Evidence Brief

Closing the gender gap: Building inclusive energy economies for African women

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Executive summary

The global energy transition, while necessary for climate resilience and sustainable development, risks deepening existing gender inequalities if it fails to include women in its design and benefits. In Africa, the clean energy transition intersects directly with gender roles, household energy use, and economic participation. The exclusion of women from policymaking and enterprise opportunities within the clean energy space limits their potential as agents of change.

Drawing on 10 peer-reviewed studies and three key informant interviews, this policy brief examines the challenges and opportunities for African women within the clean energy transition. It identifies systemic barriers such as lack of access to capital, limited technical training, and structural underrepresentation in decision-making spaces. It also highlights successful models, such as Solar Sister, which demonstrate the transformative potential of women-led clean energy initiatives.

The brief offers targeted recommendations for action by governments, development partners, and private actors. These include increasing women's involvement in energy planning and governance, investing in financial literacy and science, technology, engineering, and mathematics (STEM) education, and developing innovative financing solutions tailored to women entrepreneurs. By addressing these structural gaps, stakeholders can ensure that Africa's energy transition is not only environmentally sustainable but also equitable and inclusive.

Key Messages

- Women's economic empowerment is central to achieving a just and inclusive energy transition in Africa.
- Despite their critical role in household energy use, women remain largely excluded from energy policy development, project design, and enterprise participation.
- Key barriers include lack of access to finance, limited representation in STEM and technical fields, and weak implementation of capacity-building and inclusion frameworks.
- The energy transition offers a unique opportunity to create sustainable, gender-responsive economic opportunities. Seizing this opportunity requires intentional reforms in financing mechanisms, skills development programmes, and inclusive governance structures.
- Multi-stakeholder partnerships, including governments, donors, private sector actors, and civil society organisations, are critical to aligning and scaling interventions that support women-led energy innovations.

Background

Across Africa, energy poverty has disproportionately affected women, who bear the brunt of energy-related challenges due to their caregiving and domestic responsibilities [1,2]. From dependence on unsafe cooking fuels to limited lighting for household productivity and children's education, inadequate energy access has reinforced gender-based vulnerabilities. Goal 5 of the 17 Sustainable Development Goals of the United Nations aims to address the issues affecting women by promoting gender equality and the empowerment of women and girls [3]. The United Nations and the World Bank have conducted studies showing that focusing on women in development assistance and poverty reduction strategies leads to faster economic growth than gender-neutral approaches (United Nations, 2015). The exclusion of women from policymaking and enterprise opportunities within the clean energy space limits their potential as agents of change.

Several international and regional policies recognise the need to address gender disparities in energy access. For example, the Economic Community of West African States (ECOWAS) Policy for Gender Mainstreaming in Energy Access (2017) provides a framework for integrating gender into energy planning and implementation across West Africa [4]. Similarly, the African Union's Gender Equality and Women's Empowerment Strategy (2022–2026) emphasises the importance of including women in energy governance and green economy initiatives. The Kenya National Energy Policy (2018) and Uganda's Gender Strategy for the Energy Sector (2016) also acknowledge gendered dimensions of energy access, though implementation often remains weak [5,6].

The energy transition presents a variety of economic opportunities that could empower women economically, but several challenges exist that prevent them from benefiting from these opportunities. Exclusion from the economic and policy domains of the energy sector, as well as structural and institutional barriers, continue to marginalise women in the energy sector. These include socio-cultural norms, gender-blind policy environments, limited access to finance, and underrepresentation in STEM education and careers [7].

This brief explores how African women can be empowered to benefit from the continent's clean energy transition. Specifically, it examines the economic opportunities available to women along the clean energy value chain, encompassing areas such as production, distribution, retail, and innovation. It also examines the capacity-building needs that must be addressed to enable women to participate effectively in clean energy enterprises and governance. Lastly, the brief recommends financing mechanisms that can support women's entry into and growth within the clean energy sector.

Methodology

This brief draws on evidence from a systematic desk review and expert interviews. A Google Scholar search with the terms "economic empowerment," "clean energy," "African women," and "economic opportunity" identified more than 546 articles. Of these, 10 peer-reviewed studies met the inclusion criteria and were reviewed in detail. Table 1 lists the articles and interviews included in the review.

A qualitative thematic evidence synthesis approach was used to distill insights from the selected studies. Themes were organised around economic opportunities, capacity building, and financing. Additionally, three key informant interviews were conducted to validate the literature findings and provide practical insights.

Data extraction was performed using a standardised tool to capture key study characteristics, intervention details, main findings, and their relevance to promoting inclusive energy economies for African women. Thematic analysis and narrative synthesis were then applied to generate context-specific recommendations, with particular emphasis on aligning them to Africa's policy priorities and programmatic needs.

Key findings

African women face multiple barriers and missed opportunities to fully benefit from the continent's clean energy transition. First, they remain significantly underrepresented in energy policymaking spaces and business ventures. Their exclusion from early policy development stages often results in frameworks that do not reflect women's specific needs or priorities [8,9]. Cultural norms and a lack of institutional support further limit women's ability to enter or lead entrepreneurial initiatives in the sector. Furthermore, gender-based violence, exacerbated by economic dependence, remains a key challenge. Evidence from South Africa and elsewhere shows that when women are empowered economically through access to energy and entrepreneurship opportunities, their vulnerability to violence decreases, and their communities benefit socially and economically [8].

Financing remains a significant barrier to women's participation in the clean energy sector.

However, successful models such as Solar Sister demonstrate that when women are actively engaged, they achieve financial independence, promote household health, and support community well-being [10]. Such models highlight the vast, untapped potential of women-led clean energy enterprises across Africa.

Secondly, women encounter persistent capacity gaps that prevent them from fully engaging in clean energy markets [11]. A significant gender gap in STEM education restricts women's entry into high-demand technical roles. Even where training programmes exist, many are not gender-responsive or effectively monitored [12].

One of the key informants stated that, in South Africa, state agencies like One Stop Centres have introduced capacity-building frameworks, but implementation remains weak. Societal biases that question women's technical competence further erode their participation and retention [13].

Ultimately, financing remains a significant barrier to women's participation in the clean energy sector. Women often lack access to formal financial services and collateral, limiting their ability to launch or expand clean energy ventures. Traditional finance systems frequently overlook or undervalue women-led enterprises. Microfinance has proven to be a valuable entry point. Initiatives like Solar Sister demonstrate that access to microloans and training can empower women entrepreneurs to succeed [14] Nonetheless, there is a pressing need to expand beyond microfinance and develop blended finance mechanisms to support women across different stages of business development ([15,16]. Table 1 summarises the key insights and recommendations from each article and interview included in the review.

Recommendations

The recommendations below are grounded in a thematic synthesis of 10 peer-reviewed studies and three expert interviews. They reflect the key insights summarised in Table 1 and are intended to inform policy, programming, and investment in inclusive clean energy systems.

- **Promotion of equal access to resources, markets, and opportunities**
  African governments should consider mandating the inclusion of women in energy policy and project planning to ensure equitable access to economic opportunities. Civil society must raise awareness of women's legal and economic rights within the energy sector and communities. Governance structures should embed gender equity principles to remove barriers that hinder women's participation across energy value chains. Donors and NGOs must integrate gender in M&E frameworks to ensure that interventions effectively support women's inclusion, participation, and leadership in the clean energy transition.

- **Strengthening gender-responsive skills development and workplace inclusion**
  Education ministries and donors should design, invest in, and strengthen the monitoring of gender-responsive STEM and vocational training programmes that actively recruit and retain women. NGOs and private sector actors must promote financial literacy and entrepreneurship skills tailored to women's roles in energy markets.

  In parallel, governments and employers should implement workplace and community interventions aimed at challenging societal biases that question women's technical competence. These may include gender-sensitisation training, inclusive hiring and promotion policies, mentorship from female technical leaders, and community engagement to normalise women in STEM and energy leadership roles.

- **Financing mechanisms**
  African governments and financial institutions must expand access to microfinance for women-led energy ventures. Donors should support blended finance models tailored to women's needs, and investors must adopt gender-sensitive investment metrics.

- **Multi-stakeholder engagement**
  African governments should lead coordination platforms that align project design, financing, and implementation of all actors in the energy ecosystem. Private sector partners should co-create and scale women-led innovations in the clean energy sector.

Table 1. Studies and interviews included in the review, insights and recommendations

	Title of the study	Study insights/key recommendations
1	Nhamo & Mukonza (2020)	Raise women's awareness of legal rights and opportunities in the energy transition. Engage women at the project conceptualization and decision-making levels. Promote decentralization, social inclusion, and public participation.
2	Interview: Key informant 1 (SEDA, South Africa)	Emphasised the need for capacity development to enhance women's participation in energy initiatives.
3	Interview: Key informant 2 (KUSHLELA OSC)	Highlighted the shortcomings of One-Stop Centres in addressing GBV. Stressed the need for gender-sensitive policy and service design.
4	Fakier & Khayaat (2018)	Women must be included in the consultation and planning stages of environmental projects to address energy poverty and injustice.
5	Atahau et al. (2021)	Financial literacy enhances the link between women's empowerment and access to green micro-finance solutions.
6	Adams et al. (2023)	Women's empowerment is positively correlated with global environmental quality.
7	Makhabane (2002)	Gender roles influence environmental impacts differently. Women's networks should be supported regionally and globally to promote their role in sustainable energy.
8	Lane et al. (2020) + Key informant 3	Women suffer disproportionately from energy poverty. Gender must be integrated into renewable energy policy.
9	Grantham, K. (2022) + Key informant 3	Clean energy access boosts women's economic empowerment (WEE). Reduces the burden of unpaid care work on women.
10	Maduekwe et al. (2019	Increase women's representation in energy planning and leadership. Address socio-cultural, technical, and financial barriers. Run educational and awareness programs to change gender stereotypes. Ensure equal private sector opportunities for men and women.
11	Samantarai et al. (2023)	Use women's networks to recruit energy entrepreneurs. Train and support women in clean energy business skills. Promote financial independence through clean energy ventures.
12	Makhabane & Tieho (2021)	Reinforce networking and capacity-building efforts for women in sustainable energy.
13	Heuër, A. (2017)	Equip women with skills in sales, pricing, and technical maintenance of energy products. Promote blended financing (grants, loans, equity). Improve access to finance through impact monitoring. Foster partnerships to support business sustainability and innovation. Redefine business performance to include social and environmental impact, not just profit.

Gaps and research needs

Because this was an exploratory classroom exercise, the study did not examine detailed literature on women's economic opportunities within specific clean energy value chains like solar, wind, and hydropower, which would require industry-level engagement. However, insights from three expert interviews affirmed that the findings and recommendations in this brief are credible and well-grounded.

Conclusion

Strong legislation that embeds women's empowerment into national and regional energy frameworks is essential, alongside clearly defined goals to track progress. Capacity building for women in business development, STEM, and financial literacy is also critical to ensure they can fully participate in and benefit from clean energy markets. Multi-stakeholder partnerships must be strengthened to align project design, financing, and implementation, enabling coordinated action from planning to execution. Such integrated efforts are crucial to unlocking sustainable, gender-responsive career opportunities for African women in the energy transition.Top of Form

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