

Bottlenecks & Breakthroughs:

Advancing Gender Equity in African Clean Energy

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About the Report

This report was funded by The Global Energy Alliance for People and Planet, as part of the "Women for Green Jobs" (W4GJ) programme implemented by Shortlist with support from Value for Women. The goal of W4GJ is to ensure that more women are accessing and succeeding in clean energy careers in Africa, specifically targeting job placements, career support, and employer-level interventions across seven countries in sub-Saharan Africa: Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Nigeria, Sierra Leone and Uganda. W4GJ will also address wider sectoral challenges by creating a public good talent pool of thousands of pre-vetted and screened women who can find and succeed in clean energy and climate jobs of the future by engaging in training initiatives, apprenticeship programs, and gaining on-the-job experience. Additional dedicated support is provided by Value for Women to distributed renewable energy (DRE) employers to implement more gender-inclusive workplace policies and practices; through a dedicated Learning Community, tailored assessments and recommendations, and deep-dive Technical Assistance. This program will work with at least forty clean energy companies to support their scale and growth by addressing their hiring challenges.

About Shortlist

Shortlist is a talent advisory firm that provides recruitment services and technology for both leadership hiring and large-scale "impact talent" programs across African startups, social ventures, and mission-driven organizations. Since our founding in 2016, we have helped place over five thousand people into jobs in the global south, mostly in Sub-Saharan Africa.

Shortlist is focused on two core offerings: **Shortlist Search** provides executive search services for leading startups and impact organizations in Africa, while our **Shortlist Futures** team designs and implements youth employment and apprenticeship programs across Africa in partnership with donors, governments, enterprises, and educators. These programs span several sectors including off-grid energy, climate technology, and global digital economy.

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Executive Summary

Historically, employees in the African clean energy sector have been predominantly male – but that is slowly changing. Clean energy companies across Africa are making concerted efforts to diversify their workforces, making a particular effort to attract, hire, and retain women. Companies have broadened marketing approaches, innovated in how they manage applications and interviews, investigated biases in outreach and hiring, developed gender action plans, and looked for other ways to increase female workforce representation. These efforts have been driven by greater pushes from investors and funders, as well as a growing body of research showing that diverse teams perform better.

Shortlist has sought to accelerate this trend, implementing a range of gender-lensed talent programs over the last five years with female representation over 50%, well above the current industry benchmark of 32% female employees. Under Shortlist's inaugural "Women For Green Jobs" program, funded by The Global Energy Alliance for People & Planet (GEAPP), we are supporting more than 750 women transitioning into clean energy careers, and working with Value For Women and other partners to promote gender equity in clean energy workspaces and success on the job. Through this work we will give young women critical first-hand work experience, offer job search support, and train hundreds of women with the technical skill needed to take on roles in finance, operations and maintenance, and engineering.

Despite this progress, women still face unique barriers and bottlenecks to accessing jobs in the clean energy sector. This report tries to further illuminate these challenges, highlighting the voices and experience of women who are breaking into the clean energy sector, and draws upon the broader literature on the topic as well as our own hands-on hiring and program experience and conversations with dozens of sector employees and experts. Within this report, readers will find a framework for understanding the causes of gender inequity in African clean energy, as well as stories and perspectives from current, former, and prospective female employees in the clean energy sector to better understand how such barriers hinder access and success to clean energy jobs, while also hinting at the types of approaches and interventions which may help. Finally, we draw conclusions on some areas of opportunity as we seek to create a more equitable and inclusive clean energy sector for female employees, and all under-represented candidate segments.

We hope that these insights help companies, investors and donors reflect on which gender bottlenecks their work is addressing and where there may be opportunities to further enhance gender equity in the clean energy workforce.



What We've Learned

Our conversations showed us that while real progress is being made by the sector and many women are overcoming strongly held social norms and biases, significant challenges remain.

What's Going Well

- The pipeline of women workers is growing, and women are excited about joining clean energy companies.
- Women are motivated by the opportunity to work in impactful jobs and to make a difference in the fight against climate change.
- Women have proven they can excel in these positions, overcoming initial challenges and adjusting to traditionally male-dominated roles.
- Women believe their workplaces are giving them the space to grow and are willing to invest in further training within and outside the workplace to advance.

Persistent Challenges

- Widely held negative social norms and biases continue to affect communities and education systems, influencing employers, families, colleagues, customers and women workers in the workplace.
- Biases play an important role in shaping the structural barriers we observe in training, hiring and workplace dynamics.
- Clean energy companies still struggle with hiring and retaining women in field-based sales and technician roles and find it challenging to alter those jobs to make them more attractive to women.
- Under pressure to become profitable, companies have also turned full-time salaried roles into commission-based ones that introduce workers to uncomfortable levels of financial uncertainty, make them feel less included, and often lead to higher churn and lower success.
- It's a challenge for many women to work long hours away from home while raising children, particularly with limited childcare options.
- While relocation can provide young women with valued opportunities for growth, it is often experienced as disruptive for women who are married or have children. Women are rarely able to convince spouses to relocate, and moving pulls them away from social networks that provide help with childcare and domestic support.



Pathways Forward

- Overtly encouraging women to apply in job advertisements remains one of the lowest-cost and easiest ways for companies to attract women to roles. For example, we've seen that simply including language like "Women are encouraged to apply" can increase female application rates.
- **Engaging men** in the workplace, in social networks, and within workers' families is key to diversifying the workforce and helping women feel welcome and included.
- Intentionally leveraging numerous outreach channels, including the company website, job boards, local NGOs and community groups, universities, and career fairs, can help close the gender gap in hiring.
- Removing gendered language from job descriptions is a low-cost way companies can better attract women to roles. Use inclusive terms like 'they' and 'you', and avoid stereotypical gendered language to describe responsibilities that may be associated more with men than women.
- Promote the use of blind hiring, the practice of reviewing applications with gender signifiers (like names and pronouns) removed. Deploying this method helps to ensure that candidates are judged on their skills rather than identifying details such as their name and age which can cause prejudice against hiring female talent.
- Trim down job requirements to only the most important qualifications. Women tend to only apply for roles if they meet one hundred percent of the requirements.
- Throughout the hiring process, ensure you have female representation in terms of interviewers, and use unbiased, skill-based assessment to evaluate applicants.
- To retain and advance women employees, companies will need to continue improving workplace features such as more flexible working arrangements and paid maternity leave.

The opportunity for women in clean energy

In recent years, much of the world has accelerated a push to promote gender equity across workspaces – and African clean energy is no exception. Clean energy companies across Africa are making concerted efforts to diversify their workforces, making a particular effort to attract, hire, and retain women. Companies have broadened marketing approaches, innovated in how they manage applications and interviews, investigated biases in outreach and hiring, developed gender action plans, and looked for other ways to increase female workforce representation.

There are a number of factors driving the push for greater gender equity. First, there's a moral case – i.e., there's broad consensus that women should benefit equally from new employment opportunities created by the clean energy sector. The International Renewable Energy Agency (IRENA) projects that the clean energy sector will produce around 19 million new jobs between 2017 and 2050. However, IRENA has found that currently only 32% of full-time jobs in the clean energy sector are held by women. Similarly, GOGLA has estimated that off-grid solar alone could create 1.3 million jobs in South Asia, East, West, and Central Africa by 2022, and that under current hiring trends, about 27% of jobs would be held by women.



Second, there are practical commercial advantages to building more gender-diverse companies and teams in terms of creativity, productivity, and profitability.⁵ Clean energy companies are recognizing that women can thrive and support growth through potential advantages in customer service, co-location with customers and being able to better connect with female customers.⁶

Third, there is an economic and policy imperative for countries in Africa to maximize the potential of their human capital, which would require maximum inclusion of women and other under-represented labor segments. If fully realized, the inclusion of women into the labor market could lead to:



Economic Growth: Closing the gender gap in employment could significantly increase GDP and enhance productivity and competitiveness in Africa. The McKinsey Global Institute has found that if women were to participate in the economy at the same rate as men, their contributions could add as much as USD 28 trillion globally. This also helps harness Africa's demographic dividend, benefitting from a larger working-age population and its economic advantages. It is estimated that increasing the female employment rates in OECD countries to match that of Sweden, could boost GDP by over USD 6 trillion.



Poverty Reduction: Women's increased labor force participation can help alleviate poverty by improving access to income-generating activities and essential services for themselves and their families.



Women's Empowerment and Equality: Greater participation in the labor market empowers women, providing economic independence, decision-making power and improved social status.



Skills Development: More women joining the labor market drives investment in education and skills, breaking barriers and enabling their contributions to diverse sectors.



Reduced Gender-Based Violence: In some circumstances, increasing women's incomes can decrease instances of gender-based violence by improving women's bargaining power and fostering equitable relationships.

Recognizing the opportunity available, donors and companies have undertaken numerous steps to draw women into the sector. A partial list of current programs supporting women's inclusion into the clean energy sector can be found below:

- Power Africa supports the "Women in African Power" network that holds online training and networking events.
- The US government and International Finance Corporation (IFC) fund several apprenticeship initiatives and country-level associations for women in energy.
- The German government and Global Off-Grid Lighting Association (GOGLA) have partnered to create the "Global Women's Network for the Energy Transition" to support the mentoring of mid-career women in the sector.¹⁰
- IFC and USAID have developed practical guidance for employers on increasing gender equity in the green energy workplace.¹¹
- The Shell Foundation, UKAid, and The Global Energy Alliance for People and Planet have worked with partner companies like Shortlist and Value for Women to engage directly with clean energy companies to help them place more women candidates and revamp operations to be more inclusive.¹²

These efforts are having an impact. Companies today are better at attracting and hiring women into roles, developing internal gender action plans, adjusting workplace policies to be more inclusive and ensuring pay and promotion equity. Many of the companies we spoke with have revamped their recruitment strategies by diversifying the channels through which they communicate job opportunities and are adjusting job adverts to be more gender inclusive. Even these small changes, they report, have resulted in big changes to their overall gender composition. However, many companies still struggle to reach their own targets of getting more women into technical and engineering roles and in field-based sales and technician roles.



Framing the Challenge

While gender inequity has been a growing consideration and focus, particularly in the donor and impact investment space, few models or frameworks exist to articulate and understand the different underlying causes for this inequity. We've found that in other sectors, having a shared conceptual understanding and vocabulary can ease and focus discussions around responses and interventions. To that end, we offer a framework that attempts to lay out core drivers of gender inequity (Figure 1). This framework was based on and informed by our secondary research and literature review; conversations with clean energy companies; interviews with dozens of clean energy sector workers; discussion with our project partners at Value for Women and GEAPP; and Shorlist's experience hiring thousands of professionals across Africa. We also drew on other workplace-centric models developed in this context and the broader literature about occupational gender inequity from similar fields like aviation, construction, and ICT.

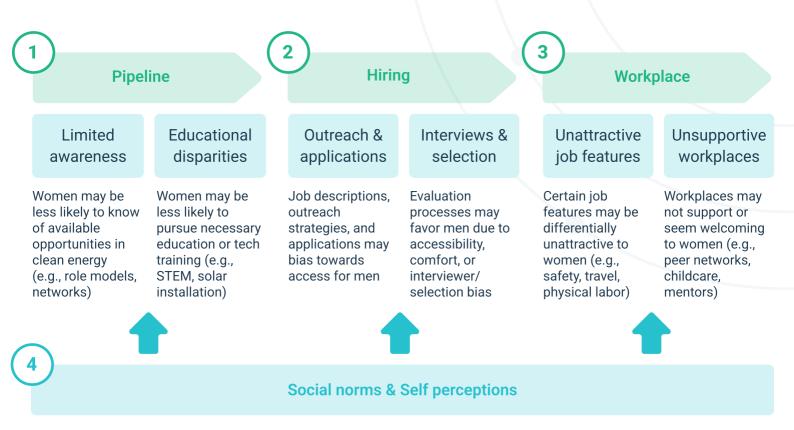


Figure 1: A framework for considering the drivers of gender inequity in the clean energy workforce

We identified four broad categories of causal factors, relating to: (1) Pipeline, (2) Hiring, (3) Workplace, and (4) Self-Perceptions & Social Norms.

Pipeline Challenges

Upstream from actual job openings and hiring processes, there's a broad disparity between women and men in their respective awareness of opportunities in the clean energy space and access to the educational opportunities sometimes necessary to acquire them.

- Limited Awareness. Women's lower awareness of both general and specific opportunities in male-dominated sectors is an important inhibitor to building a larger pipeline of women in these sectors. In both aviation and construction, women entered the fields after being introduced by close social network contacts (like close relatives and family friends) already working in these spaces. Often these contacts were men, but they encouraged women's interests in these spaces, showed them the educational pathways needed to make it into the field and helped make direct connections to jobs. 1 Others also note that educators may not draw women's attention to opportunities like these that depart from traditional norms. Biases and social norms (see below) also affect women's awareness of specific job openings. Relying heavily on word-of-mouth can mean that existing employees—who are mostly men—reach out to their existing and mostly male networks when there are new opportunities, making it hard to reach more diverse applicants. Further, Value for Women noted that it is not only a challenge with relying on word-of-mouth and not assessing who your channels reach—but there is also a lack of explicitly using women-focused channels and networks for job advertisements. While relatively few, there are networks for women in these maledominated sectors, but companies don't sufficiently use those in their outreach process, contributing to the lack of awareness of these roles among women.
- Educational disparities. In certain areas of labor demand, women are simply not being educated at the same rates as men—particularly in science, engineering, technology and math (STEM) fields and in technical roles like solar installation and maintenance. Training women at lower rates than men lowers the number of women with the necessary qualifying credentials for technical and engineering roles in clean energy. The African Development Bank and UN Women noted that in 2013, only 7-12% of engineering students in Africa were women.

Gendered norms influence the expectations set by educators and families around women's education. Where a sector such as clean energy requires extensive investment and a long time for a student to complete, families may discourage girls from pursuing that path, knowing it's a large investment, and fearing it may not be 'worth it' for the family, especially if the woman later chooses to leave the field.¹⁷

In fields of solar photovoltaic (PV) cell installation and maintenance, women are similarly significantly underrepresented in educational programs. For example, women make up only 15% of the students getting certified for solar installation at Strathmore Energy Research Centre. Even for the women in these courses of study, women often face greater challenges arranging the practical site experience which is a requisite for graduating due to greater challenges traveling to remote sites and finding safe accommodation.

2 Hiring Challenges

A number of challenges appear in the process of hiring women into clean energy roles, both unique challenges companies face attracting female talent and unique barriers women face in pursuing these jobs. Companies often engage in a limited range of outreach and marketing efforts, including relying on word-of-mouth, which favors building a male-dominated applicant pool. Job descriptions are often unwittingly written in ways that implicitly attract men and can dissuade women from applying. Interview processes can be biased, particularly when there are few or no women involved in interview panels or as interviewers. While some of these challenges can be easily overcome by deploying new tactics such as raising awareness in female-centric spaces or offering training for women for particular skill sets, many hiring challenges are predicated on strong social norms and beliefs maintained by society, and require systemic approaches to overcome.

Outreach and applications. Explicit and implicit biases in top-of-funnel recruitment processes can also be exclusionary. Advertisements themselves may make roles seem particularly geared towards men or contain a long list of job "requirements," that makes women feel unqualified. Research has shown that women tend to opt out of job opportunities if they don't meet all stated requirements, whereas men proceed even if they don't fulfill all requirements, sometimes getting the job despite this. Experiments in Peru and Mexico that issued advertisements noting the potential for women to succeed, access to a network of women, and access to a role model doubled the pool of female applicants to tech jobs. Word-of-mouth from existing employees, usually male, also tends to raise awareness more effectively among men, and perpetuates a perception that these jobs are "for men."

Interviews and selection. Implicit and explicit biases also lurk in interviewing and evaluation processes. Interview panels are often staffed primarily or exclusively by men (not surprising given the current composition of clean energy workforces), which may heighten the risk of bias or lead to female candidate discomfort and underperformance. Research has noted the importance of using competency-based interviews rather than relying solely on manager judgments. Explicit biases towards women for being "emotional" or "distracted by family commitments" can also influence hiring judgments. Hidden biases can also be at work. For example, analyzing investor questions on pitches from male and female startup founders showed that both male and female investors tended to ask women founders more about downside risks and men founders more about upside potential, reflecting investors' own implicit bias about women's capacities. Finally, there is also a risk of overly relying on "culture fit" – which is often an ambiguous factor, and can increase the likelihood of biased decision-making, and managers hiring candidates that "look like them".

Workplace Challenges

Beyond the hiring process, women face many unique challenges once on the job. For many women, companies are offering roles that do not appeal to their needs, discouraging them from applying. And for the women who do secure jobs, workplaces can vary in their degree of inclusivity and benefits that support and meet women's needs, which can further limit their progression and retention in roles.

Unattractive job features. Women sometimes self-select out of jobs or drop out of a job or industry when the job features on offer interfere with women's often uneven care work burdens or require them to break with gender norms around travel, manual labor, or intensive social interaction. The realities of fieldwork, travel and physical labor pose a challenge to many energy companies. However, some are finding solutions that, for example, place women close to their home villages and provide transportation solutions that make these jobs more workable. Sometimes women must convince their families that the job is safe and suitable for them to undertake.

Unsupportive workplaces. Once on the job, retaining women requires a supportive workplace along some unique dimensions. Often in male-dominated fields, women face harassment or hostility from colleagues and even customers. They may be excluded from information sharing networks and, as such, may not acquire the same skills they need to thrive in their roles. In a male-dominated space, women may feel they are asked to take on personality characteristics—being extra firm or cold or more competitive with peers—to fit within the existing culture or defy expectations of their unsuitable 'feminine' traits.²⁵

Shortlist's research on how to enable career advancement for women in Kenya has found consistent themes women face when aligning their familial needs with their career.26 First is that rigid working hours and inflexibility with work locations limit women's ability to balance familial commitments and work responsibilities; women often bear the burden of disproportionate childcare and home management responsibilities. This is compounded by the fact that many women have inadequate access to child and elder care, which further limits women's ability to fully participate at work. Secondly, women's uneven share of home responsibilities often makes it harder for them to take advantage of new work opportunities, training, and extracurricular activities that are associated with advancement. Third, while there is growing recognition of women's material responsibilities, employers continue to overlook other family obligations - for all employees, regardless of gender, as men with care responsibilities can also suffer. Finally, women's aspirations and values often differ from those of their male peers. In Kenya for example, while many Kenyan women are motivated to go back to work after family leave due to financial considerations, they are also typically factoring in time and non-cash benefits such as flexibility, pension, medical cover, and staff meals in their decision making.

Finally, we have also seen that it is hard to attract women to jobs based in rural or remote areas. These roles are largely sales roles, which have low salaries, require frequent travel, are perceived as unsafe, and are seen as 'inappropriate' for women to do by their friends and family. Companies however, are coming up with new ways to support women in these jobs to make them more attractive.

4

Self-Perceptions & Social Norms

Operating underneath and intertwined with these overt challenges, disparities are driven and exacerbated by women's self perceptions as well as a set of complex social norms and biases (both overt and subconscious) about women, their roles in the workplace and at home, what they can and can't do, what they should and shouldn't do. These are expressed in direct and indirect ways across the sector, often by candidates themselves but also teachers, parents and other family members, customers, colleagues, managers and company leaders. We see that these social norms and biases drive and shape all other more "concrete" barriers, and are among the most complicated and intractable to address. Forms of bias also often affect women's paths to promotion and their access to informal networks that help them learn about advancement opportunities and be prepared to take advantage of them. Biases in promotion and pay appear to be key reasons women in the US leave tech jobs. One study found that men bonding with male managers at coffee breaks, happy hours, and golf outings accounted for 39% of the promotion gap at a large firm in Asia. When networking events are exclusively during evenings and weekends, they can interfere with women's caregiving responsibilities. And, women may be less likely to draw on weak, transactional networks, preferring to leverage more substantive relationships.29

Importantly, the various social norms and biases set the context for strong social conditioning that can have harmful effects on women's own self-perceptions. As a result, many women feel less confident in pursuing jobs in male dominated fields or underestimate their own skills, or opt out of careers early despite potential to succeed. As such, they may not apply for roles in which equally qualified men might, self-select out of jobs or companies, and jump off the career ladder earlier than men. That said, many interviewees noted how seeing female role models in key positions, being encouraged by a manager, or seeing more inclusive job adverts or hiring processes could make a difference.

Voices of Women Workers

We sought to deepen this conceptual understanding with more textured perspectives direct from women in the clean energy sector, including current and former employees. The women we spoke with were based in Nigeria, Kenya, and Uganda and held a range of roles in sales, installation and repair, factory assembly, and data analysis, roles that are often male-dominated (see more in Table 1 below). The median age of these women is 40 with 4 years of prior experience. These "voices from the field" provide richer texture and insight into how these barriers show up in the experiences of young women across Africa, and hint at ways towards a more equitable future.

Roles Represented

Management Roles

- Response Officer
- Response Team Leader
- Field Territory Retention Executive

Sales Roles

- Sales Agent
- Sales Representative
- Sales Manager
- Regional Sales Manager

Technical Roles

- Data Analyst
- Technical Coordinator
- Technician
- Mechanical/Electrical Engineer

Warehouse and Logicstics Roles

- Quality Control Specialists
- Regional Stock Controller
- Head of Warehousing and Logistics

Table 1. Roles Represented by Women Employees Interviewed



We used our broad understanding of the inequity drivers to help us craft interview guides, which we used in discussions with twenty-three women workers: four candidates who were ultimately not placed in clean energy roles, eighteen current women workers within four of the six companies we spoke with, and one former worker who had recently resigned from her role. The workers we spoke with were based in Nigeria, Kenya, and Uganda and held a range of roles in sales, installation and repair, factory assembly, and data analysis – roles that are often male-dominated. Our conversations were all held by phone or over Zoom, led by two interviewers. All interviews were recorded and translated into English for coding in NVivo, based largely on the framework shared previously.

Our approach was limited in important ways. First, for ease of outreach and data collection, we focused on employees from a small number of companies, most of whom are already committed to improving gender equity in their workforces. Second, we spoke only to women who were already participating in the sector in some manner, many of whom have already overcome some of the systemic barriers that prevent many other women from interviewing with and joining these companies. This allowed us to reflect on the possibilities for retaining women workers and facing more intractable challenges to improving equity, but did not provide a full understanding of the range of barriers and challenges faced by the vast pool of potential female employees who are not aware of these opportunities, haven't considered them seriously or have not yet applied to or gotten jobs.

We have attempted to summarize some of the key points emerging from the interviews below, but we encourage you to focus on the voice of these young women as they share their experiences in their own words.



Pipeline Challenges

Awareness of opportunities

Women workers considered themselves technically inclined, but not necessarily as clean energy professionals. Few of the women workers we spoke with learned about and then pursued roles specifically in clean energy. Instead, they were interested generally in technical pursuits, often from an early age. For some, this was specifically in a field like mathematics or engineering. For others, it was an interest in things like construction and plumbing, and those interests brought them into the clean energy space.

"I heard through a colleague I worked with at the Tea Company [about the job in clean energy]. He had a friend who worked there who informed him of the opening. Since I did something related to stock management in my studies, I felt that I qualified for the job. So, I applied, and got shortlisted, did the interview and [was offered the job]."

- Female candidate, Uganda

Social networks—including men—played a key role in helping women find out about specific opportunities. For most field-based roles, women heard about the opportunity through their friends and networks. For more technical roles, women usually saw the advert on LinkedIn. Some mentioned they found the program because of a specific partnership that Shortlist had with local universities, which enabled a wider net. Companies rarely have the resources or scale to strike those kinds of partnerships on their own. For several women interviewed, they first heard about job opportunities with a clean energy company from male friends.

"I was working as a plumber. I was working around [my male colleague's office], and when he heard of the opportunity, he called me, and asked, 'Why couldn't you apply for this position?'."

- Female candidate, Kenya



"Men are more open to shine a light on your path. I think I've seen one or two women in [clean energy], but the accessibility [of women in the sector] is not there. You know, those women who are there are so high, you can't really access them. But yeah, the people that you know who are very accessible and out there are men. They're the people that can shine light on your path and guide you."

- Female candidate, Nigeria

Educational disparities

When it comes to educational disparities, we heard from companies' HR teams that this was a challenge in hiring for some technical roles, but that often they were able to recruit from among the available female talent and were also often successful at training women on the job for technician roles. Often clean energy companies were working with specialized technology, and that specific knowledge—rather than general training—was what they needed most.

Many women were not supported to pursue education that enabled them to take on technical roles at the highest level. Both the interviewees and company HR managers are aware that women continue to be discouraged from pursuing education that would enable them to enter into technical and traditionally male-dominated fields. This wasn't always because certain fields were just "for men," but also because they might require more time away from home or heavier monetary investments which families do not always see value in making, in part because they believe or expect that their daughters will drop out of the workforce when they get married.

"It's very hard because [growing up, women are] given the kitchen things like utensils – you wash, you clean. That's what is imprinted in your mind... and your work is just seen as in a kitchen. You're never given the chance to [fix a broken clock or radio]...I don't think women are really given the opportunity to explore their abilities outside the norms of... cleaning, cooking and taking care of their household."

- Female employee, Kenya



"I think for my mom, especially to her and other family members, they always [see professional opportunity as] stressful for you as a woman. They ask, 'Don't you want to settle down In the future?', and, 'Why are you spending so many hours learning?'."

- Female candidate, Nigeria

Family support was key for helping women push the boundaries. They also felt extra pressure to prove themselves in classrooms dominated by men. The women we spoke with who did get credentials in technical fields typically had a lot of support from their families. Still, when they got into university or training programs, they felt a lot of pressure being one of only a few women in their programs. Though this was often a struggle, they tend to look back now and see the ways that this made them stronger and more confident.

"My background has always been science, technology and engineering. The journey was really, really tough... schooling in Nigeria is really tough... you have to put in the work for you to make good grades...So I put in the work...and I saw that it just makes you stand out. I was always in these male dominated classes... and by the time we were graduating, we were seventy-five students with just six girls graduating."

- Female candidate, Nigeria

"I was good at math and physics...but, [in my electronic engineering program at University of Nairobi], there was one woman for fifty men....It was challenging in a way, because you are either put in the category of being a tomboy and not girly enough, or you are put in a category of, you are just incompetent and male classmates don't know how you got here."

- Female employee, Kenya



"When I was younger, before I was admitted into university, I had a passion for engineering. My head teacher saw my interests and encouraged me to apply for engineering, because they saw the passion in me. I feel comfortable working in an engineering field...In my university department, one hundred and fifty students were admitted, and only ten were girls."

- Female candidate, Nigeria

"My background is not that good. I did not have an opportunity to go far with my education. I studied up to class eight, and my parents were not able to educate me further...[Since then I have completed] a technical course in sewing and plumbing... My family did not oppose it; actually, they were happy. They used to tell me to work hard. Every day they used to tell me to work hard, because they know I don't have an education, so they were encouraging me."

- Female employee, Kenya

Some firms are bringing more training in-house to overcome this challenge. Some firms told us that the technology they sell and service is specialized, and they have been able to teach both men and women how to set up and service their specific product. This allows them to be open to a wider pool of candidates for entry-level technical roles.

"When doing recruitment, we review the criteria for applicants and see if the skill gap for women applicants is trainable. If so, we consider them... Recently, we had three openings for technical coordinator roles, and we already had two men at that level. So we aggressively trained up two women who were working as technicians. There are now two women in technical management."

- Manager, Kenya



Additionally, many women were driven to invest further in their knowledge and qualifications. Not only were women mastering new technical skills on the job. Many were also pursuing additional education to advance their careers. Some suggested more formal educational training be built into career development support in house.

"Career-wise, I have also gone back to school to at least enhance my skills, with business intelligence and data analytics at a postgraduate level. As I'm working, I'm also at school, trying to gain more skills [to enable me to become] what I want to be in the future."

- Female employee, Uganda

"Right now, I am pursuing a second course from the Freight Forwarders Association...[on logistics] given the fact that I did not have that background from my degree...I decided to start on this one because it helps to give me more details on logistics [for my job]."

- Female employee, Uganda

Hiring Challenges

Outreach and Applications

Helping ensure that male staff know that women are encouraged to apply can help in having women think differently about these roles and reach out to their female friends and colleagues. As more women join the workforce, they are also a very helpful resource to share openings within their networks.

"I came in alone, then I encouraged two [other women] to join. We became three. The men were like, 'We have one iron lady.' I was leading boys in the field, and people wondered how that is possible. There are girls out there who can do better. The problem is they have not been given that opportunity."

- Female employee, Uganda

"I applied and I got the job and [then my company] got encouraged to employ other women. That means I'm not the only woman in the business right now. I have about five female colleagues."

- Female employee, Nigeria

Several companies effectively reframed their advertisements to attract women. When employers explicitly state in job advertisements that women were encouraged to apply, women often apply in greater numbers. Several workers found this encouraging. They said that seeing openings targeted at women made them see themselves in the roles, know they were welcome, and feel like they wouldn't be immediately dismissed from interviews based on their gender.

"One thing that I've seen, like the alumni group of Girls for Girls, [is that they bring] so many job opportunities that are green energy related [to women]...by the time I see a [job] advert there I just know that [the company] is actually looking out for a female person to apply. At least there are high chances that [a woman] will get the job."

- Female employee, Uganda



Women workers were drawn to the sector by the opportunity to make a difference. Many of the women we spoke with told us they were excited to apply for roles in this space – from the lowest level roles to the most senior ones—because of the opportunity to have a positive impact on the world. They told us about their motivations to support the fight against climate change and improve their communities. Explicitly appealing to these desires in job advertisements may be helpful in attracting women.

"Number one, if you had to look at whatever is happening in the world with climate change, it is affecting more women, not men. A woman out there is not even able to access fuel just for cooking alone. The woman out there is not able to farm to feed their community...So I think coming from that perspective alone, just to talk about how we are being affected by climate changes would make women think, 'What can I do to really make my place a better place?'."

- Female employee, Uganda

"What I enjoy most about my job and working for [the company] is that I have a chance to reach out to communities, to reach out to people, and change their lives with the [clean cookstove], because honestly speaking, the cookstove really works."

- Female employee, Uganda

"My interest for now is involving myself with the community who raised me...to see that they [are bettering] themselves in terms of a transformation...from what they're going through now to a better life. So when [the company] came in, I saw it as a chance for me to try to give back. Through my sales experience, I am able to transform [my customers' lives] by making sure they buy the bio gas and installing it for them."

- Female employee, Kenya



Bias in hiring

Explicitly encouraging women to apply in job advertisements can help grow the female applicant pool. Biases in hiring may be somewhat difficult to observe for both HR managers and workers themselves who have made it through the hiring process already. The workers we spoke with did not feel they experienced biases in hiring, but did appreciate proactive efforts to include women in advertisements. This signaling made them feel welcome and like they might have a real chance at the job on offer. Firm representatives also mentioned that making these changes increased their female applicant pool.

"The [job] advert itself encouraged females to apply...it specifically said, 'Women are highly encouraged to apply.' So, I didn't know whether it was male or female dominated. That encouragement alone attracted me."

- Female employee, Uganda

"When something is advertised and many people think, 'Ah, this is for men', but when you see down there or up there at the top it's written or it's like they have emphasized women are encouraged to apply, you are like, 'Wow, I can apply!'."

- Female employee, Kenya

Some companies are going deeper to counter biases in hiring. In addition to changing adverts, some companies altered interview processes to try and put men and women on equal footing. However, some female employees felt there was still work to do in shifting mindsets. For example, one HR manager in Nigeria went over a field manager's head in hiring for a role on his team. He had suggested he couldn't hire a woman because there would be two women on the team, and their periods would sync up, causing disruption. The HR manager noted, however, that once this manager worked with more women, his mind changed. This is consistent with other research that shows bias against women tends to decline once men are exposed to working with more women, and reflects our experience working with companies. As companies allow women to take on more and different roles, perceptions of women's suitability can and does change over time.

One employee, also in Nigeria, felt she had experienced discrimination while applying for other roles, suggesting there is still more work to do at the ecosystem level.

"The first thing is to work on the male mindset. Men must accept us...Why would a man tell me that because I'm a lady, I do not qualify for a job? If my certificate and my CV qualifies for this job, you should take me for the job. I should not be discriminated against. I should not be excluded because I am a lady. Sometimes you hear a manager [question why a woman] did not come to work and maybe [the reason why is because] she is just running late and not answering his calls, but instead the manager would say, 'Probably she is on her menstrual period.' They should stop this discrimination."

- Female employee, Nigeria

Workplace Challenges

Unattractive job features

Most of the women we spoke with have decided to accept roles at clean energy companies despite some unattractive job features. Many of the jobs entail long hours, relocation, extensive field travel, some manual labor, and public interaction that can sometimes be uncomfortable. However, they also felt it was these features that discouraged other women from joining the sector.

"Sometimes when men look at a female sales agent, all they think is, 'How can I gain from this woman?', which means they may not even be interested in your product. But, because you're female, some of them come to get close to you [pretending that] they want a product when they are actually looking for favors from you. So maybe that is also a worry to women."

- Female employee, Uganda

"[Clean] energy is male-dominated. The sales teams are male. Out of one hundred employees, maybe three to four are female. It's perseverance and endurance which I think women find is too much pressure. It's not for the weak-hearted."

- Female employee, Kenya



The need to be comfortable traveling long distances, often by motorbike, was often mentioned as a detractor. Motorbikes are the prevailing mode of transport for nearly all field-based roles in all markets we surveyed. Higher margin companies could sometimes afford car transport for their staff, who did not seem to have any complaints about transportation. Other companies seemed to be struggling to figure out how to better—and affordably—support women's transport needs for fieldwork. Some supplied men with motorbikes and women with stipends to hire a motorbike rider as needed.

"Many women shy away from joining [the clean energy sector] because of the nature of the job. For example, if you are advertising for a company, and in their adverts they say you need to have an experience in riding, or you need to have a riding license for a motorcycle, most [women do not have that]."

- Female employee, Uganda

Commission-based roles can leave women feeling uncertain and unsupported. The unfortunate reality is that some companies' business models entail job features that make field-based roles less attractive for men and women alike. Downgrading salaried roles to commission-based ones may hit women particularly hard. Two single mothers in our study recently experienced this.

"I'm a single mother. I have two children...My sister helps me to take care of the children when I go to work in the field...This is where I get money to support my mother. When [I was] laid off, [my mother] was not very happy. I tried counseling and informing her that these things happen and that I will get something else. Were it not for the support I got from my mother I could not have stayed for four years [with this company]."

- Female employee/agent, Uganda



"Before, we were given fuel for transport and supported with motorbikes. We had medical insurance. The company was supporting us a lot. It was also on a salary basis. But now there is no transport, no motorbikes, there is nothing else provided. It is making it difficult because you use your own money to go to the field. There is no fuel and no airtime being given."

- Female employee/agent, Uganda

Often families and spouses expressed concerns about the job features. For the women who stayed in these roles, these family fears were ameliorated with time and familiarity with the woman's employer and colleagues.

"When I started the job, I was not moving around. When I started traveling, [my husband] started complaining, but with time he understood that I had to work. I had to sit down and explain to him that I need to work so that we have a better future for our children... Right now, life is OK with my job and my husband. We understand one another. Everything is OK because he knows the kind of people I work with, the kind of job I do, and the principles of the company."

- Female employee, Uganda

"At first, my dad was not supportive, because the kind of sales we do means...you have to go meet [the customer] in the field. People are not coming to meet you [in an office]... They later saw that I had a passion for [the sales job]. Now, whenever somebody comes to our house at night, when there is no power in the area, they are excited to tell them about solar power. People felt that we were very rich. It encouraged my family to accept what I was doing."

- Female employee, Nigeria



Some women mentioned challenges around relocation. For women, relocating away from familial and community social structures often exacerbated the already existing challenges with balancing work and home responsibilities, and can be perceived as less safe. While young women sometimes viewed relocation as an opportunity for exposure and learning, it was often unsustainable after a pregnancy or if a relocation was offered to a married woman whose spouse was also working.

"[The job] was outside my comfort zone because it meant moving to another county. There was that support, but also I was scared. You're going to this new]place. You've never been outside your home. But there was a lot of support [from the company]. I also had curiosity... For me it was exciting because, yes, now I get to be on my own, and you know, try, and see what I am as a person independently, how I live as a person independently, you also get to see your boundaries and how you do as a person. So, it was a time of self discovery."

33

- Female employee, Kenya

"Instead of moving to [the new location for a promotion], I stayed because I have a family... I have settled. So, I wrote an email and said, '[I do not accept the promotion], let me be a sales agent,' because I felt there is less pressure. I will be comfortable, because I will be working at my own pace, whenever I need. That's why I stayed as a sales agent. That's another challenge in the company, when you get pregnant, they believe your productivity will go down."

- Female employee, Kenya

An under-appreciated feature of field-based roles came up a lot: Exposure. Women appreciated being able to see new places and learn to communicate with diverse customers.

"You know with marketing, you get exposure. You get to interact with a lot of people. You learn a lot from people. There are qualities that I have learned from interacting with people, because when you go out there, you meet [all types of] people. So, you learn how to cope, how to live and how to interact with all those kinds of people."

- Female employee, Uganda

Managers and HR leads understand that the features of many field-based roles in particular are unattractive to women. These features might be seen as core to the role, and organizations don't always see how they could reimagine these roles to better attract women to them. However, Value for Women's research has shown that there are in fact relatively practical changes companies can make to address these challenges, such as designing sales to be conducted in pairs, or changing strategic locations at where sales are made.³⁴

"In 2020, we had fifty salespeople, and they were all male. We now have eight women. They are all in the shops. When field-based roles open, they are not interested. They find it stressful and harder to balance the demands of family... We have eight thousand agents, and thirty nine percent are women. When formal jobs open up, they don't apply and again say they can't make it work with their family."

- Manager, Nigeria

"Most of our headcount is in sales and distribution, and there are no women in these roles. That requires pitchina. door-to-door promotion and sales. I think it's tiresome for women. They fear leaving their families or relocating, and that [doesn't fit them]. We've tried giving them local territories, but the women don't stay after the six months' probation."

- Manager, Uganda



Unsupportive workplaces

Efforts to support women at work appear to be paying off. For the most part, women we spoke with felt their workplaces were fair, welcoming and committed to gender equity. (Again, this may be an artifact of the selection bias of the forward-thinking employers we worked with.) Efforts by management to diversify their leadership and workforce were seen and applauded by the women we spoke with.

"The most surprising thing about [the company] is that they want more women joining the company. So, it wasn't something that was so awkward, it was easy because I was fully welcomed and it was okay because our Country Director is a woman."

- Female employee, Uganda

"[The company] has tried. Most of the [current] leadership team are women. [Currently], the Country Director is a lady, and [an] engineer. In finance, the top person is a lady. In HR, we have three ladies. Technicians, we have several ladies."

- Female employee, Kenya

Having generous maternity leave policies is a good start, but not always enough. When we asked companies what steps they had taken to make their workplaces more supportive of women, all of them talked about updating their maternity leave policies to be more generous and flexible. However, one of our employee participants wondered if those policies were working as desired in practice.

"[The company] promoted me when I was pregnant, but when I went to give birth, they hired someone else when I was on maternity leave. When I came back, the [company] changed my role, and I did the role well. Then the director I was working under said the project is over, and I had to change [role] again...Since 2018 the roles have been changing and I can't even concentrate on one job because the rules are changing. Sometimes I am on the payroll, sometimes I am not. So, I wrote an email. They started saying that they will take me to [another office], but they hired a new guy. Why don't they take him there? I am settled here and meeting my targets."

- Female employee, Kenya



Women continue to face challenges in proving themselves at work, at least in the early days. Even within what they saw as broadly supportive companies, new hires felt they hadd to prove themselves, especially to male colleagues under their management.

"It's just, it's just difficult. I had to work to prove myself again just to be accepted as someone who is knowledgeable enough to handle a project, whereas my male colleagues will never have to face that. I mean, they just show up, and they are accepted on the spot."

- Female candidate, Nigeria

"The community I was assigned to was highly dominated by Muslims, and I am a Christian, and having a female in leadership is not something that is acceptable in their religion. It was one of my major challenges. The men were having trouble accepting me as their leader. I was the first female that triumphed in that position. There were a few before me but they did not last long. They felt that that position was not meant for a woman. I was able to overcome the challenges."

- Female employee, Nigeria

In these circumstances, being promoted provided extra reassurance that a woman was on the right track, and her efforts are appreciated.

"[When I got promoted], I felt good, really good! I felt sane. I felt like my hard work and my inputs were recognized."

- Female candidate, Nigeria



"Of course, being a [female] manager among men wasn't easy...You have to build up your game and make sure that you do what is required. So, in the journey, there have always been some hurdles of course, you know, being a female person, working with a lot of male colleagues. Eventually, I realized that there was potential seen in me, and that's why they trusted me with that."

- Female employee, Uganda

Women felt they often had to tap into their confidence to survive and garner respect at work from male colleagues and their customers.

"You have to actually prove yourself. Because if you are quiet and shy...you'll get left out from many things – even emails [and] updates – so you really have to be out there, outgoing, creative and on your toes all the time. When called upon to do something, you have to do it better [than a man] just to ensure that you know, someone doesn't see you as just a girl, because even customers are surprised when they see you doing that work. They're like, 'this is not for women'."

- Female employee, Kenya

"At first [when the clients see you're a woman, they wonder if you'll do a] good job. But at the end of it, they're like, 'Wow, so this lady can really do a good job,' and they recommend us to other clients. At times you find a customer calling saying 'I want that lady technician to come to my place'."

- Female employee, Kenya

Companies must remain alert to sexual harassment. Although sexual harassment is an issue many women experience within clean energy companies, very few of the women we spoke to for this research mentioned it. Only one person in Nigeria spoke about facing sexual harassment in her previous technical roles at a generator company.

"I experienced different forms of gender discrimination [such as] having to almost hide your body parts because men are not used to seeing them. It was a lot. You'll be hearing snide comments. You have men that want to date you by force, and it's like, that's not why I'm here. When we are back at the office, I have to tell you if you're doing something wrong. How do I now correct you when outside the office you want to do this and that with me?"

- Candidate, Nigeria

Intentional efforts to help women grow, be promoted, and make it into leadership positions improve retention and encourage effort. Overall, most participants felt their companies were giving them space to grow and were committed to women's leadership. They appreciated investments in building their capacities and helping them succeed. They felt inspired and motivated by seeing women in leadership roles, by receiving training and support, and by company cultures that walked the talk on gender equity. Male managers and leaders are an important part of this work.

"What I enjoy most in my role is the support I get from my immediate supervisor. Whenever I reach out to him, and I have an issue he's always willing to support and he supports where need be, where he's able to.

- Female employee, Uganda

"That is also what I like most about the company – it treats people equally. It treats both male and females equally. That is one thing, and also, it's about decent jobs...When you look at our sales people and you compare [them] with other companies, you realize that we're doing so well. [For example,] the company offers these jobs both to the lowest person, like you really feel this is a good work environment."

- Female employee, Uganda



"I had a good boss then...He tried to mentor me. He told me, 'When this comes, you do this. When this happens, you treat it this way. Don't you see how I do this? When you have this pressure, you do it like this. If you know you cannot do something in a certain amount of time, be open and ask for more time and give reasons.' He mentored me and made me grow [within] the management role."

- Female employee, Uganda

Self-Perceptions & Social Norms

Confidence gaps

The women we spoke with did not suffer from feelings of low ambition or confidence and have already broken barriers to enter this field. Furthermore, being able to 'make it' in a male-dominated space reinforced their confidence and was a source of motivation to work harder and try to grow into more challenging roles. Many felt that having to prove themselves so often along the way has made them strong, skilled, and savvy.

"Being in a male-dominated field means you have to always be on your A-game. It's quite unfortunate, but it's just the way it is...If you're just putting in the normal effort, you won't make it...[As a woman] you will not be able to [stack-up against men]... men will always get chosen, but women always have to put in the extra effort."

- Female candidate, Nigeria

"Career-wise, I see myself at the top level of this company...I don't want to be mediocre. I want to be at the top!"

- Female employee, Nigeria



"Women are good once they are in [at a company]. Because all eyes are on you, you tend to excel. You have to show what you can do, and work under pressure. For technical roles, that's also true in university...When I was in university, there were only three ladies and forty men. The results of exams were posted on a notice board for everyone to see, and you know they are looking at you, just looking for those three names."

- Female company manager, Kenya

Still, low confidence may be holding other women back. While the women in the study were very confident, this is possibly caused by the selection bias, with our team having spoken primarily to women who have "made it.". The women we spoke to felt like low confidence and social expectations were very likely holding other women back from joining them in the clean energy sector.

"Women fear such jobs [in clean energy], but they are for everyone. Women can do even better because it depends on how you talk to customers, and how you convince the customers [to buy a product]. It is an enjoyable job because you get to meet so many people and get to learn a lot from others. Women should be open-minded and not shy. Women fear that they will be laughed at, but they need to remove such thoughts from their minds and be ready to learn."

- Female employee, Uganda

"I think [there are few women in the field] because of gender norms. People think some tasks, or some jobs are meant for men, and they can't do it. But,...what a man can do a woman can do. So many women tend to think that they can't do plumbing, or can't do such a job because it's meant for men but that's not the case... In my opinion, we have [good training] institutions, but it's us women who need to be mentored and] to be motivated to join those institutions."

- Female employee, Kenya



A few of our participants, especially single mothers, felt so desperate for work that they said they had to find the confidence to take on whatever work was available, regardless of gender norms. This is consistent with other research about broader drivers of women's labor force participation.

"I desperately needed a job, because I had a child to take care of and I didn't have the finances. At that time, all I needed was something that would give me a source of [income]. I was ready to take on any challenge that was coming up my way. You know this is male-dominated, but I think eventually I also realized that the perception we women have over things, that it's only a man who can do this, is what kills us, because even women now can do better."

- Female employee, Uganda

A number of firms see women's self-selection away from "difficult" jobs as a big reason their female applicant pool is small. This may not be true, but it is their perception. Even committed HR managers can have gender biases that make it difficult to recruit with an open mind.

"Women are easily stressed and can easily quit. Women behave at work as if they are lower than men. They must consult male colleagues when given a new task. They assume men do it better."

- Female manager, Uganda

Women's ambition can be a resource. The ambition and confidence of these women willing to break gender barriers is an enormous resource to companies. They are full of courage, persistence, a willingness to learn and grow, and a commitment to help shape healthy work cultures. Some firms explicitly see things this way.

"The thing about me, I've always been a determined person. I quickly adapt to any changes. Once [I] make up my mind that, 'Oh, this is what I want to do', I start doing research, 'How am I going to stand out? How am I going to make a difference?'. Whatever I lay my hands on I quickly learn and adapt to... I want to be independent. So, when I'm picking up a new job, I quickly learn something."

- Female employee, Nigeria

"My story is different. In other regions [of Nigeria], there are females [in the company], but here in Southwestern [Nigeria], there were none, and they needed a female. Now they call me 'first lady' and treat me like a queen. I have a kind of wealth of knowledge from different people because of my experience working with other companies. There's no bad competition among us employees. We love ourselves as a family...I go to my senior [colleagues] and seek advice. I have a very loving and understanding line manager. He is the best. He will come to me and ask me, 'First lady, I hope you are well?,' and I call him a 'senior motivational speaker."

- Female employee, Nigeria

"We have found that women are diligent. We have yet to let go of a woman. They know it's harder for them to get a job, and they don't mess up. They care about the details."

- Manager, Kenya



Implications

Our conversations reveal that at least some of the companies are making real, substantive gains in attracting women and promoting them in a wide range of roles. This includes progress within previously male-dominated roles such as field-based sales and technicians, data analysts, and engineers. Many have started with modest, impactful changes like amending their job advertisements and updating their maternity leave policies, but cultures of inclusivity are also emerging in middle and upper management, helping more women feel they have space to grow. Some particularly promising (but by no means comprehensive) practices we observed included:

- Demonstrating a serious commitment from the firm's top leadership
- Signaling that women are encouraged to apply in job advertisements
- Recruiting from a wider range of channels, including those where women are, and engaging male networks to support the recruitment of women
- Engaging male networks to support recruitment of women
- Providing more technical training in-house and upskilling staff
- Encouraging managers to train, mentor, and support women enabling growth and promotion
- Ensuring equity in pay and promotion

Companies earlier in their journeys can take heart from how much change is possible and the potential positive impact and benefits of leveraging female talent more effectively and fairly within their workforces.

Even the most successful companies, however, continue to face challenges, particularly around addressing the job features that make it difficult for women to take on and stay in field-based roles. These are hard problems to solve, as they involve either new costs or creative thinking to redesign roles to make them more attractive to and workable for women.

This research also sheds new light on topics that may have gotten less attention in previous research. It shows the ways that **relocation** can be difficult and disruptive for women in ways that may be less so for men. It also highlights the importance of **recruiting men as allies** in efforts to promote equity. Men can be powerful agents by helping recruit and attract more women in their social networks to join the sector. Men's support can ease and shorten the period of discomfort and "proving oneself" that so many female new hires face. Welcoming and communicating with new staff's spouses and families can also speed up their support for new hires' new jobs, making it smoother for them to move into field-based roles.

We also learned that while equal access to educational opportunities and resources is critical to realizing full gender equality, there are ways to overcome these barriers. Companies can compete to attract the female technical talent that is available, and many skills can be trained on the job. For jobs and roles that require specific technical certifications (e.g., solar technician), intervention is needed further upstream from employers at the level of the educational institution and even pre-educational awareness building. Further, if we look at experiences with ICT in the US, we see that the educational skills gap has closed, with equal numbers of male and female computer science graduates, even though there is still uneven retention among men and women as time goes on.

Overall, it should be reassuring to see how much can be done at the company level alone to address some of the underlying causes of gender disparities in African clean energy employment. At the same time, much can be done at an ecosystem level as well to support some of these micro-changes while driving systemic awareness campaigns and policy to support more women succeeding in clean energy careers. Companies individually may not be able to reach far upstream into the pipeline of talent to inspire girls and university students to pursue clean energy jobs. But ecosystem players might. They can help build these talent pipelines for the "public good," aspiring to a healthier, growing clean energy ecosystem and a more equitable labor market, and better link these talent pools to companies in the space. Similarly, companies may struggle to provide comprehensive mentorship or support programs on their own, but public funders may be able to create shared networks and resources to support existing and prospective female workers in African clean energy.



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