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Exploring Opportunities for Women's Empowerment in the Energy Sector in Central Asia

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Exploring Opportunities for Women's Empowerment in the Energy Sector in Central Asia

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Executive Summary

Women are underrepresented in the energy sector across Central Asia. The size of the gender gap in the energy workforce varies considerably by country: national statistical data indicate that women represent 29 percent of the industry's workforce in Kazakhstan, 18 percent in the Kyrgyz Republic, 15 percent in Uzbekistan, and 11 percent in Tajikistan. This pattern is consistent with global patterns in the industry: women account for an estimated 16 percent of energy sector employment worldwide.

Narrowing these gender gaps is crucial to securing the sustainable development of the energy sector across Central Asia. Increasing women's participation in the sector can help economies address labor and skills shortages, attract investment, boost energy production, and enhance efficiency—facilitating the transition to low-carbon energy sources over the long term. The benefits of a gender-diverse workforce to companies include a broader talent recruitment pool, higher levels of innovation, enhanced problem solving, and improved financial performance.

This study assesses gender gaps in the energy sector in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. It is based on a series of focus group discussions and key informant interviews, accompanied by focused statistical analysis and a review of national policy and legislative frameworks. A key contribution of this study is the provision of new qualitative insights into the practical barriers to women's increased participation in the energy sector, reflecting the views of students in energy-related disciplines, academic staff, and employees and company representatives across the four countries. Finally, targeted recommendations are offered on how policy makers, companies, and educational institutions can reduce gender gaps in the energy sector across Central Asia.

Key Findings

Transition from education to work

There are relatively few women enrolled in energy sector-related science, technology, engineering, and mathematics (STEM) courses. While women typically account for about half of all students in higher education in Central Asian countries, they represent only 15 and 12 percent of engineering students in Kazakhstan and Uzbekistan, respectively; and 10 and 4 percent of students in energy-related courses in the Kyrgyz Republic and Tajikistan, respectively. Women's participation rates in technical and vocational education and training (TVET) relevant to the energy sector are even lower, representing only 10 percent of students enrolled in TVET for the power and energy sector in Kazakhstan, only 5 percent of students enrolled in TVET for the energy and engineering sector in the Kyrgyz Republic, and only 3 percent of students enrolled in TVET for the energy sector in Tajikistan.¹

Widespread misperceptions that the energy sector does not offer suitable employment for women discourage many from pursuing energy-related technical education and careers. Female students and energy sector staff across all four countries report the widespread view that the energy sector does not provide desirable career opportunities to women, and many female students and graduates of technical studies experience pressure from family members to pursue employment in sectors perceived to be more "appropriate" for women. However, some young women have been exposed to more positive messaging. Several women report having family members working the energy sector as a key motivating factor in their pursuit of a technical education and career in the energy field. Interviews suggest that tackling persistent misconceptions about the energy sector will require

1. Data on the share of women students enrolled in TVET for energy-related disciplines in Uzbekistan are unavailable.

comprehensive awareness-raising efforts starting at an early age that focus on school-aged girls and their families.

Female graduates are more affected by the sector's emphasis on practical experience than are their male counterparts, making it challenging for many to gain a foothold in the industry. Energy sector employers often require candidates to have practical experience, yet many students feel that there are limited opportunities for practical training corresponding to industry needs. Women interviewed for this study believe these requirements affect women graduates disproportionately because many perceive women as having less practical knowledge than men, partly due to gender stereotypes but also due to the lack of opportunities for women to gain the relevant work experience. Interviewees suggest that teaching staff are often reluctant to send women students to work “in the field” with technical equipment, instead directing them to desk-based work.

In some countries, there are initiatives to strengthen women's participation in energy-related STEM education. In some instances, the availability of targeted state funding is making technical education more accessible to women. In Tajikistan, for example, authorities have introduced quotas on the number of university placements reserved for female STEM students on state-funded scholarships. Uzbekistan's policy makers have increased the availability of government-funded scholarships to facilitate access to higher education for young women from low-income families. Some higher education institutions support the transition from school to work, partnering with energy sector employers to provide practical training, work experience, internship opportunities, and recommendations to support graduates' recruitment; however, these schemes do not typically include a gender focus.

There is scope to strengthen the links between educational institutions and energy sector employers to support women's school-to-work transition. Students learn about job opportunities largely through family, friends, social media, and online job platforms; a few companies also disseminate information about job openings or advertise available vacancies at universities. Yet many women lack the connections necessary to break into energy sector jobs while at the same time are actively discouraged from pursuing employment in the industry. These factors highlight the importance of ensuring that advertisements for energy sector jobs expressly encourage applications from qualified female graduates.

Recruitment, retention, and progression

Across the region, women working in the energy sector are concentrated in administrative and office-based roles and are less likely to work in technical or field-based roles. High levels of gender-based occupational segregation mean that technical and operational roles are predominantly held by men, while women are more likely to be employed in administrative positions as lawyers, accountants, and economists. There are reportedly very few women in field-based operational roles because the few female graduates who pursue employment in the technical engineering field are usually engaged in office-based work, such as design and documentation.

Interviews suggest that gender stereotypes and assumptions about women's care responsibilities pose a significant obstacle to equal opportunity in recruitment. Despite the presence of nondiscrimination legislation across the region, employers are reportedly reluctant to hire women due to concerns about the possibility of women taking lengthy maternity leave or having limited flexibility and availability to work overtime due to family obligations. Respondents across all four countries shared the view that it is significantly more difficult



for women to secure employment in technical roles compared with men. There are reports of hiring managers setting informal requirements not to hire women of childbearing age to fill vacancies. Interviewees stated that female candidates for operational and field-based roles are further disadvantaged by sometimes unnecessary physical strength requirements and biased assessments of women's lack of practical experience or skills.

Increased support for employees' care responsibilities could bolster women's recruitment and retention in the energy sector, especially in field-based operational roles. Across the region, prevalent sociocultural norms mean that women typically bear a disproportionate share of family responsibilities and household tasks. Employees in the energy sector suggest that family-friendly policies that support working mothers with flexible

working hours, return-to-work support after maternity leave, and childcare support could significantly improve the sector's retention rate of female staff. The perception that field-based positions are incompatible with women's family obligations are widespread because the jobs require shift work, working at night, frequent travel to sites, overtime, and around-the-clock availability in the event of an accident or emergency—demands that are particularly challenging for women who bear the primary childcare responsibilities.

For many women, their care responsibilities outside of work makes it is more difficult for them to advance into leadership roles. Interviews indicate that women across the region are often more reluctant than their male counterparts to apply for senior and managerial roles, believing the extra responsibilities of higher-ranking positions would likely interfere with their childcare and household duties. However, while some women prefer to focus on family life, some women are ready and willing to take on the additional responsibilities associated with leadership roles. In these cases, over-protective attitudes and misplaced assumptions about women's family responsibilities sometimes impede their access to professional development opportunities. Some interviewees suggest that management may not assign a woman for travel to an operational site based on assumptions about her family-related responsibilities, even if she expresses a strong interest in the assignment.

Limited experience in operational roles also hampers women's career progression. In Uzbekistan and the Kyrgyz Republic, for example, technical education and experience in operational roles are requirements for promotion to chief engineer or a managerial position. However, entry-level operations jobs associated with unpredictable schedules, physical effort, and "practical skills" are highly male-dominated, and in Tajikistan, Uzbekistan, and the Kyrgyz Republic might not even be accessible

to women due to legislative restrictions on women's employment. Women tend to begin their careers in office-based roles, hindering their ability for career advancement in the sector.

Gender bias and negative perceptions about women's leadership abilities present another barrier to women's professional development and advancement in the sector. Women who are employed in technical positions report that management often overlooks women's achievements and contributions and are much more likely to offer professional development opportunities, additional training, and business trip opportunities to their male colleagues. At some companies, interviewees suggest, women are not being considered for managerial positions despite outperforming their male counterparts, reportedly due to stereotypical assumptions about women being more emotional and less resilient under stress, thereby negatively impacting women's opportunities for promotion to roles requiring decision-making and problem-solving skills under pressure. The pervasive view that men are better suited for technical and managerial roles also erodes women's confidence in their own abilities, discouraging qualified women from applying for those jobs in the first place.

The presence of female role models and mentors is key to supporting women's career development in the energy sector. Across Central Asia, women interviewed for this study shared the view that highlighting the achievements of women in senior technical and leadership roles, and providing opportunities for them to share their experience and to support their female colleagues in the sector, could offer positive examples for women pursuing careers in the energy sector. Women's mentoring programs and professional networks organized by industry associations have helped women advance in their careers and access new opportunities in Kazakhstan and in the Kyrgyz Republic.

Safe and inclusive work environments

Companies are primarily focused on complying with national legislation; few have taken active steps to increase the share of women in their workforces or to build inclusive workplaces.

According to human resources managers, there is significant scope to train and raise awareness of staff and management to change attitudes toward women's employment and to build inclusive corporate cultures.

Many women feel unrecognized or undervalued in the workplace, particularly those in technical positions and those on male-dominated teams.

Women in technical positions report that it is often difficult to be accepted as a part of male-dominated operations teams and that they often feel unwelcome in field environments, resulting in many preferring office-based work. Gender norms often influence how tasks are assigned in the professional environment. In Kazakhstan, women report that female team members are sometimes expected to fill out paperwork and handle document completion tasks on behalf of their male colleagues. At the same time, desk-based work is not highly valued, and men are generally perceived to be more "trusted" and knowledgeable. In the Kyrgyz Republic, female employees report feeling less able to openly express their opinions at work compared with their male colleagues.

There is scope to improve the physical working conditions for operational and field-based positions for men and women alike, including by providing basic facilities for female workers.

According to technical staff, most energy sector companies do not provide adequate facilities for women in the field, such as separate showers or toilets. Work in the energy sector is also considered physically difficult. Entry-level operations jobs reportedly require manual labor and a level of physical strength, which deters many women from pursuing employment in the industry. However,

the modernization of the sector and automation of previously physically demanding tasks increasingly offers more attractive employment and safer working conditions for both women and men.

Workplace sexual harassment is a risk to women's workplace safety across Central Asia, but few companies have taken specific measures to protect female workers or encourage reporting.

Energy sector staff in Kazakhstan report instances of women engineers leaving their jobs due to being sexually harassed by their colleagues. In Uzbekistan, concerns related to personal safety makes many female employees reluctant to work at night, but no companies have taken specific actions to mitigate the risks of gender-based violence at work. National surveys suggest that one in four women have been sexually harassed at work in the Kyrgyz Republic. In Tajikistan, workplace sexual harassment is believed to be underreported due to social stigma and fear of retaliation by employers, but one company has recently introduced a policy on the protection of women from harassment. Although general complaint channels are available to energy sector workers throughout the region, most companies do not offer comprehensive gender-sensitive grievance mechanisms that would enable individuals to safely report gender-based violence and harassment and to seek support.

Institutional and policy reform

Across all Central Asian countries, there are supportive national policy environments for efforts to strengthen women's employment in the energy sector. Gender equality is a policy priority for the governments of Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. National policies in Kazakhstan and Uzbekistan, for example, aim to increase women's participation in leadership roles. The *Concept of Family and Gender Policy in the Republic of Kazakhstan to 2030* contains ambitious targets to expand women's share of decision-making roles in government and in the

public and corporate sectors to 30 percent by 2030, while the *Strategy for Achieving Gender Equality in Uzbekistan by 2030* envisages the introduction of temporary quotas for women's employment to close gender gaps in employment in government bodies. Growing women's participation in vocational training and higher education, particularly in STEM subjects, is a priority in all four countries.

Nevertheless, legislative restrictions in the Kyrgyz Republic, Tajikistan, and Uzbekistan continue to constrain women's employment in the energy sector. Longstanding legal barriers to women's access to energy sector jobs have recently been abolished in Kazakhstan, but legislative restrictions on women's employment in certain operational roles continue to limit employment opportunities for women in the Kyrgyz Republic, Tajikistan, and Uzbekistan. Employers in the Kyrgyz Republic and Tajikistan are prohibited from hiring women as electricians engaged in overhead transmission line repair or maintenance of electrical equipment. In Uzbekistan, although women's employment in certain energy sector roles is no longer expressly prohibited, it remains "not recommended," and employers can create their own lists of jobs for which female labor is to be "limited."

Policy makers in the Kyrgyz Republic have taken actions to strengthen the legislative framework on workplace sexual harassment. Tajikistan and Uzbekistan have introduced anti-harassment legislation, and legal reforms are under consideration in Kazakhstan. In line with Tajikistan's National Development Strategy for 2016–2030, which aims to strengthen legislation on the prevention of violence against women, a new law on equality and the elimination of all forms of discrimination, adopted in 2022, has for the first time introduced the concept of workplace harassment into the national legislative framework in Tajikistan. However, the law does not include sexual harassment. Meanwhile, Uzbekistan's legislation, introduced in

2019, grants labor authorities the power to carry out preventive measures within organizations (regardless of ownership) to prevent gender-based violence and harassment in the workplace; however, the legislation does not explicitly make a reference to the prohibition of sexual harassment in employment. Workplace sexual harassment is not currently prohibited in Kazakhstan. While in the Kyrgyz Republic, the Labor Code does not explicitly prohibit sexual harassment in employment, the Law on State Guarantees of Equal Rights and Equal Opportunities for Men and Women prohibits sexual harassment in the workplace, obliges employers to take measures to prevent sexual harassment, and provides for civil remedies to compensate victims for material and moral harm.

Recommendations

The findings of this study indicate that there are persistent gender gaps in the energy sectors of Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. Women face multiple barriers to education in technical fields and energy sector employment across Central Asia, and female participation rates are particularly low in technical and managerial positions.

A gender diverse workforce can yield substantial benefits for individual energy companies and national economies alike, but addressing the complex challenges to women's participation in the sector requires proactive and collaborative action by key stakeholders, including policy makers, companies, and educational institutions. The following recommendations include measures designed to support women's transition from STEM education into employment; advance women's recruitment, retention, and progression; promote safe and inclusive work environments; and ensure an enabling legislative and policy environment through institutional and policy reforms.

SUMMARY OF RECOMMENDATIONS

Facilitate the transition from education to work

RECOMMENDATION 1. Companies should strengthen their outreach efforts to young women and girls to encourage their participation in science, technology, engineering, and mathematics (STEM) education and employment in the energy sector.

RECOMMENDATION 2. Policy makers should encourage the increased involvement of young women and girls in STEM education through public awareness-raising campaigns and financial support.

Advance recruitment, retention, and progression

RECOMMENDATION 3. Educational institutions should strengthen collaboration with employers to support young women's transition from education to work in the energy sector.

RECOMMENDATION 4. Companies should take steps to ensure equal opportunity in recruitment for women.

RECOMMENDATION 5. Companies should take steps to support women's career progression and increase women's representation in senior leadership.

RECOMMENDATION 6. Companies should raise the profile of successful women in the sector, particularly in technical and field-based operational roles.

Promote safe and inclusive work environments

RECOMMENDATION 7. Companies should recognize gender equality as a strategic business issue and strengthen policy frameworks on gender equality and equal opportunity.

RECOMMENDATION 8. Companies should allocate resources to develop safer and more inclusive workplaces that cater to the needs of both women and men.

RECOMMENDATION 9. Policy makers should explore opportunities to partner with energy companies and industry associations to strengthen women's representation in the sector.

Reform institutions and policies

RECOMMENDATION 10. Policy makers should address legislative barriers and gaps that affect women's employment in the energy sector.

RECOMMENDATION 11. Policy makers should incorporate gender equality objectives and targets into energy sector policies.

RECOMMENDATION 12. Policy makers should introduce legislative and policy reforms to encourage more equitable distribution of family and care responsibilities among women and men.



1. Introduction

This assessment aims to identify gender gaps in employment and representation in the energy sector in Central Asia and explore opportunities for narrowing these gaps across the region. The report focuses on barriers to women's participation in technical and managerial positions in energy companies in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. It offers recommendations to policy makers and companies to increase gender diversity and inclusion in the energy sector.

Context

The low participation rate of women in the energy sector is a global challenge, with significant gender disparities in every subsector of the global energy industry. Women account for only an estimated 16 percent of the workforce across the energy sector and just under 14 percent in leadership roles (IEA 2022). Participation rates vary by subsector: women's share of employment is highest in the renewable energy subsector, at 32 percent, compared with the oil and gas subsector, at only 22 percent (IRENA and ILO 2023). In the renewable energy subsector, the share of women's employment is higher in the solar photovoltaic sector (40 percent), but lower in the hydropower and wind industries, at just 25 and 21 percent, respectively (IRENA and ILO 2023; World Bank 2023).

Increasing women's participation is crucial as the energy industry undergoes a transition toward cleaner, more sustainable energy sources. International research demonstrates the significant economic and human development costs associated with persistent gender disparities (Wodon et al. 2020). Conversely, closing these gaps presents companies and economies with opportunities for substantial gains (Wodon et al. 2020). Increasing women's participation can enrich the energy sector with a wider spectrum of skills and expertise, growing the talent pool for energy enterprises worldwide. Attracting and retaining a gender-diverse

workforce is key to ensuring that the transition to low-carbon energy sources is inclusive and effective over the long term.

In light of the strategic importance of the energy sector to sustainable development in each of the Central Asian countries, it is vital that principles of gender inclusion be integrated into efforts to advance the energy transition and sector growth.

Policies fostering women's participation could play a key role in supporting the development of renewable energy by filling growing labor and skills gaps. Additionally, ensuring equal opportunity in employment can enable energy sector stakeholders to attract investment, increase energy production, and enhance energy efficiency, thereby facilitating the energy transition across Central Asia.

This study provides new insights into women's participation in the energy sector in Central Asia, including the challenges that affect women's education, employment, and career advancement.

It aims to contribute to the knowledge base on women's participation in the energy sector in the region through a series of interviews and focus group discussions (FGDs) that were conducted with students and academic staff in energy-related disciplines, as well as employees and company representatives in the energy sector in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. These interviews provide a nuanced picture of women's experiences of studying and working in the energy sector in Central Asia and highlight the current practices of educational institutions and energy sector employers with respect to equal opportunities.

The findings outlined in this study will serve to inform the activities of the World Bank's Women's Empowerment in Sustainable Energy in Europe and Central Asia (WeSEE) network, recently established to promote opportunities for women in the energy sector across the region as part of the World Bank's Europe and Central Asia Gender and Energy

Program. The findings of this assessment aim to support national-level dialogues among educational institutions, employers, and policy makers on promoting equal opportunity and strengthening women's participation in the energy sector.

Methodology

Objectives and overview

This assessment is primarily based on qualitative data gathered through key informant interviews and focus group discussions, intended to capture the experiences and perceptions of female and male students and employees related to education, employment prospects, opportunities for career progression, and workplace culture in Central Asia's energy sector. The report does not seek to provide a comprehensive quantitative assessment of women's participation in technical education and the energy sector workforce.

The research for this report is based on the following elements:

- FGDs with female and male employees of energy companies as well as female and male students at universities providing instruction in science, technology, engineering, and mathematics (STEM);
- In-depth interviews with key informants, including women working at energy companies, human resources staff, and representatives of academic institutions providing STEM education;
- An analysis of select national statistical data on women's engagement in technical education and employment in the energy sector; and
- A desk review of relevant national legal and policy frameworks that affect women's employment in the energy sector.

The methodology for the FGDs and key informant interviews, conducted between August 2022 and January 2023, is set out in further detail below.

Focus group discussions

Focus group discussions were conducted with 210 employees at 48 companies across most major energy subsectors (electric utility, renewable, oil, and gas), including both private and state-owned enterprises in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. Participants included both technical and nontechnical staff in junior- and senior-level positions at the companies. In addition, FGDs were held with 82 students undertaking technical studies relevant to the energy sector at 19 universities across the four countries.

In Kazakhstan, FGD participants included 20 students (50 percent women) from 7 universities and 61 employees (80 percent women) from 20 companies across the energy sector. In the Kyrgyz Republic, 20 students (50 percent women) from 5 universities and 50 employees (80 percent women) from 8 companies took part in FGDs. FGDs in Tajikistan included 22 students (32 percent women) from 2 universities and 58 employees (84 percent women) from 6 companies. In Uzbekistan, 20 students (55 percent women) from 5 universities and 41 employees (83 percent women) from 14 companies participated.

Interviews with key informants

In-depth interviews were conducted with 60 key informants in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan (15 key informants in each country). These included interviews with women working in the energy sector, senior managers, and human resources staff at select companies, as well as academics and representatives of educational institutions providing STEM education relevant to the energy sector.

Structure of the Report

This report comprises three principal sections:

- Section 1 outlines the context and objectives of the study and provides an overview of the methodology applied;
- Sections 2–5 set out country-specific findings relating to gender gaps in technical education and employment in the energy sector in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan, including qualitative insights from key informant interviews and FGDs conducted as part of the study; and
- Section 6 offers a series of practical recommendations for policy makers, companies, and educational institutions on how to narrow gender gaps in the energy sector across Central Asia and remove barriers to women's participation in technical and managerial roles.



2. Kazakhstan

As of 2022, women represented 29 percent of the energy sector workforce in Kazakhstan (Bureau of National Statistics of Kazakhstan 2023). Recent studies suggest that women are better represented in Kazakhstan’s renewable energy subsector, accounting for 30 percent of the workforce, compared with the coal and oil and gas industries, where women make up 22 and 18 percent of workers, respectively (UNDP 2023).

Transition from Education to Work

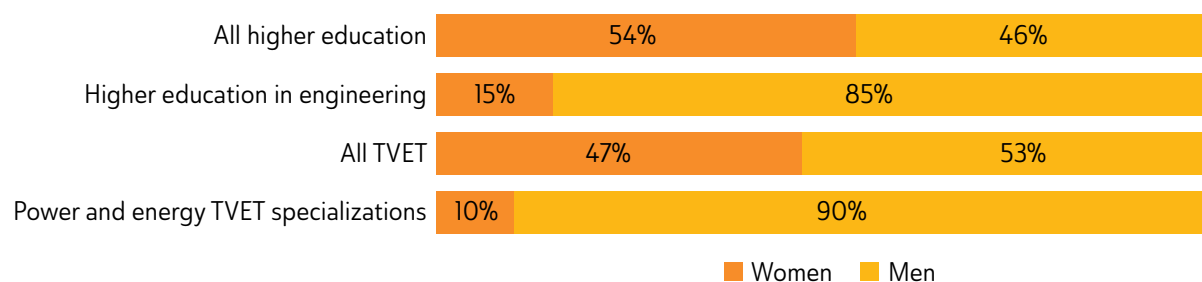
Young women are underrepresented in technical education relevant to the energy sector in Kazakhstan (figure 2.1). Although women accounted for 54 percent of all students enrolled in higher education in 2021, they represent an average of only 15 percent of students seeking engineering degrees (Bureau of National Statistics of Kazakhstan 2021a). Similarly, women accounted for almost half (47 percent) of all students attending technical and vocational education and training (TVET) institutions in 2020/2021 but just 10 percent of students enrolled in TVET concentrated on power and energy (Bureau of National Statistics of Kazakhstan 2021b). Many female students in energy-related disciplines interviewed as part of this study report that there are few other women in their classes, with some being the only woman in their cohort. Although female students are a minority in all

energy-field specializations, participation rates among young women are the lowest in the thermal energy field.

The enhanced availability of state-funded scholarships for technical specialties, awarded in recent years by the Ministry of Science and Higher Education, has facilitated overall access to STEM education. However, it is unclear whether or not this effort has resulted in more women engaging in technical studies in Kazakhstan—while some male students in energy-related disciplines attributed their choice of profession to the availability of government funding, none of the female students did. Moreover, students report that the overall number of state-funded scholarships allocated for energy faculties remains low.

Gender stereotypes about technical fields, including the belief that the energy sector is ill-suited for women, contribute to many women’s decision not to pursue an education in STEM. While having a family member working in the energy sector plays an important role in motivating some young women to pursue a career in the industry, focus group discussions (FGDs) with female students enrolled in energy-related university courses indicate that many parents discourage their daughters from specializing in energy, viewing the field as male-dominated and physically demanding. Female students also report being advised by university professors during enrollment consultations

FIGURE 2.1. Share of Women and Men Among Students in Higher Education and TVET in Kazakhstan, 2021



Source: Bureau of National Statistics of Kazakhstan 2021a, 2021b.
TVET: technical and vocational education and training.

to choose a different profession—that of a doctor or teacher—rather than specializing in an energy-related field. At the same time, young women who do pursue technical studies relevant to the energy sector tend to perform well, are perceived by their peers and professors as more responsible than the male students, and are often appointed as head of class. Graduation rates are reportedly higher among female students than their male counterparts.

Limited access to internships and work experience presents barriers to employment in the energy sector for women and men alike, particularly given that practical experience is often a post-graduation job application requirement. According to students of energy-related disciplines consulted through FGDs, university studies focus largely on theoretical knowledge rather than developing practical skills that correspond to industry needs. At the same time, cooperation between educational institutions and energy sector companies is limited, and often students must organize internships and work experience placements on their own. In addition, students report that private sector employers prefer to hire those with at least one to three years of work experience, yet their universities do not support students working while they are in school. This further constrains female students, who are often thought to have less practical knowledge than male students.

There is scope to strengthen outreach to students to attract female talent. Although professors share advice on companies suitable for employment, there is little coordinated guidance from universities on post-graduation employment opportunities, particularly when it comes to “new” specialties, such as renewable energy. Students report learning about job opportunities from their group-mates, friends, and relatives. University professors consulted during FGDs and interviews observe that there is significant scope to strengthen the “marketing” of energy-sector jobs to new graduates, particularly to women, who are often discouraged from pursuing employment in the industry,

viewing it as a sector with few opportunities for career progression.

Recruitment, Retention, and Progression

Kazakhstan’s energy sector is generally thought to offer attractive employment for women and men alike. Employees of energy companies say they chose to work in energy because of the relatively high salaries, stable employment prospects, interest in the sector, and opportunities for professional development.

However, few women who graduate from energy-related specialties gain employment in technical roles in the sector; instead, they are more likely to be engaged in administrative roles. According to key informant interviews, women account for an average of 25 percent of the workforce in the companies that participated in this study but only 5–6 percent of engineers. FGDs with energy sector employees suggest that women are typically engaged in nontechnical business and administration roles, such as human resources and accounting, but are rarely employed in technical positions. University students and faculty similarly indicate that women are often directed toward administrative, managerial, and paperwork roles in the

“For a long time, I didn’t think about gender inequality, and I wouldn’t believe people who talked about it. But I have definitely experienced it now—there have been so many times when during salary discussions, management would say: ‘Why do you need money? Your husband earns it.’”

– Female senior engineer

“The opinions of men have more weight. However, women’s voices will be heard in departments that are headed and occupied by women, where women will have more rights.”

– Female engineer

energy sector, and they are underrepresented in positions that require hands-on work or involve physical labor.

Although employment discrimination is prohibited by law, gender stereotypes still hinder women’s recruitment for technical positions. Although job requirements for women and men are the same, female FGD participants and interviewees report instances where employers refused to hire qualified women for operational roles because they did not trust women to carry out high-level responsibility tasks, such as repairs, or because they found it easier to communicate with other men and felt uncomfortable working with women. Some employers are hesitant to hire women over concerns about maternity leave. FGDs revealed that hiring managers sometimes set informal requirements not to hire women of childbearing age when filling vacancies.

Gender norms and stereotypes pose additional challenges to women employed in the energy sector, resulting in their need to work hard in order to be taken seriously. Young women in technical roles, for example, report that male managers often ignore their proposals on engineering or process improvements, while men are generally perceived to be more “trusted” and knowledgeable. Although Kazakhstan’s legislation mandates equal remuneration for equal work, there are sociocultural norms and expectations regarding the responsibilities of women and men in the family, with men viewed as “breadwinners” and women’s incomes considered secondary.

In FGDs, some women spoke of encountering obstacles when seeking leadership positions.

Female employees expressed the view that women are not considered for managerial positions at some companies despite performing better and being more responsible than their male counterparts. Energy sector students and employees alike shared perceptions that women are more emotional and less resistant to stress, which can be perceived as a disadvantage for roles involving decision making and problem solving under pressure.

Care responsibilities were cited by female FGD participants and interviewees as a key obstacle to women’s advancement in the energy sector, particularly in operational roles, for which work is organized in shifts or requires frequent travel. In some cases, overprotective attitudes and assumptions about women’s family responsibilities hinders access to professional development opportunities, with FGD participants citing instances of management not allowing women to travel to operational sites, even when female staff expressed a strong interest in such an assignment.

There is scope for senior female employees to serve as role models and to support other women’s career advancement. Many women believe that having other women in managerial positions sets a positive example and motivates women to explore their own career opportunities. They believe that women in managerial roles are more likely than their male counterparts to support and promote other women. Although not universal, some female employees act as mentors for their female friends and colleagues at the company. Others report that mentorship and professional development opportunities, facilitated by energy sector projects financed by international organizations, have helped women advance in their careers and access new opportunities in the sector.

Safe and Inclusive Work Environments

Interviews and FGDs with company employees and human resources staff indicate that most companies lack specific gender equality policies, do not offer equal opportunities, and have not taken active steps to increase the share of women on their staff. Both women and men expressed the belief that expanding support and benefits for working mothers, such as providing childcare support, would be a crucial step toward retaining more women in the workforce. Interestingly, some male participants pointed out instances of men taking parental leave, indicating a positive shift from traditional gender roles.

More can be done to improve working **conditions for women in technical positions, including in field-based and operational environments.** Male and female technical employees report that most energy companies do not provide adequate facilities, such as separate showers or toilets, for women in the field. Given that field work experience is considered an advantage when it comes to promotion opportunities, the lack of basic facilities serves as a key barrier to women's professional development. More broadly, operational work is perceived to be physically demanding and dangerous. However, the development of the energy sector and the automation of physically demanding tasks may open more opportunities for women's employment.

Gender norms and stereotypes influence how tasks are assigned in the professional environment. Women FGD participants who work in technical roles report that male colleagues tend to avoid filling out their paperwork and downplay its significance. They are known to ask their female team members to handle document completion for them, further undermining the capabilities of women on teams.

"Harassment of women is common obstacle, but 99 percent of the time people do not talk about it. We even had a case where a woman complained but was ignored, so she just left, resigned from her job because she did not want to work in a place where her personal boundaries were not respected."

– Female senior engineer

Women experience a lack of acceptance in male-dominated operational teams, resulting in a preference for office-based work. Some women engineers report feeling excluded in field environments, where men do not treat them as part of the team, and with some employers even warning young women to prepare themselves for men to be rude and use offensive language at work. According to female FGD participants, feeling unwelcome in the field contributes to women engaged in technical roles preferring to work in office-based environments. At the same time, some women express that office-based work is not valued and dismissed as "just paperwork."

Workplace sexual harassment is an important barrier to continued employment in the energy sector. Female FGD participants report that this is particularly challenging on male-dominated teams, sharing examples of women engineers leaving their jobs because they have been sexual harassed by their colleagues.

Evidence suggests that many companies lack effective gender-sensitive mechanisms that allow female workers to lodge grievances and seek support. According to employees, the grievance or complaints process in their workplace typically involves reporting concerns to the head of their department, the human resources department,

or a labor union representative, with the possibility of escalating the matter to the company's top management. While grievance boxes and logs exist, they are rarely used and, in some cases, employees have been dismissed after using these channels. Women in junior-level positions in particular feel that existing grievance mechanisms are ineffective because they require the disclosure of the complainant's identity, with no anonymous reporting options available. Many never report incidents of harassment or other complaints to human resources or through a grievance log for fear of rumors spreading. Instead, many attempt to resolve issues privately or decide to leave the company.

Institutional and Policy Reform

Increasing women's participation in high-value economic sectors such as energy is a key priority of the Kazakhstan government. For example,

The *Concept of Family and Gender Policy in the Republic of Kazakhstan to 2030* includes specific objectives to increase women's participation in vocational training in technical sectors and combat discrimination against women in nontraditional occupations. Ambitious targets for women's participation in decision-making roles have been adopted, with the policy envisaging an increase in the share of women in decision-making roles in government and in the public and corporate sectors to 30 percent by 2030.

The authorities have recently taken positive steps toward removing longstanding legal barriers to women's access to jobs in Kazakhstan's energy sector. A 2021 amendment abolished discriminatory clauses in national labor law that previously restricted women's employment in more than 200 occupations. However, Kazakhstan's legislative framework does not currently prohibit workplace sexual harassment, although the government is reportedly considering recommendations to introduce such legislation.



3. Kyrgyz Republic

Women's representation in the energy sector workforce in the Kyrgyz Republic has grown significantly in recent years, increasing from 10 percent in 2018 to 18 percent in 2021. Women accounted for 6,300 of the 34,800 individuals employed in the energy sector in 2021. Despite this recent increase, however, women remain relatively underrepresented in the sector compared with other industries: women currently represent 38 percent of individuals employed across all sectors in the Kyrgyz Republic (National Statistical Committee of the Kyrgyz Republic 2022).

Transition from Education to Work

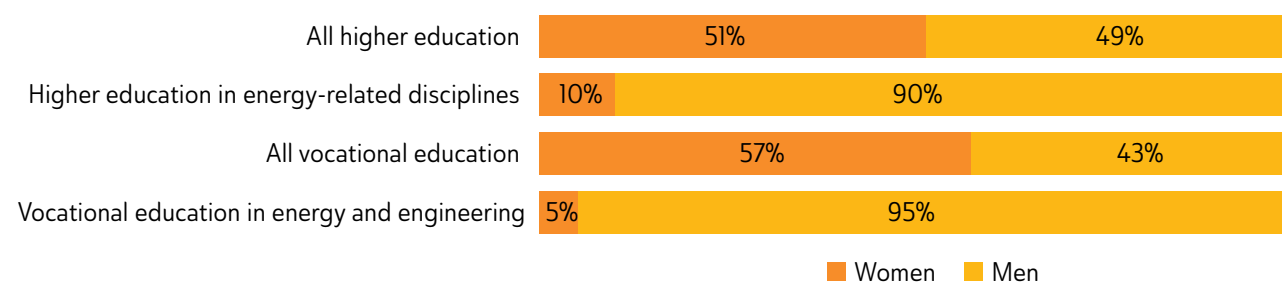
Young women in the Kyrgyz Republic, account for approximately 51 percent of higher education students across all academic disciplines but only 10 percent of those enrolled in energy-related courses (figure 3.1). Young women represent only about 5 percent of students participating in energy and engineering vocational education. By comparison, women represent about 57 percent of students engaged in all vocational disciplines (National Statistical Committee of the Kyrgyz Republic 2023).

Both male and female students enrolled in energy-related courses highlight a common misconception about work in the energy sector. Many incorrectly believe that the work is mundane, involving electrical or repair jobs that are

associated with low pay, strenuous labor, and barriers to entry. Such roles are viewed as being predominantly for men; women choosing to enter the field are often met with skepticism. Some participants shared the view that the development of renewable energy specializations could offer opportunities to increase the number of women engaged in the energy sector.

Efforts are underway to challenge stereotypes that position energy as a “sector for men,” thereby attracting women to the field. Female students and faculty alike have welcomed the establishment of the Association of Women in Energy as a positive step, citing public commitments by the head of the association to attract girls to science, technology, engineering, and mathematics (STEM) studies and to encourage them to pursue careers in the energy sector. University professors interviewed as part of the study report that educational institutions have previously organized site visits for female students and talks by female engineers to raise young women's awareness of career opportunities in the field. At one university, 10 additional state-funded scholarships have been allocated to girls to study technical disciplines. However, a lack of funding for such awareness-raising efforts can pose challenges, with some professors reporting that universities do not provide funding for visits to hydropower generation facilities, with students instead collecting the money for such excursions by themselves.

FIGURE 3.1. Share of Women and Men Among Students in Higher Education and Vocational Education in the Kyrgyz Republic, 2022



Source: National Statistical Committee of the Kyrgyz Republic 2023.

Higher educational institutions provide some support for the school-to-work transition. Energy sector employers often require job applicants to have some practical experience, and some educational institutions have partnered with energy enterprises to provide work experience opportunities to current students to enhance their employability in a competitive industry. At some institutions, students can even undertake international exchange programs and internships in energy organizations and colleges in countries like Kazakhstan, Germany, and the Russian Federation. Occasionally, universities facilitate access to employment by recommending students through their teachers, deputy heads of departments, or deans, or by providing information about job openings.

“It would be easier if energy companies could advertise vacancies via the university’s website. Because graduates are not aware of available vacancies, companies get only a couple of applications and have limited choice, but if they had more applicants, they would also have greater choice in recruitment.”

– Male university professor

However, there is scope to streamline the transition to employment, including through better dissemination of information about job openings. Currently, students rely primarily on online platforms like Lalafo, Instagram, Telegram, Headhunter, and Job.kg to find job opportunities, alongside recommendations from friends, family, and teaching staff. According to faculty interviewed as part of this study, energy companies could increase the number of applications they receive if they were to advertise available vacancies through universities. In addition, some professors suggest that the Ministry of Energy could play a role in facilitating graduate employment by disseminating information

about job vacancies in the energy sector. More broadly, respondents emphasize the importance of stronger collaboration between universities and employers in the energy sector to align educational offerings with industry demands.

It is particularly important to highlight opportunities available for women in the sector because women often lack the necessary connections to break into energy sector jobs. Female and male respondents alike report that while men and women in STEM education are treated more or less equally during their studies, women are at a considerable disadvantage in finding employment. Friends and family already working in the industry are said to play a key role in helping new graduates find employment, providing information about job opportunities, sharing insights into what the job involves, helping establish connections with an employer, providing recommendations for available vacancies, and serving as post-hire role models and mentors. Yet most women lack such industry connections, and some are actively discouraged from pursuing employment in a sector seen as “unsuitable” for women due to the difficult nature of the work and the male domination of teams. Several married female graduates of energy-related courses attribute their choice not to work in their specialty to their husband’s family’s negative perceptions of the profession.

Recruitment, Retention, and Progression

Evidence suggests that women who graduate with technical degrees are rarely employed in engineering or other technical positions, resulting in occupational segregation among the energy sector workforce in the Kyrgyz Republic. Key informant interviews and focus group discussions (FGDs) with energy sector employees indicate that women represent an average of 17–20 percent of the workforce at companies that participated in this study but only 5 percent of engineering staff. Instead,

women are predominantly engaged in administrative positions as lawyers, accountants, and economists. There are reportedly very few women in operations because the small number of female graduates of energy-related courses who do go on to pursue employment in technical engineering roles are engaged in office-based work such as design and documentation. A female technical employee of one company reported that although young women represent roughly 40 percent of students who receive practical training in operations as part of their internship and work experience placements every year, very few ultimately choose to pursue employment in the field. Only one female graduate who participated in this study is currently working in the field of her specialty.

Gender stereotypes create another barrier to women's recruitment for technical roles. Although some female graduates can work as dispatchers and controllers in the Kyrgyz Republic, students and faculty claim that it is significantly more difficult for women to secure employment in operations compared with men due to perceived requirements of physical strength and concerns regarding pregnancy, maternity leave, and family responsibilities. Focus group participants report a prevalence of the perception that it is difficult for women to work in field-based roles and that female job applicants are often directed to office-based, design, and documentation roles instead.

Women's lack of operational experience negatively impacts their career prospects in the energy field. Employees report that while career opportunities may appear to be equal for men and women, in reality, the typical starting point is at the traditionally male-dominated operations level. High-skilled engineering roles are rarely accessible to new graduates. Technical education and experience in field-based operations are often required for promotion to a managerial position and career development. It is therefore challenging for women, who tend to start their careers in office-based roles, to advance in their careers in this sector.

At the same time, some women in technical roles report being overlooked in favor of male colleagues for professional development opportunities and promotions. Female FGD participants claim that top-level managers sometimes overlook women's achievements and contributions in favor of their male counterparts. These managers also display a preference for men in terms of professional development, additional training, and business trips, justified by the belief that men possess greater practical knowledge and experience than women. Some female employees in technical roles describe their involvement in projects for which, despite being responsible for significant portions of the work, only male team members were selected for work-related trips. The prevailing notion that women are unsuitable for leadership roles remains a major obstacle to their career advancement. Men are also thought to benefit from favoritism based on kinship ties and connections in terms of promotions—another barrier to equal opportunity for women's career progression.

"Even if a woman wants to work in a senior role, she will not be promoted. Many think that senior positions should be held by men, so men are appointed. For example, there is a view that engineers and managers should be men. Men are probably preferred because the work and working conditions of engineers are difficult."

– Female engineer

The perception that senior and management roles are incompatible with family responsibilities presents a further challenge to women's employment and advancement in the energy sector. Female FGD participants and interviewees report how women are often more reluctant than men to apply for senior positions due to concerns about balancing the increased responsibilities associated

with higher-ranking positions with their existing responsibilities at home. Women are reportedly not considered for managerial roles that can require overtime work and 24-hour availability—which can be particularly challenging for women who bear primary childcare responsibilities. At one company in the energy distribution sector, staff attributed the fact that men held managerial roles even in nontechnical administration departments to the fact that they were able to work longer hours or work on weekends, if needed, unlike female staff. Lack of family support can further exacerbate such challenges and limit women's career opportunities; respondents cited cases of husbands forbidding their wives from working and male family members failing to understand the demands of certain jobs. FGD participants note that women over the age of 40, whose children have grown, find it easier to devote themselves to their careers.

"It's especially difficult in energy supply: you must be ready to spend day and night at work and forget about home. If I was offered to become a manager or commercial director, I would refuse."

– Female engineer

Women working in the Kyrgyz Republic's energy sector welcome efforts to highlight the importance of women's employment in the field. Many female respondents have embraced the opportunity to join the Association of Women in Energy, dedicated to advancing international collaboration, awareness-raising initiatives, and mentoring programs to increase women's representation in leadership roles in the energy sector. Additionally, women strongly advocate for the sharing of professional experiences with their peers, both within and beyond the Central Asia region, as well as opportunities to travel abroad for professional development and participation in energy-related conferences. Rapidly evolving technologies in

the energy sector have reportedly sparked many women's desires to expand their knowledge and expertise.

Safe and Inclusive Work Environments

Consultations with relevant human resources staff suggest that none of the energy sector companies participating in this study have developed proactive policies to support gender equality or tackle the barriers women face in the sector. According to female employees in the energy distribution sector, companies could significantly increase the retention of female staff by offering flexible working hours to women with young children and by ensuring that they are not discriminated against in their professional development after returning from maternity leave. At the same time, human resources representatives observe that a lack of understanding about the importance of equal opportunity and what gender-based discrimination means in practice pose significant obstacles to building an inclusive corporate culture. As such, it is important that the introduction of gender equality policies be accompanied by training and awareness raising for both male and female staff.

"I think there should be trainings to explain a gender equality policy to men. Otherwise, men are unlikely to understand it, they have a different mindset."

– Female human resources specialist

Employees of electricity distribution companies also observe that the modernization of the Kyrgyz Republic's power system could offer more opportunities for women to work in operations. In particular, the automation of processes and data digitalization would reduce the need for

physical strength to perform field-based operations and maintenance jobs. According to female employees, the digitalization of distribution networks would also reduce the need to visit households—currently a challenge for women working as controllers.

Ensuring an inclusive and supportive work environment is particularly important because experiences of gender bias can leave women feeling excluded at the workplace, erode their self-confidence, and ultimately discourage talented women from building careers in energy. Female employees of one energy distribution company reported feeling less able to openly express their opinions at work than their male colleagues. Female FGD participants and interviewees across the energy sector noted how stereotypes about men being better suited for technical and managerial positions leads to female candidates being overlooked in recruitment and promotion decisions, and serves to erode women's confidence in their abilities, discouraging qualified women from applying in the first place.

"We women can sometimes lack the confidence to go after senior engineering and managerial roles. When we are first offered a job, the immediate response is: 'I probably can't do it.' Men, even if they don't actually know, will go: 'I know. I can do it.' They're more confident. — Female junior engineer

Sexual harassment is another key obstacle to workplace safety, with national surveys conducted by the Kyrgyz Association of Women Judges indicating that one in four women in the Kyrgyz Republic have been sexually harassed at work (UNDP 2022a). Sexual harassment is thought to be particularly common in the public sector, frequently affecting unmarried younger women in

nonmanagement roles. Male senior and mid-level managers perpetrate an estimated 44 percent of the instances of workplace sexual harassment (UNDP 2022a). While none of the companies in the Kyrgyz Republic participating in this study track the prevalence of workplace sexual harassment, women in male-dominated industries, including the energy sector, are typically more likely to experience sexual harassment at work, resulting both in significant stress for survivors and negative impacts to companies resulting from decreased productivity, lower employee satisfaction, and loss of talent.

Focus group discussions and interviews with company staff suggest that energy companies do not currently undertake any specific measures to prevent workplace sexual harassment or encourage reporting. Energy sector employees report that workplace conflicts may be reported to the company or to labor unions, and some workplaces have a box for anonymous grievances. However, employees typically try to resolve issues privately rather than lodging complaints with company management or their union.

Institutional and Policy Reform

Legislative restrictions on women's employment in certain operational roles limit their employment opportunities in the energy sector. Although the Kyrgyz Republic's laws do protect a woman's right to work and choose her occupation, guarantee equal pay for equal work, and generally prohibit gender-based discrimination in labor relations, there are restrictions placed on the employment of women for particular jobs, including in the energy sector. For example, the law currently prohibits women from working as electricians engaged in overhead transmission line repair or in the maintenance of electrical equipment. Although these restrictions are ostensibly in place to safeguard women's reproductive health, such blanket

prohibitions significantly hinder efforts to recruit and retain women in the energy sector. In addition to limiting employment opportunities for women, these prohibitions perpetuate the idea of the sector as being “unsuitable” for women, deterring qualified female candidates from field-based operational roles in favor of office-based positions, or from pursuing careers in the energy sector at all.

Although the Kyrgyz Republic’s Labor Code does not currently outlaw workplace sexual harassment, draft amendments to the law introducing protection from harassment in the workplace

was introduced by the parliament in 2021 and is currently under consideration (UNDP 2022b). If passed, it would make employers responsible for providing a safe working environment and for putting in place mechanisms to protect female employees from workplace harassment. Meanwhile, the Law on State Guarantees of Equal Rights and Equal Opportunities for Men and Women (last amended in 2011) currently prohibits sexual harassment in the workplace, obliges employers to take measures to prevent sexual harassment, and provides for civil remedies to compensate the victim for material and moral harm.



4. Tajikistan

National statistical data indicate that, as of 2019, women represented around 11 percent of employees in the energy sector in Tajikistan, a slight decline from 13 percent in 2016 (Agency for Statistics Under the President of the Republic of Tajikistan 2020).

Transition from Education to Work

In Tajikistan, the share of university students opting to pursue an education in an energy-related field is relatively low, at 2 percent of university students studying toward degrees in the energy field (Agency for Statistics Under the President of the Republic of Tajikistan 2022). Thirteen out of Tajikistan's 41 higher education institutions (32 percent) offer science, technology, engineering, and mathematics (STEM) degrees.

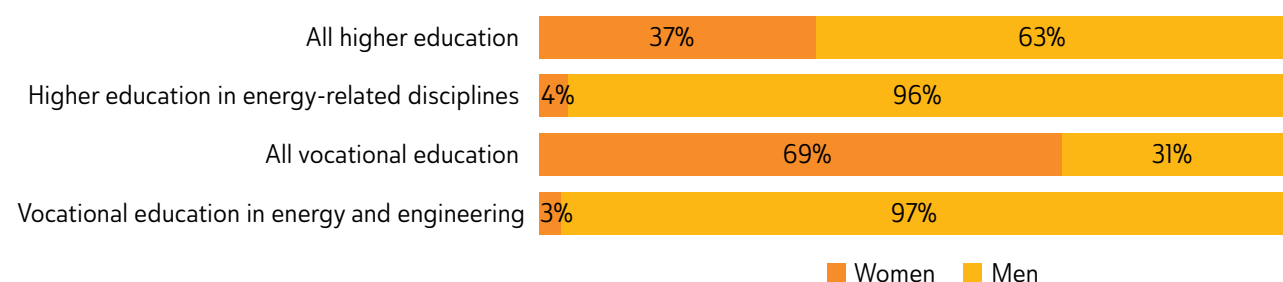
Young women account for just 4 percent of university students in energy-related courses (figure 4.1). By contrast, women represent around 37 percent of Tajikistan's university students across all disciplines. Similarly, women account for 69 percent of all students in secondary vocational education but only 3 percent of those receiving vocational education in energy (Agency for Statistics Under the President of the Republic of Tajikistan 2022). Focus group discussion (FGD) participants noted that the number of female students in engineering and

energy-related studies is very low compared with the former Soviet period, when women were more "welcomed" and faced no sociocultural barriers to working in the energy sector.

The Tajikistan government has sought to encourage women's enrollment in technical education through the provision of state-funded scholarships and quotas on the number of university placements reserved for female students whose education is funded by the state. According to faculty, quotas were initially introduced for girls to encourage female students to enter technical universities. Currently, male students represent roughly 40 percent of all students on state-funded scholarships, and female students account for 60 percent. Between 70 and 80 percent of students who took part in FGDs as part of this study said their education was funded by the state.

Partnerships between universities and employers in the energy sector facilitate the transition of graduates from STEM education to employment. Both of the two universities whose students and faculty participated in FGDs and interviews for this study have established agreements with hydropower and thermal power companies, by which graduates are offered employment opportunities upon completion of their studies based on the university's recommendation. In addition, female students report being aware of existing official agreements that guarantee employment for

FIGURE 4.1. Share of Women and Men Among Students in Higher Education and Vocational Education in Tajikistan, 2021



Source: Agency for Statistics Under the President of the Republic of Tajikistan 2022.

women on state-funded scholarships. During their studies, all students undergo practical training at energy sector enterprises, obtaining work experience universally regarded as beneficial for their future employment and career prospects.

“Recently, the government has paid a lot of attention to the education of girls: quotas have been in place for several years. Government programs have helped change attitudes: before, it was thought that girls had no need for a university education, but now fathers want their daughters to be educated. It is my hope that we will see this change in relation to technical education too because there are many jobs in technical organizations, factories, and hydroelectric plants where women are needed.”

– *Male university professor*

However, sociocultural expectations and stereotypes about work in the energy sector hinder women’s participation in technical education and progression into employment in the industry.

Young women and girls are often discouraged from pursuing and continuing their studies in energy-related fields: despite their desire to remain in school and graduate, some female students face significant family pressure to drop out, with parents and husbands not “seeing the point” of their studying energy, expressing concerns about time spent in male-dominated environments, and encouraging them to become teachers instead. FGD participants said that it is easier for men to find employment because many families do not allow women to work in the energy sector even if they have successfully graduated from technical studies. Although universities do not currently

track graduate employment outcomes, female students estimate that only about 10 percent of female graduates go on to work in the energy sector compared with half of male graduates.

Students and faculty alike highlight the need for comprehensive awareness raising to tackle persistent misconceptions around the energy sector and to educate families about career opportunities for women in the energy field.

Both female and male students expressed a common concern regarding the public’s misunderstanding of the duties of a power engineer: many erroneously perceive the position as that of an electrician tasked with socket installation or pole climbing—and that this is “unsuitable” for women. Students and professors of energy-related studies suggest that comprehensive awareness campaigns should target parents to challenge these stereotypes and that they should involve career guidance initiatives for students at schools and universities, as well as through media platforms such as television and radio. An important aspect of this effort would be to ensure that parents and relatives, particularly in rural areas, do not dissuade young women and girls from pursuing technical studies and careers in energy.

“Last year, to support recruitment, we held a contest where winners were sent to study at the Department of Energy at Dushanbe’s Polytechnic University. About 30,000 people applied, but many girls from villages were not allowed to participate by their families.”

– *Female engineer*

Recruitment, Retention, and Progression

Although employment discrimination is otherwise prohibited under Tajikistan law, there is evidence that gender bias can result in unfair treatment during recruitment. Tajikistan's labor code prohibits employers from refusing to hire women based on pregnancy or motherhood, and discrimination against pregnant women or mothers of children under three years of age during recruitment is a criminal offense. However, women employees who took part in FGDs report instances of female job candidates offered employment only on the condition that they commit to not taking maternity leave. In another case, a woman was reportedly refused employment because she had upcoming plans to get married and the employer assumed it likely that she would soon have children and take maternity leave.

The underrepresentation of women in Tajikistan's energy sector is particularly pronounced in technical and leadership roles. Key informant interviews with representatives of companies in Tajikistan's energy sector suggest that women's share of the workforce amounts to an average of around 10 percent across participating companies. However, participants reported that there are typically very few, if any, women among technical operations personnel and on leadership teams. Women are primarily concentrated in planning, administrative, and office-based technical roles because field-based work is associated with difficult, physically demanding working conditions, particularly in mountainous areas.

Difficulty balancing work with family responsibilities is a key challenge for women's employment in the energy sector. Employees report that even when a woman's family supports her employment in the energy sector, combining a job with one's family responsibilities is very difficult, resulting in women often having to choose between work

and family. Some women employees in technical roles claim that while employment in the energy sector was considered prestigious when they chose their profession, and their employer provided good benefits, working conditions, and high salaries, they would not want their daughters to become energy engineers because the children of female engineers "almost never saw their mothers." Employees also report that employers in the sector tend to prefer men over women because the former are perceived to be able to work longer hours and travel to sites more easily than women, who bear the primary responsibility for childcare and are therefore less "mobile."

The lack of support and family-friendly policies hinders the career progression of working mothers, as greater responsibility at work can be seen as incompatible with a woman's family responsibilities. Female employees at one electricity company reported being offered managerial positions but chose not to accept the promotions due to family circumstances. Women in the electricity subsector also shared the view that taking maternity leave can set back a woman's career by at least three years. At the same time, family support can play an important role in enabling women's career development, and female employees expressed support for the introduction of flexible working hours to support a work-life balance for women in the energy sector.

The expansion of mentoring opportunities and female role models could further support women's career development in the sector. According to employees, there are currently no formal mentorship programs for women in the sector, although senior staff do sometimes provide "unofficial" mentoring to junior colleagues. More broadly, female employees say that more could be done to highlight the achievements of women in the sector, including by enabling successful women to act as role models by showcasing their career journeys via interviews and television coverage.

Safe and Inclusive Work Environments

Companies in Tajikistan’s energy sector are increasingly recognizing the importance of attitudinal change to ensure equal opportunity in their operations. Company staff at one energy enterprise, for example, received training on gender inclusion and diversity as part of an internationally funded project. According to FGD participants, such “explanatory work,” particularly with male managers, colleagues, and family members, can play an important role in changing attitudes toward women’s employment in the sector and must serve as a key component to any effort to strengthen women’s representation.

FGD participants also shared the view that companies need to take active steps to employ more women in the sector. Employees suggested introducing quotas for the recruitment of women when employers prepare annual recruitment plans.

Some companies have already sought to protect female employees from harassment at work. Although there are limited data on the prevalence of workplace sexual harassment in Tajikistan, it is believed to be widespread but underreported due to social stigma and fear of retaliation by employers (Radio Ozodi 2017). One electricity company recently introduced a policy on the protection of women from harassment.

However, there is scope for companies to strengthen their grievance mechanisms to ensure that any concerns related to workplace harassment or discrimination can be safely reported. FGDs and interviews with energy sector staff indicate that employees typically have the option to bring any concerns to their department head or a labor union representative and, if the issue remains unresolved, escalate it to senior management. In practice, however, the workers themselves typically resolve most problems directly. There is no

evidence from FGDs and interviews that company grievance mechanisms are appropriately designed or resourced to enable staff to safely report issues related to gender-based violence and harassment and to receive appropriate support.

Institutional and Policy Reform

Gender equality is a priority area for the Tajikistan government, as stated in the *National Development Strategy for 2016–2030*. In particular, the government has adopted measures to strengthen the legislative framework on gender equality and the prevention of violence against women.

A newly introduced law prohibits harassment in Tajikistan. The Law on Equality and the Elimination of All Forms of Discrimination, adopted in 2022, has for the first time introduced the concept of sexual harassment into the national legislative framework. However, it does not address sexual harassment in the workplace—only general harassment of a nonphysical nature. In addition, it does not contain any specific requirements for the prevention of workplace harassment or the protection of workers from such harassment, and the prohibition is not incorporated into the Labor Code.

However, Tajikistan law currently prohibits the employment of women in several roles in the energy sector. Legal restrictions prevent women from working in 194 professions, including as electricians engaged in certain types of cable repair and the repair of overhead transmission lines. In addition to limiting employment opportunities for women, the presence of such restrictions risks reinforcing deeply ingrained gender stereotypes that dictate the kinds of occupations women in Tajikistan are expected to pursue and those they are discouraged from entering. International observers have therefore advised the government to abolish wholesale prohibitions on women’s employment.



5. Uzbekistan

Women account for around 15 percent of Uzbekistan’s energy sector workforce as of 2022 (Statistics Agency Under the President of the Republic of Uzbekistan 2023b). By contrast, women’s participation in employment across all economic sectors in Uzbekistan stands at 41 percent.

Transition from Education to Work

In Uzbekistan, female students represent around 12 percent of students pursuing higher education in engineering, considerably lower than the female share of university students across all disciplines (46 percent) (Statistics Agency Under the President of the Republic of Uzbekistan 2022). Young women also account for around 53 percent of students at all vocational educational institutions in the country, although the female share of students studying energy-related disciplines in vocational education is unknown (Statistics Agency Under the President of the Republic of Uzbekistan 2023a). (See figure 5.1).

Focus group discussions (FGDs) with female students indicate that family support can significantly impact access to education in energy-related fields for young women and girls. Some students report that recommendations from family members working in the energy sector was what motivated them to pursue a technical education. Others, however, state that family and relatives often do not fully understand what jobs in the energy sector

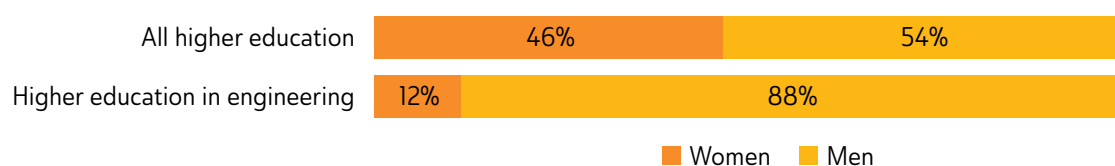
involve and oppose young women’s choice of profession, viewing the industry as “not for women” and therefore as having few jobs for women.

“Many parents don’t want their daughters choosing this profession because jobs in energy are difficult, physically demanding, and involve working night shifts and travelling to sites. This is the reason why most of the girls who choose to specialize and work in the energy sector are ones whose parents are technical specialists themselves and have therefore supported their daughters’ choice of studies.”

– Female university professor

Although universities support their students by organizing internships and work experiences at energy sector companies, gender bias can prevent female students from making the most of their studies. Although female and male students of technical courses are both expected to attend five days of theory training and one day of practical work experience per week, some FGD participants report that professors do not trust female students with technical equipment and direct them to work with documentation “to avoid accidents,” while male students are referred to build work experience at power stations. As a result, female students do not gain as much practical experience

FIGURE 5.1. Share of Women and Men Among Students in Higher Education in Uzbekistan, 2021



Source: Statistics Agency Under the President of the Republic of Uzbekistan 2022.

during their education, putting them at a disadvantage when it comes to securing employment in a sector that values practical skills.

There is scope to strengthen links between educational institutions and energy sector employers to support the school-to-work transition in Uzbekistan. According to students, universities do hold job fairs for students and provide recommendations to support graduate employment. However, there are no strong links or partnerships between educational institutions and energy companies that would facilitate the transition into employment. Some students suggest that greater cooperation between universities and employers, such as in the form of a joint technical educational center, would ensure that graduates receive sufficient training that corresponds to industry needs and better equips them for work in the sector.

FGD participants and interviewees say that awareness-raising efforts about energy sector careers should target school-aged children and their families. According to faculty, young people's first exposure to the energy sector typically occurs either through a parent or other relative employed in the industry or a university professor. However, to attract more women to education and careers in energy, awareness-raising activities should begin at an earlier age, including outreach and career guidance to school-aged children and their families, to encourage a better understanding of the career opportunities available to women and to dispel the myth that the sector only offers jobs to men.

Recruitment, Retention, and Progression

Students and faculty in energy-related fields feel that the energy sector offers attractive employment opportunities, contrary to the common misperception that the only career path for an energy specialist is to become an electrician. FGD

participants and interviewees claim that the ongoing development of the energy sector in Uzbekistan means that the profession will always be in demand, noting the construction of new solar and hydropower plants. Meanwhile, discussions with current energy sector employees indicate that energy sector specialists, including those with knowledge of engineering software and those with technical skills, are in demand to avoid disruptions in the electricity supply.

However, sociocultural expectations that women bear the primary responsibility for childcare, combined with perceptions of work in the energy sector as incompatible with motherhood, result in many female graduates of technical studies not progressing into employment in the sector or dropping out of work soon after starting their careers. Male and female employees of energy companies share the view that it is easier for men to find employment in the sector than it is for their female counterparts. Although Uzbekistan's labor law explicitly prohibits employers from refusing to hire women because of pregnancy or having children, men are reportedly "preferred" in recruitment because employers are concerned about the possibility of women taking lengthy maternity leave and having limited availability to work overtime due to family obligations. Female employees in the sector also report that it is common for young women to quit their jobs after marriage because their husbands do not support their working outside the home.

The energy sector workforce displays patterns of occupational segregation whereby men predominantly occupy operational roles. According to key informant interviews, women account for, on average, 15–20 percent of the total workforce of the companies participating in this study but hold only 5 percent of engineering positions. Women in the energy sector work largely in administrative positions or in jobs that involve working with documentation, although women are reportedly prioritized for employment at regional power networks, where

they are recruited as dispatchers and controllers. Men are typically recruited for field-based operational roles involving work with equipment, which is attributed to the physically demanding nature of these jobs.

FGDs with staff at thermal and hydropower plants suggest that family obligations pose a particular challenge to women's employment in operations. Field-based operations jobs reportedly require shift work, night work, travel, overtime, and around-the-clock availability in the event of an accident or emergency. Women, as well as some men, are therefore reluctant to apply for positions that would interfere with their family obligations.

"A key difficulty for women engineers is that accidents are common in the energy system. If an accident occurs after working hours when you are at home, it is difficult to get to work because of children, or husbands may not allow their wives to go to work at that time of the day. If there is gender equality in the family and the husband understands the situation, then he may allow her to work at night."

– Female engineer

A lack of experience in entry-level technical roles associated with unpredictable schedules and physical effort can hinder a woman's career progression over the long run. FGD participants and interviewees working in the energy sector report that to become a chief engineer, staff are expected to have "passed through" all the levels of operational jobs, starting from the position of electrical fitter. One female senior engineer shared that "[she] could not be a chief engineer or a director, because initially [she] would not be able to complete the beginning steps of electrical fitter." According to key informant interviews, women

are significantly underrepresented on leadership teams, holding an estimated average of 5 percent of management roles.

However, as FGD participants point out, some companies have taken positive steps to encourage women's professional development through improved access to training. At one thermal power company, for example, employees with secondary and vocational education who have worked at the enterprise for at least five years may receive higher education qualifications at the employer's expense. Management at another thermal power station has reportedly encouraged female employees without a technical education to pursue energy-related studies alongside their work to obtain the relevant technical qualifications. Some energy sector staff note, however, that employers are much more likely to offer professional development courses and training to men than to women because they believe that men can later be engaged in more physically demanding jobs.

Female role models can encourage women to pursue careers in the energy sector. To date, none of the participating companies in Uzbekistan have taken active steps to highlight women in technical and managerial roles, nor have they introduced mentoring programs specifically aimed at female staff. However, one energy sector company offers a mentoring system for graduates in technical roles, where a mentor trains new staff members for the first few months prior to their taking an exam to obtain the necessary qualifications.

"There was this one woman who was a relay protection specialist. It was inspiring to see how she worked with the equipment, and how everything depended on her work. That was when I decided I wanted to do the same thing."

– Female senior engineer

Safe and Inclusive Work Environments

Both men and women perceive work in the energy sector as being physically demanding, especially positions involving turbine and electrical equipment repair and works at tall heights under high voltage. According to FGD participants, many processes in the energy sector are not currently automated and require physical strength to perform, precluding women from accessing many operational roles. Human resources staff at energy sector companies similarly observe that few women apply for the positions of electrician or locksmith because these jobs require the carrying of heavy loads. The physical nature of these entry-level jobs also reportedly deters young men from pursuing careers in energy, driving them toward sectors such as information technology, where working conditions are considered easier and incomes higher. At the same time, participants highlight the construction of new fully automated hydropower stations without the need for manual labor as offering more attractive employment to both men and women. Female students and staff in technical roles share the view that automatization of processes in thermal and hydropower generation, along with the development of solar, wind, and nuclear power in Uzbekistan, will create more opportunities for women to work in the energy sector.

“There are staff who are on duty at night; they do walk-overs of the power plant and facilities. But, as a woman, I would be afraid to work there at night.” — *Female junior engineer*

Personal safety concerns can discourage women from pursuing certain operational roles. For example, female employees of hydropower plants expressed that they would be reluctant to accept some technical positions that required working at

night. However, none of the participating companies report taking any specific measures to mitigate the risks of gender-based violence at work.

FGDs and interviews with energy sector employees suggest that some companies have introduced dedicated channels for women to report workplace harassment alongside existing grievance procedures to address staff complaints and concerns. At one thermal power company, women have the option of reporting harassment-related concerns to the Women’s Council at their workplace, to the labor union, or by submitting complaints via grievance box or grievance log. Representatives of the Women’s Council also conduct regular site “walk-overs” to monitor working conditions and gather staff feedback. In addition, employees have access to a complaint hotline and can meet directly and individually with senior leadership during specific time slots. Female technical staff in the hydropower sector also welcome proactive leadership engagement with the workforce, noting that senior management conduct regular personal site visits and have demonstrated a genuine interest in the well-being of staff and working conditions.

Institutional and Policy Reform

International observers report that gender equality has been a priority for the Uzbekistan government in recent years. The authorities have, for example, prioritized increasing the number of women in managerial positions in both the public and private sectors, as well as in higher education, as part of the national *Strategy for Achieving Gender Equality in Uzbekistan by 2030* (UNDP 2022b). In line with the strategy, gender gaps in employment in government bodies may be addressed by the introduction of temporary quotas for women’s employment; and the number of government-funded scholarships to support the

admission of young women from low-income families to higher educational institutions is set to increase (UzDaily 2021).

The recent removal of restrictions on women's employment has widened the range of jobs available for women in Uzbekistan's energy sector.

Until 2019, the law prohibited the employment of women in a range of occupations where working conditions were deemed hazardous or otherwise “unfavorable,” including jobs in energy, such as in the operation of machinery in the oil and gas sector and the repair of equipment at power plants and networks.

However, although the list of prohibited jobs for women has been abolished, advisory restrictions remain in place.

A document listing professions and jobs that adversely affect women's health and for which the use of women's labor is not recommended was adopted after the express prohibition on the employment of women in specific sectors was lifted—it currently lists the same energy sector jobs as “not recommended” for women. Moreover,

Uzbekistan's labor code allows employers to establish—in agreement with a trade union and considering government recommendations—their own lists of jobs with unfavorable working conditions, where the use of women's labor is to be “limited.” In practice, according to FGD participants at one thermal power plant, despite the lifting of restrictions on women's employment in 2019, there has been no increase in the number of women working in previously prohibited roles.

Combatting harassment and violence against women in the workplace is another key priority of the government's gender equality policy.

The Law on Protection of Women from Harassment and Violence, adopted in 2019, grants labor authorities the power to carry out measures within organizations (regardless of ownership) to prevent gender-based violence and harassment in the workplace. Sexual harassment has recently been classified as an administrative offense in Uzbekistan. However, the current legislation does not explicitly make a reference to the prohibition of sexual harassment in workplace.



6. Recommendations

Fostering inclusive workplaces that fully utilize women's talents is essential to securing a competitive future for the energy sector in Central Asia. Focus group discussions (FGDs) and interviews conducted as part of this study indicate that women face multiple barriers to education in technical fields and employment in the industry, particularly in technical and managerial roles. Increasing women's participation can yield substantial benefits for individual companies and national economies alike. However, addressing the complex challenges that hinder women's education, employment, and progression in the energy sector requires commitment and collaboration among key stakeholders, including policy makers and public and private companies in every country.

This section sets out a series of practical recommendations aimed at eliminating obstacles to women's participation in Central Asia's energy sector for companies, policy makers, and educational institutions in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. The recommendations apply to all four countries covered in this study, as FGDs and interviews clearly indicate notable similarities in the challenges faced by women in the energy sector across Central Asia. However, because there are also significant economic, legislative, and socio-cultural differences among the four countries, how these recommendations might be implemented in practice should be tailored based on further discussions among educational institutions, employers, and policy makers in each country.

Facilitate the Transition from Education to Work

RECOMMENDATION 1.

Companies should strengthen their outreach efforts to young women and girls to encourage their participation in science, technology, engineering, and mathematics (STEM) education and employment in the energy sector.

Companies should take proactive measures to raise awareness of the diverse array of rewarding job opportunities for women in the energy sector and to improve the sector's profile as an "employer of choice" for women. Given the importance of family support to young women's choice of studies, along with widely held misperceptions of the energy sector as only offering jobs for men, raising awareness among girls and their families about the myriad careers in the sector and projecting a positive image of their potential employment prospects is key. These efforts could include outreach to girls via companies' own workforces: FGDs suggest that having family members with experience in the energy industry can have a positive influence on career choices, particularly among young women.

Outreach should be conducted at all educational levels. Programs that extend to primary and secondary schools can be highly effective in countering deeply ingrained gender stereotypes and dispelling the image of energy sector jobs, particularly technical roles, as "unsuitable" for women. To facilitate female graduates' progression into employment in the energy sector, companies could consider establishing partnerships with universities and technical and vocational education and training (TVET) providers to offer scholarships or internships specifically targeted at women, with a focus on increasing their participation in technical fields and developing practical skills. Close cooperation between employers and educational institutions can provide a channel for disseminating information on positions and encouraging female graduates to apply (e.g., through student information sessions or career fairs).

RECOMMENDATION 2.

Policy makers should encourage the increased involvement of young women and girls in STEM education through public awareness-raising campaigns and financial support.

Policy makers can catalyze change by partnering with educational institutions and employers on initiatives to encourage greater female participation in energy-related education and technical training. Government-backed public awareness initiatives aimed at inspiring young women and girls to explore career opportunities in energy can address the prevailing lack of awareness about the types of jobs the sector offers and challenge the

gender stereotypes associated with technical and operational roles. In addition, policy makers can explore partnerships with educational institutions and businesses to offer financial support, such as co-funded scholarships, to encourage women's pursuit of STEM subjects. Some countries, like Tajikistan, have already introduced government-funded scholarships as incentives for motivating young women to pursue a technical education.

RECOMMENDATION 3.

Educational institutions should strengthen collaboration with employers to support young women's transition from education to work in the energy sector.

There is scope to strengthen cooperation between educational institutions and the energy sector by incorporating into the partnerships a strategic focus on equal opportunity to ensure that women who graduate from technical studies progress to meaningful careers in the energy sector, including in technical roles. This should include attention to encouraging and supporting women to accept internships and work experience placements that provide them with exposure to operational and field-based roles. Collaboration with energy sector employers could also provide valuable insights into the specific skills needed in the energy industry, enabling educational institutions to design specialized programs and courses that align with industry needs and are more likely to lead female graduates to in-demand jobs.

Given that many women lack the necessary connections to break into energy sector employment, educational institutions should work with employers to provide information about vacancies and implement guidance programs that connect female students with industry professionals, enabling them to build networks and gain insight into potential career paths. Educational institutions can organize career fairs, seminars, and workshops featuring successful women in the energy sector, inspiring and informing female students about the potential for fulfilling careers in this critical industry. Collecting gender-disaggregated data on employment outcomes for graduates could also help educational institutions identify and address gender gaps related to the transition into employment over the long term.

Advance Recruitment, Retention, and Progression

RECOMMENDATION 4.

Companies should take steps to ensure equal opportunity in recruitment for women.

To enhance the representation of women in their workforces, companies should actively seek female applicants and challenge stereotypes about work in the energy sector. This involves paying special attention to external recruitment communications, such as job advertisements and company website career pages, ensuring they emphasize the company's commitment to equal opportunity, expressly encourage applications from female candidates, and showcase female role models where possible. Any changes resulting from modernization and automation should be clearly communicated in job descriptions and recruitment materials to dispel misconceptions about technical roles, particularly for field-based operations.

Companies should also take steps to ensure that gender bias does not affect decision making in recruitment. Insights from discussions with energy sector employees suggest that gender-related considerations continue to impede equal opportunity. According to FGDs and key informant interviews, female candidates are sometimes rejected due to concerns over potential maternity leave or family responsibilities. Companies should consider reviewing their recruitment policies and procedures to eliminate any potential for bias and provide training for hiring managers. Moreover, companies may opt to implement a policy to ensure that recruitment shortlists systematically include at least one qualified woman, when possible, and that interview panels always include at least one woman.

RECOMMENDATION 5.

Companies should take steps to support women's career progression and increase women's representation in senior leadership.

Women encounter distinct barriers to attaining managerial and leadership positions in the Central Asian energy sector, yet few companies have adopted measures to tackle them. Neglecting women's leadership potential is not an option—international studies consistently illustrate the advantages to businesses linked to increased gender diversity in leadership roles, including better decision making, increased innovation, and higher profitability. There are a range of different measures that companies can take to support women's progression into leadership roles, including:

- Broadening traditional selection criteria to enable the inclusion of more women on shortlists for management positions without compromising on the core requirements of the job;
- Reassessing succession plans to ensure that women are explicitly integrated into the leadership development process and are exposed to assignments that enhance their suitability for leadership roles;

- Reviewing promotion and development procedures to eliminate any room for gender bias or unwarranted assumptions regarding women's professional aspirations or family commitments;
- Setting targets for women in management, aligned with strategies adopted by leading international energy companies; and
- Increasing the number of women in technical roles to expand the pool of potential candidates for promotion to management positions over the long term.

Ensuring equal access to professional development, mentoring, and training opportunities for women is also vitally important. This may involve creating dedicated leadership or mentoring programs, as well as establishing professional networks for women. Industry associations can play a crucial role in promoting women's professional development in Kazakhstan. In fact, intra-sectoral women's mentoring programs have already been implemented via the KAZENERGY Women in Energy Club.

RECOMMENDATION 6.

Companies should raise the profile of successful women in the sector, particularly in technical and field-based operational roles.

FGDs with students, faculty, and employees in the energy sector in each of the Central Asian countries indicate that exposure to female role models plays an important role in encouraging female graduates' transition into the workforce, building women's confidence, and helping professionals secure promotions and access leadership opportunities. Despite their underrepresentation in the energy sector, several women have already made noteworthy contributions to the field. Companies could highlight and commend these achievements while raising awareness among younger women

about career prospects in the sector. Success stories and accomplishments of female employees in the energy sector could be shared via myriad communication channels such as newsletters, websites, and social media. Companies could also provide opportunities for accomplished women in the energy sector to share their experiences, insights, and career journeys with colleagues. Creating award and recognition programs specifically for female employees who excel in their roles could further illustrate a company's dedication to gender diversity.

Promote Safe and Inclusive Work Environments

RECOMMENDATION 7.

Companies should recognize gender equality as a strategic business issue and strengthen policy frameworks on gender equality and equal opportunity.

The introduction of company policies to ensure equal opportunity for both women and men is crucial to increasing women's participation and progression in the energy sector. Insights from FGDs and interviews conducted for this study indicate that most energy companies are currently focused on meeting legal requirements, not going beyond

national laws to create more inclusive workplaces. While labor legislation in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan contain essential provisions related to nondiscrimination in employment, compliance alone has not resulted in equal outcomes for women. Without proactive measures by employers, women's underrepresentation

in the energy sector—including in operational and senior leadership roles—is likely to persist.

Energy companies need to prioritize gender equality as a key strategic business goal, ensuring that gender diversity objectives become an integral part of broader business discussions rather than being perceived exclusively as a “women’s issue.” Companies seeking to build an effective gender equality strategy can start by reviewing their human resources policies to identify opportunities for moving beyond mere legal compliance, such as by widening the availability of family-friendly working arrangements or strengthening policies against workplace sexual harassment. Consultations with current female employees are essential to understanding their priorities and concerns, which must be considered when introducing changes or initiatives. To ensure effective implementation, a company’s gender equality policy or strategy should be accompanied by concrete

action plans with frameworks for measuring progress, and with senior management responsible for its implementation. Senior management support for women’s increased involvement in the sector is crucial to fostering change. Company leadership should ensure that statements of support highlight the business case for equal opportunity and position gender equality as a fundamental corporate value.

Given that balancing work with family life is a key challenge for female employees in all four countries, companies should consider implementing policies and practices that support work-life balance for both men and women, including flexible working hours and childcare support. In addition, supporting women returning from maternity leave through return-to-work programs could help companies improve retention by lowering the chances of women “dropping out” of the workforce after having children.

RECOMMENDATION 8.

Companies should allocate resources to develop safer and more inclusive workplaces that cater to the needs of both women and men.

Investing in measures to ensure safe and respectful workplaces for all can help energy sector companies attract and retain talented employees—female and male alike. Such efforts should include taking a strict stance against gender-based violence and harassment, providing gender-sensitive grievance mechanisms for female employees, and taking disciplinary action when inappropriate behavior occurs. Workplace sexual harassment is a pervasive issue that cannot be ignored because it creates a hostile work environment for women and negatively affects productivity and retention. One company in Tajikistan has already implemented a policy to protect women from workplace harassment.

Given the importance of attitudinal change in fostering inclusive workplaces and the prevalent lack of awareness about gender-based discrimination, gender equality, nondiscrimination, and anti-harassment policies should be accompanied by awareness-raising campaigns and training for all staff and managers, as one energy company in Tajikistan has already done.

The introduction of new technologies and the modernization of production processes can play an important role in improving working conditions for women and men alike, particularly in field-based operational roles that are considered physically difficult. Fully automated hydropower stations, for example, are already said to offer attractive employment opportunities for both men

and women in Uzbekistan. Exploring technology advancements could make technical and operational roles safer and more appealing to women, as many may have been previously deterred by the physically demanding tasks. Providing adequate

facilities for women in field-based environments, such as separate bathrooms and changing rooms, is key to ensuring that women can engage in operational roles.

RECOMMENDATION 9.

Policy makers should explore opportunities to partner with energy companies and industry associations to strengthen women's representation in the sector.

Policy makers can support inclusive and safe working environments in the energy sector by encouraging companies to establish comprehensive diversity and inclusion policies. Additionally, they can provide incentives for businesses to adopt family-friendly work practices and support work-life balance for all employees, regardless of gender. Policy makers should also stimulate the adoption of modern technologies and automation to make jobs in the energy sector more attractive to both women and men. Requiring companies to report on the share of women in their workforces and the presence of gender equality policies and procedures could generate transparency and

accountability and allow stakeholders to monitor progress toward greater gender diversity in the entire sector.

Given the limited organizational awareness of how companies can support women's employment—and for smaller companies their limited resources to do so—industry associations are well positioned to support energy companies in the development of gender equality policies and grievance mechanisms for reporting workplace issues by disseminating guidance, providing training on gender equality, and offering opportunities for companies to share experience and lessons learned.

Reform Institutions and Policies

RECOMMENDATION 10.

Policy makers should address legislative barriers and gaps that affect women's employment in the energy sector.

While some countries, like Kazakhstan, have made efforts to reduce the list of prohibited occupations for women in the energy sector, restrictions on women's employment continue to hinder their participation in the energy sectors of Tajikistan and the Kyrgyz Republic. In Uzbekistan, although women's employment is no longer expressly prohibited in certain energy sector roles, it remains "not recommended," and employers can create their own lists of jobs where female labor is to be "limited." These regulations not only limit women's employment opportunities, especially in technical

roles with low female representation, but also perpetuate gender-based occupational segregation by reinforcing stereotypes about men's and women's professional capabilities, making the energy sector appear unsuitable for women. Policy makers should review occupational requirements and working conditions in consultation with employers to assess opportunities for lifting the prohibitions on women's employment in the sector, ensuring that any occupational restrictions are based on informed risk assessments rather than on gender.

Policy makers can further support women's economic participation in the energy sector by strengthening national legislation to prohibit and prevent sexual harassment. The concept of workplace sexual harassment has already been introduced for the first time into the national legislative framework in the Kyrgyz Republic; however, no such legislation exists in Kazakhstan. Tajikistan introduced the concept of workplace harassment into the national legislative framework, but sexual harassment was not included. While Uzbekistan law permits labor authorities to take measures to

prevent gender-based violence and harassment in the workplace, there is no explicit prohibition of workplace sexual harassment. The adoption of comprehensive national legislation—statutory obligations for employers to take action to prohibit, prevent, and respond to reports of gender-based violence and sexual harassment—is crucial to advancing gender equality at all workplaces through the establishment of clear standards, by providing redress for survivors, and by imposing penalties on offenders.

RECOMMENDATION 11.

Policy makers should incorporate gender equality objectives and targets into energy sector policies.

The governments of each of the Central Asian countries considered in this study have already expressed a commitment to gender equality as a key goal of national development, but there is scope to strengthen women's employment in the energy sector by aligning gender equality objectives with sector-specific policies. By integrating gender equality as a core principle in energy sector policies and regulations, policy makers can ensure that women's inclusion is not merely an aspirational goal but a tangible requirement. The introduction of national targets for women's employment in the

energy sector can be a transformative step: while some countries have already announced goals to increase women's participation in leadership roles and in government bodies, as well as increase the number of government scholarships reserved for girls to study technical education, there are no specific targets specifically related to women's employment in the energy sector. Such targets would provide a structured framework for increasing the representation of women at all levels of the industry, encouraging companies to actively recruit and promote women.

RECOMMENDATION 12.

Policy makers should introduce legislative and policy reforms to encourage more equitable distribution of family and care responsibilities among women and men.

Policy makers can play an important role in fostering women's participation in the energy sector by promoting a more equitable distribution of family and care responsibilities between women and men. Currently, women bear the primary responsibility for childcare across each of the Central Asian countries, and work in the energy sector, particularly in operational roles, is frequently deemed incompatible with family obligations.

Policy makers could consider introducing paid paternity leave to ensure that women can return to the workforce more easily after having children. Fathers in Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan are currently only entitled to unpaid childcare leave until the child turns three years of age, and uptake is reportedly low. Offering paid paternity leave and encouraging fathers to use it could encourage shared caregiving

responsibilities and foster a work-life balance for women and men alike, in addition to reducing career interruptions for women. These reforms should be accompanied by awareness campaigns to challenge gender stereotypes about caregiving roles and to encourage more men to share family and care responsibilities to shift societal norms

and expectations over the long term. Analyzing and addressing existing gaps in the infrastructure and services needed by working parents (such as affordable and high-quality childcare) could also make it easier for working parents to pursue careers in the energy sector.

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