficiency at DKU to young women from Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan and Uzbekistan with backgrounds in engineering, thermal power, technology, environmental sciences, economics and management. The purpose of the initiative is to equip female professionals in the region with skills for establishing and managing renewable energy facilities and handling clean energy technologies, including energy conservation and efficiency. Scholarship recipients receive financial assistance, comprehensive training and access to networking opportunities.

GENDER TARGET

Kazakhstan's Action Plan to implement the 2020-2022 stage of the *Concept on Family and Gender Policy 2030* included a target of 30% of women to be included in the top-management of all companies, including those in the energy sector, by 2030. Similarly, in 2022 the President of the Republic of Kazakhstan mandated all state companies to gradually increase the average proportion of women in the boards, boards of directors, and supervisory boards across the entire Samruk Kazyna Fund group to reach 30% by 2030.

While no information is currently available about the progress of implementation of these targets in the energy sector, targets are one viable avenue to increase the insufficient number of women in leadership positions in the energy industry across the region.

ASSOCIATIONS OF WOMEN IN ENERGY

In the last few years, several associations have been established in Central Asia, bringing together women working in the energy sector and committed to promoting a more inclusive and gender equal energy sector. Initiatives such as the Women in Energy Club, the Women for the Just Transition Network, the Women's Oil Girl Club in Kazakhstan, and the Women in Energy Association in the Kyrgyz Republic carryout dedicated activities including awareness-raising events, training programmes, international cooperation, and networking platforms to gather female professionals in the energy public and private sector, increase visibility of issues of gender in the sector and promote a women-friendlier sector. Awards are also organised, to recognise and celebrate female professionals with an outstanding journey in and contribution to the energy sector.

WOMEN'S COUNCIL

In 2021, the Uzbek Thermal Power Plants JSC established a Women's Council to uphold the interests of women in the workforce, expand the opportunities

available to women working in the company, ensure their safety, enhance their access to education and training, creating women-friendly working conditions and support women's professional development. The Council also conducts analyses on women's issues, proposes measures in support to women, and offers psychological and financial aid to women in need.

GENDER EQUALITY BOARD

In 2021, the Uzbek Uzbekenergo JSC established a Gender Equality Board to promote gender equality within the company and provide dedicated support to female staff, safeguarding their rights, welfare and empowerment. In its latest meeting, in February 2024, the Board set also goals related to the collection and analysis of sex-disaggregated data about employees of the company, participation in local and international conferences, seminars and training devoted to gender equality. The Gender Equality Board plans to organise seminars and training aimed at promoting the concepts of gender equality, legal regulations on the prevention of gender violence among the employees.

WOMEN'S EMPOWERMENT PRINCIPLES

The seven WEP were developed by the UN Global Compact and UN Women to promote gender equality and empower women in the workplace, marketplace and community. They are based on international labour and human rights standards and provide a framework for businesses to take action on gender equality and contribute to a more inclusive and equitable workplace and society.

The seven principles are:

1. establish high-level corporate leadership for gender equality
2. treat all women and men fairly at work, respect and support human rights and non-discrimination
3. ensure the health, safety and well-being of all women and men workers
4. promote education, training and professional development for women
5. implement enterprise development, supply chain and marketing practices that empower women
6. promote equality through community initiatives and advocacy
7. measure and publicly report on progress to achieve gender equality.

As of November 2022, 44 Kazakhstani companies were WEP signatories, including KMG, the largest national oil and gas company.[200] The company committed to conduct a self-assessment using the WEP Gender Gap Analysis Tool and evaluate its strategic approach to gender equality, identify gaps and opportunities for continuous improvement, and set goals and objectives. The company also committed to disclose gender-disaggregated data in sustainability reports to inform their stakeholders about their progress.[201] Data for 2023 show that:

- 19% of KMG's employees were women, representing a 1% increase from previous years,
- the proportion of women in leadership positions decreased by 3% in 2023, constituting 15% of all leadership roles within the KMG Group (down from 18% in both 2022 and 2021),
- women make up 38% of specialists (a decrease from 39% in 2022 and 40% in 2021), and 14% of workers,
- women receive more average training hours compared to men (i.e. 30 versus 19).

ESG REPORTING

Corporate reporting on ESG performance is at its early stages in Central Asia, progressing at rates across the region.

In Kazakhstan, where most progress has been recorded in advancing and regulating ESG reporting, it is coupled with a growing trend towards participation in the KASE. In 2018, the KASE updated its methodology and regulations to monitor the companies listed on the KASE and introduced indicators monitoring annual progress on gender equality.

While information on impacts of ESG compliance remains limited, these developments can be a further incentive for companies to enhance gender equality and inclusiveness in their work environment – as exemplified by exchanges with the chief sustainability officers of two energy companies in Kazakhstan. They mentioned their efforts to increase the percentage of

200 UN Women, *WEPs Talks share corporate best practices on women's empowerment in Kazakhstan,* 2022. Available at: https://eca.unwomen.org/en/stories/news/2022/11/weps-talks-share-corporate-best-practices-on-womens-empowerment-in-kazakhstan

201 KazMunayGas SDGs Progress Report, 2023, https://www.kmg.kz/upload/medialibrary/f18/bgmwo7az4j17lfpdy41zxu9j5y5nucbf/O%20ВКЛАДЕ%20КМГ%20В%20ДОСТИЖЕНИЕ%20ЦУР%20ООН_rus.pdf

women in leadership positions, provide professional development opportunities for female employees, ensure gender-responsive workplace practices and show an annual growth on gender indicators for ESG ratings, with some setting a KPI for some positions in order to increase the share of women, or at least ensure that the number of women does not decrease.

COMMISSION ON WOMEN'S ISSUES AT TRADE UNIONS

The Commission on Women's Issues at Trade Unions in Uzbekistan is a dedicated body within the trade union movement that focuses on addressing the specific concerns and challenges faced by women in the workplace. Its primary goals include:

- promoting gender equality: the commission works to ensure that women have equal opportunities and rights in the workplace, free from discrimination based on gender,
- protecting women's rights: it advocates for the enforcement of labour laws and regulations that protect the rights of women workers, such as maternity leave, equal pay, and safe working conditions,
- addressing workplace harassment: the commission investigates and addresses complaints of sexual harassment and other forms of workplace discrimination against women,
- empowering women workers: it provides training and support to women workers to enhance their skills, knowledge, and confidence, enabling them to participate more fully in the workforce and leadership roles,
- advocating for women's interests: the commission represents the interests of women workers in negotiations with employers and government officials, seeking to improve their working conditions and benefits.

The Commission is not exclusive to the energy sector and operates across several industries. The Trade Union of Energy Workers has its own specific Commission on Women's Issues, which has thus the potential of contributing to making the sector more inclusive and equal by addressing gender-specific challenges and advocating for equality and women's empowerment.

MENTORING PROGRAMME FOR WOMEN IN ENERGY

Since 2022, the OSCE in partnership with GWNET has been running a dedicated mentoring programme to support Central Asian mid-career women working in the energy transition field. By matching them with experienced energy professionals from the region and beyond, the programme contributes to strengthening women's skills, changing gendered perceptions and fostering female leadership to support women in becoming catalysts for sustainable change, energy security and regional resilience.

REGIONAL COOPERATION

In 2022, the Gender Council of the Ministry of Energy of Uzbekistan and the Association of Women in Energy of Kyrgyzstan signed a memorandum of cooperation and understanding. According to the Uzbeki Ministry of Energy, the parties intend to cooperate to expand opportunities and increase the role of women in the energy sector. In addition, the memorandum calls for the creation of favourable conditions for the development of cooperation between the parties in terms of learning and applying the work experience of women working in the energy systems of Kyrgyzstan and Uzbekistan, promoting gender-oriented professions in the energy sector, engineering and ICT engineering, providing consulting, information assistance to the younger generation, as well as organising joint projects and analytical work.

Although no other information is currently available about the implementation of this memorandum, the initiative of fostering regional collaborations among stakeholders to exchange experiences and know-how and promote a more inclusive and gender equal energy sector is potentially promising, considering the limited regional initiatives currently in place in Central Asia, despite the many challenges and objectives that the local countries have in common.

CONCLUSION

In conclusion, Central Asia is in the very early stages days with regard to the integration of gender issues into the multiple dimensions of the energy sector. While confronted with a general challenge in the systematic collection of gender-disaggregated data, the region also demonstrates various concepts and practices which – effectively applied and scaled up regionally – have the potential to make the energy sector significantly more inclusive and gender-equal. In so doing, such improvements in turn contribute to making national economies more sustainable, resilient and innovative.