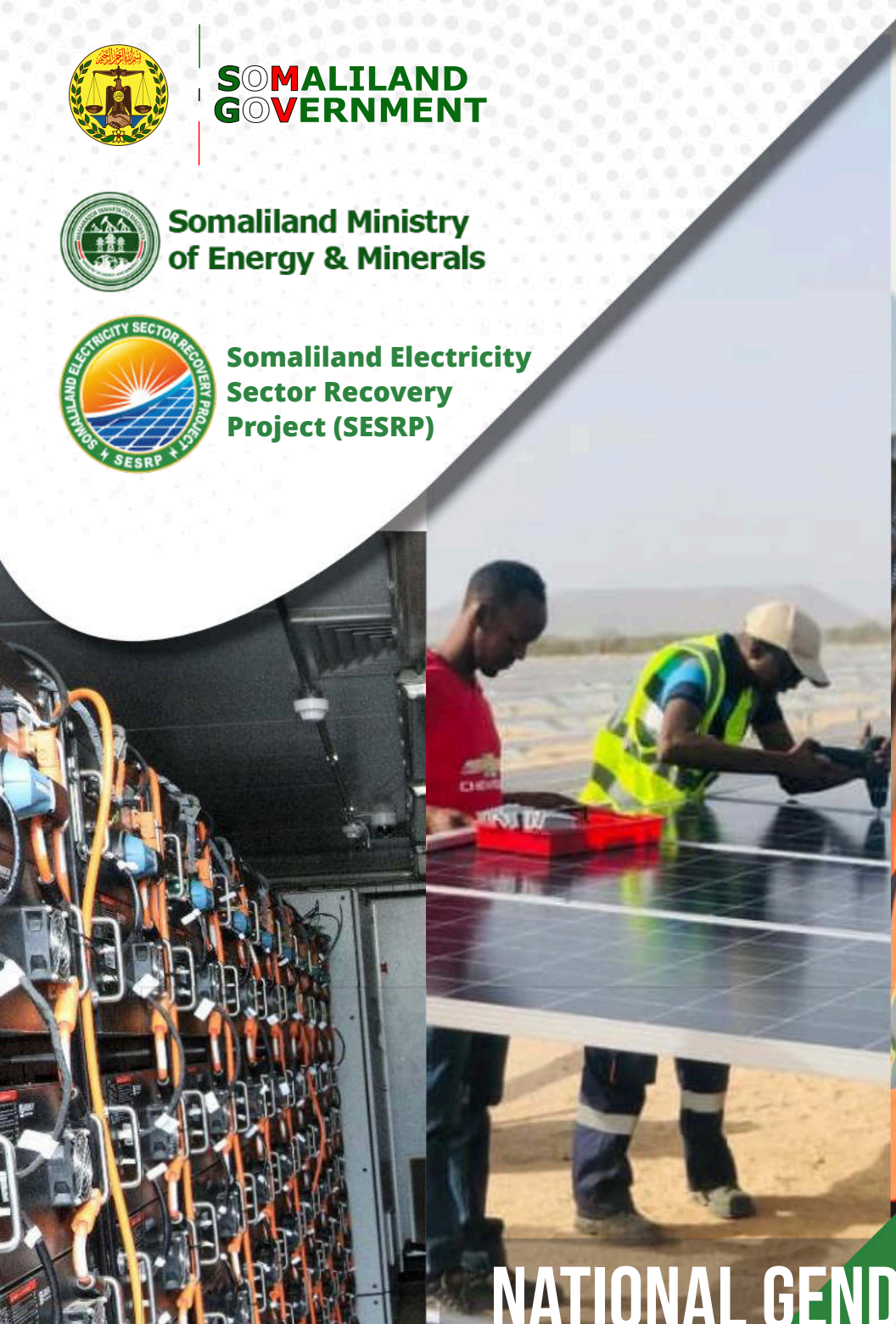
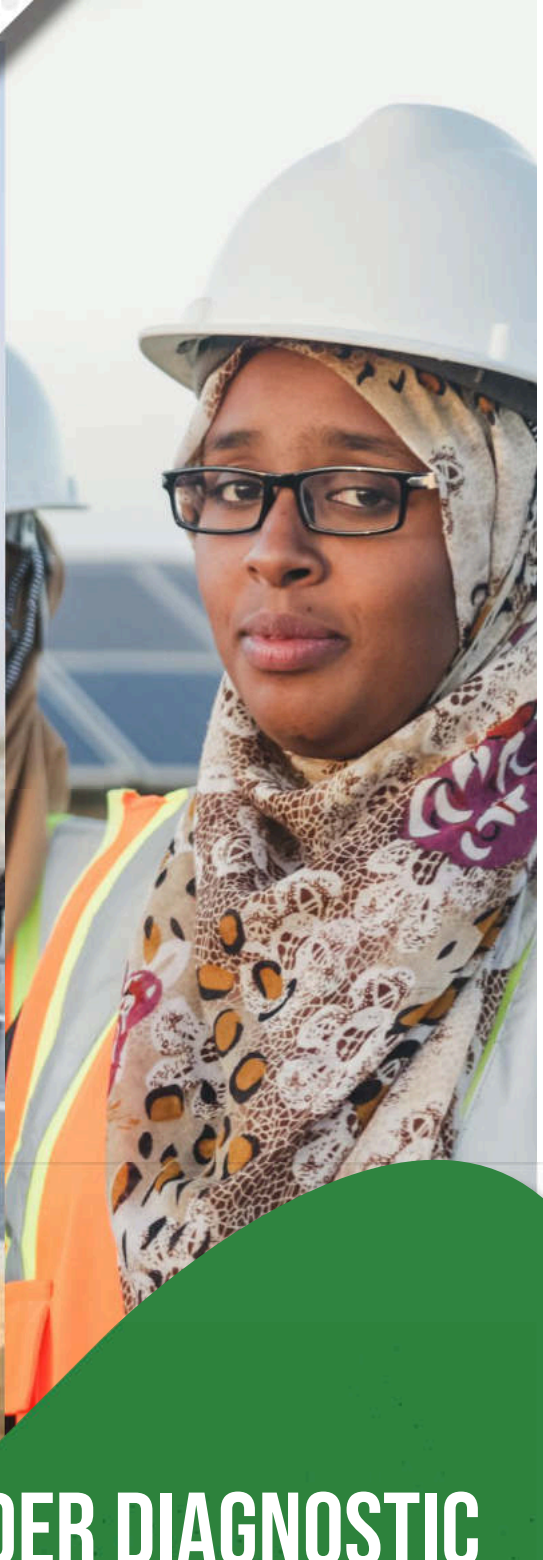
SOMALILAND GOVERNMENT

Somaliland Ministry of Energy & Minerals

Somaliland Electricity Sector Recovery Project (SESRP)





NATIONAL GENDER DIAGNOSTIC ASSESSMENT FOR THE ENERGY SECTOR OF SOMALILAND

FINAL REPORT

WORLD BANK GROUP

ACKNOWLEDGEMENT

We extend our sincere appreciation to all who contributed to the completion of this National Gender Diagnostic Assessment for the Energy Sector in Somaliland. This report is the result of the collective efforts and insights of multiple individuals and organizations, whose input and support have been invaluable.

We are especially grateful to the Ministry of Energy and Minerals (MoEM) of the Government of Somaliland, whose guidance and strategic vision were instrumental throughout this assessment. The Ministry's commitment to advancing gender equality and inclusivity within the energy sector has been a driving force behind this initiative.

Special thanks are extended to the numerous stakeholders, including government officials, community leaders, representatives from the energy service providers, and members of the public, who generously provided their time and shared their experiences, perspectives, and expertise during interviews, focus groups, and consultations. Their contributions have provided essential context and depth to our findings, ensuring that this report accurately reflects the realities faced by communities across Somaliland.

We wish to acknowledge the critical role played by Horn Africa Consultants Firm (HACOF), the firm contracted by MoEM to conduct gender and energy assessment in Somaliland. The dedication and expertise of HACOF's team were pivotal to ensuring the comprehensive and rigorous nature of this assessment from data collection, analysis, validation to reporting. We commend the field researchers and data collection teams for their unwavering commitment to data integrity and quality, which greatly contributed to the accuracy and reliability of our findings.

We also extend our sincere gratitude to the participants of the validation workshop, whose valuable feedback on the report findings has further refined and enhanced the analysis. Their insights have been instrumental in shaping a more grounded and actionable assessment.

Finally, we would like to thank all partners and supporting organizations who provided technical assistance, resources, and encouragement throughout this project. Their collaboration has helped make this comprehensive analysis of gender dynamics in Somaliland's energy sector possible.

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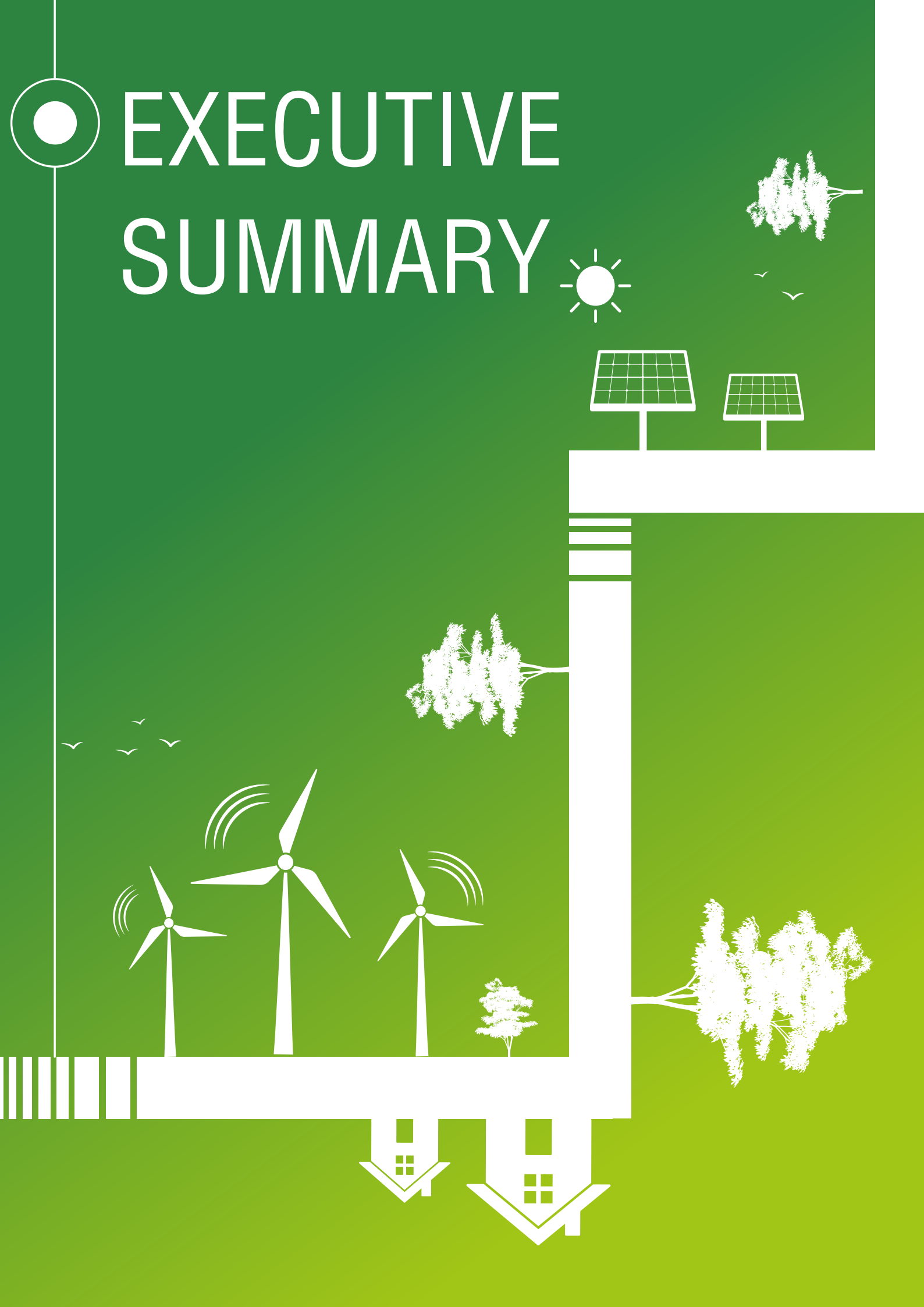
ABBREVIATIONS

BEC	Berbera Electric Company
BESS	Battery Energy Storage Systems
ESPs	Energy Service Providers
ESI	Electricity Supply Institutions
FGD	Focus Group Discussion
GOSL	Government of Somaliland
IDPs	Internally Displaced Persons
KII	Key Informant Interview
LPG	Liquefied Petroleum Gas
PPS	Probability Proportionate to Size
RETs	Renewable Energy Technologies
SERC	Somaliland Energy Regulatory Commission
SEC	Somaliland Energy Commission
SESRP	Somaliland Electricity Sector Recovery Project
SOMRENA	Somaliland Renewable Energy Association
SMEs	Small and Medium Enterprises
TEC	Telesom Electric Company
UAE	United Arab Emirates
SEAGA	Socio-Economic and Gender Analysis

EXECUTIVE SUMMARY



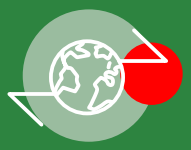
The national gender diagnostic assessment for the energy sector of Somaliland analyzes the socio-economic positioning of women, gender norms and roles, sector participation rates, inheritance laws, decision-making roles, and challenges faced by female-headed households. It examines the availability of skill enhancement opportunities and the safety of vulnerable women within the context of energy production by Energy Service Providers (ESPs), transmission and distribution infrastructure, household consumption patterns, and the regulatory framework governing the sector. This assessment aims to inform the development of gender-smart solutions aligned with the World Bank Gender Strategy 2024-2030 and the unique context of Somaliland, which aims to accelerate gender equality as part of the global effort to end poverty on a livable planet. By addressing the strategic objectives of the new gender strategy, the assessment will contribute to the following outcomes:

Human Endowment:

Ensuring that women and girls in Somaliland have equal access to education, skills development, and health, thus enhancing their capabilities to participate in the energy sector.

Economic Empowerment:

Identifying ways to improve women's participation in the energy workforce, support their entrepreneurship opportunities, and ensure women's control over energy-related assets.



Voice and Agency:

Strengthening women's decision-making roles in energy production, distribution, and consumption, and ensuring that women's voices are heard in energy policy and regulatory processes.

Study Methodology:

The study primarily focused on urban areas across regions in Somaliland. A mixed-methods approach was utilized, encompassing both secondary (desk research) and primary (quantitative and qualitative) data collection methods. The desk research phase provided foundational insights into the gender-energy nexus by analyzing existing policies, strategies, and data sources. Key documents, such as the Somaliland National Energy Policy, National Gender Policy, and the Power Master Plan, were systematically reviewed to identify gender disparities and opportunities in the energy sector.

The qualitative study engaged diverse stakeholders through 24 key informant interviews (KIIs) and 18 focus group discussions (FGDs). Participants included representatives from the Ministry of Energy and Minerals, energy service providers, community leaders, and women's rights organizations, ensuring a comprehensive exploration of gender dynamics within the energy sector. A total of 18 FGDs were conducted, segmented by gender, region, and age to capture varied perspectives across Somaliland's six regions. Skilled moderators facilitated these discussions, fostering an inclusive environment for participants to share their experiences and insights. This qualitative engagement provided a nuanced understanding of community-level energy challenges and opportunities, further enriching the assessment's analytical depth.

The quantitative study employed a systematic sampling approach to ensure fair representation across Somaliland's administrative regions. A multistage sampling strategy, adjusted using the square root transformation approach, was implemented to address population distribution disparities. The survey targeted 1,500 households in urban areas with a margin of error of 3% at a 95% confidence level. An additional 10% over sampling was done to cater for any potential non-responses, data inconsistencies, or unforeseen challenges during data collection, ensuring that the final sample size would remain statistically robust and representative of the target population. Respondent selection employed a randomized method to minimize bias, ensuring a diverse representation of gendered experiences in the energy sector.

The study aimed to analyze the socio-economic positioning of women, gender roles, sector participation, inheritance laws, decision-making, challenges faced by female-headed households, skill enhancement, and safety of vulnerable women. However, it faced limitations such as inaccessibility to certain areas in the Sool region due to territorial disputes, which led to a redistribution of the study population to alternative locations. Additionally, the sample size of 1,650 respondents and the focus on urban areas limited the inclusion of rural experiences. Furthermore, while men traditionally head households, economic pressures often force men to work away, leaving women to take on leadership roles. The study's majority female respondents, aided by a predominantly female team of enumerators, provided valuable insights into the challenges faced by women, ensuring their perspectives were central to the findings.

Key Findings:

1. Demographics and Educational Attainment:

The assessment revealed that 85.2% of respondents in urban areas were female, with 78.5% indicating they were heads of their households. A head of household is typically defined as the person recognized as the primary decision-maker or main authority within a household. Notably, over half (50.8%) had no formal education, having never been enrolled in primary, secondary, tertiary, or religious education institutions.

2. Access to Energy:

The study found that 84% of households in urban areas reported having an electricity connection. Female-headed households had slightly higher electricity access (84.3%) compared to male-headed households (83.5%). Conversely, fewer female-headed households (15.7%) lacked electricity compared to male-headed households (16.5%). This suggests a minimal but notable advantage in electricity access for female-headed households.

3. Entrepreneurship in the Energy Sector:

Women's participation in energy-related businesses is markedly low, with only 5.9% confirming engagement in such ventures. Areas like Awdal region show women advocating for better energy services, whereas regions like Sool and Sahil face challenges in awareness and opportunities. Cultural barriers restrict women's involvement in entrepreneurship, especially in technical roles, with only a small percentage of women running energy businesses.

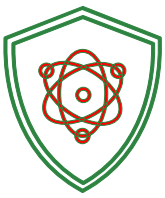
4. Employment and Gender Disparities:

The assessment highlighted significant gender disparity within the private Electricity Service Providers(ESPs) workforce. Male employees vastly outnumber female employees, particularly in technical roles, where women's representation can be as low as 0-20%. Cultural beliefs further hinder women's entry into technical jobs, perceived as physically demanding and unsuitable for women.

5. Policy and Community Engagement:

There is a notable lack of community engagement in energy policy discussions, with many decisions made without public consultation. While female household members are often involved in energy usage decisions, men predominantly manage financial aspects and technical tasks. A small proportion (14.7%) of respondents reported that women face specific challenges in accessing electricity, linked to cultural barriers and religious beliefs.

6. Barriers to Equal Participation in STEM:



The study identified significant barriers to the equal participation of men and women in STEM education and employment, particularly in Somaliland's energy sector. Socio-cultural norms perpetuate gendered perceptions of STEM as a masculine domain, discouraging women from pursuing technical roles. Cultural expectations prioritize domestic responsibilities for women, limiting their educational and career opportunities. Economic barriers further exacerbate the issue, as many families struggle to fund girls' education, particularly in rural areas, and women face bias in hiring practices and workplace cultures. The absence of female role models and mentorship opportunities compounds these challenges, leaving many women without guidance or inspiration to enter or succeed in STEM fields. Gender bias in educational institutions, coupled with curricula lacking representation of female STEM contributions, creates additional hurdles for women pursuing these disciplines.

7. Empowering Women in the Energy Sector:

Ongoing gender mainstreaming efforts in Somaliland's energy sector have yielded mixed results. Government institutions, such as the Ministry of Employment, Social Affairs and Family (MESAF), play a critical role in implementing gender policies, collaborating with NGOs and private companies are required to promote inclusivity. Initiatives by organizations like Telesom Company focus on training programs to equip women with technical skills and confidence, aiming to increase female representation in leadership and technical roles. Educational institutions have introduced technical schools and awareness campaigns to enhance gender equality, though gaps in practical training and resources remain significant. Addressing these barriers requires tailored curricula, hands-on training, and increased access to resources, particularly for women in rural areas.

8. Role of Women in Energy Value Chains:

Women play a vital role in energy value chains, contributing to local economies and livelihoods as consumers, distributors, and entrepreneurs. Their participation in areas such as energy product sales, food processing, and retail businesses emphasizes the importance of their role in ensuring energy accessibility and economic growth. Stable energy access enhances productivity and profitability for businesses, particularly in sectors like food services. The study underscores the need for targeted interventions that empower women through training, mentorship, and improved access to energy, fostering an equitable and sustainable energy sector that fully leverages women's contributions to drive development and innovation.

9. Women's Entrepreneurship in Energy-related Businesses:

Participation of women in energy-related businesses remains limited, with only 5.9% of respondents reporting women in their households engaging in ventures such as selling or distributing cooking fuels (charcoal, wood, LPG) or solar energy products (lanterns, solar-powered appliances). Female-headed households showed slightly higher participation (7.3%) compared to male-headed households (2.8%). Challenges to starting or running energy businesses were reported by 21.3% of respondents, including lack of capital, confidence, family support, training opportunities, and experience. Only 3.3% of respondents had received energy-related entrepreneurial training, although 34.1% acknowledged the availability of skill enhancement opportunities for women. Key Informant Interviews (KII) highlighted women's crucial roles in energy value chains, primarily as users, consumers, and small-scale distributors of energy products like gas and charcoal. Women are also pivotal decision-makers in household energy use, significantly influencing consumption patterns. Despite challenges, access to reliable energy was found to enhance the profitability of women-led businesses, particularly in food processing, agriculture, and fish production, by improving productivity and product quality.

10. Gender-based Violence Risks Related to Energy Access:

The study revealed significant safety concerns for women and girls due to insufficient lighting and energy access, with 83.4% of respondents acknowledging these risks. Improved energy access, such as street lighting, was noted to positively affect community safety, as confirmed by 88.6% of respondents. More than half (53.5%) indicated that gender-based violence risks are associated with collecting fuel or accessing energy services. Focus group discussions underscored that poorly lit areas heighten vulnerability to crimes like harassment, assault, and theft, particularly at night. Women expressed fears that restrict their mobility and daily activities, underscoring the importance of enhanced energy access for creating safer environments.

Recommendations

1. **Promotion of Cleaner Energy Alternatives:** The study recommends promoting cleaner energy alternatives like LPG and solar to reduce health risks linked to firewood use. This initiative should be led by the Ministry of Energy and Minerals (MoEM) with health and environmental collaborations, including public health campaigns and subsidies.

2. **Community Engagement in Energy Policies:** It highlights the need for greater community engagement in energy policy discussions. Both the MoEM and local governments should host community forums to ensure inclusive decision-making, involving energy providers and community leaders.

3. **Strengthening Women's Participation in Energy Planning:** The study suggests programs to boost women's involvement in energy planning, through training and capacity-building led by MoEM, NGOs, and community organizations, to promote gender equity in energy decision-making.

4. **Gender-Inclusive Participation for Sustainable Energy:** Emphasizing the importance of involving women in energy decisions, the study advocates for inclusive participation to ensure solutions address community needs, particularly regarding household energy management.

5. **Enhanced Awareness Campaigns:** The study calls for awareness campaigns on benefits of renewable energy, targeting both community acceptance and female participation, aiming to challenge cultural norms and encourage women's involvement in energy roles.

6. Addressing Cultural Barriers to Women's Participation: To counter cultural barriers, the study recommends initiatives to change perceptions about women in technical energy roles through public awareness campaigns and community dialogues.

7. **Mentorship Programs for Women in STEM:** The study calls for mentorship programs to connect young women with role models in STEM, focusing on boosting their confidence and career aspirations in technical fields.

8. **Strengthening Women's Groups in Energy:** The study emphasizes supporting women's groups like the Somaliland Women in Energy Organization (SWEO) to enhance their outreach and capacity to influence energy policy and decisions.

9. **Establishment of Energy Center:** The establishment of an Energy Center is recommended to provide gender-neutral training for STEM graduates, focusing on both technical and soft skills to support their entry into the energy workforce.

10. **Enhanced Funding for Women-Led Projects:** To support women in the energy sector, the study advocates for dedicated funding programs to help women entrepreneurs launch and expand energy projects, along with mentorship and networking opportunities.

11. **Strategies for Gender Equity:** The study recommends clear diversity strategies within energy organizations, focusing on increasing female representation in technical roles through training, certification, and policies that support work-life balance.

12. **Policy and Legal Regulatory Reforms:** The study calls for amending energy policies to mandate female participation, including setting quotas for women in leadership roles in energy governance bodies and ensuring gender-sensitive policy development.

13. **Gender-Focused Vocational Training Programs:** The study suggests creating gender-specific vocational training in energy fields, with measurable targets for training women from diverse backgrounds and providing mentorship opportunities for practical experience.

14. **Economic Incentives for Employers:** To promote gender inclusion in the energy sector, the study proposes introducing economic incentives like tax breaks or preferential contracts for companies that meet gender inclusion targets.

15. **Monitoring and Evaluation Frameworks:** The study recommends implementing a comprehensive monitoring and evaluation framework to assess gender inclusion progress, track gender-disaggregated data, and ensure transparency in reporting and effectiveness of gender initiatives in the energy sector.

INTRODUCTION

Background

The establishment of the Ministry of Energy and Minerals (MOEM) and the Somaliland Energy Commission (SEC) has provided vital oversight to the energy sector in Somaliland. Private electricity service providers (ESP) now manage power generation, transmission, distribution, and revenue collection, increasing operational efficiency. To bolster the sector's legal and policy framework, key documents such as the Somaliland National Energy Policy, Somaliland Electrical Energy Act, and distribution guidelines have been implemented. Additionally, collaborations with partners, like the World Bank, have resulted in comprehensive plans and geospatial mapping initiatives. These efforts have led to substantial reductions in electricity tariffs across major towns, enhancing the livelihoods of the population and expanding access to electricity.

Despite these achievements, gender mainstreaming remains underdeveloped, with women facing challenges in employment, education, decision-making roles, and access to energy services. Recognizing women's potential as change agents, further commitment to their inclusion is essential. This gender assessment report aims to elaborate and understand the gender gaps in the energy sector.

Gender dynamics in Somaliland are shaped by a complex interplay of cultural, economic, and socio-political factors. Traditional norms dictate that men are the primary breadwinners and decision-makers, while women are largely expected to manage household responsibilities and care for children. The clan structure, a fundamental aspect of Somali society, further reinforces gender roles, with women's status and influence often tied to their relationships within the clan. Despite their critical contributions to household and community livelihoods, especially through informal trade and small businesses, women face significant barriers to economic participation, such as limited access to financial resources, property rights, and employment opportunities. Education and health also highlight gender disparities: girls have historically had lower enrollment and retention rates in schools, and many women lack adequate access to healthcare, especially maternal and reproductive services. Furthermore, political representation remains a challenge, with traditional and religious norms hindering women's participation in leadership and governance. Nonetheless, there have been recent efforts to promote gender equality, enhance women's access to education and economic resources, and advocate for their rights.

Gender Background and Landscape in Somaliland

The gender dynamics in Somaliland are shaped by a complex mix of cultural, social, political, and economic factors that influence women's roles, opportunities, and access to resources. While women in Somaliland play crucial roles in households and communities, their empowerment and participation in the formal economy, political decision-making, and public life remain limited.

Cultural and Traditional Norms

Traditional Somali society is predominantly patriarchal, where gender roles are rigidly defined. Men are largely seen as the primary breadwinners and decision-makers, while women are predominantly responsible for household management, child-rearing, and other caregiving duties. These roles often restrict women's participation in formal sectors of the economy, education, and leadership positions.

- Clan-based society: In Somali culture, much of the social and political power is mediated through the clan structure. Women's status and influence are often linked to their relationships within the clan, rather than through their individual achievements or contributions. This system significantly limits women's ability to independently make decisions or access leadership opportunities, especially in male-dominated sectors such as energy and governance.

Economic Participation and Employment

Women in Somaliland contribute significantly to the economy, but much of their work occurs in the informal sector. They are involved in small-scale businesses, trade, and agriculture, often working in family-based enterprises without formal recognition or access to legal protections and resources. However, their work is often undervalued and underpaid compared to their male counterparts, and they face multiple barriers to entering the formal labor market.

Barriers to financial resources: Women have limited access to credit and financial services, which restricts their ability to expand businesses or invest in income-generating activities. In some cases, they may also lack property rights, preventing them from accessing land, housing, and other key assets necessary for economic empowerment.

Education

Although there has been some progress in the education sector, gender disparities remain, particularly in terms of access and retention. Girls in Somaliland face numerous obstacles that affect their ability to succeed academically, including early marriage, family responsibilities, and cultural biases favoring boys' education over girls'.

- The literacy rate for women is generally lower than for men, and girls are often discouraged from pursuing higher education or vocational training, especially in fields like science, technology, engineering, and mathematics (STEM), which are crucial for careers in energy and other high-growth sectors.

Health and Reproductive Rights

Access to healthcare in Somaliland is limited, especially for women. Many women face difficulties in accessing quality maternal and reproductive healthcare, which has contributed to high maternal mortality rates and poor health outcomes for women and children.

- Reproductive health services are insufficient, and women often face social stigma and taboos around discussing sexual and reproductive health issues. In many cases, women have little to no control over their reproductive choices, which can perpetuate cycles of poverty and gender inequality.

Political Participation

Women's representation in political leadership and governance remains low in Somaliland. Despite efforts to improve women's involvement in political processes, traditional and religious norms continue to limit their participation in decision-making.

- Women are underrepresented in local councils, parliament, and other public offices. Cultural perceptions often view leadership as a male prerogative, and many women face significant barriers to entering political spaces, including discriminatory practices, lack of support networks, and social pressures.

Gender-Based Violence (GBV)

Gender-based violence remains a critical issue in Somaliland. Women and girls face risks of domestic violence, early and forced marriage, and female genital mutilation (FGM), with limited access to legal protections and support services.

- Although there have been some legal reforms addressing violence against women and child marriage, enforcement of laws is inconsistent, and women often lack safe spaces or legal recourse to escape abusive situations.

Despite the deeply entrenched patriarchal norms, there are emerging efforts aimed at improving gender equality and empowering women across various sectors.

Recent Efforts Toward Gender Equality

1. Legal and Policy Reforms:

There have been some efforts by the Somaliland government to promote gender equality and women's rights, such as the Somaliland Family Law (which addresses domestic violence and child marriage) and initiatives to increase women's political participation. However, implementation of these policies remains uneven and often faces strong resistance from traditional leaders and societal norms.

2. Civil Society and Advocacy:

Women's civil society organizations (CSOs) and advocacy groups have been instrumental in promoting gender equality, raising awareness about gender-based violence (GBV), women's education, and economic empowerment. These organizations are increasingly visible in advocacy for women's rights, although they continue to face challenges due to cultural and political resistance.

3. International Support:

International partners, including the UN, NGOs, and development agencies, have played a significant role in addressing gender inequality through funding, training, and advocacy efforts. The World Bank and other development organizations have initiated gender mainstreaming programs in sectors like education, healthcare, and energy.

4. Women's Empowerment:

Women in urban centers like Hargeisa are beginning to engage more in formal employment, entrepreneurship, and politics, though their participation remains limited. There are increasing numbers of women pursuing higher education, especially in fields such as law, business, and healthcare, but technical fields remain male-dominated.

Somaliland Electricity Sector Recovery Project (SESRP)

The Government of Somaliland, through support from the World Bank, is implementing the Somaliland Electricity Sector Recovery Project (SESRP). The project development objective is to increase access to lower cost and cleaner electricity supply in the project areas and to re-establish the electricity supply industry.

SERSP has been conceptualized as the first of a series of three projects. The SERSP vision has four themes:

- Infrastructure development
- Renewable energy generation
- Electricity supply to institutions
- Sector capacity enhancement

The themes aim to achieve the following outcome:

- Increased access to lower cost electricity supply from diverse energy resources especially from renewable energy resources for climate change mitigation; and increased access to electricity services
- Improved access to functional health and education services
- Sector institutional, legal and regulatory enabling environment for sustained sector operations, including enhancing both the public and private capacity to manage and operate the sector

Project components

Component 1- Distribution network reconstruction, reinforcement and operations efficiency in the major load center of Hargeisa

This component will improve network reliability and operational efficiency by interconnecting the current ESPs' distribution networks and existing generation to optimize overall distribution network operations. These activities will support the ESPs to (a) decrease the cost of operations (increased generation efficiency, reduction in distribution network losses, and distribution network duplications) and (b) improve electricity supply and reliability. This component has two sub-components: (i) Generator Synchronization and Automation, and (ii) Sub transmission and Distribution network interconnection in the major load center of Hargeisa.

Component 1A- Generator Synchronization and Automation

Currently, most of the ESPs have not implemented synchronization and automation as part of their generation processes. As a consequence, separate generator units are connected to exclusive feeder lines and as a result, many generators operate below their expected optimal performance criteria. Further, the absence of automation and synchronization prevent the ESPs from utilizing parallel generation to assure optimal generator performance and dynamic reactivity to electricity load variations. This kind of operation results in significant amount of "wet stacking" (diesel fuel waste, extra pollution, and performance degradation). Proposed investments under this component will support equipment supply and installation that will enable synchronizing and automation of the numerous generators presently in operation. The application of automation and synchronization of the numerous generators in each of the targeted major load centers will provide reduced cost of generation accruing from augmentation in generation capacity and reduced wet stacking, fuel consumption and maintenance cost.

Component 1B- Sub Transmission and Distribution network integration in the major load

All the ESPs operate independently and as a consequence there is significant infrastructure duplication. Proposed activities will support investments in the sub-transmission and distribution network infrastructure required to enable generation synchronization in addition to increased network capacity and reduced network losses.

Component 2- Renewable Energy Generation Optimization

This component will support activities aimed at the hybridization and optimization of mini grids. It will support installations of Battery Energy Storage Systems (BESS) and solar PV systems at existing diesel-based generation stations. This component aims at increasing the efficiency of the existing hybrid mini grids (diesel and solar) by optimizing the existing generations capacity and where possible reduce the diesel consumption by augmenting the installed capacity with BESS and additional solar PV generation.

Component 3- Electricity services for improved Public Services Delivery (Health, Education and Water Supply Institutions)

This component will support activities to provide electricity to existing public facilities in rural and per-urban areas, underpinned by the nation-wide geospatial plan. The Geographical Information System (GIS) analysis will include climate risks to identify vulnerable load centers/households and identify risks to sustainability of the electricity services.

Key activities under this component are proposed to include new hybrid mini grids and standalone solar PV systems augmented by BESS targeting public institutions as the anchor loads and where viable associated distribution network to connect other loads such as Small and Medium Enterprises (SMEs) and households. Besides playing a key role in enablement of community co-benefits, facilities that have access to electricity may be positioned to attract and retain skilled workers, especially in rural areas. Further, this will equip public service institutions to better respond to emergencies, as such as COVID-19.

The proposed activities under this component support the resilience of the Somaliland population from the conflict's impact on livelihoods through improved access to functional basic services, such health facilities, schools and clean water supply. Further, it would also strengthen the Government of Somaliland (GOSL) state legitimacy before its citizens through the delivery of the "social contract". The activities are proposed to retrofit existing public infrastructure facilities with electricity services and support the establishment of a cross-sector energy infrastructure program to ensure that new facilities are equipped with electricity infrastructure.

Component 4- Sector Capacity Enhancement and Project Implementation Capacity Support

This component includes activities a) strengthening of sector governance and regulation to foster autonomy, accountability and transparency. The process of reestablishing the Electricity Supply Institutions (ESI) and integrating infrastructure network operations will require a mix of planning and monitoring in particular national skill set advancement and institutional entities. This is will also require having in place appropriate regulations, standards, safety and technical performance requirements. These standards will require all ESPs to improve technically provide better operations within a levelled and regulated marketplace. This component will include technical assistance aimed at enhancing the ESI capacity with regards to sector policy, regulations, planning, management and operations among others b) undertaking sector integrated planning including Sector Least Cost Development Plan covering generation, transmission and distribution (which will include a low-carbon scenario) and Electricity Access Strategy and Investment Prospectus.

The sector plans will enable having a sector wide development framework that will enhance crowding in funding, both private and public and c) provide ESP Business Support Services, the technical assistance to enhance the ESI institutional capacity would initially support and guide the day-to-day sector undertakings through a Business Support Services Firm (BSSF) approach d)Project implementation support with a dedicated Environmental and Social Firm will support the project implementation unit in the areas of health, safety, labor management, land, resettlement, community engagement and security. In addition, the sub-component will support trainings for the Ministries of Health and Education for the management and operations of the solar PV systems beyond the lifetime of the project and e) Implementation of Gender Action Plan to identify gender gaps in the energy sector and to recommend ways to address these gaps.

Objectives of the Assessment

The objective of this assessment is to provide analysis on the socio-economic positioning of women, gender norms and roles, sector participation rates, inheritance laws, decision-making roles, challenges faced by female-headed households, skill enhancement availability and safety of vulnerable women. The study aims to inform the development of gender smart solutions aligned with the World Bank Gender Strategy 2024-2030. The objective of this assessment is to provide a detailed analysis of gender-related factors within the energy sector of Somaliland, focusing on the socio-economic positioning of women, gender norms and roles, sector participation rates, inheritance laws, decision-making roles, and the challenges faced by female-headed households. The study also explores the availability of skill enhancement opportunities and evaluates the safety of vulnerable women in the context of energy production, transmission, distribution, and household consumption. In line with the World Bank Group (WBG) Gender Strategy 2024-2030, the goal is to inform the development of gender-smart solutions that focus on advancing human endowment, economic empowerment, women's asset control and ownership, and voice and agency, all within the unique context of Somaliland.

This assessment takes a comprehensive approach by analyzing gender dynamics across the entire energy value chain. This includes energy production by Energy Service Providers (ESPs), transmission and distribution infrastructure, household consumption patterns, and the regulatory framework governing the sector. The study emphasizes the roles and participation of women throughout each stage, identifying barriers and opportunities to enhance gender inclusivity. By doing so, the assessment directly contributes to the WBG Gender Strategy's objectives of increasing women's economic participation and improving women's decision-making power within energy systems.

To achieve a holistic understanding of gender dynamics, data was collected from a range of stakeholders, including ESPs, government institutions, female-headed households, community leaders, and energy consumers. This inclusive approach ensures that the findings reflect a broad spectrum of perspectives, enabling the identification of context-specific solutions that support gender equality and empowerment. The insights gained will help shape policies and interventions that align with the WBG's ambition to accelerate gender equality as a critical driver of sustainable development, poverty reduction, and social inclusion

The objectives of the assessment include:

1. **Assess Gender Disparities:** Examine and quantify the existing gender disparities within the Somaliland energy sector, including disparities in employment, decision-making roles, and access to clean energy.

2. **Analyse Socio-Economic Positioning:** Investigate the socio-economic status of women in the energy sector, identifying factors that impact their participation and opportunities.

3. **Examine Gender Norms:** Explore societal norms and expectations related to assigned gender roles and their influence on women's participation in the energy sector.

4. **Evaluate Sector Participation Rates:** Analyse the participation rates of women in the energy sector, including their involvement in various roles and levels within the sector.

5. **Assess Inheritance Laws:** Examine the impact of inheritance laws on women's access to and control over assets and resources in the energy sector.

6. **Investigate Decision-Making Roles:** Investigate the extent of women's participation in decision-making processes within the energy sector and assess the factors affecting their involvement.

7. **Address Challenges for Female-Headed Households:** Identify and understand the specific challenges faced by female-headed households in accessing clean energy and participating in the energy sector.

8. **Analyse Skill Enhancement Opportunities:** Assess the availability of skill enhancement, education and training opportunities for women in the energy sector and how they contribute to gender inclusivity.

9. **Ensure Safety for Vulnerable Women:** Investigate the safety and security concerns faced by vulnerable women within the energy sector and explore ways to address these issues.

By addressing these objectives, the assessment provides a comprehensive understanding of gender dynamics in Somaliland's energy sector, identify barriers to gender inclusivity, and proposes actionable recommendations to promote equal opportunities and foster a more inclusive energy sector.

BACKGROUND INFORMATION

Context Analysis

This section analyses the socioeconomic figures and energy trends in the Somaliland, which directly impact the rate of access to energy. Achieving national energy access requires extending access to rural populations, thus understanding these figures is important for setting the context. In addition, this section examines the nation's income patterns and economic activities. This is necessary as the affordability of energy technology is a major barrier to adoption. Moreover, the urban and rural divide impacts the acceleration rate of access to energy. Finally, this section covers current energy use, figures, and trends and the potential for renewable energy in the country.

Somaliland in a Glance

Following the unrest and civil war in 1988, on May 18, 1991, Somaliland declared independence from Somalia and began its state-building process. Since then, only a few countries have established a diplomatic presence in Somaliland. Despite Somaliland's limited support—diplomatic or otherwise—from the international community, the country has made impressive progress in building its institutions and governance.

In May 1993, tribal elders successfully led a reconciliation process, disarmed tribes, and established an interim administration through a vote by the House of Elders. The House of Elders then led the adoption of a multi-party system, with a President and legislative representatives elected by the people. Since its establishment, Somaliland has held several presidential and parliamentary elections with peaceful transfers of power. Even as parts of the surrounding region have remained volatile, the administration prioritized security and peace-building and has sustained stability, which has led to increased local business and investment from diaspora communities. Consequently, many private sectors industries, such as banking, telecommunication, and energy, have taken the initiative, expanded, and thrived.

Somaliland has six regions, each of which has a major city as its capital, as shown in Figure 1: Map of Somaliland. Hargeisa, which serves as both the national capital of Somaliland and the regional capital for the MaroodiJeex Region. Berbera, the regional capital of the Sahil Region, hosts Somaliland's largest port, Berbera Port, which handles over 95 percent of Somaliland's imports. The port has benefited from investments by the United Arab Emirates (UAE) and the United Kingdom's Foreign, Commonwealth, and Development Office (FCDO) to develop the Berbera Port and improve the major road linking Berbera to Ethiopia's mainland. These infrastructure advancements show Somaliland's economic progress and readiness for further international development.

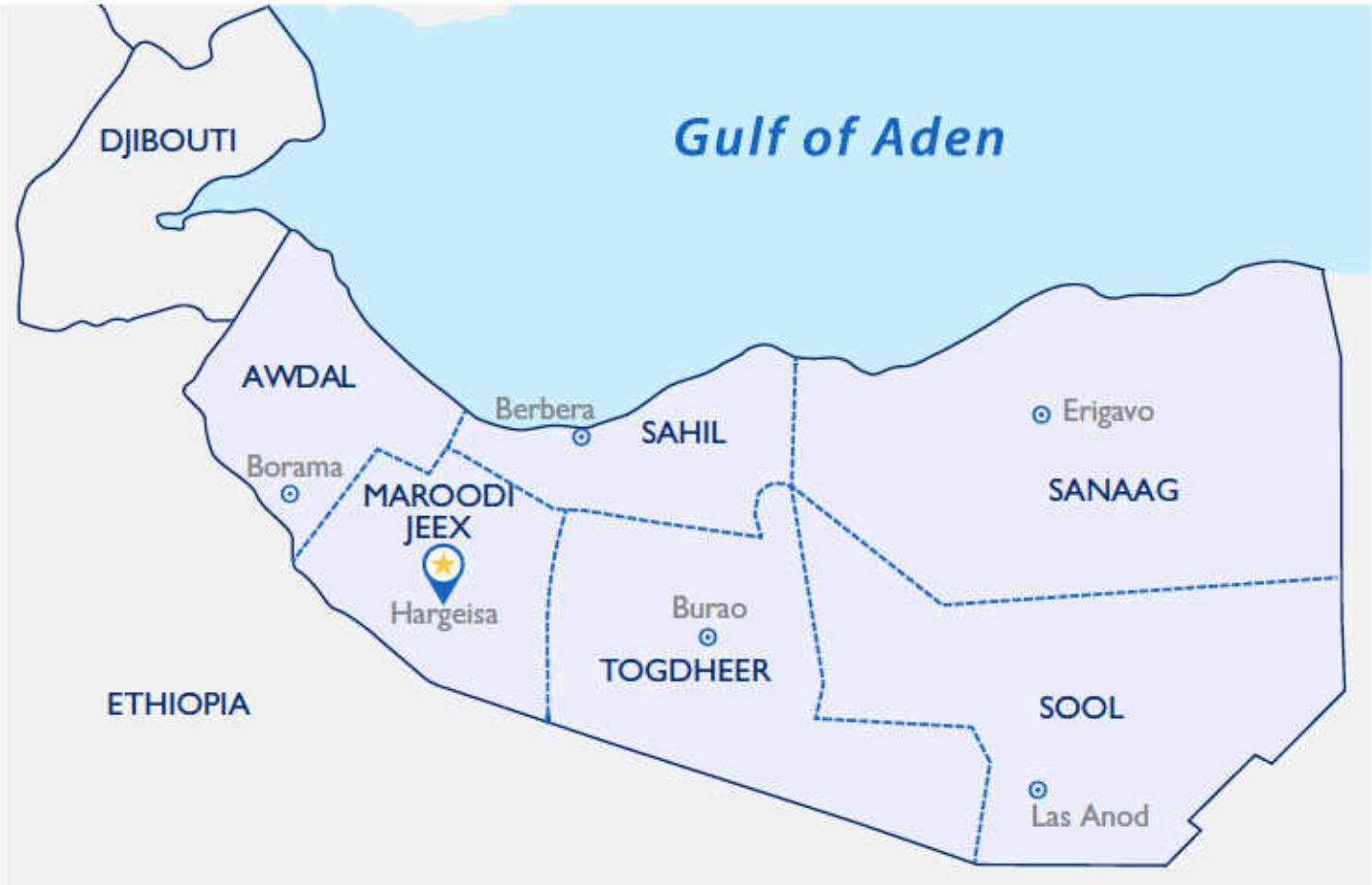


Figure 1: Map of Somaliland

Energy in Somaliland

Somaliland faces considerable challenges in its energy sector, with low electricity access rates and exorbitant power costs. Urban areas enjoy approximately 60 percent access, while rural areas and nomadic households lag significantly at 15 percent and 1 percent, respectively[1]. High tariffs and connection fees pose barriers to widespread access. The average monthly household expenditure on energy in the urban and peri-urban areas is about US$ 60. This is equivalent to about 31% of average monthly income[2]. The country heavily relies on charcoal and firewood, leading to severe deforestation—its most pressing energy and environmental concern. Electricity in urban centers is primarily generated using imported diesel, which causes pricing fluctuations due to volatile global oil market prices.. Electricity is primarily used for lighting and running household appliances such as televisions, radios, mobile phone chargers and to some extent, refrigeration and electric fans. Renewable energy sources contribute less than 2 percent to the national electricity generation.

Somaliland lacks a centralized national transmission grid and cross-border connections. Instead, private metro grids serve electricity to major cities. These grids emerged during the civil war after the state-owned infrastructure was damaged and disconnected. Post-war, power system development was led by the private sector due to limited government support. Businesses started with small diesel generators and expanded into larger mini-grids, supplying local communities.

Inefficiencies persist, with diesel generators operating at low efficiency due to fluctuating demand and limited expertise, resulting in significant losses of 35% to 40%[3]. The electricity subsector faces several significant challenges and weaknesses. Safety issues, such as short-circuiting and damage to electrical appliances, are common. Affordability is another concern, with high connection costs and difficulty in gaining access to services.

The quality of power supplied is generally poor, with frequent outages, unreliable service, and sometimes complete lack of power. Additionally, the sector suffers from a limited regulatory framework, with insufficient legal guidelines governing energy operations. This restricts consumers' ability to switch providers if dissatisfied. Furthermore, weak transmission and distribution networks result in significant power losses, estimated at 44%, contributing to the high cost of electricity. The lack of coordinated regulation exacerbates these problems, as various structures and frameworks oversee different aspects of the sector[4].

Power delivery relies on isolated distribution grids, each operated by independent generation providers. These "island networks" are typically centred around specific urban areas, with each Electricity Supply Provider (ESP) managing its entire system. This includes generation, distribution, customer management, and revenue collection, all functioning within a radial distribution network unique to each provider. Some of the notable ESPs in Somaliland include SomPower, Telesom Electric Company (TEC), Hargeisa Electrical Company, Gafane, and Beder. Each ESP operates independently, and, as a result, there is significant duplication of generation, distribution, technical, maintenance and human resource infrastructure. This duplication severely limits the scalability of electricity generation and even more, hampers delivery and servicing for larger customer loads. Duplication is especially acute for ESPs in cities where multiple providers operate.

Mini-grids initially developed chaotically, but some later merged into metro-grids owned by Electricity Service Providers (ESPs). Several urban areas are served by multiple power companies, often driven by investments from related industries. Larger ESPs, like SomPower and Telesom Electric Company (TEC), have emerged, presenting investment opportunities in the sector for local investors, particularly those in related industries such as telecommunications and banking. For instance, Dahabshiil Bank is the largest investor and shareholder in SomPower, while Telesom Company holds the same position in TEC.

Somaliland's energy sector operates within a structured legal and regulatory framework. The Ministry of Energy and Minerals (MOEM) oversees the sector, while the newly established Somaliland Energy Commission (SEC) manages regulatory aspects. Private Electricity Service Providers (ESPs) handle generation, transmission, distribution, and revenue collection. Several key legal and policy documents shape the sector, including the National Energy Policy (2010), the Electrical Energy Act (2016), the Companies Act (2018), among others. These laws support policy coordination, consumer protection, and governance, fostering a conducive environment for the energy sector.

The MOEM plays an instrumental role in setting energy policies and encouraging private sector investment. It facilitates energy assessments, reforms, and serves as an arbitration body. Additionally, the MOEM manages the Somaliland Energy Trust Fund and promotes international cooperation. The Somaliland Energy Regulatory Commission (SERC) ensures equitable pricing, grants licenses to energy providers, resolves disputes and sets standards. Electricity Service Providers (ESPs), organized under the Somaliland Electricity Association (SEA), play a pivotal role in energy distribution. Leading ESPs, such as SomPower, Berbera Electric Company (BEC), and Telesom Electric Company (TEC), hold substantial market share and operate distribution networks in major cities like Hargeisa, Berbera, and Burco. The Somaliland Renewable Energy Association (SOMRENA) represents the interests of the renewable energy industry, with many ESPs as members, contributing to the growth and development of Somaliland's energy sector.

Renewable Energy

In Somaliland, renewable energy resources such as wind and solar hold significant potential to meet local energy needs due to the scarcity of conventional energy sources. Despite limited data, wind resources, particularly along the coast, are among the strongest in Africa, while solar energy is abundant throughout the year. In recent years, there has been a growing trend of installing solar systems for various applications, including lighting, water pumps, and telecommunications. However, challenges remain, such as high costs, lack of public awareness, insufficient data on wind and solar, and limited availability of technicians and equipment. Additionally, the absence of supportive policies and financial mechanisms has hindered the widespread adoption of renewable energy technologies (RETs).

[1] World Bank. Project Information Document: Somali Electricity Sector Recovery Project (P173088). October 6, 2021.Accessed October 10, 2024. https://documents1.worldbank.org/curated/en/917771634027301072/pdf/Project-Information-Document-Somali-Electricity-Sector-Recovery-Project-P173088.pdf.
[2] Republic of Somaliland, Ministry of Mining, Energy, and Water Resources. Somaliland Energy Policy. November 2010.
[3] Ministry of Investment and Industrial Development, Energy Sector website, Government of Somaliland
[4] Republic of Somaliland, Ministry of Mining, Energy, and Water Resources. Somaliland Energy Policy. November 2010.

Despite these barriers, small-scale wind energy applications, such as water pumping, have started gaining acceptance, with local manufacturing of wind pumps initiated in Hargeisa.

The slow development of RETs in Somaliland is largely due to the limited availability of credit facilities for end-users, weak private sector capacity, and high upfront costs of renewable systems compared to traditional diesel-powered alternatives. As a result, deployment of renewable energy has been limited despite its economic competitiveness.

There are technical challenges to establishing distributed electricity generation using solar and wind power and to integrating these sources into the electricity supply of urban centers. This integration has become easier in recent years, however, due to significant automation and the adoption of smart network management systems as part of electricity generation[5].

One of the most crucial environmental impacts of renewable energy adoption is the reduction of greenhouse gas emissions. The widespread use of diesel generators emits substantial amounts of carbon dioxide and other pollutants, contributing to climate change and air quality issues. By transitioning to clean energy sources like solar and wind, Somaliland can drastically lower its carbon footprint, enhancing the country's resilience to climate change. Additionally, renewable energy systems, such as solar-powered lighting and cooking, reduce dependency on biomass. This shift is vital because using biomass for cooking has led to widespread deforestation and land degradation. By providing alternative energy solutions, renewable technologies can help preserve forests and prevent further environmental damage.

Renewable energy's contribution to sustainability and climate change mitigation is significant. Somaliland's geographic location provides an advantage, as the country experiences abundant solar irradiance year-round and has some of Africa's strongest wind resources along the coast. Harnessing these renewable resources can reduce the country's dependence on imported fossil fuels, strengthen energy security, and provide a stable energy supply. Economically, RETs offer opportunities for reducing fuel import costs and creating jobs in the renewable energy sector. Local manufacturing initiatives, such as wind pump production in Hargeisa, demonstrate the potential for economic growth and sustainability. Additionally, using renewable energy for water pumping and irrigation can support agriculture while conserving energy and precious water resources.

The integration of renewable energy into Somaliland's energy mix also plays a vital role in global climate change mitigation. Reducing emissions from diesel generators and biomass use can help Somaliland contribute to global efforts to curb climate change. This is crucial for a region that is particularly vulnerable to climate-related shocks, such as droughts and extreme weather events. A sustainable energy system, bolstered by renewable sources, enhances Somaliland's climate resilience and promotes long-term environmental stability.

However, despite these significant advantages, several challenges hinder the widespread adoption of renewable energy in Somaliland. The high upfront costs of renewable systems, limited availability of credit facilities for end-users, and a weak private sector capacity are significant obstacles. The absence of supportive policies, incentives, and financial mechanisms further slows RET development. Additionally, public awareness and access to data on the full potential of wind and solar energy remain limited, impeding progress. Despite these barriers, advances in technology, such as automation and smart network management systems, have made integrating solar and wind power into urban electricity supplies more feasible and efficient.

Gender Equality in Somaliland

Somaliland, like many other regions, faces significant challenges in achieving gender equality. Although Somaliland's constitution includes commitments on gender equality, these goals remain unmet[6]. In a context of high poverty rates, driven by post-war fragility and years of drought, women face systematic discrimination in accessing the scarce services and resources[7].

A 2019 Gender Gap Assessment found that women were "comprehensively disadvantaged compared to men in terms of economic opportunity, political representation, and education"[8]. There are high levels of sexual and gender-based violence. 98 percent of women aged 15-49 were found to have experienced female genital mutilation or cutting (FGM/C)[9]. According to customary law, women cannot inherit assets such as land and property. These traditional practices often exclude women from property ownership and inheritance, limiting their economic independence and security. while the biggest constraint on women's entrepreneurship is the lack of access to finance. The lack of property rights means women often cannot provide the collateral required by financial institutions for loans, severely limiting their access to finance. This financial exclusion is exacerbated by other factors, including limited financial literacy, gender bias in loan approval processes, and socio-cultural norms that discourage women's economic independence. However, women in Somaliland are considered to play "pivotal roles" in managing households; are active in small business; and have a long history of civil society activity[10].

Health and Education

According to Somaliland Central Statistics Department under the Ministry of Planning and National Development, the Net Intake Rate (NIR) for girls is 14% compared to 16% for boys for primary education. In secondary education, the NIR drops to 7%, for girls, indicating worsening disparities as educational levels increase.[11] The survey also indicates that the type of residence impacts educational attainment. Urban residents have higher education opportunities compared to those in the nomadic and rural settlements. Nineteen percent of women in urban areas have no education compared to 69 percent of women in nomadic settlements[12].

[5] Ministry of Energy and Minerals, Republic of Somaliland. Development of a Power Master Plan for Somaliland. August 2018.
[6] NAGAAD. (2019). Somaliland gender gap assessment. NAGAAD Network.
[7] Walls, M. (2013). Women's political participation in Somaliland. In: International IDEA (Ed.) exclusion, (pp. 164-197). Stockholm: International IDEA.
[8] NAGAAD. (2019). Somaliland gender gap assessment. NAGAAD Network.
[9] Central Statistics Department, Ministry of Planning and National Development, Somaliland Government (2020). The Somaliland Health and Demographic Survey 2020
[10] Walls, M. (2013). Women's political participation in Somaliland. In: International IDEA (Ed.) exclusion, (pp. 164-197). Stockholm: International IDEA.
[10] Central Statistics Department, Ministry of Planning and National Development, SomalilandGovernment (2023). The Somaliland Health and Demographic Survey 2020
[12] Ibid

Access to education is low in comparison between male and female. One out of two female members of the household and 43 percent of male household members had some form of primary education[13]. In comparison, 30 percent of all children attending primary school are of the right age for that level, and only 11 percent of children attending secondary education are of the right age for that education level.

For girls and women aged 6 and above, almost one out of four, at 21 percent, have never attended school compared to 17 percent of males in the same age bracket. Slightly more than one-third, at 41 percent, of women are literate.

Health plays a central role in the ability of women and men to contribute effectively to the wellbeing of the family, community and national development processes. Constraints to access can be found in the health services. Currently, the entire population of 3.5 million people is served by 23 hospitals, 69 health centres and 157 health posts[14]. Only 422 personnel have proper health qualifications, including 82 doctors and 215 nurses serving the entire population[15]. Training needs are thus high, but the country has only one nursing school, and two universities provide medical and paramedical training.

Sixty-eight percent of women face at least one challenge when they try to access health care. Many women cite lack of money as an obstacle at 61 percent, followed by distance to health care facilities at 58 percent[16]. Nomadic married women, non- cash-employed women, non-educated women, and those from poorer households face acute problems in accessing health care.

Time Use and Work

Women are twice as likely as men to be unemployed but actively looking for work. In Somaliland, women are more likely to work in the informal sector than the formal sector. The informal sector is characterized by small-scale, unregistered, and often unregulated economic activities that typically lack job security, social protection, and formal labor rights. Women in Somaliland often engage in informal work due to various barriers, including limited access to education and training, cultural norms that restrict their mobility, and discriminatory practices in hiring.

The 2020 Somaliland Health and Demographic Survey (SLHDS) and other gender assessments highlight that a significant portion of women are involved in informal labor, such as small-scale trade, agriculture, domestic work, and handicrafts. This predominance in the informal sector contributes to economic dependency and perpetuates gender inequalities, as women in informal employment are often excluded from labor protections, such as maternity leave and social security benefits. Young women aged 15 to 24 are twice as likely as young men in the same age cohort to be neither employed nor educated[17]. Higher education increases the likelihood of labour market participation for both genders.

Labor participation rates stand at 56% for urban males, 29% for urban females, 57% for rural males and 42% for rural females. The higher Labor Force Participation (LFP) rates in rural areas, especially among women, are driven by the necessity of contributing to the household economy through agricultural and informal sector work, the cultural acceptability of women's involvement in such work, the lack of formal employment opportunities in rural areas, and the greater reliance on family-based labor. While urban areas may offer more formal employment opportunities, the challenges in accessing them—combined with gender norms, high living costs, and limited support services—may limit women's participation in the labor force compared to their rural counterparts. By age of group, employment was highest among 34-54 years old, followed by 25-34 years. Women tend to be overwhelmingly employed in the service and sales sectors at 59%, but only make up 4% of managers, 5% of technicians and 5% of professionals[18].

While women are generally less likely to work outside the household, those that have obtained higher education are indeed more likely to work in salaried positions. For instance, women with a university degree are most likely to work in either full-time or part-time employment (42.9% who are in full-time employment have university education, 47.4% who are in part-time employment have university education). Interestingly, a large percentage of women who have received no formal education, i.e. Quranic or no education, are self-employed (71.4% of self- employed women have received no education)[19]. Women with low educational attainments who are self-employed are prone to vulnerable employment.

Land Inheritance and Family law

Land ownership in Somaliland is governed through secular, customary (xeer), and Islamic law. As stipulated in Article 12 (1) of the Constitution, "land is a public property commonly owned by the nation, and the state is responsible for it." Two national statutes govern land: the Urban Land Management Law No. 17/2001 (amended in 2008), which regulates the allocation, usage, and control of land, including land tenure; and the Agricultural Land Ownership Law No. 08/1999. Xeer primarily regulates land usage rights for pastures, grazing land, forests, and water in rural areas. Article 36 on the Rights of Women in the National Constitution states that "Women have the right to own, manage, oversee, trade in, or pass on property in accordance with the law."

Islamic law recognises women's property rights before and after marriage, stipulating that the woman keeps her belongings upon entering marriage and shall be taken care of financially by her husband. In that regard, legal scholars contend that Sharia law is fairer than Somali customary law. While Sharia law grants women rights to inheritance and ownership, Xeer has been known to deny women their share of inheritance in both land and livelihood assets in order to protect family property[20].

[13] Ibid
[14, 15] Somaliland National Gender Policy 2009
[16] Central Statistics Department, Ministry of Planning and National Development, Somaliland Government (2020). The Somaliland Health and Demographic Survey 2020
[17] NAGAAD. (2019). Somaliland gender gap assessment. NAGAAD Network.
[18] Labour Force Survey Somaliland 2012. Ministry of Labour & Ministry of Planning and National Development.
[19] NAGAAD. (2019). Somaliland gender gap assessment. NAGAAD Network.
[20] NAGAAD/Ministry of Justice/Progressio Somaliland. Women's Human Rights in Somaliland. 2010.

Political Representation

While Somaliland has earned praise for its democratization process, the significantly low representation of women and minority groups in parliament (both upper and lower houses of government) is a cause for considerable concern. In the combined 2021 elections, 28 women (13 for House of Representatives, and 15 for Local Councilors) ran for elections . While no female parliamentarian was elected, only three women were elected for local offices. The political exclusion of women in Somaliland is commonly attributed to low financial resources for women candidates, conservative cultural beliefs and patriarchal attitudes, religious restrictions, and lack of governmental commitments.

Despite the fact that women are active in voter registration, campaigning, voting, and fundraising processes, there continues to be little female representation in political leadership. However, their active participation and engagement have not translated into an increase in women in political leadership positions. In addition, women's political inclusion is considered unimportant, untraditional, and even foreign.

Gender Profile of Somaliland: Poverty, Education, Health, Income, and Employment

This section provides a comprehensive gender profile of Somaliland, with a specific focus on the socio-economic conditions affecting gender. It outlines the disparities and challenges faced by women and girls across key areas, including poverty, education, health, income, and employment.

Poverty

Poverty remains a significant challenge in Somaliland, with women disproportionately affected due to systemic barriers to economic participation. Rural areas face higher poverty rates compared to urban regions, and gendered poverty is exacerbated by traditional norms and limited access to resources. Ownership of assets, such as land, property, and financial resources, remains heavily skewed in favor of men. Customary laws and patriarchal norms often prevent women from inheriting or owning land, a critical resource for wealth generation and security. This lack of asset ownership severely restricts women's ability to build financial independence, leverage assets for business or investment, and accumulate wealth for future generations. As a result, women in Somaliland are often trapped in cycles of economic dependency and social exclusion. This income inequality and the lack of control over resources hinder women's economic empowerment and limit their ability to invest in key opportunities, including those in the emerging energy sector. Women's exclusion from economic opportunities in sectors such as energy—where economic investments can lead to transformative change—further entrenches gender inequality and prevents women from contributing to or benefiting from sustainable development in Somaliland. The income gap is stark, with women earning considerably less than men, and many women engaged in unpaid or low-income activities.

Income inequality hinders women's economic empowerment and affects their ability to invest in economic opportunities, including those in the energy sector. Addressing these inequalities requires targeted policy interventions and programs aimed at improving women's access to resources and skills.

Education

Educational attainment for women and girls in Somaliland lags behind that of men. Cultural barriers, such as early marriage and household responsibilities, limit school attendance and retention for girls. Moreover, financial constraints and traditional beliefs often result in families prioritizing boys' education.). According to Somaliland Central Statistics Department under the Ministry of Planning and National Development, the Net Intake Rate (NIR) for girls is 14% compared to 16% for boys for primary education. In secondary education, the NIR drops to 7% for girls, indicating worsening disparities as educational levels increase.

The table below summarizes the data:

Primary education GIR and NIR			
	Boys	Girls	Total
6 years old in grade 1	10,212	9,103	19,315
Total Enrolment in Grade 1	30,311	25,606	55,917
6 years old population	65,617	64,129	129,746
GIR	46%	40%	43%
NIR	**16%**	**14%**	**15%**
Secondary Education GIR and NIR			
School age population (14years)	58,560	55,706	114,266
Total enrolment in grade 9 (Form 1)	9,832	7,756	17,588
14 years old in Form 1	5,534	3,952	9,486
GIR	17%	14%	15%
NIR	9%	7%	8%

Figure 2: Primary and Secondary Gross Intake Rate (GIR) and Net Intake Rate (NIR) in 2021/2022

[21] IPCS Briefing. The Role of Women in Somaliland's 2021 Elections. 2022

Only 19% of primary school teachers and 4% of secondary school teachers are women. This lack of female educators impacts girls' educational experiences and contributes to persistent gender inequities in education.

Investments in female education are critical not only for gender equality but also for broader socio-economic development. Enhancing educational opportunities for women and girls can contribute to a more skilled workforce, including in technical sectors such as energy.

Health

Health outcomes for women in Somaliland are concerning, with maternal mortality rates remaining high. Access to healthcare, particularly reproductive and maternal health services, is limited, especially in rural areas. Malnutrition and inadequate healthcare infrastructure further exacerbate health disparities. Additionally, harmful practices such as female genital mutilation (FGM) continue to pose significant health risks to women and girls. Health services for women in Somaliland are inadequate, with only 40% of deliveries assisted by trained professionals, leaving 60% of births to occur at home without proper medical care. Although the maternal mortality rate (MMR) has improved from 418 deaths per 100,000 live births in 2014 to 396 in 2020, further advancements are necessary.

Improving health services and infrastructure is essential for enhancing women's health outcomes and their economic productivity. Addressing health disparities can also positively impact women's participation in the workforce, including in sectors like energy.

Employment

The labor market in Somaliland is characterized by significant gender disparities. Women are underrepresented in formal employment and are more likely to work in informal or unpaid roles. The energy sector, in particular, has low female participation, with women facing barriers such as limited access to technical training and gender biases in hiring practices. According to the 2020 Somaliland Health and Demographic Survey (SLHDS), the unemployment rate for women is 30.1%, compared to 16.4% for men. Among youth, the disparity is even greater: 53.8% of young women aged 15-24 are either unemployed or out of education, compared to only 24.4% of young men. The table below for instance summarizes employment figures for different genders from 2018-2022.

Year	Gender		Grades				Total
	Female	Male	A	B	C	D	
2018	3,443	11,407	2,270	8,073	2,095	2,340	**14,850**
2019	5,080	13,416	5,405	8,287	2,398	2,406	**18,496**
2020	5,026	13,549	5,360	8,214	2,504	2,534	**18,575**
2021	5,912	14,802	6,030	8,814	2,900	2,864	**20,714**
2022	7,398	18,112	9,881	9,465	3,112	3,052	**25,510**

Source: Civil Servant Commission and Other Public Agencies

Figure 3: Civil servant employee by sex and grade 2018-2022

Addressing these employment disparities requires targeted interventions, such as training programs for women in STEM fields, mentorship initiatives, and gender-sensitive labor policies. Increasing women's participation in the energy sector can contribute to economic growth and gender equality.

Gender and Energy Access

Energy access is mediated through the lens of gender in multiple ways: one's gender can potentially influence the ways in which energy poverty is experienced, the ability to access better energy, and the complex processes through which that happens. This section examines how gender plays a role in electrification rates, pricing, and choices; the health and time-use impact of cooking; product preferences; and gender issues surrounding productive use applications.

Electricity Access and Gender Grid Extension

Electrification has long been recognized as a vital policy goal, unlocking unparalleled advances in productivity, socio-economic development, enhanced livelihoods and social welfare. A survey of global researchers rated electricity as the most significant technical advance of all time[22]. While there are many hypotheses regarding electrification's impacts on women, men, and the gender relations between them, these topics are the subject of only limited scientific studies using large data sets, random sampling, and attempts to control for other, linked variables[23].

[22] Pellegrini, Lorenzo, and Luca Tasciotti. 2013. "Rural Electrification Now and Then: Comparing Contemporary Challenges in Developing Countries to the USA's Experience in Retrospect." Forum for Development Studies 40

[23] Köhlin, Gunnar, Eric O. Sills, Subhrendu K. Pattanayak, and Christopher Wilfong. 2011. "Energy, Gender and Development What Are the Linkages? Where Is the Evidence?" Background Paper to the 2012 World Development Report Policy Research Working Paper 5800. World Bank.

Positive Impacts

- Girl children may withdraw less frequently from school to help mothers with chores as they can be completed more efficiently and with greater time flexibility (i.e. at night);
- Children's school attainment may improve with longer access to light so both chores and studying may be pursued;
- Electrification paired with appliance acquisition can increase the productivity of domestic work;
- Women's ability to perform paid work will increase as household chores take less time and/or with the complementary input of electricity, the opportunity cost of their paid labor becomes more valuable;
- Women will have more leisure time;
- There will be fewer burns, fires, and indoor air pollution associated with fuel-based lighting;
- Patriarchal attitudes begin to erode when electrification is paired with relatively progressive gender messages on radio and TV programming;
- As women's time becomes more valuable through electrification, other labour-saving investments (e.g. improved stoves) become more attractive for households to pursue;
- Activities at night (e.g. transportation, night markets, etc.) will become less dangerous and more attractive with the addition of street lights;
- Electrification of clinics and equipment carried by mobile health workers will improve neo- and peri-natal outcomes for mothers and their children and also complement public health initiatives such as vaccination; when paired with advances in ICT access, electrification could also support telemedicine, information campaigns, and reporting of disease epidemics;
- When paired with financial and technical support for business development, electrification can help women start and grow enterprises, raising incomes, strengthening empowerment, and providing goods and services in their communities; and
- When paired with access to credit and appropriate technology, electrification can make agriculture and post-harvest processing more productive and foster linkages to markets.

Negative Impacts

- Women's overall work burden (paid and unpaid) will increase when lighting lengthens the workday;
- Street lights may decrease women's safety by allowing potential attackers to see their victims; and
- Electricity connections and appliances may be subject to male capture, leading women to realize relatively fewer benefits and become disempowered vis-a-vis male counterparts.

Gendered Product and Service Preferences

Men and women often are responsible for different tasks at different times of the day in their homes, and it is not surprising that they have varied preferences, assuming households are electrified, for the types of electrical devices in use, their features, and also potentially for their placement within the house. It is also well documented that household decision-making practices are a reflection of the tension between individual preferences and the relative bargaining strength of each of those individuals. An IFC/Lighting Africa survey[24] of 5,000+ households and 2,500 businesses estimated that women were responsible for about 40 percent of the time for lighting purchase decisions and that women and men exhibited differences in product preference.

Clean Cooking and Its Gendered Impact

The major gender dimensions of cooking stem from who is doing it, how much time is spent, and what kind of stove is being used. Along with childcare, home-based food preparation is largely considered women's work, though men are frequently seen cooking in commercial settings.

The benefits of cleaner cooking are: 1) freed-up time with efficient stoves, less time is spent collecting fuel, tending to stoves, and cleaning vessels blackened by soot and 2) reduction of health hazards from indoor air pollution.

[24] Alstone, Peter, Carmen Niethammer, Brendon Mendonça, and Adriana Eftimie. 2011. "Expanding Women's Role in Africa's Modern off-Grid Lighting Market." Washington, D.C.: IFC/Lighting Africa.

There are other hazards of cooking, unrelated to indoor air pollution (e.g., burns, scalds, explosions, house fires, blunt trauma, inhalation injuries) and hazards of fuel collection. Where fuelwood is scarce, individuals must venture increasingly farther away to collect it, increasing the likelihood of robbery, assault, kidnapping, and gender-based violence, as well as spending larger amounts of time.

In addition to the gendered impacts of cooking fuel and stove choice, gender plays a role in determining the successful uptake and continued use of technologies. Cooking and fuel collection pose significant hazards, especially for women and girls. Women, who are primarily responsible for cooking, are at high risk of burns, scalds, inhalation injuries, and house fires due to the use of traditional stoves and biomass fuels. Fuel collection also exposes women to violence, including robbery and gender-based violence, as they often travel long distances to gather firewood. This time-consuming and labor-intensive task limits their ability to pursue education or income-generating activities. Furthermore, while women typically prefer safer, cleaner cooking technologies, they face barriers such as high costs, limited access to alternative fuels, and lack of financial control, which prevent them from adopting these technologies. To address these gendered risks, it is essential to provide affordable, clean cookstoves, improve access to alternative fuels like LPG, and ensure financial empowerment for women, enabling them to make decisions about their cooking methods and reduce the physical and social risks associated with traditional cooking and fuel collection.

Policy Landscape in Somaliland

Somaliland Constitution

The Provisional Constitution of Somaliland (2012) stipulates the General Principles of Human Rights accorded to all Somaliland citizens. There are 31 articles that specify the fundamentals rights accorded to all Somaliland citizens and those set out for permissible limitations on rights provided. Some of the relevant articles are:

Article 10: protects human dignity

Article 11: protects equality of all citizens regardless of sex, religion, social or economic status, political opinion, clan, disability, occupation, birth or dialect

Article 15: protects liberty and security of the person, including freedom from all violence against women including female genital mutilation (FGM) which is explicitly prohibited.

Article 27: protects social and economic rights.

Article 34 and 39: guarantees access to courts and redress for violations of human rights.

National Development Plan III (2023-2027)

Somaliland's National Development Plan III (2023-2027) a medium-term strategy designed to unlock the country's potential in all sectors of the economy to achieve inclusive, sustainable development and poverty reduction. Chapter 7 of the NDP III provides information on the energy and extractive sectors. According to the plan, the energy and extractives (mining) sector plays a pivotal role in the socio-economic development of Somaliland, forming an integral part of the National Vision 2030. This vision envisions a robust infrastructure system that promotes economic and social growth. Specifically, the energy sector is aligned with Pillar Two, focusing on infrastructure development, while the extractives sector contributes to Pillar One—economic development. Together, these sectors aim to ensure sustained economic growth, poverty reduction, and overall social advancement.

The energy sector is essential to fostering industrialization, agricultural productivity, and the advancement of mining activities. With the sustainable utilization of the country's energy, minerals, and petroleum resources, the vision is to promote inclusive development. This includes the provision of reliable, affordable, and sustainable energy services to support economic activities and community welfare. In this context, the 2018 Electrical Act serves as a critical legal framework for the regulation of electricity-related activities, while the 1984 Mining Code and the more recent Upstream Petroleum Act provide the necessary regulatory oversight for the extractives sector.

The absence of a national grid has resulted in a decentralized approach to power generation. Most electricity is produced near consumption points, with Energy Service Providers (ESPs) managing generation, transmission, and distribution. While this model ensures service delivery, the lack of separation between these activities presents challenges for operational efficiency and cost reduction. The transition toward unbundling these services is considered essential for enhancing service quality and affordability.

Recent investments in renewable energy, such as solar power, have significantly improved service delivery. Solar-powered streetlights have boosted economic activities and security, while solar water pumps have provided communities with better access to water. These pilot projects demonstrate the vast potential for scaling renewable energy solutions to address the country's energy challenges.

Situational Analysis

Energy: Policy and Legal Reforms

The energy sector in Somaliland is predominantly driven by the private sector, with the government fostering an enabling environment for its growth. Over the period of the National Development Plan (NDP) II, key legal and policy reforms have been introduced to streamline the energy sector:

- The Somaliland Electrical Act, 2018 provides the framework for electricity provision and regulation.
- The Somaliland Regulatory Commission was established in 2020 to oversee electricity markets, ensuring adherence to legal and regulatory standards.
- The Power Masterplan, 2019 and Draft Energy Policy, 2020 further complement the legal landscape, shaping the future direction of energy governance.

These reforms have been instrumental in increasing electricity access and promoting sustainability across the sector. Although Somaliland has made substantial progress, challenges persist in ensuring affordable, reliable, and accessible electricity for all.

Access to Electricity

Investments from the government, development partners, and private sector have led to a significant improvement in electricity access. By the end of NDP II, approximately 80.7% of urban households and 20.3% of rural households had access to electricity, surpassing the 2017 baseline of 77% in urban areas and 17% in rural areas. Despite reaching impressive milestones, the NDP II targets of 85% urban and 35% rural access remain slightly out of reach, emphasizing the need for continued efforts.

Affordability of Electricity

Electricity tariffs have seen a significant reduction over the course of NDP II, contributing to greater affordability. Across key towns—Badhan, Borama, Budhodle, Burao, Gebiley, Sheikh, Berbera, Erigavo, Lasanod, and Hargeisa—the average reduction in tariffs reached approximately 35%, surpassing the NDP II target of 30%. However, disparities remain between rural and urban communities, necessitating further efforts to narrow this gap. Additionally, technical losses in transmission have been reduced, from 40% in 2016 to about 32% in 2020, improving the overall efficiency of the energy supply chain.

Renewable Energy

The integration of renewable energy into the energy mix is gaining momentum. As of the NDP II period, renewable energy accounts for 16.2% of total energy generation, surpassing the 10% target. This includes substantial investments in solar, wind, and hybrid mini-grids, reflecting the commitment to sustainable energy solutions. With a cumulative investment of over US$30 million in renewable energy projects, Somaliland is on track to meet its renewable energy targets.

Challenges and Key Issues

Despite notable advancements, several challenges continue to hinder the full realization of Somaliland's energy vision:

- **Capacity Expansion:** There is a pressing need to enhance the quality and capacity of urban electricity supply to support both domestic and commercial growth.
- **Operational Efficiencies:** Reducing the high cost of electricity across all regions remains a priority, with a focus on decreasing inefficiencies in generation, transmission, and distribution.
- **Renewable Energy Expansion:** Scaling up renewable energy use is critical to improving the overall energy mix, ensuring sustainability, and reducing dependency on fossil fuels.
- **Extractives Development:** Expanding mineral and petroleum exploration, coupled with strengthening the analytical and technical capacity for resource management, remains a key challenge.

NDP III Outcomes and Priority Interventions

Strategic Objective 1: Increase access to safe, affordable, and reliable energy and improve efficiencies

- To achieve this, the Ministry of Energy and Mining has set ambitious outcomes, such as increasing urban electricity supply to 50 megawatts by 2027, with 30,000 customer connections. Priority interventions include:
- Strengthening the capacity of the Somaliland Energy Commission for improved market regulation.
- Mobilizing resources to expand renewable energy capacity, hybrid grids, and mini-grid systems to ensure broad access, particularly for rural communities.
- Developing public-private partnerships (PPPs) to enhance electricity access and affordability.

Outcome 2: Increase renewable energy contribution to 25% of national energy generation by 2027

This involves investing in appropriate renewable energy technologies and expanding solar and biomass applications. Additionally, regulations for quality standards and technical capacity building will be emphasized to ensure sustainable growth.

Outcome 3: Reduce average electricity prices by 15% by 2027

The focus will be on improving efficiencies along the energy value chain, with investments in new technologies and infrastructure to reduce operational costs and improve service delivery.

These interventions are designed to ensure that Somaliland's energy sector evolves sustainably, contributing to economic growth and community welfare.

Somaliland National Gender Policy

The National Gender Policy emphasizes gender as a development concept by identifying and understanding the social roles and relations of women and men and how this impact development. It recognizes that meaningful and sustainable development necessitates equal participation of both genders in all aspects of development as well as post-conflict development, reconstruction and growth. The aim of the policy is to provide a platform for the collective participation and contribution of all men and women in Somaliland at all levels in order to achieve socio-economic development and ultimately social security. The policy was developed to guide and direct planning, resource allocation and implementation of development programmes within a gender perspective and this includes energy projects and programmes.

The policy addresses decades of discrimination and inequality by coordinating and facilitating the active participation of government departments and sectors as well as that of development partners and stakeholders especially women in implementing programmes from a gender perspective. It incorporates key priority areas from the Reconstruction Development Plan, encourages sector-wide planning for gender issues, and ensures that implementation is in line with new approaches at the regional and international levels.

The policy has nine priorities:

- Poverty Reduction and Economic Empowerment (livelihoods)
- Education and Training
- Health and Reproductive Health
- Nutrition Security
- Water Resources and Supply
- Employment
- Political Participation and Decision- Making
- Democratic Governance and Human Rights
- Sexual and Gender Based Violence (SGBV)

Over the past 15 years, Somaliland's National Gender Policy has made significant strides in addressing gender inequality across various sectors. However, when it comes to energy development, the policy's integration of gender perspectives has been relatively weak. The energy sector, which plays a central role in economic development, poverty reduction, and social welfare, has not been adequately addressed in the context of gender equality in the policy's implementation and planning. Below is an analysis of the policy challenges over the past 15 years, with a focus on how the energy sector has been overlooked.

1. Energy Access and Gender: A Key Development Gap

In Somaliland, energy access is a critical barrier to development. Reliable and affordable energy is necessary for domestic use, businesses, schools, healthcare facilities, and other critical services. However, energy access remains limited, especially in rural and peri-urban areas, where households often rely on traditional fuels such as firewood and charcoal.

- **Gendered Energy Needs:** Women and girls are disproportionately affected by limited access to modern energy. For instance, the time spent by women in collecting firewood or water, coupled with inefficient cooking methods, imposes significant burdens on their health, education, and economic activities. The energy policy's failure to explicitly address these gendered challenges means that gendered impacts are not fully considered in energy planning.
- **Health Risks:** The use of biomass for cooking—common in many households—exposes women to indoor air pollution, leading to respiratory diseases, which are a significant health risk. The gender policy does not sufficiently address how the energy sector could be leveraged to reduce these health risks for women.
- **Time Poverty:** Women spend a disproportionate amount of time on unpaid work, including fetching water and fuel. The lack of reliable energy reduces the time women could otherwise spend on education, income-generating activities, or community involvement, directly impacting their socio-economic empowerment. This issue is not addressed under the policy's poverty reduction and economic empowerment priority.

2. Lack of Gender-Inclusive Energy Policy and Programs

While the National Gender Policy encourages gender-sensitive planning in all sectors, the energy sector has been largely absent from gender-focused initiatives. The policy's failure to adequately integrate gender considerations in the energy sector has limited its effectiveness in achieving broader development goals, including economic empowerment, health, and education.

- **Gender in Energy Projects:** The design and implementation of energy projects (such as renewable energy, electrification, and energy efficiency) have often been gender-blind, with little consideration of the different roles, needs, and experiences of women and men in energy use and production.
- **Exclusion from Decision-Making:** Women are often excluded from decision-making processes related to energy infrastructure, policy planning, and technology adoption. This leads to energy projects that do not consider women's specific needs or the potential for women's economic empowerment in the energy sector (e.g., entrepreneurship in the renewable energy market).

3. Gender and Employment in the Energy Sector

The employment priority in the National Gender Policy advocates for equal access to jobs for men and women, yet the energy sector has been largely male-dominated, with women underrepresented in both technical and leadership roles. Women are less likely to participate in energy-related education and training programs due to a lack of gender-sensitive initiatives or career paths in the sector.

- **Limited Role in Energy Jobs:** Women are often relegated to lower-paying, informal jobs or excluded from the formal energy workforce. There is a lack of policies promoting women's participation in renewable energy entrepreneurship or technical fields, which could improve livelihoods and reduce gender inequalities.
- **Gender-Responsive Energy Training:** The policy does not emphasize the need for specialized programs that would enable women to gain skills and enter the energy sector, whether through technical training or capacity building in energy management and entrepreneurship.

4. Energy, Economic Empowerment, and Livelihoods

The poverty reduction and economic empowerment priority of the National Gender Policy stresses improving livelihoods for both women and men. Energy plays a direct role in this by enabling access to modern technology, improving productivity, and providing opportunities for entrepreneurship. However, the gender policy has not adequately addressed how energy access can be a key enabler of economic empowerment for women.

- **Energy for Entrepreneurship:** Reliable access to energy could unlock new income-generating opportunities for women, especially in rural areas, such as operating small businesses, engaging in agribusiness, or providing essential services like healthcare and education. However, these opportunities are overlooked in the policy, resulting in an underutilization of energy as a tool for empowering women economically.

- **Rural Electrification:** In rural Somaliland, where women are heavily involved in agriculture and small-scale trading, the lack of modern energy infrastructure severely limits their economic potential. The policy has not sufficiently recognized the need for gender-sensitive rural electrification programs, which would enable women to increase agricultural productivity and enhance their small businesses.

5. Energy Infrastructure and Gender

Energy infrastructure development in Somaliland has not been explicitly integrated with gender-sensitive goals, leading to gaps in service provision for women.

- **Gender-Sensitive Infrastructure Design:** Energy infrastructure projects (such as grid expansions, renewable energy systems, and electrification projects) have not been designed with a clear focus on the different ways men and women use energy. For example, ensuring that energy access includes considerations for women's household tasks (like cooking and lighting) and social needs (like healthcare and education) is often overlooked.

- **Off-Grid Solutions:** While off-grid renewable energy solutions (such as solar home systems) are growing in Somaliland, these technologies have not been widely marketed to or adopted by women. Women may lack the decision-making power within households to invest in energy solutions or may not be aware of the potential benefits. Additionally, community-based energy projects could empower women by providing income-generating activities, but this potential remains underexplored.

6. Policy Gaps in Addressing Energy and Gender-Based Violence (SGBV)

While the policy outlines a commitment to combat sexual and gender-based violence (SGBV), it fails to connect energy access to the issue of SGBV. In many rural contexts, the collection of firewood and water, often by women and girls, exposes them to risks of violence, including sexual assault. Improving access to clean, safe energy could reduce these risks by eliminating the need for women to travel long distances for firewood or fuel.

- **Safety and Security:** The absence of a gender-sensitive approach to energy in the policy has meant that the link between energy access and personal safety has not been fully explored. For example, the provision of street lighting in urban areas or safe cooking technologies could reduce violence and enhance women's security.

7. Challenges in Policy Implementation and Monitoring

Even though the National Gender Policy outlines key priorities for achieving gender equality, the lack of effective implementation and monitoring mechanisms has hindered progress, particularly in the energy sector. Without clear indicators for integrating gender into energy policy, energy projects have continued to be designed and implemented without gender-sensitive measures or impact assessments.

- **Monitoring Gender Integration:** There is no specific framework or mandate for tracking the integration of gender in energy-related projects or assessing how energy policies affect men and women differently. This lack of a monitoring framework has led to an underdevelopment of gender-responsive energy interventions.

World Bank Strategy 2024-2030

Consistent with the World Bank Group's mission, the 2024–2030 Gender Strategy expresses the bold ambition to accelerate gender equality to end poverty on a livable planet. It proposes to engage differently, building on the lessons from the 2016–2023 Gender Strategy.

In its ambition, the new strategy prioritizes three strategic objectives: ending gender-based violence and elevate human capital, expand and enable economic opportunities, and engage women as leaders. The strategy acknowledges the centrality of investing in women and girls while recognizing the disadvantages facing men and boys and the vulnerabilities arising from the intersection of gender with poverty, ethnicity, disability, and other characteristics. It reaffirms the World Bank Group's commitment to nondiscrimination, inclusion, and equality of opportunity, encompassing sexual and gender minorities.

The strategy aims to achieve six outcomes associated with these three objectives:

- **Progress in ending all forms of gender-based violence.**
- **Stronger and more resilient human capital** through equitable investments in health, education, and nutrition for women and girls.
- **More and better jobs, including jobs of the future,** that foster inclusive economic growth and sustainable development.
- **Greater ownership and use of economic assets** by women, such as land, housing, and financial resources.
- **Wider access to and use of enabling services,** including digital connectivity, childcare, and transportation.
- **Advances in women's participation in decision-making,** with a focus on leadership roles in political, economic, and community spheres.

Additionally, the strategy identifies three key drivers to achieve these outcomes:

- **Action:** Strengthening targeted interventions and programmatic solutions that address systemic barriers to gender equality.
- **Financing:** Mobilizing and allocating financial resources at scale to support gender equality initiatives and programs.
- **Programs at scale:** Designing and implementing integrated, scalable programs to maximize impact and drive systemic change.

Together, these strategic objectives, outcomes, and drivers reinforce the World Bank Group's commitment to creating a more inclusive and equitable world.

Energy Policy Overview

Somaliland's energy sector has historically operated without a comprehensive policy or regulatory framework. However, in 2010, the government approved the country's first Energy Policy, marking a significant step towards developing the energy sector.

The main goal of the Somaliland Energy Policy is "To meet the energy needs of Somaliland for social and economic development in a cost-effective way that promotes sustainable energy production and use while minimizing negative environmental impacts". Key objectives include increasing access to modern energy services, enhancing energy security, utilizing energy for socioeconomic development, and establishing legal and institutional frameworks for the sector.

The policy identifies several challenges facing Somaliland's energy sector, including:

- Rebuilding energy infrastructure damaged by conflict
- Mobilizing financial resources for maintaining and expanding energy systems
- Protecting the environment from energy-related impacts
- Ensuring security of supply through diversification and efficiency
- Developing private sector capacity to deliver energy services
- Improving corporate governance and accountability
- Enhancing legal, regulatory and institutional frameworks

To address these challenges, the policy outlines strategies across different energy sub-sectors:

Electricity: The policy aims to enhance power supply through mechanisms involving both government and private sector actors. Strategies include rehabilitating and expanding generation capacity and distribution networks, establishing a regulatory framework, and making the sub-sector more competitive to attract investment.

Petroleum: For the downstream petroleum sector, the policy seeks to ensure adequate, reliable and affordable supply of quality petroleum products. Strategies include creating incentives for increased kerosene imports and promoting LPG as an alternative cooking fuel.

Renewable Energy: The policy promotes developing renewable energy resources as part of the country's energy mix. Strategies include addressing inefficiencies in charcoal production/consumption, exploring fast-growing tree species for fuel, and promoting renewable energy technologies.

A key component of the policy is establishing new institutional and regulatory frameworks for the energy sector. This includes plans to set up an Energy Commission to regulate the sector, as well as strengthening policy coordination and energy planning capacities within government.

The policy also emphasizes developing human resources for the energy sector through training energy specialists and working with educational institutions to develop relevant curricula.

While the 2010 Energy Policy laid an important foundation, implementation has faced challenges. As of 2018, Somaliland still lacked a comprehensive regulatory framework for the energy sector. The electricity sub-sector remains fragmented, with multiple small providers and no national grid.

However, the government has continued efforts to develop the policy and regulatory landscape. In 2018, Somaliland enacted an Electricity Act to provide a legal basis for regulating the power sector13. The Act calls for establishing an Electricity Regulatory Commission, though as of 2021 this body was not yet operational.

In summary, while Somaliland has made important strides in developing its energy policy framework over the past decade, significant work remains to fully implement and operationalize the regulatory structures envisioned in the national energy policy. Continued efforts will be needed to create a coherent and effective policy landscape to guide the development of Somaliland's energy sector.

Regulatory Challenges on Gender in the Energy Sector

Overarching Gender Equality Goals: The National Gender Policy of Somaliland (2009) establishes a comprehensive framework for gender-responsive governance, aiming to mainstream gender equality across all sectors. However, this vision is not reflected in the Energy Policy (2010) and Energy Act (2018), which lack gender-specific provisions. This significant policy misalignment hampers the integration of gender perspectives in energy sector planning..

Women's Economic Empowerment: A key emphasis of the National Gender Policy is women's economic empowerment, promoting increased opportunities in every sector. Despite this, Somaliland's energy policies do not address women's economic engagement. They overlook strategies for enhancing women's involvement in energy-related businesses or employment, thus undermining efforts to achieve economic inclusivity.

Decision-Making and Leadership: The National Gender Policy advocates for greater representation of women in leadership and decision-making roles. Yet, the Energy Act's establishment of the Energy Regulatory Commission does not include any provisions to ensure gender balance or representation. This omission limits women's influence in shaping policies and decisions within the energy sector.

Access to Resources: The National Gender Policy emphasizes equitable access to productive resources for both men and women. However, Somaliland's energy policies focus solely on expanding energy access without addressing gender-specific disparities. For instance, women in rural areas often face greater barriers to accessing energy services.

Capacity Building: Capacity building and skills development for women are prioritized in the National Gender Policy. However, Somaliland's energy sector policies lack gender-specific training or capacity-building initiatives, missing an opportunity to empower women to participate in and benefit from energy sector advancements..

Environmental Considerations: The National Gender Policy recognizes the gender impacts of environmental challenges, yet energy policies address environmental concerns without integrating gender perspectives. Somaliland's Energy Policy (2010) does not acknowledge gender equality, nor does it address women's unique energy needs or promote female participation in environmental sustainability efforts. Furthermore, regulatory frameworks, such as the Energy Act, do not provide mechanisms for women's representation or gender-sensitive budgeting.

Gender considerations are also absent in infrastructure planning. For example, the Hargeisa City Development Report overlooks gender-specific impacts, such as women's safety concerns, mobility patterns, and equitable energy access. Infrastructure planning lacks gender-sensitive facilities and engagement with women's organizations, as well as impact assessments and data-driven strategies to ensure gender equity.

These gaps are compounded by a lack of gender-disaggregated data, limited training and leadership opportunities for women in the energy sector, and barriers to women's access and control over energy resources.

Best Practices: Comparing Somaliland's Approach with International Standards

Gender-Responsive Policy Framework: International best practices emphasize the critical importance of incorporating gender considerations into energy policy frameworks. The World Bank Group's Gender Strategy (2016-2023) highlights how embedding gender equality in policy and planning ensures that women and men benefit equitably from energy developments. Currently, Somaliland's Energy Policy (2010) and Energy Act (2018) fall short in this area. These foundational documents do not explicitly address gender, which limits the scope of equitable energy access and participation..

Women's Participation in Decision-Making: The World Bank Group advocates for increasing women's representation and decision-making power within energy governance structures. Women's involvement in key governance and regulatory bodies not only promotes gender equality but also brings diverse perspectives that can enrich sectoral outcomes. However, Somaliland's energy sector policies do not contain provisions for gender balance. For instance, there is no requirement for women to be represented in critical institutions such as the Energy Regulatory Commission.

Gender-Disaggregated Data Collection: Collecting and analyzing gender-disaggregated data is crucial for evidence-based policymaking and monitoring progress toward gender equality. According to international standards, including those of the World Bank, sex-disaggregated data informs the development of effective, gender-responsive policies and programs. Unfortunately, Somaliland's energy sector lacks systematic data collection that differentiates between male and female experiences. This data gap hampers the ability to assess gendered impacts and to design targeted interventions.

Addressing Gender-Specific Energy Needs: Understanding and addressing the distinct energy needs of men and women is another area where Somaliland's policies require significant improvement. International best practices emphasize that energy consumption and needs vary significantly by gender, often because of differences in roles, responsibilities, and economic activities. Currently, Somaliland's energy policies lack this. As a result, energy services may not adequately support women's economic and social activities.

Promoting Women's Employment in the Energy Sector: The World Bank encourages gender parity in employment, particularly in traditionally male-dominated sectors such as energy. Promoting women's participation in the energy workforce can drive innovation and economic empowerment. However, Somaliland's energy sector policies do not contain initiatives or targets for increasing women's employment or leadership opportunities. There are no structured programs to attract, train, or support women within the sector.

Gender-Responsive Budgeting: Gender-responsive budgeting (GRB) is an essential tool for ensuring that financial resources are allocated to support gender equality. The World Bank and other development organizations promote GRB to ensure that budgeting processes reflect the needs and priorities of both men and women. Unfortunately, Somaliland's energy sector does not incorporate gender considerations into its budgeting processes. This lack of gender-responsive budgeting limits the effectiveness of financial investments in addressing gender disparities.

Addressing Gender-Based Violence: Addressing and mitigating gender-based violence (GBV) risks is a fundamental component of international energy project standards. The World Bank recognizes that energy infrastructure and development projects can exacerbate risks of GBV, especially for women in vulnerable communities. However, Somaliland's energy policies do not address these risks.

ASSESSMENT METHODOLOGY

To achieve the objectives of this assignment, a mixed methods approach that included Secondary (desk/literature review) and primary (quantitative and qualitative) methods as expounded below.

Desk research

Desk research is a valuable research methodology used to gather information and insights from existing documents, publications, and data. In the context of Gender and Energy Assessment for Somaliland, desk research played a pivotal role in gathering essential information and contextual knowledge related to gender disparities in the energy sector and exploring ways to address these disparities. The findings also contribute to analysis of gender incorporation indicators in energy projects implemented in Somaliland by donors and to support in developing a database of primary data on the Gender-Energy linkages.

The approach included systematic review and analysis of a wide range of documents and publications extracting relevant information, statistics, and insights from these documents related to gender disparities in the energy sector, government policies, legal frameworks, and best practices. The gathered information was analyzed and synthesized to provide a comprehensive understanding of the gender-energy nexus in Somaliland identifying key gender disparities, challenges, and opportunities.

These included:

- The Somaliland National Energy Policy (2020), which outlines the government's agenda for developing the country's energy and mineral resources while addressing challenges such as lack of regulatory frameworks, reliance on diesel generation, dominance of charcoal fuel, limited technical capacity, and lack of quality and safety standards.
- The Somaliland National Gender Policy (2009), which recognizes the need for full and equal participation of women and men in sustainable development. The policy aims to eliminate gender inequalities, promote equal participation in decision-making, change societal attitudes, and address discrimination and violence against women.
- The Ministry of Energy and Minerals Strategic Plan 2023-2027, which provides a framework to guide the Ministry's work in the energy, minerals, and petroleum sectors. The plan identifies challenges and outlines objectives for each sector, with a focus on establishing responsive policies, promoting renewable energy, attracting investments, and enhancing institutional capacity.
- The Power Master Plan for Somaliland, which provides an overview of the current energy situation and strategies for developing the electricity sector. The plan highlights challenges such as lack of an integrated grid, reliance on diesel generation, high tariffs, and low access rates, especially in rural areas. It envisions investments in generation, transmission, distribution, and regulatory frameworks.
- World Bank Gender Strategy (2024–2030) which puts forward an ambition to accelerate gender equality for a sustainable, resilient, and inclusive future in alignment with the World Bank Evolution Roadmap. The Strategy responds to the global urgency, fundamentality, and complexity of achieving gender equality.

Qualitative Study

The study primarily focused on urban areas across regions in Somaliland. Qualitative interviews included key informant interviews with key stakeholders and relevant partners and focus group discussions as expounded below:

Key informant interviews

Employing purposive sampling to carefully select 18 participants for the in-depth interviews in urban areas. This group encompassed a diverse range of individuals, including members of the Somaliland Ministry of Energy and Minerals (MoEM), the energy service providers, local authorities, youth representatives, community leaders, women representatives, energy service providers, and other pertinent stakeholders situated within the specified districts. Majority of the key informants were based in Hargeisa particularly government officials, local authorities, and women organizations. However, the assessment considered inputs from Energy Service Providers (ESPs) and community leaders in different regions of Somaliland. The allocation of samples and the specific participants' identities underwent further consideration during the initial planning phase. It's important to note that the categories for selection were reviewed before the data collection process begins. Additionally, certain community stakeholders were identified and chosen directly at the community level. Here's an elaboration on the rationale behind this sampling approach:

- **MoEM Staff Members:** MoEM staff provided an insider's perspective on energy sector policies, initiatives, and challenges. Their insights are critical for understanding the sector's dynamics.
- **Somaliland Energy Commission:** The commission provided an overview, national strategies, policies, and activities being either implemented or intended for.
- **Energy Service Providers:** These providers offered valuable insights to assess sector institutions on gender inclusion and integration on both the organizational and activity levels together with the process of equality, inclusion and opportunity women represented in the sector knowledge organizations
- **Local Authorities:** Local authorities often play a crucial role in energy infrastructure and service delivery, making their input essential for a comprehensive assessment.
- **Community Leaders:** Community leaders have a deep understanding of local dynamics and can provide insights into community-level energy issues.
- **Youth Representatives:** Engaging with youth representatives shed light on the perspectives and needs of the younger population, ensuring a more inclusive analysis.

- **Women Representatives:** The inclusion of women representatives helped ensure a gender-sensitive approach, considering the unique challenges and opportunities faced by women in the sector.
- **Other Relevant Stakeholders:** Additional stakeholders, whose roles might be specific to the context, contributed to a holistic understanding of the energy sector's dynamics.
- **Community members:** To enhance community-level engagement, select community stakeholders will be directly chosen from within the communities under study.

The table below highlights categories of stakeholders interviewed.

Table 1: List of KII Respondents

Target Respondents	Sample Size/Number of Respondents
MoEM Staff Members i.e. PMU, Director of Gender, energy specialists	3
Somaliland Energy Commission i.e., energy specialists	2
Ministry of Employment, Social Affairs and Family (MESAF), Ministry of Rural Development, Ministry of Education, and Ministry of Health	4
Local Authorities i.e. gender officer, energy specialists	2
Energy Service Providers	3
Women Rights Organizations (e.g. Somaliland Women in Energy), Young Female Graduates etc. i.e. will provide gender sensitive lens into challenges and opportunities faced by women in the sector	2
Community Members	2
Community Leaders	2
Youth Representatives	2
Educational Institutions	2
Total	**24**

Focus Group Discussions

A total of 18 Focus Group Discussions (FGDs) were conducted in urban areas. To gain a more comprehensive understanding, these groups were further segmented by gender into 9 female groups and 9 male groups. Each group was strategically located within each district within the six regions of Somaliland for instance: Additionally, the focus groups was comprised of 6 to 8 participants each, convening at a central location. Skilled moderators led the discussions, which lasted between 1.5 to 2 hours. Segmenting the focus groups by gender, age, and location enhances the depth of insights obtained from the target communities. Purposive sampling, a deliberate and selective method was employed to engage specific target groups of individuals within a community during the data collection process. To facilitate community-level engagement, a screening process for the data collection team to identify and recruit participants who align with the specific group categories and reside within the target region and district was used targeting community members aged 18 years and above in the discussions.

The goal was to ensure that a broad spectrum of community members, including those directly impacted by the energy sector, had the opportunity to contribute their perspectives. Our experienced moderators created a respectful and open environment, encouraging participants to share their views and concerns openly. Through this approach, a holistic understanding of energy-related issues at the community level, further enriching the depth and breadth of our analysis was gained.

Table 2: Number of FGDs conducted by Regions

Regions	FGDs
Awdal	3
Sanaag	3
Sool	3
Togdheer	3
Sahil	3
Maroodijex	3
Total	18

Quantitative Study

The study primarily focused on urban areas across regions in Somaliland. In the quantitative phase of this survey, a systematic approach was employed to ensure data collection. A multistage sampling strategy based on the administrative units of Somaliland, adhering to the population estimates survey 2014 UNFPA, Somalia. Here is an in-depth overview of our sampling methodology and participant selection process:

1. **Regional:** Sample distribution was proportional to population size (PPS) across the six regions. After sample will be distributed corresponding to the Somaliland administrative levels from region to district to villages within Somaliland.

2. **District Selection:** At the regional level, all districts were listed, and the sample was distributed proportionally to their population size.

3. **Within District:** All villages within each district were listed alphabetically, and a random number will be assigned to each. After randomization, villages in each district will be arranged in ascending or descending order based on the random numbers, ensuring equal chances for villages to be included.

4. **Household Selection:** To select households for interviews, we employed the random walk method based on a central point within an enumeration area (EA). The following points detail our approach:

    - The random walk started at a central point within the EA, often a landmark like a school, church, mosque, or other prominent sites.

    - Interviewers used a date score derived from the date to determine the initial household to sample and the skip routine. For example, if the date is December 18, 2023, interviews will begin at the 9th household from the landmark (summing 1+8).

    - In urban areas, interviewers skipped four households and interviewed every fifth one, except in apartment blocks or shared compounds, where one household will be randomly selected.

    - High-class residential areas (high-class, low-density) were sampled gate-to-gate.

    - In rural areas, interviewers skipped one household and interview every second one or walk 200 meters to the next household, depending on the distribution of households.

Respondent Selection: At the household level, we created a list of present household members, starting with the oldest to the youngest. This list will include names, ages, and gender for individuals aged 18 years and older (eligible respondents). Using the Kish grid selection, the survey software on the mobile device randomly chooses the household member to participate in the study. This approach minimizes selection bias and ensures a fair representation of different respondents.

Substitution of Respondents: If the selected household member was unavailable at the time of the visit, up to two additional follow-up visits will be made to interview them. After three unsuccessful attempts, a new household will be sampled using the same random selection process described above. Substitution will also occur if:

- The interviewer is denied entry to the selected household.

- The selected household member refuses to be interviewed.

- The selected household member terminates the interview prematurely.

- The selected household member is absent during the fieldwork period.

This rigorous sampling and participant selection approach aims to collect high-quality data while ensuring fairness and representation within the study. About 50% of the population are concentrated in only 3 districts Borama, Burco and Hargeisa out of the 18 districts provided. This means that a direct Probability Proportionate to Size (PPS) distribution would have led to other regions having very few sampled households and sample being skewed towards the three districts. To circumvent this problem, the population data was adjusted through the square root transformation approach. This allowed for a better distribution of the sample. Therefore, the sample allocation was done by PPS to the square root of the population size and not of the raw population estimates figures. On the total sample (1500), the margin of error is 3 at a 95% confidence level.

Sample size: HACOF proposed using a purposive random sampling method to collect data for the National Gender and Energy Assessment. This approach ensured that the research targeted the right individuals—specifically those who met the criteria relevant to the study. We began by identifying our target group, clearly defining what constituted a "female-headed" household. In this context, it referred to households where women were the primary decision-makers and financial providers. Our definition was expanded to include households where women assumed control of household decisions, even if a man was nominally the head of the household but had limited involvement due to work commitments or travel, a common scenario in Somaliland. To ensure equal participation, we took measures to provide all eligible households with an opportunity to be involved, reducing the risk of bias despite using a purposive random sampling approach.

Participants were selected using random methods, minimizing biases and giving all eligible households an equal chance of being chosen. We then reached out to the selected households, inviting them to participate in the study and explaining the purpose and expectations of their involvement. For data collection, we prepared our survey instruments and other tools necessary for gathering information. We visited or contacted the selected households to conduct interviews, approaching participants with respect and sensitivity, mindful of the cultural context and the significance of their leadership roles.

As per the inception stage, a total of 1,500 households in urban areas were agreed to be interviewed. However, HACOF included an additional 10% oversampling to account for non-responses. The table below summarizes the distribution per region and location:

Table 3: Household Survey Sample Size per Region

Regions	Location	Sample	10% over Sampled
Awdal			
	Baki	65	72
	Borama	132	145
	Lughaye	66	73
	Zeylac	58	64
Sanaag			
	Ceel Afweyn	117	129
	Ceerigaabo	146	161
Sool			
	Oog	51	56
	Caynabo	181	199
Togdheer			
	Burco	182	200
	Owdweyne	86	95
Sahil			
	Sheikh	57	63
	Berbera	87	96
Maroodijex			
	Gebiley	68	75
	Hargeisa	204	224
Total		**1500**	**1650**

This assessment reports on the results of desk research and interviews to document, assess, summarize and analyse gender dynamics in Somaliland's energy sector, identify barriers to gender inclusivity, and proposes actionable recommendations to promote equal opportunities and foster a more inclusive energy sector.

Study Limitation

While the primary objective of the study was to analyze the socio-economic positioning of women, gender norms and roles, sector participation rates, inheritance laws, decision-making roles, challenges faced by female-headed households, skill enhancement opportunities, and the safety of vulnerable women, several limitations impacted the research process. These limitations include:

1. **Focus on Urban Areas:** The study primarily focused on urban areas across various regions in Somaliland with the objective of analyzing the socio-economic positioning of women. It examined gender norms and roles, women's participation rates across different economic sectors, and the impact of inheritance laws on their financial security. Additionally, the study explored women's involvement in decision-making processes at household and community levels, the unique challenges faced by female-headed households, and the availability of skill enhancement opportunities. Furthermore, it assessed the safety and protection concerns of vulnerable women, aiming to provide insights that can inform policies and programs promoting gender equality and empowerment.

2. **Inaccessibility in Some Areas:** The study was unable to access certain locations in the Sool region, such as Las Anod, due to ongoing territorial disputes. As a result, the study's population was redistributed to alternative locations within the region, such as Caynabo and Oog, to ensure adequate data collection.

3. **Urban vs. Rural Population:** The limited sample size, which comprised approximately 1,650 respondents as defined in the sampling framework compared to the total Somaliland population of 4.3 million as per the 2014 population estimates, along with the chosen study locations, made it challenging to extend the scope to the rural population. Consequently, the study primarily focused on urban areas, thus not capturing the full spectrum of experiences across the entire Somaliland.

4. **Male vs. Female Respondents:** In many cultural contexts, including in Somaliland, the head of a household is traditionally seen as the primary decision-maker and breadwinner. However, due to economic pressures, many men are compelled to seek employment opportunities outside their hometowns, often in other regions of Somaliland or abroad. This situation forces women to remain at home and manage household responsibilities. When immediate decisions are required, these women often assume the role of the head of the household. The study findings revealed that the majority of respondents were female, as they were typically present at home when data collection was conducted, and interviews were conducted by enumerators. While this shift may initially appear as a limitation, it can be considered an advantage. The fact that approximately 65% of the enumerators were women facilitated more open and candid conversations, encouraging the women participants to share their insights. Furthermore, given that the study's subject matter specifically focused on the socio-economic positioning of women and other gender-related issues, it was essential to gather perspectives primarily from women, as they are the central focus of the research.

These limitations, while notable, provided opportunities to better understand the unique challenges and insights of female-headed households and ensure that the voices of women were front and center in the findings.

Gender Analysis Framework

To have a comprehensive understanding of gender dynamics within the Somaliland energy sector, a well-defined Gender Analysis Framework- Socio-Economic and Gender Analysis (SEAGA) was employed. This framework served as the cornerstone of the assessment, allowing to delve deeply into the complex interplay of gender-related factors within the energy domain.

A systematic analytical process to identify, understand, and describe gender differences and the relevance of gender roles and power dynamics in Somaliland contexts was undertaken. The focus was to understand the relationships between men and women in these areas.

The Gender Analysis Framework investigated:

1. **ACCESS TO ASSETS:** how gender relations affect access to resources necessary for a person to be a productive member of society and includes tangible assets (land, capital, and tools) and intangible assets (knowledge, education, and information).

2. **BELIEFS AND PERCEPTIONS:** draws from cultural belief systems or norms about what it means to be a man or woman in a specific society. These beliefs affect men and women's behavior, dress, participation, and decision-making capacity. They also facilitate or limit men and women's access to education, services, and economic opportunities in the energy sector.

3. **PRACTICES AND PARTICIPATION:** The norms that influence men and women's behavior also structure the type of activities they engage in and their roles and responsibilities. This dimension of the framework captures information on men and women's different roles, the timing and place where their activities occur, their capacity to participate in different types of economic, political, and social activities, and their decision-making.

4. **INSTITUTIONS, LAWS, AND POLICIES:** This dimension focuses on information about men and women's different formal and informal rights, and how they are dissimilarly affected by policies and rules governing institutions, including the energy sector.

5. **POWER** pervades all domains and informs who has, can acquire, and can expend assets and decisions. It determines if an individual can take advantage of opportunities, can exercise rights, move about and associate with others, enter into legal contracts, and run for and hold office. Power also determines the way men and women are treated by different types of institutions, policies, and laws. Providers' discriminatory attitudes, for instance, reinforce and deepen inequalities. Providers, particularly lower-level female providers, may also experience discrimination and mistreatment in their workplaces as a result of gendered hierarchies.

The table below summarizes how the Gender Analysis Framework translates to the demand and supply sides of the energy sector:

Table 4: Demand and supply sides of the energy sector (Gender Analysis Framework)

Dimension	Demand Side Implications	Supply Side Implications
Access to Assets	- Women may have limited ownership of land, capital, and tools, restricting their investment in energy solutions. - Limited access to education and information reduces women's ability to make informed energy choices.	- Women may lack access to financing and resources to start energy businesses or work as service providers. - Underrepresentation in technical and leadership roles hinders women's participation in the energy supply sector.
Beliefs and Perceptions	- Cultural norms may limit women's involvement in energy-related decisions, even though they are primary energy users in households. - Changing perceptions is necessary to drive demand for energy solutions that reduce the burden of domestic labor.	- The perception of energy as a "male" field can discourage women from entering or advancing in the energy sector. - Overcoming stereotypes can increase women's presence and innovation in the energy supply industry.
Practices and Participation	- Women's roles in domestic and community activities shape specific energy needs, such as for cooking or household lighting. - Women often have limited participation in energy planning, affecting demand for inclusive solutions.	- Women are often excluded from technical training and leadership roles, limiting their impact on energy supply. - Promoting equal participation can diversify the workforce and improve the quality of energy services.
Institutions, Laws, and Policies	- Gender inequalities in laws and policies can limit women's access to energy services and economic opportunities. - Addressing these disparities can create a more equitable demand landscape.	- Institutional practices may reinforce gender barriers, such as discriminatory hiring or lack of maternity protections. - Gender-inclusive policies can create a fairer, more effective energy supply sector.
Power	- Power imbalances in households and communities restrict women's ability to advocate for their energy needs. - Empowering women can boost demand for solutions that improve their well-being.	- Women in lower-level positions may face discrimination, limiting their influence in energy institutions. - Addressing power dynamics can diversify leadership and improve decision-making in energy governance.

A Access to Assets

- Natural Resources
- Productive Assets
- Income
- Information
- Knowledge
- Social Networks

B Beliefs and Perceptions

- Influence
- Access to Opportunities
- Mobility and Decisions
- Expectations about Appropriate Behavior

POWER

C Practices and Participation

- Time, Space and Mobility
- Household and Community Division of Labor
- Participation Rates in Different Activities
- Roles

D Institutions, Laws and Policies

- Due Process
- Education
- Employment Opportunities
- Energy Services
- Infrastructure
- Ownership and Inheritance Rights

ASSESSMENT FINDINGS

Household Characteristics

Respondent characteristics

Overall, all respondents interviewed were heads of households in urban areas. 85.3% of the respondents surveyed were female while 14.7% were male. , In many cultural contexts, including in Somaliland, the head of a household is traditionally seen as the primary decision-maker and breadwinner. However, due to economic pressures, many men are compelled to seek employment opportunities outside their hometowns, often in other regions of Somaliland or abroad. This situation forces women to remain at home and manage household responsibilities. When immediate decisions are required, these women often assume the role of the head of the household. The study findings revealed that the majority of respondents were female, as they were typically present at home when data collection was conducted and interviews were conducted by enumerators. While this shift may initially appear as a limitation, it can be considered an advantage. The fact that approximately 65% of the enumerators were women facilitated more open and candid conversations, encouraging the women participants to share their insights. Furthermore, given that the study's subject matter specifically focused on the socio-economic positioning of women and other gender-related issues, it was essential to gather perspectives primarily from women, as they are the central focus of the research. . The majority (89.8%) of those interviewed were aged at least 26 years out of which 62.7% were aged between the ages of 26 and 45 years with those younger than 26 years composing 10.1% of those interviewed while those older than 45 years representing 27.1% of all those surveyed. A significant proportion (89.1%) confirmed that they were residents of where they had been interviewed with the Internally Displaced Persons (IDPs) accounting for 9.2% of all respondents with four out every five (82.9%) indicating they had lived in the area where they had been interviewed for 3 to 5 years (11%) or more than 5 years (71.9%).

Table 5: Respondent characteristics

	Sex		
	Male (n=242)	Female (n=1407)	Total (N=1649)
Age			
Less than 18 years	0.40%	1.10%	0.60%
18-25 years	13.50%	36.40%	19.20%
26-35 years	40.60%	27.30%	37.30%
36-45 years	30.50%	21.60%	28.20%
46-60 years	13.50%	10.20%	12.70%
61 and above	1.50%	3.40%	2.00%
Household head			
No	0.00%	0.00%	0.00%
Yes	100.00%	100.00%	100.00%
Residential status			
Resident	86.80%	93.20%	88.40%
Refugee	0.80%	0.00%	0.60%
Internally Displaced Person (IDP)	12.40%	6.80%	11.00%
Duration of stay			
Less than 6 months	4.10%	1.10%	3.40%
6 months to 1 year	6.00%	2.30%	5.10%
1 to 3 years	8.60%	9.10%	8.80%
3 to 5 years	12.40%	5.70%	10.70%
More than 5 years	68.80%	81.80%	72.00%

Characteristic of Household Structure

The respondents surveyed lived in either brick (30.1%) or stone (34.8%) houses with 24.9% indicating that their houses had been built by other materials that included iron or zinc shacks. The predominant material for these households was cement found in 40% of the surveyed households, tiles found in 29.8% of the households, and earth or sand found in 28.4% of the surveyed households. The housing structures had an average of 3 rooms excluding the kitchen, garage and storage with three quarters (75%) of the houses had between 2 to 4 rooms excluding the kitchen, garage, and storage housing an average of 7.5 members. Slightly more than half (57.3%) owned the houses they were living in having built them themselves with 28.4% stating that they had rented and were paying an average of USD 97.3 as monthly rent.

Table 6: Characteristic of household structure

	Sex		
	Male (n=242)	Female (n=1407)	Total (N=1649)
Type of house			
Brick house	34.2%	27.3%	32.5%
Stone house	31.6%	42.0%	34.2%
Concrete-stone house	3.4%	2.3%	3.1%
Mud	0.0%	0.0%	0.0%
Wood	1.1%	0.0%	0.8%
Others	29.7%	28.4%	29.4%
Predominant material of wall			
Earth/sand	28.6%	25.0%	27.7%
Cement	38.3%	47.7%	40.7%
Tiles	30.5%	26.1%	29.4%
Wooden floor	0.0%	0.0%	0.0%
Others	2.6%	1.1%	2.3%
Housing tenure status			
Rented	29.3%	20.5%	27.1%
Owned (built by themselves)	54.5%	70.5%	58.5%
Owned (bought)	3.0%	4.5%	3.4%
Owned (inherited)	7.1%	4.5%	6.5%
Other way?	6.0%	0.0%	4.5%

Socioeconomic characteristic of the respondent

Slightly more than half (50.8%) of respondents confirmed that they had not received any formal education. Those who did had either completed primary education (20.0%) or had completed secondary education (11.7%). Those who had tertiary education or higher accounted for 8.9% of the respondents with the rest (8.6%) indicating they had completed madrassa or koranic school only. Three quarters (75.4%) of the surveyed respondents were married. Regarding their source of income, the respondents stated they mainly rely on government or private employment (36.9%), private sector wages or salary (16.4%), or conducting family business (15.6%) as their main source of income. One in four (25.2%) mentioned that they relied on other sources such as remittances from other family members living abroad. Slightly more than half (54.8%) confirmed that they were employees in the places where they derived their main source of income with one in every five (21.5%) mentioning that they were self-employed and 13.8% mentioning being unemployed, potter, heading, soldiers among others.

Table 7: Socioeconomic characteristic of respondent

	Male (n=242)	Female (n=1407)	Total (N=1649)
Highest education completed			
No formal education	47.7%	39.8%	45.8%
Primary education	22.6%	26.1%	23.4%
Secondary education	13.2%	18.2%	14.4%
Tertiary Education (University/College)	10.5%	9.1%	10.2%
Post Graduate (Masters, MBA, PhD)	0.8%	1.1%	0.8%
Madrassa/Koranic school only	5.3%	5.7%	5.4%
Marital Status			
Married	87.2%	43.2%	76.3%
Divorced / separated	1.9%	9.1%	3.7%
Widow/Widower	1.5%	12.5%	4.2%
Never married/ Single	9.4%	35.2%	15.8%
Source of income			
Farming	1.9%	2.3%	2.0%
Fishing	1.9%	1.1%	1.7%
Pastoral / Livestock keeping	2.6%	2.3%	2.5%
Agro-pastoral	0.8%		0.6%
Family Business (other than agriculture)	15.0%	19.3%	16.1%
Employment (Government or private)	42.5%	36.4%	41.0%
Private sector wage or salary	7.5%	14.8%	9.3%
Other	27.8%	23.9%	26.8%
Job capacity			
Employer	2.6%	0.0%	2.0%
Self-employed	15.8%	31.8%	19.8%
Employee	63.2%	50.0%	59.9%
Unpaid family worker	1.5%	2.3%	1.7%
Household worker	4.1%	3.4%	4.0%
Other (Specify)	12.8%	12.5%	12.7%

Energy Source Used at Home

Electricity from interconnected grid or isolated system is the most commonly used source at home for 77.4% of the respondent households. This was predominantly observed among households in the Sahil and Maroodijex regions, where 93.7% and 92.5% of respondents, respectively, confirmed using electricity at home, primarily for lighting purposes. In contrast, households in Sool region had the lowest usage[25], with only 27.1% of respondents reporting electricity use at home. Additionally, most households across these regions rely on alternative fuels for cooking, reserving electricity mainly for lighting. This was followed by use of charcoal where 59.7% with majority of those using charcoal at home in Awdal (71.9%), Sahil (73.4%), and Togdheer (63.4%). The third most common energy source used at home was firewood used mostly in Sool (56.2%) and Togdheer (22.9%) regions. Other sources of energy used included dry cells batteries used by 13.3% of the respondents, mostly in Togdheer (17.6%) and Sahil (16.5%).

Table 8: Energy sources used at home

Energy sources used at home	Region						Total
	Awdal	Sanaag	Sool	Togdheer	Sahil	Maroodijex	
Electricity	83.9%	89.0%	27.1%	77.8%	93.7%	92.5%	77.4%
Charcoal	71.9%	47.2%	46.1%	63.4%	73.4%	59.4%	59.7%
Firewood	8.5%	7.0%	56.2%	22.9%	1.9%	1.6%	16.3%
Dry cell batteries	12.9%	8.4%	16.3%	17.6%	16.5%	10.4%	13.3%
LPG	7.6%	2.3%	1.9%	6.0%	13.9%	26.0%	9.5%
Kerosene	18.1%	2.0%	1.6%	1.8%	2.5%	7.1%	6.3%
Solar PV home system	9.9%	3.3%	7.0%	0.7%	0.6%	0.7%	4.1%
Other	1.5%	1.3%	9.3%	3.9%	1.3%	0.3%	2.9%
Coal	0.3%		0.4%			8.1%	1.6%
Car batteries	2.9%	0.3%	1.6%	1.4%	0.6%		1.2%
Electric generator set	2.1%	1.0%		0.4%	0.6%	1.3%	1.0%
Candle	0.3%	0.0%	0.8%		0.6%		0.2%
Crop residue	0.3%					0.3%	0.1%

	Male	Female	Total
Electricity from interconnected grid or isolated system	82.2%	76.6%	77.4%
Kerosene	5.8%	6.3%	6.2%
Candle	0.4%	0.2%	0.2%
Dry cell batteries	7.0%	14.4%	13.3%
Car batteries	0.4%	1.4%	1.2%
LPG	9.9%	9.5%	9.5%
Solar PV home system	4.1%	4.1%	4.1%
Firewood	11.6%	17.1%	16.3%
Animal dung	0.0%	0.0%	0.0%
Crop residue	0.4%	0.1%	0.1%
Electric generator set	0.4%	1.1%	1.0%
Charcoal	51.2%	61.2%	59.7%
Coal	0.0%	1.9%	1.6%
Other (specify)	2.1%	3.0%	2.9%

Follow-up discussions with Focus Group Discussion (FGD) respondents revealed that household energy usage across regions is shaped primarily by availability, economic factors, and social context, showing a reliance on both traditional and modern energy sources. Respondents in various FGDs, particularly from women in Sanaag, Awdal, and Marodijeex, noted the extensive use of charcoal and firewood, which are affordable and accessible for many lower-income households. This traditional energy use is complemented by the adoption of solar power, increasingly favored for lighting due to its minimal operating cost and accessibility in remote areas. Although electricity was noted to be present in some areas, affordability issues limit its widespread use.

Additionally, LPG gas was cited as a cooking fuel, but only among higher-income households. Findings indicated a strong dependency on resource affordability and local infrastructure, which significantly shape energy choices across households, with economically disadvantaged groups favoring lower-cost options like charcoal and firewood while urban and higher-income households lean toward electric and gas-based energy solutions.

[25] Due to limited access to larger towns in Sool region, such as Las Anood, primarily because of security and territorial disputes, data was collected from rural areas of the Sool region. As a result, the findings indicate that Sool has low electricity access.

Cooking Energy Types and Preferences: Accessibility and Affordability

FGD findings indicated that accessibility and affordability of cooking energy sources are primary factors influencing community choices across regions. Discussions mainly with women revealed that charcoal and firewood are widely preferred due to their low cost and availability, especially in rural and economically constrained areas. In regions such as Marodijeex, cooking energy preferences include charcoal and firewood due to limited access to more expensive options like LPG and electricity. However, where economic means allow, households occasionally opt for LPG and gas due to their efficiency and cleaner burning properties, especially noted in mixed-gender discussions within urbanized areas.

Lighting Energy Types and Preferences: Reliability and Cost Efficiency

The study also noted that communities favor lighting energy sources that are both reliable and affordable, with electricity and solar power being the most preferred in accessible areas. Interviews in Awdal and Marodijeex regions with community members and ESPs indicated a strong preference for grid electricity and small-scale solar systems where available, citing the consistency and versatility of these energy sources for various needs, including cooking, lighting, and powering appliances. However, in more remote or less affluent areas, torches and mobile phone lights were commonly used, often due to the high cost of electricity or lack of infrastructure. The findings highlighted a growing demand for low-cost, accessible lighting alternatives, especially for the economically disadvantaged regions.

Decision making on Energy issues within the household source used at home

Within the surveyed households, decision making on energy issues varied from household to household. For instance, decisions regarding energy-related purchases within the household were mainly made by the female members as indicated by 60.5% of the respondents. Decisions on how much money to spend on energy on a monthly basis was a preserve for the male members within the family as reported by 53.4% of the respondents. In 60.3% of the households, it was the opinion of the female members that had weight regarding new energy sources to be used within the household.

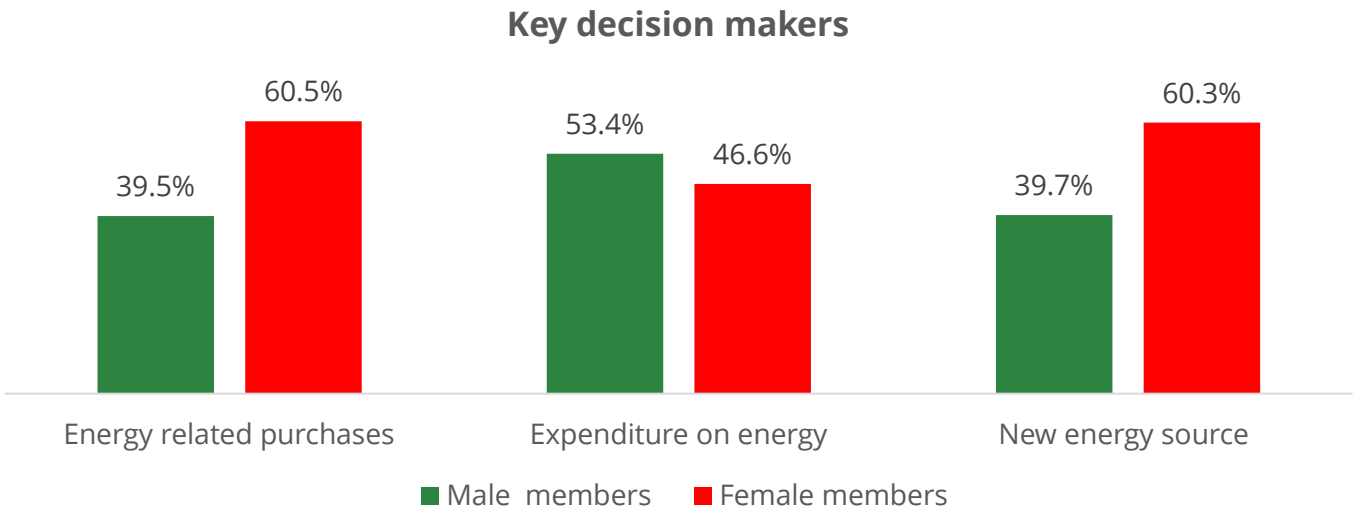


Figure 4: Key decision makers within the household

FGD with various men and women indicated that traditional gender roles strongly influence energy-related tasks and decision-making in the surveyed regions. Men predominantly manage technical tasks such as electricity installation, charcoal production, and meter reading, activities viewed as beyond women's traditional scope. Men are also often responsible for household energy expenses, maintaining control over the financial aspects. Women, on the other hand, were noted to be more involved in energy usage within the home, such as cooking, firewood gathering, and charcoal purchasing. Respondents noted that this separation is rooted in cultural beliefs, with men seen as suited for physically intensive and technical work, while women handle administrative or domestic responsibilities. Notably, some households, particularly in urban areas, demonstrated shared decision-making in energy-related purchases and expenditures, suggesting a gradual shift toward more inclusive discussions around energy needs.

Use and Non-Use of Electricity

Electricity connection at home

Four out of every five (84.0%) of the households in urban areas indicated that their respective homes had an electricity connection. The highest proportions of electricity connection was observed in urban areas of Maroodijex (98.4%), Sahil (95.6%) and Sanaag (92%) regions while lower connection found among urban households in Sool region where 50.8% confirmed connection within the household[26]. These findings are based on data from urban areas.

Table 9: Electricity connection at home in urban areas

		Awdal	Sanaag	Sool	Togdheer	Sahil	Maroodijex	Total
Overall (Urban Areas)	Yes	88.3%	92.0%	50.8%	78.9%	95.6%	98.4%	84.1%
	No	11.7%	8.0%	49.2%	21.1%	4.4%	1.6%	16.0%
Male headed (Urban Areas)	Yes	85.3%	93.6%	48.7%	84.4%	92.3%	97.6%	83.5%
	No	14.8%	6.4%	51.3%	15.6%	7.7%	2.4%	16.5%
Female headed (Urban Areas)	Yes	90.0%	91.2%	51.7%	76.1%	96.2%	98.7%	84.3%
	No	10.0%	8.8%	48.4%	23.9%	3.8%	1.3%	15.7%

When disaggregated by the gender of the household head, the data reveals slightly higher connectivity among female-headed households in urban areas at 84.3%, compared to 83.5% in male-headed households in urban areas. Conversely, a lower proportion of urban female-headed households, 15.7%, reported lacking an electricity connection, while 16.5% of male-headed households in urban areas indicated they did not have access. These findings suggest that female-headed households in the study may have slightly better access to electricity than their male-headed counterparts, although the difference is minimal.

Study findings also established that there are distinct disparities in electricity access and affordability between male-headed and female-headed households in urban areas. For example, while 42% of urban male-headed households cited not seeing any application of electricity as a major reason for lack of access, only 35.7% of female-headed households in urban areas viewed it as such, though a higher percentage (50%) of female-headed households saw it as "not a reason" at all. Notably, 50% of female-headed households in urban areas reported that lack of electricity availability was a major reason, compared to only 30% of male-headed households in urban areas. In terms of satisfaction with their current energy source, both male and female-headed households reported similar levels of satisfaction, with 48% and 50%, respectively, seeing it as "not a reason" for change. Financial barriers are more pronounced among female-headed households in urban areas; for example, 85.6% of female-headed households in urban areas indicated they could not afford connection fees, compared to 72% of male-headed households in urban areas, and similarly higher percentages of female-headed households were unable to afford monthly payments, wiring costs, and electrical equipment. These findings underscore the heightened financial challenges female-headed households in urban areas face in accessing and sustaining electricity connections compared to their male counterparts.

Table 10: Reasons for not having electricity connection in urban areas

		Not a reason	Minor reason	Major reason
We do not see any application of electricity	Male	36.00%	22.00%	42.00%
	Female	50.00%	14.30%	35.70%
Electricity is not available in my area	Male	42.00%	28.00%	30.00%
	Female	35.70%	14.30%	50.00%
We are satisfied with present energy source	Male	48.00%	14.00%	38.00%
	Female	50.00%	21.40%	28.60%
Our household afford the connection fee	Male	72.00%	16.00%	12.00%
	Female	85.60%	0.00%	14.30%
Our household can't pay the cost of house wiring	Male	72.00%	20.00%	8.00%
	Female	78.60%	7.10%	14.30%
Our household can't afford to buy electrical equipment	Male	74.00%	18.00%	8.00%
	Female	85.70%	0.00%	14.30%
Our household can't afford the monthly payment	Male	78.00%	16.00%	6.00%
	Female	85.70%	0.00%	14..3%

[26] Due to limited access to larger towns in Sool region, such as Las Anood, primarily because of security and territorial disputes, data was collected from rural areas of the Sool region. As a result, the findings indicate that Sool has low electricity access.

FGDs with the community members both men and women revealed that while there is a general presence of electricity connection in several regions, the availability and reliability of electricity vary significantly among communities, impacting daily life, economic activities, and education. The assessment established that in regions like Sanaag and Sahil, many households have access to electricity, although there is frequent reliance on alternative sources, such as solar torches, due to high costs and frequent blackouts. In areas such as Marodijeex and Togdheer, the findings indicated that with most households still depend on alternative energy sources like charcoal and firewood for essential tasks. Electricity usage, where available only supports critical functions such as lighting, appliance use, safety, business operations, and education. However, reliance on a limited number of electricity providers, as noted in the Sanaag region, creates a monopoly, posing further challenges in terms of costs and service quality for communities.

Use of Electricity from Interconnected Grid and Isolated System

The main reasons why households were connected to the electricity grid varied with nearly all (99.7%) in urban areas indicating that it was for the better lighting within their home. Slightly more than half (52.8%) in urban areas said that it was for the education of their children with 26.2% stating that it was for better safety outside the home. 19% said that it was for information and news.

Table 11: Reasons for Urban household connection to grid in urban areas

	Male HH	Female HH	Total
For better lighting within the home	99.50%	100.00%	99.70%
For better safety outside the home	26.40%	25.70%	26.20%
To improve income	5.60%	4.10%	5.20%
Because electricity is cheaper than other fuels	3.70%	1.40%	3.10%
For education of your children	51.90%	55.40%	52.80%
For information and/or the news	20.40%	14.90%	19.00%
For entertainment	15.70%	13.50%	15.20%

Connection to Metered Electricity

A significant proportion (89.1%) of the households connected to the electricity grid confirmed that they had an electric meter. This was the case for at least 86.3% of the households in all the regions under study with the exception of Awdal where 59.9% of the grid connected households have an electric meter. For the majority connected to the electric meter, only one household was connected to the electric meter at the same time. Similarly, 27.7% of those with electricity in their homes confirmed that they owned businesses with 77.9% of those owning businesses confirming that their respective businesses were connected to the grid electricity. Study findings also established that access to electric meters shows only a slight disparity between male- and female-headed households, with 86.5% of male-headed households and 90.2% of female-headed households reporting having an electric meter installed.

Table 12:Household connected to an electric meter in urban areas

		Awdal	Sanaag	Sool	Togdheer	Sahil	Maroodijex	Total
Overall (Urban Areas)	Yes	59.9%	98.6%	86.3%	97.3%	100.0%	99.3%	89.1%
	No	40.1%	1.5%	13.7%	2.7%	0.0%	0.7%	10.9%
Male-headed (Urban Areas)	Yes	55.8%	98.9%	83.8%	96.3%	100.0%	100.0%	86.5%
	No	44.2%	1.1%	16.2%	3.7%	0.0%	0.0%	13.5%
Female-headed (Urban Areas)	Yes	62.1%	98.4%	87.2%	97.9%	100.0%	99.1%	90.2%
	No	37.9%	1.6%	12.8%	2.1%	0.0%	0.9%	9.8%

Usage of electricity differed with those with a metered connection and knew how much they used, indicated that they were using an average of 35.92 KWh units per month paying an average of USD 25.9 per moths for the electricity they had used. When tasked to indicate how much they had paid for the installation of the electric meter, 18.1% said that they did not pay for the installation with 35.1% saying that they did not know how much the installation cost. Slightly less than half (46.7%) indicated that they knew how much the installation cost confirming that they had paid an average of USD 40.7 for the installation of the electric meter.

Purposes for Using Electricity

Electricity was mainly used for lighting in 99.6% of the households that had an electric connection with 36.9% mentioning that they were using electricity to power their electric appliances. Other uses included use in family business and cooking used by 6.9% and 4.3% of the households respectively. On average electricity use for lighting purposes averaged 9.3 hours, while use for powering electric appliances averaged 6.4 hours with 12.1 hours of electricity used for family business purposes.

Table 13: Purpose for using electricity and average hours of electricity use

Use type	Overall		Male-headed		Female-headed	
	Percentage	Avg. no. hours	Percentage	Avg.no. hours	Percentage	Avg. no. hours
Lighting	99.6%	9.3hrs	99.3%	9.9hrs	99.8%	9.1hrs
Cooking	4.3%	2.1hrs	3.4%	1.9hrs	4.6%	2.2hrs
Electric appliances	36.9%	6.4hrs	35.7%	7.7hrs	37.5%	6hrs
Family business	6.9%	12.1hrs	4.8%	13.9hrs	7.7%	11.6hrs
Farm irrigation	0.1%		0.0%		0.1%	
Other	0.5%	8.8hrs	0.5%	24hrs	0.5%	5.8hrs

Study findings also established that notable disparities exist in energy use across male- and female-headed households. Both groups prioritize lighting, with near-universal access (99.3% among male-headed and 99.8% among female-headed households). However, differences emerge in other areas: 35.7% of male-headed households use energy for electric appliances compared to only 37.5% of female-headed households. This gap suggests a disparity in access to or utilization of energy for domestic appliances. Additionally, energy use in family businesses is more prevalent among female-headed households (7.7%) than male-headed ones (4.8%), indicating a greater reliance on energy for entrepreneurial activities among women.

Electricity Supply during Dry and Rainy Season

Electricity supply differed by seasons. For instance, during the dry seasons 76.7% of the respondents said that electricity supply was normal as compared to 56.4% who mentioned that the supply was normal during rainy season. Irregular supply was more common during the rainy season than the dry season as reported by 36.8% and 18.9% respectively. However, the number of times when electricity has failed for more than 30 minutes was higher during the dry seasons where respondent confirmed it happened an average of 4 times compared to 3.8 times during the rainy season. Similarly, blackouts lasted longer during the dry seasons averaging 12.3 hours compared to only 7.7 hours during the rainy season.

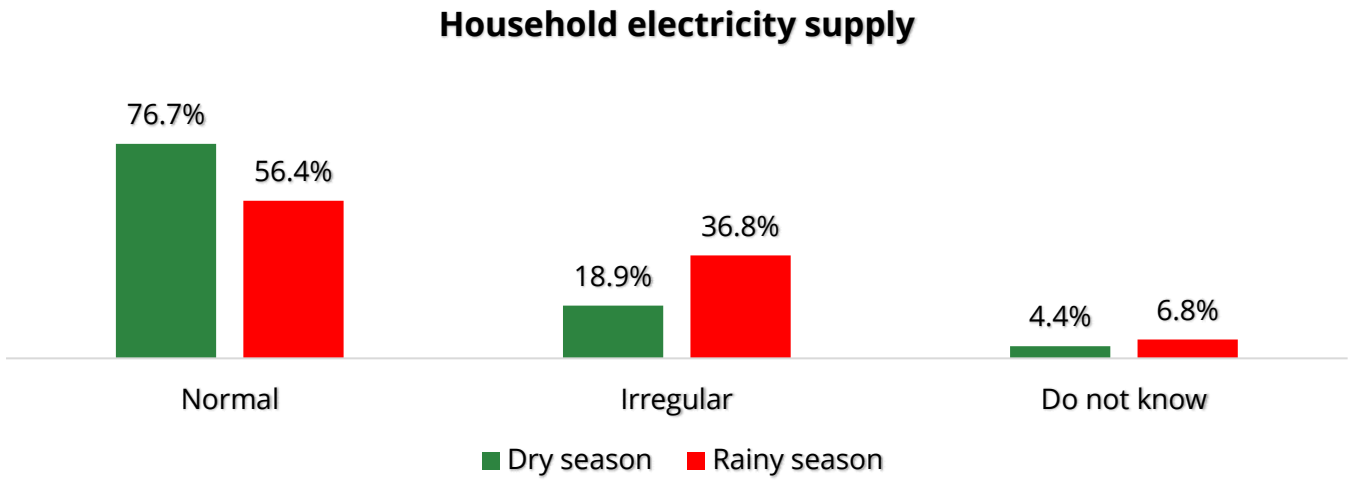


Figure 5: Household electricity supply

		Male	Female	Total
Normal	Dry Season	76.9%	73.0%	75.9%
	Rainy Season	56.5%	58.1%	56.9%
Irregular	Dry Season	20.4%	20.3%	20.3%
	Rainy Season	33.3%	35.1%	33.8%
Do not know	Dry Season	2.8%	6.8%	3.8%
	Rainy Season	10.2%	6.8%	9.3%

When asked what they normally used in case of power failure the majority mentioned that they mainly relied on dry cell batteries (26.7%) as well as other sources (70%) that included flash lights, mobile phone lights, solar torches, and telephone lighting.

FGDs with community members revealed that during power outages, communities across the surveyed regions often lack access to reliable, diverse backup energy sources, depending primarily on mobile phone lights and torches for lighting. The findings indicated that communities in areas like Sool and Togdheer often experience frequent blackouts, particularly during adverse weather, where reliance on low-cost, readily available backup methods is essential. Solar energy, though occasionally used, remained limited due to costs, and private generators are used sparingly, often restricted to business sectors. In Awdal and Sahil, some households have access to solar power, though the lack of widespread, affordable options emphasized a dependence on temporary and portable sources, revealing a gap in accessible, durable energy solutions for households and individual use in these areas.

Ownership of Plug-in Electric Appliances

Ownership of electric appliances varied with majority of the households owning washing machines (59.2%), electric iron (52.8%), refrigerator (33.1%), and fan (25.5%) with majority confirming they were only using one plug-in appliance devices. The most commonly used plug-in appliance was the refrigerator used for 13.2hrs in the last 24hrs, followed by fan used for 10.1hrs in the last 24hrs, and electric sewing machines used for an average of 5.3 hrs.

Table 14: Number of plug-in appliances

Plug-in appliances	Overall			Male-headed			Female-headed		
	%	Avg. no use	Avg hrs in 24 hrs.	%	Avg. no use	Avg hrs in 24 hrs.	%	Avg. no use	Avg hrs in 24 hrs.
Washing machine	59.2%	1.1	2.6 hrs	59.8%	1	2.8hrs	59.0%	1.1	2.6hrs
Electric iron	52.8%	1	1.6 hrs	58.3%	1	1.7hrs	50.5%	1	1.6hrs
Refrigerator	33.1%	1.1	13.2 hrs	35.7%	1.3	14.5hrs	32.0%	1.2	12.7hrs
Fan	25.5%	1.8	10.1 hrs	28.7%	1.8	8.7hrs	24.1%	1.8	10.9hrs
TV colour	24.5%	1.1	3.8 hrs	30.6%	1.02	3.8hrs	21.8%	1.1	3.7hrs
Others	14.9%	1	2.3 hrs	14%	37.1	3.7hrs	15.2%	14.6	1.9hrs
Microwave oven	7.0%	1	1.4 hrs	8.2%	1	1.2hrs	6.5%	1	0.7hrs
Radio	5.4%	1	3.1 hrs	5.5%	1.1	2.7hrs	5.4%	1	3.2hrs
Sound equipment	4.6%	1	2.3 hrs	3.6%	1.1	3hrs	5.1%	1	2.1hrs
Electric motors	2.7%	1.9	1.3 hrs	2.2%	0.7	2.7hrs	2.9%	12.9	6.6hrs
TV black and white	2.0%	1	3.7 hrs	1.5%	1	1.8hrs	2.2%	1	4.1hrs
Electric stove	1.6%	1.1	1.6 hrs	1.7%	1	1.4hrs	1.5%	1.1	1.7hrs
Domestic water pump	1.2%	1	1.75 hrs	2.4%	1	1.2hrs	0.6%	1	2.7hrs
Electrical sewing machine	0.5%	1	5.3 hrs	0.5%	0.5	6hrs	0.5%	0.8	5hrs
Recording video/DVD	0.1%	1.5	0 hrs	0.2%	1	0hrs	0.1%	2	0hrs
Electric saw	0.1%	1	6 hrs				0.1%	1	6hrs

Use of Kerosene

Kerosene in the household

In the 30 days before the survey, 7.1% of the respondents confirmed to have used kerosene. This was mostly among the respondents in Awdal region where 22.8% had used kerosene, followed by Maroodijex (8.1%). However, none of the respondents in Sahil region had ever used kerosene in the 30 days. Study findings also established that there are slight disparities in kerosene usage between male and female-headed households. Specifically, in the past month, 4.1% of male-headed households reported using kerosene, compared to 3.4% of female-headed households.

Those who had bought kerosene claimed that they had bought an average of 12.7 liters for monthly use purchasing at an average price of USD 3.1 per liter.

Kerosene use

In the households where kerosene was bought, 82.9% said that they had used it for cooking spending an average of 7.5 hours cooking with kerosene in the one-month period. 8.6% used it for lamp lighting, spending an average of 5.5 hours lighting in the last one month.

Table 15: Use of Kerosene

Use of Kerosene	Overall		Male-headed		Female-headed	
	Percentage	Average hours	Percentage	Average hours	Percentage	Average hours
Cooking	82.9%	7.5hrs	74.2%	3.1hrs	86.1%	8.8hrs
Lamp lighting	8.6%	5.5hrs	19.4%	6.6hrs	4.7%	3hrs
Other	6.8%	4.7hrs	9.7%	5hrs	5.8%	4.5hrs
To start firewood	6.0%	1.6hrs	6.5%	1.6hrs	5.8%	1.6hrs

FGD findings indicated that kerosene usage is increasingly uncommon across most regions, with usage largely confined to specific and often infrequent purposes. Interviews revealed that kerosene is rarely used in urban areas, with only occasional usage observed in rural settings, particularly for lighting and cleaning. This shift away from kerosene suggests a transition toward alternative energy sources or more cost-effective options, as seen with participants in both mixed and gender-specific FGDs across regions like Sool, Sahil, and Marodijeex. The minimal usage reported, especially in Marodijeex and Togdheer, highlighted that kerosene is now mainly reserved for niche applications such as cleaning, painting, and lighting in areas lacking access to alternative energy sources.

Use of Candles

Candles in the household

A small proportion (0.4%, n=7) used candles for lighting in the last one month. These households were using an average of a single candle for the past one month having spent USD 0.21 to buy each candle in the 30-day period before the survey. Study findings also established that there were notable disparities in the use of candles for lighting between male- and female-headed households. Among female-headed households, 2.3% reported using candles for lighting in the past month, compared to only 0.4% of male-headed households.

The candles were mainly bought for family business use (57.1%), for home use (28.6%), and during parties (14.3%) spending an average of 2 hours for each of the use with respondents spending an average of 5.5 hours in the last one-month period using candles for family business use.

Follow-up FGD held with the respondents indicated that candle usage within the community is generally rare with a shift towards alternative lighting sources. The discussions revealed that candles were traditionally used primarily as a backup during electricity outages. However, over recent years, mobile phones and other convenient sources have replaced them, reducing both the need and visibility of candles. In regions like Awdal and Marodijeex, there was occasional mention of candles being used for celebrations, though such events are now sporadic, and candles are rarely incorporated. The study noted that among the few communities where candles remain, their role is minimal, and pricing information was scarce, as most respondents lacked familiarity with current market rates.

Use of Dry Cell Batteries

Dry cell uses in the Household

In the one-month period before the survey, 26.7% of the respondents said that they had used dry cel batteries in their homes. Study findings also established that there were notable disparities in the use of dry cell batteries between male- and female-headed households. Specifically, 22.6% of male-headed households reported using dry cell batteries in the past month, compared to only 13.6% of female-headed households.

This was mostly in the region of Awdal where 48.3% had used dry cell batteries as well as in the region of Sool where 27.1% had used dry cell batteries. One out of every five (20.5%) had used large size D and Size C dry cell batteries using an average of 6 large size D dry cell batteries in a typical month, spending an average of USD 1.5 to each of the Large (Size D and C batteries. Conversely, 80.7% of those who had used dry cell batteries confirmed that they had bought small (size AA and AAA) using an average of 11 small size AA or AAA batteries in a typical month. Each of the small AA or AAA batteries were bought at an average of USD 1.3 each.

The study highlighted the essential role of dry cell batteries in lighting and powering everyday electronic devices across communities. Findings from diverse FGD participants revealed that dry cell batteries are most commonly used in torches and radios, particularly in households with limited access to alternative energy sources, where they provide a practical solution for portable lighting and communication needs. Additionally, in most communities, batteries are used in remote controls and occasionally for specialized tools such as microphones and cameras. However, some variations emerged, particularly in Togdheer, where male FGD respondents noted that battery usage is less common and even declining for more niche applications.

Purpose of use of Dry cell

Nearly all (96.8%) of those who had used dry cell batteries mentioned that they were using the dry cell batteries for their flashlights. Those who used flashlights had used the flashlights for 4.5 hours. Other uses for dry cells was in clocks, radios and other purposes like remotes as indicated by 2.1%, 6.1% and 2.5% respectively who claimed to have used them for 24 hours, 2.8 hours and 5.9 hours correspondingly.

Table 16: Use of dry cell batteries

	Male	Female	Total	Average hours
Radio	9.0%	5.6%	6.1%	2.8 hrs.
Clock	1.5%	2.1%	2.0%	24 hrs.
Flashlight	94.0%	97.3%	96.8%	4.5hrs
Others	4.5%	2.1%	2.5%	5.9hrs

Use of LPG

Use of LPG at home

There was limited use of LPG at the various homes as 14.1% of the respondents mentioned that they had used LPG at home. This was mostly among the respondents from Maroodijex (36.0%), Sahil (15.3%) and Awdal (10.2%) regions. Study findings also established that there are notable disparities in the use of LPG between male-headed and female-headed households. Specifically, within the past month, 14.4% of male-headed households reported using LPG at home, compared to only 10.2% of female-headed households.

FGDs revealed that LPG usage varies significantly across different regions, with notable limitations in several communities. For instance, while some areas reported LPG as a common cooking method due to its efficiency and environmental benefits, others, particularly in the Sool regions, indicated a minimal usage of LPG, relying instead on traditional fuels like charcoal. Interviews revealed that this disparity often stems from economic factors, cultural preferences, and limited accessibility to LPG. Overall, the study established that many households' resort to LPG only as a secondary option, primarily when quicker cooking methods are required.

The majority of those who had gas cylinders at home mainly had 13kg cylinders owned by 60.2% bought at an average price of USD 18.7 and usually lasted an average of 23.5 days. Slightly more than one third (37.2%) had the 6kg cylinder bought at an average price of USD 18.5 and usually lasted 23.5 days. A few respondents (3%) used varied Kg of cylinder ranging from 11kg, 14kg, 15kg, or 20kg bought at varying averaging USD 20.3 and lasting an average of 25.8 days a month.

FGDs with both men and women noted that economic constraints significantly influence the availability and accessibility of LPG in various communities. Interviews revealed a wide range of prices for LPG cylinders, with costs ranging from $10 to $46 depending on size and supplier, making it less affordable for many households, particularly in Awdal and Togdheer regions.

The findings indicated that although LPG is perceived as a faster and cleaner cooking alternative, the initial investment required for purchasing a cylinder and ongoing costs deter many families from adopting it as their primary fuel source. Consequently, the assessment established that price sensitivity plays a critical role in determining LPG usage, with many opting for more affordable options despite the benefits of LPG.

Table 17: Gas cylinder used at home

Gas cylinder/tank does used at home	Overall			Male-headed			Female headed		
	Percentage	Price	No of days	Percentage	Price	No of days	Percentage	Price	No of days
13 Kg Cylinder	60.2%	18.7	23.5	66.3%	17.8	22.6	57.0%	19.2	23.6
6 kg Cylinder	37.2%	18.5	21.7	27.5%	14.7	22.2	42.4%	15.8	20.5
Other specify size in Kg of cylinder	3.0%	20.3	25.8	7.5%	14.7	21.2	0.7%	35	31

Purposes of using LPG at home

Nearly all (97.8%) of those who had LPG gas at home said that they were using it for cooking for an average of 1 hour. This was followed by 2.2% who were using it for lamp lighting using it for an average of 11 hours per day. 1.7% used it for appliances using LPG gas cylinder for an average of 1.3hrs.

Table 18: Purpose for using LPG

	Male	Female	Total	Average hours
Lamp lighting	0.0%	2.7%	2.2%	1 hr.
Cooking	97.7%	97.9%	97.8%	11 hrs.
Appliances	2.3%	1.6%	1.7%	1.3 hrs.
Other	2.3%	0.0%	0.4%	1 hr.

Ownership and Use of Gas Appliances

When asked the kind of gas appliances they owned, 80.5% owned LPG stoves, 8.2% owned LPG stove and oven with 3.9% owning gas lamps. 10.4% of those who had LPG gas cylinders at home owned other gas appliances that included other cooking appliances for cooking food. Those who owned the various gas appliances had only one gas appliance at the time of the survey. Those who had LPG stove used them on average 3.3 hours within 24 hours before the survey had used it on average 25.6 days in the previous month before the survey. Those who were using other cooking appliances had an average 1.1 having used it for an average of 2.9 hours in the last 24hrs before the survey having used it for 21.4 days in the previous month before the survey. Owners of LPG stove and oven used it for an average of 3 hours in the last 24 hours before the survey having used it on average for 19.1 days in the previous month before the survey.

Table 19: Type of gas appliance

Overall	Percentage	Avg, no of appliances	Hours used in the last 24	days used in the last month
LPG stove	80.5%	1.1	3.3	25.6
Other	10.4%	1.1	2.9	21.4
LPG stove and oven	8.2%	1	3.5	19.1
Gas lamp	3.9%	1.1	3	3.1
Refrigerator	1.7%	1	11.3	23.3
Freezer	0.4%	1	8	2
Male-headed households				
LPG stove	82.5%	1	3.7	25.8
Other	5.0%	1	3.3	28.9
LPG stove and oven	15.0%	1.1	4.3	21.3
Gas lamp	2.5%	1	2.5	2.5
Refrigerator	0.0%			
Freezer	0.0%			
Female-Headed households				
LPG stove	79.5%	1.3	3.1	25.5
Other	13.3%	1.2	2.9	19.9
LPG stove and oven	4.6%	1	4.4	15.4
Gas lamp	4.6%	1.1	3.1	3.3
Refrigerator	2.7%	1	8.8	23.3
Freezer	0.7%	1	8	2

Barriers to LPG Adoption

The findings revealed that socioeconomic barriers significantly hinder the widespread adoption of LPG within communities. Interviews highlighted that, in regions such as Awdal and Marodijeex, LPG is often seen as a luxury due to the high initial costs associated with purchasing cylinders and the ongoing expense of refills. Many respondents mentioned that LPG is primarily utilized by wealthier households, while the majority continue to rely on traditional methods, such as charcoal and firewood, due to their affordability. This socioeconomic divide suggests that while there is an awareness of LPG's advantages, economic limitations and cultural practices impede its broader acceptance and use, ultimately reinforcing existing energy inequities within these communities.

Perception of LPG Safety and Environmental Impact

The assessment established that perceptions of LPG's environmental benefits play a role in its acceptance among certain groups. Interviews with local authorities and ESPs indicated that, particularly in regions like Awdal, participants acknowledged LPG as a more environmentally friendly alternative to traditional fuels. However, safety concerns were also prominent, with several respondents expressing apprehension about handling and storing LPG, particularly in areas with limited awareness and safety protocols. The study noted that while there is an understanding of LPG's advantages in reducing smoke and improving cooking efficiency, fears regarding safety and a lack of proper education on usage deter some community members from fully embracing it.

Availability of LPG Supply Channels

FGD findings indicated that the availability of LPG is closely linked to the efficiency of supply channels and distribution networks in different regions. Interviews highlighted a contrast in accessibility, with some areas reporting a stable supply from various local companies, while others faced significant challenges in obtaining LPG due to geographic isolation or limited supplier presence. The study noted that while urban centers may have more consistent access to LPG, rural communities often struggle with sporadic availability, leading to reliance on less efficient fuels.

Use of Solar PV Home system

Installation and Management of PV home system

A small proportion (4.7%, n=77) confirmed that in the one month before the survey, they had used a PV home system (SHS) to provide electricity at their respective home. This was mostly among the respondents from Awdal region where 11.7% of the respondents had used a PV home system to provide electricity. Study findings also established that there are notable gender disparities in the use of solar PV home systems between male- and female-headed households. Specifically, only 4.5% of female-headed households reported using a solar PV system in the past month, compared to 5% of male-headed households.

Table 20: Use of solar PV system to provide system to provide electricity

		Awdal	Sanaag	Sool	Togdheer	Sahil	Maroodijex	Total
Overall	Yes	11.7%	4.0%	5.4%	0.7%	1.3%	2.3%	4.7%
	No	88.3%	96.0%	94.6%	99.3%	98.7%	97.7%	95.3%
Male-headed	Yes	11.5%	1.1%	7.9%	0.0%	3.9%	3.6%	5.0%
	No	88.5%	98.9%	92.1%	100.0%	96.2%	96.4%	95.0%
Female-headed	Yes	11.8%	5.4%	4.4%	1.1%	0.8%	1.8%	4.5%
	No	88.2%	94.6%	95.6%	98.9%	99.2%	98.2%	95.5%

Those who had installed Solar PV home systems said that they paid an average of USD 351.1 for the system inclusive of all the components. Four out of every five (80.5%) of those who had installed the PV system clarified that they had installed the system between January 2020 and January 2024. Those who had installed the Solar PV homes system were spending an average of USD 36.1 on repairs or maintenance of solar PV home systems in the 12-month period of the survey. The majority of the installed PV homes systems had an average of 380 Wp.

Installation and management of PV home system

The PV system was used for various purposes with 97.4% saying they used PV system for lighting purposes for an average of 7.5 hours per month. PV system was also used to power appliances as reported by 26% who used it for an average of 6.2 hours per month. Other uses included cooking (5.2%) and home business (7.8%) with total monthly use averaging 4.3hrs and 11.2hrs per month respectively.

Table 21: Purposes for use of PV system

	Overall		Male-headed		Female- headed	
	Yes	Avg. hrs monthly for activity	Yes	Avg. hrs monthly for activity	Yes	Avg. hrs monthly for activity
Lighting	97.4%	7.5hrs	100.0%	9.1hrs	96.2%	6.7hrs
Cooking	5.2%	4.3hrs			7.7%	4.3hrs
Appliances	26.0%	6.2hrs	20.0%	2.5hrs	28.9%	7hrs
Home business	7.8%	11.2hrs	8.0%	7.5hrs	7.7%	13.7hrs

The respondents were asked about the various electric appliances which were powered by electricity from the solar PV system. The largest proportion (77.9%) said that the electricity from the solar PV system was used for charging mobile phones, powering the air conditioner, home lighting, powering other small electronic accessories within the house. They on average owned 1.3 appliances and had used 4.7 hours for this purpose. 19.5% said the electricity from the PV system was used for the radios and had used the PV electricity for 2.3 hours in the last 24hrs.

Table 22: Electronic appliances powered by PV solar system

	Overall			Male-headed			Female-headed		
	Percentage	Avg. no. of appliances	Avg hours used in last 24hr period	Percentage	Avg. no. of appliances	Avg hours used in last 24hr period	Percentage	Avg. no. of appliances	Avg hours used in last 24hr period
Others	77.9%	1.3	4.7	80.0%	1.2	4.6	76.9%	1.3	4.7
Radio	19.5%	1.2	2.3	20.0%	1.4	3.4	19.2%	1.1	4
Sound equipment	5.2%	1.3	1.8	4.0%	1	2	5.8%	1.3	1.7
TV	2.6%	1.5	2.5	4.0%	2	4	1.9%	1	1
Video recorder	2.6%	1	2	4.0%	1	0	1.9%	1	4

The assessment established through FGDs that solar PV adoption is notably limited in urban areas, primarily due to high installation costs and a lack of awareness or availability. Participants from various FGDs highlighted that while a few households are utilizing solar systems, this is mostly confined to basic lighting needs rather than powering larger appliances. The findings revealed that urban settings, such as Hargeisa, view solar systems as uncommon, with most users either being part of the diaspora or residing in rural areas where solar is more prevalent. Conversely, solar energy systems are increasingly embraced in rural communities, where respondents noted their primary use for lighting and charging mobile devices. This shift is largely driven by the absence of reliable electricity infrastructure and the need for solutions to frequent blackouts and high energy costs. In these contexts, solar technology also serves critical functions, such as irrigation and borehole water pumping, as an alternative energy source.

The study also noted that the high cost of solar installation significantly hinders wider adoption among households, especially in regions where electricity options exist. Many FGD respondents expressed a desire to transition to solar energy but cited financial constraints as a major barrier. Additionally, the findings indicated a growing awareness and acceptance of solar PV technology, particularly in response to rising electricity costs, with participants noting that solar serves as a cost-effective alternative for lighting and small appliances.

Use of Electric Generator Set

In the one-month period before the survey, 5 respondents (0.3%) mentioned that they had used an electric generator set to provide electricity to their respective homes. The study findings also established that there is a notable disparity in the use of electric generator sets between male and female-headed households. Specifically, only 0.4% of male-headed households reported using an electric generator in the past month, whereas no female-headed households (0.0%) indicated similar usage.

All of those who had used the generator set confirmed that they owned the respective generator set that they were using. When asked how much they had paid for the generator sets, the respondents had paid varied total amounts of USD180, USD 290, USD 470, USD 1,250 and USD 1, 800 paid in cash for the electric generator set including all the components. The generator sets had been acquired between January 2018 and January 2024.

Three out of the five generators used diesel fuel, while the rest (two out of five) used petrol as fuel. Those using diesel as fuel used an average of 434.3 liters to generate electricity for a whole month purchasing a liter of diesel at an average price of USD 1.3. Those using petrol as fuel used an average of 95.5 liters to generate electricity for whole month purchasing a liter of petrol at an average price of USD 1.48.

Only one out of the five confirmed that they had incurred expenses in the maintenance and repair of the generator set stating that the household spent USD 340 for repairs and/or maintenance of electric generator set. The use of the electric generator set was mainly for lamp lighting (3 out of 5) and home business (3 out of 5) with the monthly time used averaging 12.7 hours per month for lamp lighting and an average of 13.7 hours for home business.

The electric appliances that were being powered by the electric generator set were mainly TVs used by 3 out of 5, and radios used by 1 out of 5. In the 24-hour period before the survey, the electric generator set was used to power the tv and the radio for an average total of 2.7 and 2 hours respectively.

Follow-up interviews with FGD respondents revealed that the usage of electric generators varies significantly across regions, with many communities experiencing limited access and reliance on alternative power sources. The findings revealed that in urban areas, generators are primarily utilized by businesses as backups during electricity outages, while in rural areas, they are sometimes shared among multiple households for specific purposes, such as water pumping and lighting during community events. Many participants, particularly in IDP camps, indicated that households rarely own generators and instead may rent electrical machines for events like weddings and funerals.

The study also noted that cultural practices and gender dynamics also influence the perception and usage of electric generators within communities. Responses indicated that while everyday use for lighting is uncommon, generators serve significant social functions during funerals and weddings, highlighting their role in community identity. Moreover, gender dynamics play a role in the perceived utility of generators, with female participants often reflecting a lack of access and knowledge compared to their male counterparts.

Use of Firewood

Use of Firewood at homes

In the one-month period before the survey, 19.6% of the households confirmed that they had used firewood at their respective homes. Study findings also established that there are significant disparities in the use of firewood between male- and female-headed households. Specifically, the data revealed that 20.7% of male-headed households reported using firewood in the past month, compared to only 14.8% of female-headed households.

Use of firewood was mostly among respondents from Sool and Togdheer regions where 56.2% and 29.6% confirmed that they were using firewood at home. In the households using firewood, 71.2% indicated that they had gathered or collected the wood they were using at home, 19.2% mentioned that they had bought wood with the remaining 9.3% indicating that they had purchased or collected the wood.

Table 23: Use of firewood at home

	Awdal	Sanaag	Sool	Togdheer	Sahil	Maroodijex	Total
Yes	17.0%	7.4%	56.2%	29.6%	5.1%	2.0%	19.6%
No	83.0%	92.6%	43.8%	70.4%	94.9%	98.1%	80.4%

	Male	Female	Total
Yes	20.7%	14.8%	19.6%
No	79.3%	85.2%	80.4%
Total	100.0%	100.0%	100.0%

Purchase of Firewood

For those who had bought firewood, a bundle went for an average price of USD 4.4 and each bundle of firewood bought was expected to last an average of 5 days. In order to be able to purchase wood, the respondents confirmed that they had to travel an average distance of 179.3 meters taking one-way. The adult male who went to purchase firewood took an average one-way travel time of 5.5 minutes, the adult female taking an average of 14.6 minutes, and the boys or girls taking an average of 12.6 minutes travelling one-way to make the purchase of firewood.

Slightly more than half (53.2%) of those who had bought firewood considered the supply of firewood to be very reliable with one out of every three (33.8%) stating that they thought the supply of firewood was fairly reliable while 12.9% believed that the supply of firewood was unreliable.

Regarding variations in the cost of firewood purchased, 38.7% mentioned that they had not seen any variations in costs. However, 61.3% mentioned that there had been a lot (48.4%) or little variation (12.9%) on the cost of purchased wood.

Collection of Firewood

In the one month preceding the survey, household that collected wood mentioned that their respective households had collected firewood an average of 9.3 times. Those who had collected firewood mentioned that they were mainly collecting the firewood from the forests (65.6%), collecting it from the farm (5.2%) or that they had collected firewood from other sources (29.1%) that included around their respective neighborhoods, mountains, valleys or from the trees that grew near their respective households. All the collected wood lasted an average of 8.7 days.

All those who collected firewood confirmed that they had travelled an average distance of 1,049.6 meters to collect the last batch of firewood they had collected. The adult male who went to collect wood took an average of Those who had collected wood indicated that they had spent an average of 40 hours per week collecting firewood, adult female took an average of 26.7 hours per week collecting firewood, boys took an average of 11 hours a week, with the girls taking an average of 10.4 hours per week collecting firewood.

Gender Roles in Firewood Collection

FGD findings indicated that firewood remains a prevalent source of energy across various communities, particularly for cooking, with its usage being more common among small hotels and during major events. Interviews revealed a distinct gender-based division of labor in firewood collection, where men primarily gather firewood for commercial sale, while women and children collect it for household use. This gendered practice reflects traditional roles and cultural norms, highlighting the economic factors that influence firewood reliance, especially in poorer households. Furthermore, the study noted that firewood carries significant cultural value, with many participants expressing a deep-rooted connection to it as a longstanding tradition. This attachment underscores firewood's role not just as an energy source but as an integral part of social gatherings and culinary practices in the regions surveyed.

Health and Environmental Impacts of Firewood Usage

The assessment revealed significant health and environmental risks associated with using firewood as a primary cooking fuel. Findings from key informant interviews with respondents highlighted that prolonged exposure to smoke from firewood leads to various health issues, particularly respiratory problems such as asthma, chronic bronchitis, and other lung conditions. Additionally, respondents noted that smoke exposure causes eye irritation, which can lead to long-term eye health issues and an increased risk of respiratory infections.

The assessment also denoted environmental concerns tied to traditional cooking practices reliant on firewood. Firewood harvesting contributes to deforestation, resulting in soil degradation, reduced biodiversity, and heightened vulnerability to climate change. This environmental degradation often requires households, particularly women and children, to spend extended hours collecting firewood.

Despite the accessibility and affordability of firewood, these findings underscore the pressing need to consider cleaner, more sustainable energy alternatives. The reliance on firewood, especially among low-income families, emphasizes the importance of policy interventions that promote access to safer, eco-friendly cooking fuels, aiming to mitigate health risks and reduce environmental impact.

Use of Charcoal

Use of Charcoal at Home

In the one-month period before the survey, 79.4% of the respondents confirmed that they had used charcoal at home. This was mostly among the respondents from Sanaag, Sahil, and Awdal regions where 95%, 93% and 91.5% of the respondents respectively had used charcoal in the one month before the survey.

Study findings also established that there are notable disparities in the use of charcoal at home based on the gender of the household head. Specifically, 79.7% of male-headed households reported using charcoal within the past month, compared to 73.9% of female-headed households.

Table 24: Use of charcoal at home

		Awdal	Sanaag	Sool	Togdheer	Sahil	Maroodijex	Total
Overall	Yes	91.5%	95.0%	48.8%	78.2%	93.0%	70.5%	79.4%
	No	8.5%	5.0%	51.2%	21.8%	7.0%	29.6%	20.6%
Male-headed	Yes	89.3%	96.8%	55.3%	79.2%	88.5%	69.9%	80.3%
	No	10.7%	3.2%	44.7%	20.8%	11.5%	30.1%	19.7%
Female-headed	Yes	92.7%	94.2%	46.2%	77.7%	93.9%	70.7%	79.0%
	No	7.3%	5.9%	53.9%	22.3%	6.1%	29.3%	21.0%

Those who had bought charcoal stated that the cost of a 2kg container of charcoal averaged USD 2.6. On average, a 2kg container of charcoal was expected to only last 1.9 days a month. Those who purchased charcoal indicated that they had to travel an average distance of 209.3 meters in order to purchase charcoal. The adult male who purchased charcoal indicated that they had to travel an average of 13.5 minutes one-way to purchase charcoal, adult females had to travel an average of 16.5 minutes one-way to purchase charcoal, while the boys or goals travel an average of 13.2 minutes one-way to purchase charcoal.

FGD with community members revealed that charcoal remains a predominant source of cooking fuel across the surveyed regions, with participants consistently highlighting its extensive usage in both households and businesses. Despite the introduction of alternative energy sources such as LPG, many communities continue to rely heavily on charcoal due to its affordability and availability. It is particularly favored for preparing traditional dishes that require longer cooking times, underscoring its entrenched role in daily life.

However, the study noted significant variability in charcoal pricing across different regions, influenced by local market dynamics. Factors such as the type of tree used for charcoal production, bag sizes, and geographical location play crucial roles in determining prices. For example, while larger bags in Marodijeex are priced between $15 and $17, Togdheer participants reported even higher prices reaching 120,000 Somaliland shillings (about less than $14). This economic variability impacts access, with many participants highlighting that a significant portion of the population finds charcoal increasingly unaffordable, especially as prices fluctuate with market conditions.

Supply of Charcoal

Regarding the supply of charcoal, 55.5% believed that the supply was very reliable, while 30% believed that the charcoal supply was reliable. However, 14.4% believed the supply of charcoal to be unreliable. When asked about any variation in the cost of charcoal, slightly less than half (47.6%) acknowledged that they had not observed any variation in costs, 39.2% had seen a lot of variations with 13.2% stating that there was a little variation in the cost of charcoal.

Seasonal Variations, Cultural Significance, and Environmental Impact of Charcoal Use

Focus group discussions (FGDs) highlighted the significant influence of seasonal variations on the availability and pricing of charcoal in Somaliland, with notable implications for household energy consumption. Female participants from regions such as Sool and Togdheer reported that during the rainy season, charcoal becomes scarce, leading to increased prices and procurement difficulties. This seasonal dependency underscores the need for sustainable alternative energy sources, as reliance on charcoal not only impacts household expenses but also contributes to environmental degradation, particularly deforestation, which intensifies during periods of high demand in the dry season.

Charcoal use is deeply embedded in the cultural practices of many Somaliland communities, particularly in traditional cooking methods that enhance the flavor and texture of local dishes. This cultural attachment to charcoal presents challenges for energy transition efforts, as charcoal use is closely tied to culinary traditions and household identities. Furthermore, the findings indicate that energy choices reflect socio-economic disparities; wealthier households are better positioned to afford high-quality charcoal, while lower-income households often struggle to secure affordable fuel.

The seasonal availability and pricing of charcoal, therefore, not only influence household energy budgets but also deepen social inequalities in energy access and affordability.

Use of Cooking Stove and Cooking

Main stove used for cooking meals

The main type of stove used by the household to cook all meals varied with 34.6% mentioning that they were using an improved cookstove to prepare their meals. This was followed by use of open fire to cook meals (17.9%) and use of traditional stoves with no chimney to cook meals (14%). However, 15% mentioned using other types of stoves to cook meals which included LPG stoves and charcoal burners or were not using any stoves to cook their meals.

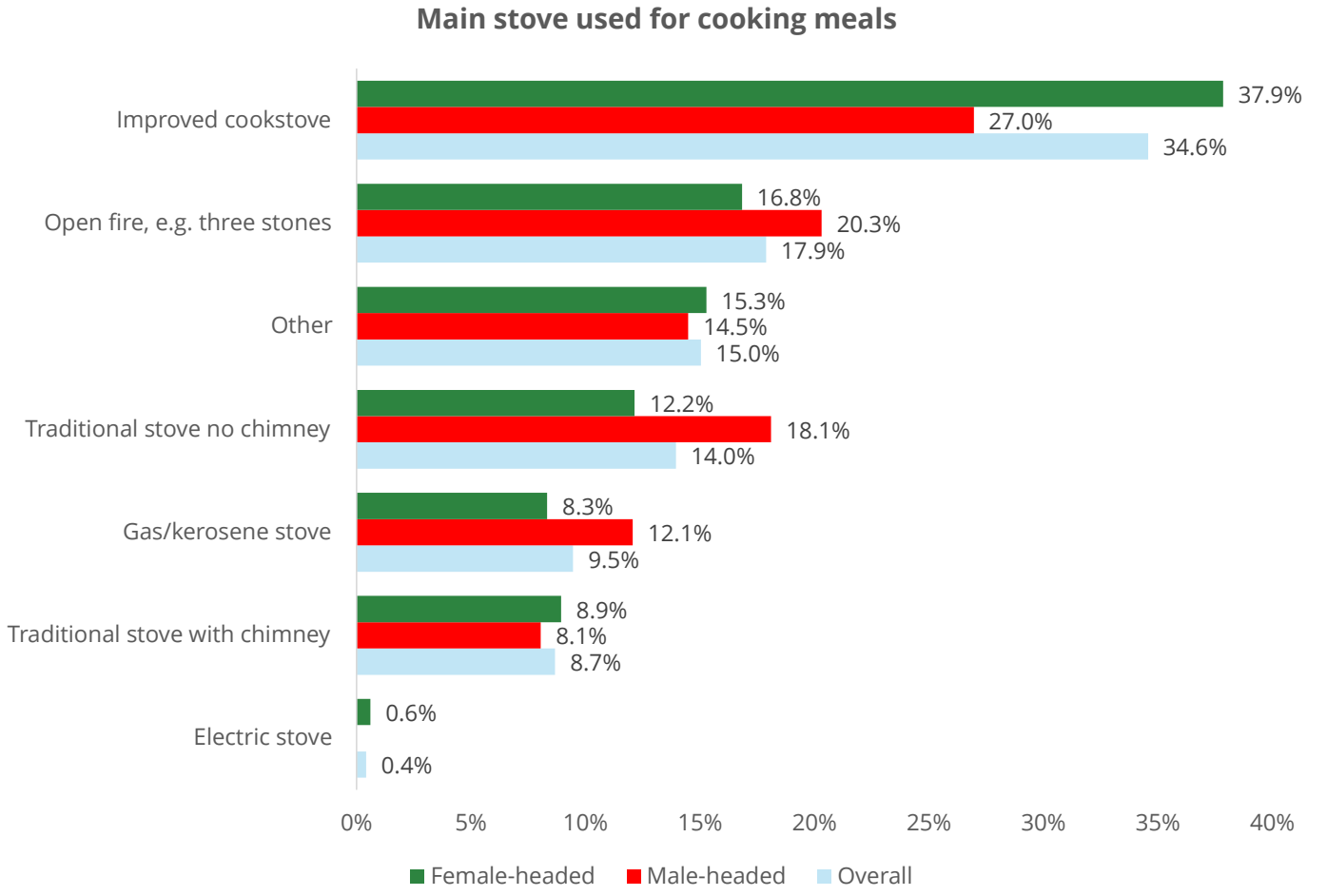


Figure 6: Main stove used for cooking household meals

Study findings also established significant disparities in cooking stove usage between male and female-headed households. The data reveals that female-headed households are more likely to use open fire methods, with 19.3% opting for three-stone stoves compared to 16.5% of male-headed households. In contrast, traditional stoves without chimneys are favored by 19.5% of male-headed households, while only 9.1% of female-headed households reported using this method. Interestingly, both genders show similar usage rates for traditional stoves with chimneys at 6.8%. However, improved cookstoves are more prevalent in female-headed households, with 38.6% utilizing them compared to 32.3% of male-headed households. Gas or kerosene stoves are less common overall, with only 4.5% of female-headed households using them compared to 9.8% of their male counterparts. These findings highlight the need to address gender-specific barriers and preferences in energy use, as well as the implications for access to cleaner and more efficient cooking technologies.

The stoves were either located in a separate kitchen (78.3%), outdoors (12.5%) or in a semi-enclosed area within the house (7.9%). Majority of these stoves were using charcoal (72.4%), firewood (13.2%), or LPG (7.1%) as the main source of energy. When asked if the stoves used any other kind of fuels, 57.1% said they were using charcoal as an alternative to the fuel they were using, 11.6% said they were using firewood as an alternative with 23.4% mentioning that they did not use any other kind of fuels on their stoves.

It was the adult female and girls who bore the major responsibility of tending to the stoves in the various households as indicated by 77.5% of the respondents who mentioned that it was the adult female as compared to 21.5% who mentioned girls. Those who tended to the stoves cooked an average of 3 meals per day.

Use of Improved Cookstove

Those who were using improved cookstove mentioned that they were using the 'Jikokawe' type of improved cookstove. When asked where they had heard about the improved cookstove, majority mentioned that they had received information regarding the improved cookstove from the market, their neighbors, the television or from their family members. Most of the purchases of the improved cookstove was from the local markets.

Those who were not using improved cookstove highlighted that it was because the cookstove was too expensive (68.1%), did not know what an improved cookstove was (8.5%), had no idea where to buy it (5.5%), or had cultural beliefs (4.5%) that prevented them from using improved cookstoves.

Use of Mobile Phones

Nearly all (98.7%) of the households surveyed confirmed they own a mobile phone. The number of phones owned per household averaged 3.3 phones with 80% of the households owning between 1 and 4 phones at the time of the survey. Those who owned phones clarified that they mainly charged their phones at home (85.4%), at their neighbor's house (7.7%) or in other locations (6.9%). The assessment findings also established that there are notable disparities in mobile phone ownership between male and female-headed households. Specifically, 99.2% of male-headed households reported owning a mobile phone, compared to 97.7% of female-headed households.

When asked to indicate the source of energy they used to charge their mobile phones, 91.1% stated that they used grid electricity, 5% said that they used the Solar PV home system with the rest mentioning electric generator (1.7%), dry cell batteries (0.9%) among other energy sources (1%).

Household Participation in Energy Issues

Slightly more than one third (35%) of the respondents confirmed that within their household, they were discussing energy issues and how to plan for energy. This was mostly among female headed households where 35.4% of female headed household compared to 34% of the male headed households confirmed conducting such discussions. Those who held discussion mentioned that they focused on cost minimization, budgets, how to source for various energy sources, and the electricity bills among other issues.

When asked how often such discussions took place, 53.2% said that it was monthly with 17.5% saying that the discussion was weekly with 14.6% indicating they discussed on a daily basis. 10.4% said the discussion occurred rarely with 4.3% mentioning that the discussions are semi-annually.

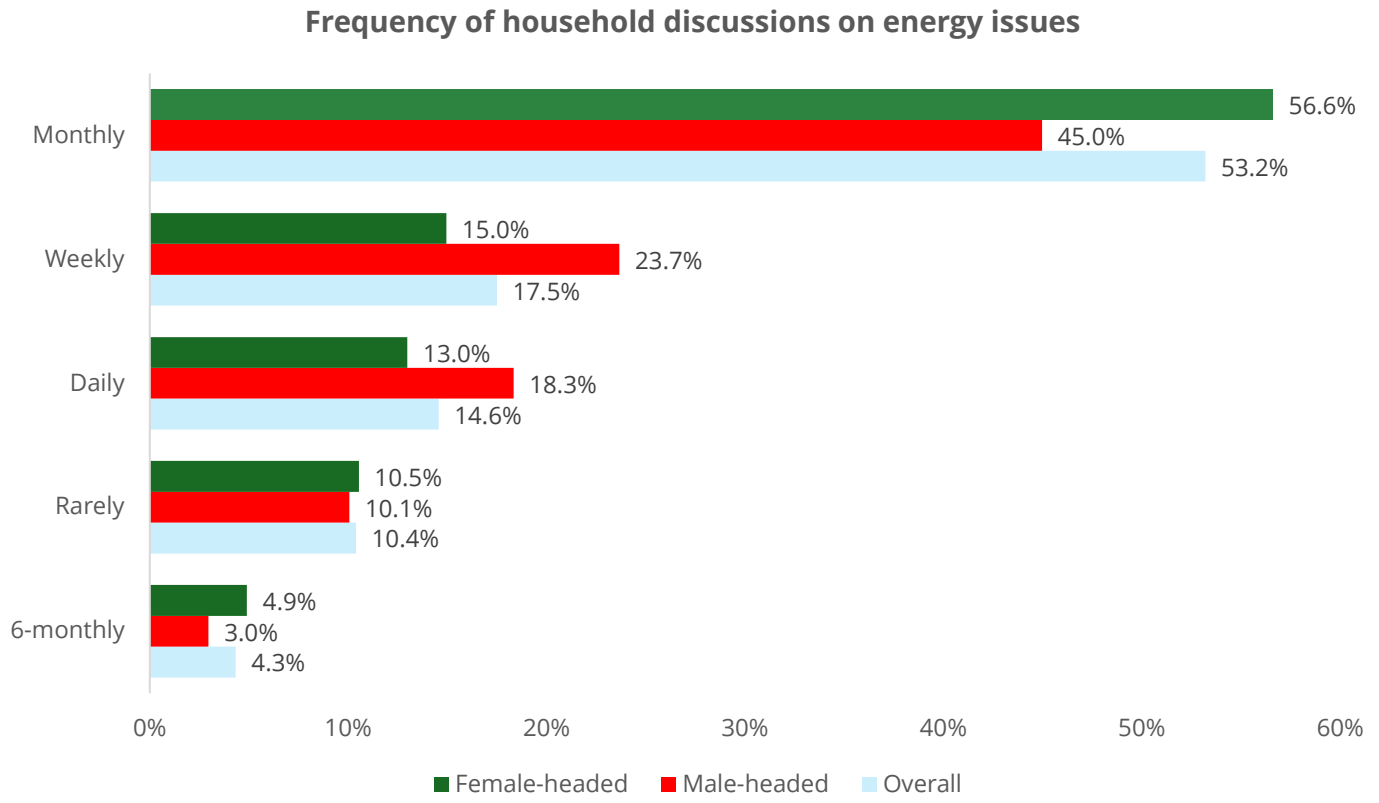


Figure 7: Frequency of household discussion of energy issues

There was limited willingness to have discussions on energy issued and how to plan for energy among those who were not having discussions as 23.3% of those who did not have discussions in their households confirmed that they were willing to have discussions. This did not differ gender of household type. Those willing to discuss stated that they wanted to talk about the high prices for electricity, the blackouts, improved cookstoves, as well as exploring ways to reduce energy usage.

When asked how they got information on energy services, 27.4% said they got the information by word of mouth, 20.1% said they got the information from text messages, with 15.5% relying on notices with 8.5% relying on Radios.

Table 25: How to get information on energy services and products

	Male	Female	Total
Text message	20.3%	19.3%	20.1%
Radio	7.5%	11.4%	8.5%
TV	10.9%	5.7%	9.6%
Community meetings	10.2%	6.8%	9.3%
Notices	14.7%	18.2%	15.5%
Hagbad	0.4%	1.1%	0.6%
Word of mouth	28.2%	25.0%	27.4%
Other	7.9%	12.5%	9.0%
Total	**100.0%**	**100.0%**	**100.0%**

Community participation in Energy Issues

A small proportion (4.2%, n=69) of the respondents confirmed that there were forums beyond the household where they would discuss uses in the energy sector. When asked how frequent the forums were, 40.6% said they had occurred once or twice only, 37.6% said they happened monthly with 14.5% indicating they occurred every 6-months. When asked about their own participation, slightly more than half (55.1%) said that they participated once or twice while 36.2% mentioned they participated monthly. With 88.4% of the participants acknowledging that women were allowed to participate in these forums. When tasked to indicate who organized such forums, the participants mentioned their neigbours, heads of their respective communities, and local NGOs as well as international NGOs. Among the key issues discussed in these forums revolved around the cost of electricity, measure to minimize energy costs as well as proper wiring and installation of electricity in their premises and dwellings.

When asked if in the future they would like to be involved in forums to discuss energy issues, slightly more than half (56.5%) of the respondent confirmed their willingness to participate. Regarding the future forums, 40.5% said they would like to hear about them from community meetings, 9.8% wanted to receive text messages, 11.6% saying TV would be adequate, with 22.0% mentioning public notices would be better.

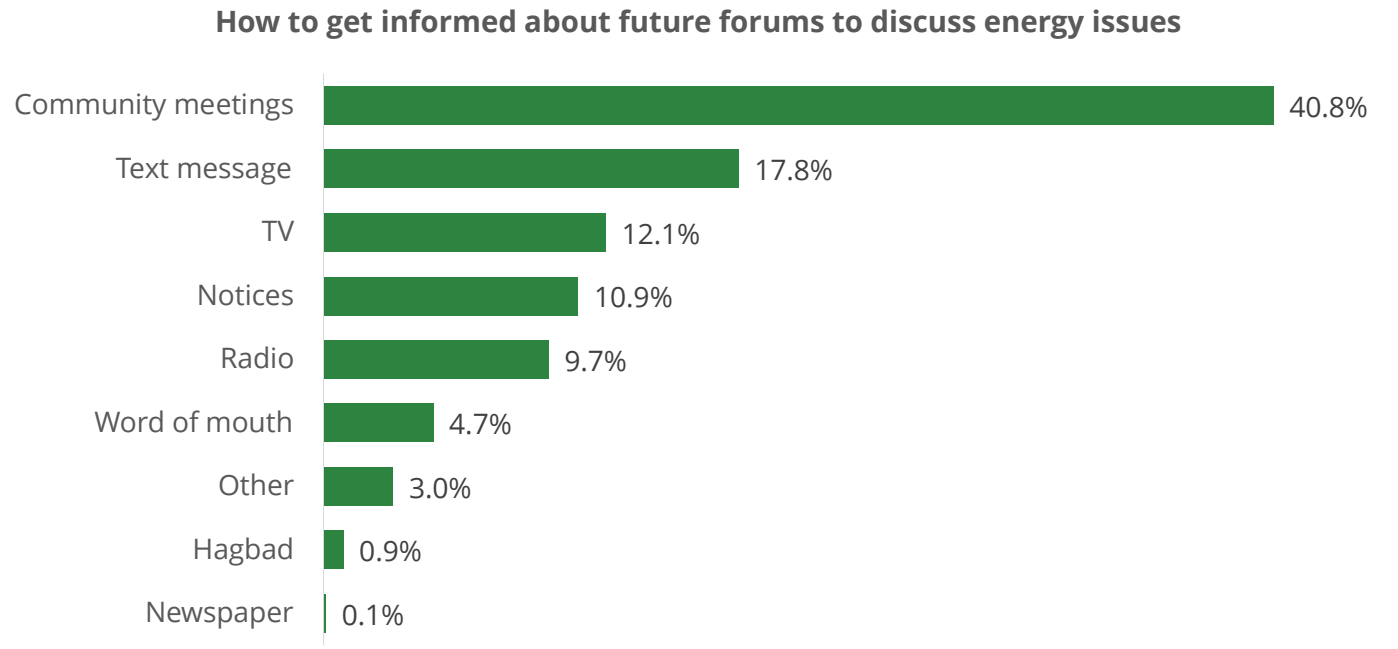


Figure 8: How to get informed about future forums to discuss energy issues

Table 26: How to get informed about future forums to discuss energy issues

	Male	Female	Total
Text message	7.6%	17.1%	9.8%
Radio	2.3%	12.2%	4.6%
TV	12.1%	9.8%	11.6%
Community meetings	44.7%	26.8%	40.5%
Notices	22.7%	19.5%	22.0%
Hagbad	0.8%	2.4%	1.2%
Word of mouth	6.1%	7.3%	6.4%
Other	3.8%	4.9%	4.0%
Total	**100.0%**	**100.0%**	**100.0%**

FGD with the community members revealed a significant lack of community engagement regarding energy discussions across various regions. Many participants indicated that such discussions are virtually nonexistent, with decisions primarily made by energy providers without public consultation. While there is some awareness of the benefits of renewable energy, particularly in the Awdal Region, it was noted that limited government involvement in promoting initiatives hinders effective communication and implementation at the community level. Participants expressed a strong desire for more active government engagement, especially in transitioning to renewable sources like solar energy.

Gender dynamics also play a crucial role in these discussions, with women often taking on valuable roles but facing challenges in participation due to household responsibilities. Although informal discussions do occur, particularly in social settings like restaurants, participants noted that there is a need for enhanced information sharing and sensitization programs to educate the community on renewable energy and environmental conservation.

Women's Participation in the Energy Sector

When asked if there were specific energy-related tasks considered "women's work" or "men's work," 29.1% of respondents confirmed that such distinctions existed. Women's roles included tasks like purchasing charcoal, collecting wood, maintaining energy appliances, managing household energy usage, and monitoring energy consumption at home. In contrast, men were primarily responsible for technical tasks such as fixing and repairing electrical connections, changing bulbs, paying electrical bills, handling street lighting, repairing electronics within the house, and purchasing electrical equipment and appliances.

Regarding the impact of changing energy technologies on gender roles, 57.9% of respondents indicated they were unsure if these technologies had influenced traditional roles. Meanwhile, 28.3% believed that gender roles had not changed, and 13.8% felt there had been shifts. Additionally, 22.5% of respondents acknowledged that women face constraints limiting their participation in the energy sector, with this perception more common among female-headed households (24.3%) compared to male-headed ones (18.3%). These constraints included cultural barriers, lack of support for women, gender discrimination, stereotypes, and challenges balancing work and personal life. Limited information access also contributed to the challenges women face in participating fully in energy-related activities within their communities.

When identifying the main constraints women face in participating in energy sector activities, 35% mentioned limited education, 25.9% noted lack of time, and 21% cited insufficient family support. Furthermore, only a small proportion (1.9%, n=31) confirmed that they were members of community electrification committees in their areas. About 61.3% of respondents were unaware if women could join these committees, 26.3% said women were permitted, and 12.5% believed women were excluded due to cultural norms, traditional practices, or perceived lack of skills in the energy sector.

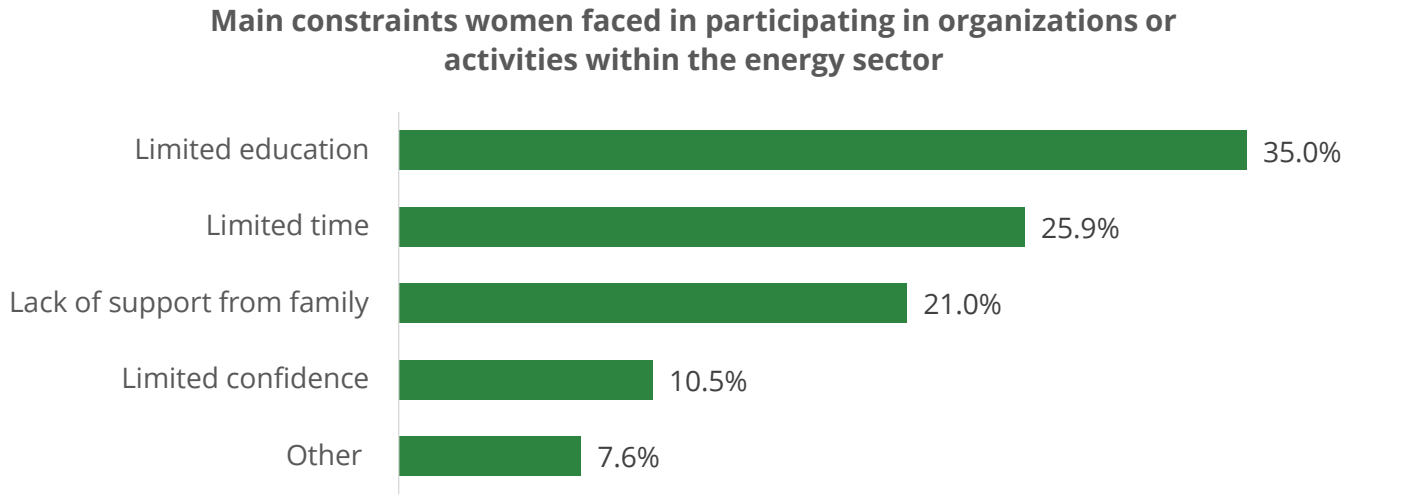


Figure 9: Constraints faced by women in participating in energy sector activities

Among those aware of women's eligibility for committee membership, 61.7% confirmed that women were indeed permitted to participate in energy committees, with 50.8% acknowledging that women held decision-making roles within these committees.

Extent of Women's Participation in Decision-Making Processes

FGDs with female respondents revealed that women's participation in decision-making processes within the energy sector remains limited due to structural and cultural barriers. While women do participate in community-level energy initiatives such as community meetings focusing on energy discussions, their involvement often stops short of leadership or decision-making roles. Participants noted that, leadership roles within energy committees are typically filled by men, with few opportunities for women to influence strategic decisions. This limited representation is largely due to cultural expectations and societal norms, which often restrict women's visibility in leadership, particularly in traditionally male-dominated sectors such as energy according to male respondents.

Representation of Women in Leadership Roles and Barriers Faced

Female respondents in FGDs further discussed the challenges women face in accessing leadership positions within the energy sector. Key barriers identified include cultural restrictions, societal perceptions of gender roles, and limited access to the educational and technical training required for leadership in energy-related fields. Additionally, women face practical challenges, such as balancing family responsibilities with community roles, which limits their ability to take on more demanding leadership positions. Even when women are allowed to join energy committees, they often remain in supporting or non-decision-making roles, highlighting a need for initiatives that actively promote gender-inclusive leadership.

Importance of Gender-Inclusive Participation for Sustainable Energy Development

The findings underscored the importance of fostering gender-inclusive participation in energy-related decision-making for achieving sustainable energy development. FGDs with both male and female revealed that community members generally recognize the potential benefits of involving women in energy decision-making, particularly in areas related to household energy management and community welfare. Inclusive participation could help ensure that energy solutions are responsive to the needs of all community members, including women who manage household energy use and could offer unique insights into sustainable practices. Promoting gender inclusivity in energy leadership would not only empower women but also lead to more equitable and effective energy solutions, ultimately benefiting the community as a whole.

Women's participation in community energy planning

Follow-up interviews during FGDs assessed the degree of women's participation in community energy planning and revealed that it varies significantly across regions. In areas such as Awdal, women actively engage in advocacy for better energy services and have taken the initiative to challenge high energy prices. Conversely, in regions like Sool and Sahil, many women reported a lack of awareness and opportunities for participation, often receiving only post-meeting information.

Moreover, the findings revealed that awareness of community energy planning activities and the role of organized women's groups significantly influence participation levels. In the Awdal Region, women's groups have empowered women to advocate for energy services, while in regions like Sahil and Sool, the absence of such organized structures correlates with lower levels of engagement. Additionally, community perceptions and traditional gender roles were cited to play a significant role in limiting women's participation, as many respondents noted prevailing attitudes that relegate women to passive roles in planning meetings.

Women's Entrepreneurship in Energy-related Businesses

Participation of women in running businesses related to energy was still limited as only 5.9% of all respondents confirmed that women in their respective household were running an energy related businesses such as selling or distributing cooking fuels (such as charcoal, wood, or liquid petroleum gas (LPG)), as well as solar energy solutions (such as solar lanterns, and solar-powered appliances. This was mostly among female headed households where 7.3% of female headed households compared to 2.8% of the male headed household had a woman running a business related to energy.

On out of every five, (21.3%) confirmed that that the women were facing challenges in starting or running energy-related businesses. This included challenges such as lack of starting capital, lack of confidence, lack of family support, financial inability, less training opportunities, lack of network connections, lack of experience and opportunities, money and other financial struggles as well as limited opportunities available for women to succeed.

Training on energy-related entrepreneurship was minimal as only 3.3% (n=55) confirmed they had received training or support for energy-related entrepreneurship. However, 34.1% confirmed that there were opportunities for women to enhance their skills, train, obtain education in order to inclusively participate in the energy sector.

KII findings established that women are integral participants in energy value chains and markets, primarily serving as the main users and consumers of energy products. Women not only buy energy resources such as gas, charcoal, and firewood but also play vital roles in selling these commodities within their communities. The findings noted that women are typically the household decision-makers regarding energy use, indicating their significant influence in energy consumption patterns. Furthermore, women entrepreneurs, while facing considerable challenges, contribute to value chains in various sectors, including agriculture and food services, thus highlighting the potential for their increased participation in energy-related businesses.

KII discussions with energy service providers (ESPs) revealed that women's engagement in energy value chains often focuses on sectors where they already have established roles, such as in the sale of charcoal and gas. These traditional roles, however, present limited opportunities for women to expand into more lucrative energy sectors, such as renewable energy technologies. Despite these challenges, ESPs recognized that women's involvement in energy value chains is essential for promoting energy access and driving market demand. Increased training and support for women in these areas could enhance their economic prospects and bolster the overall effectiveness of energy value chains.

The findings from the study indicate a clear relationship between access to energy and the profitability of businesses operated by women. Women engaged in food processing, such as in butcheries and restaurants, require reliable energy to manage their operations effectively. The findings showed that when energy is consistently available, it leads to improved productivity and greater business profitability. Conversely, unreliable energy sources can stifle growth and impact the sustainability of women-led enterprises, emphasizing the need for targeted interventions to improve energy access.

Additionally, the study highlighted that the benefits of energy access extend beyond individual businesses to the broader community. Women operating in sectors like fish production rely on energy for refrigeration and storage, which enhances product quality and marketability. This connection underscores the role of women in value chains and illustrates how energy access can directly influence production efficiency and profitability across various sectors. Ensuring that women have access to reliable energy resources not only empowers them economically but also strengthens community resilience.

The findings emphasized that closing gender gaps in energy access can create substantial opportunities for women within value chains. By addressing the barriers women face, including cultural norms and lack of support, initiatives can be developed to enhance their participation in emerging energy markets. Promoting gender-inclusive energy access not only benefits women but also fosters innovation and economic growth within the energy sector, ultimately contributing to more sustainable and equitable development outcomes in the region.

Gender-based Violence Risks related to Energy Access

Four out of every five (83.4%) of the respondents confirmed that there are safety concerns for women and girls related to lack of lighting or energy access, with nearly three-quarters of the respondents being female. Likewise, 88.6% confirmed that improved energy access (e.g. street lighting) affected women's safety in the community. Slightly more than half (53.5%) stated there were risks of gender-based violence associated with collecting fuel or accessing energy services.

FGD sessions with female groups established that inadequate lighting significantly heightens the risk of gender-based violence in various regions. FGD participants consistently highlighted that poorly lit areas serve as conducive environments for crimes such as harassment, assault, and theft. Women, in particular, expressed heightened concerns about their safety while navigating these spaces, especially during nighttime. The lack of energy access not only limits their freedom of movement but also exposes them to predatory behavior, as criminals exploit these dark conditions. This pervasive fear affects women's daily activities and their overall sense of security in their communities. The study noted that enhancing energy access through improved lighting is critical to mitigating these risks and fostering a safer environment for all individuals.

GENDER SPECIFIC BARRIERS TO ENERGY ACCESS

Barriers to Electricity Access

A small proportion (14.7%) of the urban households confirmed that women in their respective communities face specific challenges in accessing electricity that men do not. These were related to cultural barriers, religious beliefs as a result of discrimination against women as well as lack of diversity to include women. Likewise, 14.1% confirmed that there are cultural norms that affect women's ability to adopt new energy technologies. This was mainly because women could not afford some of the new technologies, existing cultural beliefs that discriminate against women and gender stereotypes.

Slightly less than half (48.9%) of the respondents confirmed that lack of electricity specifically impact women's daily lives and opportunities. Lack of electricity hinders their ability to take care of household chores when there are blackouts, increased safety concerns at night when there is no electricity, and overall disruption of daily chores.

Challenges and Support Needs of Female Energy Entrepreneurs

KII with ESPs established that female energy entrepreneurs face a myriad of challenges that significantly hinder their competitiveness and growth in the sector. Many women involved in energy-related businesses primarily operate in non-traditional areas, such as restaurants and tailoring, rather than core energy roles, reflecting a broader issue of underrepresentation. The barriers they encounter are particularly acute, including difficulties in accessing affordable cooking gas and unreliable electricity supply, which often forces them to rely on traditional and labor-intensive fuel sources like firewood. Additionally, the physical demands associated with many jobs in the energy sector pose unique challenges for women, as gender norms often dictate their roles and capabilities. This combination of accessibility issues, high operational costs, and societal expectations creates a complex landscape that limits women's potential in the energy industry.

Key informants highlighted that to address the challenges faced by female entrepreneurs in the energy sector, targeted support is essential for their empowerment. They emphasized the urgent need for initiatives aimed at enhancing access to affordable and reliable energy resources, including renewable energy solutions and ready-made alternatives to traditional fuels. Respondents noted that increasing community-based energy solutions can create a supportive environment for women entrepreneurs, enabling them to scale their businesses effectively. Furthermore, they pointed out the importance of recognizing and addressing the physical demands of energy-related jobs through gender-sensitive training and job design, which can foster more inclusive opportunities for women. Ultimately, the investment in infrastructure that prioritizes the needs of female entrepreneurs is crucial, as it will not only facilitate their growth but also contribute significantly to the overall development of the energy sector.

Barriers for equal participation of men and women in the energy sector

The assessment of responses regarding the barriers to equal participation of men and women in the energy sector revealed several significant factors influencing gender dynamics in the workforce.

Significant Gender Imbalance in Employment: The findings indicated that there is a pronounced gender disparity in employment within the energy sector, with male employees overwhelmingly outnumbering female employees across various organizations. Interviews revealed that most companies, including TELESOM and INDHO BIRTA Electric Company, have a predominantly male workforce, sometimes with no female representation at all. This imbalance is attributed to historical patterns and entrenched cultural norms that perceive energy-related jobs as traditionally male roles. The assessment established that such significant disparities not only hinder women's participation but also perpetuate stereotypes that discourage them from entering the field.

Low Representation of Women in Technical and Administrative Roles: The study noted that women are starkly underrepresented in technical positions, often occupying only a small percentage of these roles. The analysis revealed that in many organizations women comprise as little as 0% to 20% of technical[27] roles, while their representation in administrative positions is only slightly better. This lack of presence in technical positions stems from societal perceptions that view these roles as physically demanding and ill-suited for women. The findings indicated that these stereotypes create barriers to entry and career advancement for women in the energy sector, limiting their opportunities for professional growth and development.

Cultural Norms and Perceptions of Gender Roles: The assessment established that cultural beliefs significantly influence women's participation in the energy sector. Respondents highlighted that societal norms often discourage women from pursuing technical jobs, which are seen as requiring physical strength and endurance. These cultural perceptions lead to a general lack of interest among women in energy sector careers and contribute to the underrepresentation of females in technical roles. The findings revealed that these cultural barriers are deeply rooted and can be challenging to overcome without targeted initiatives to change perceptions about women's capabilities in the industry.

Absence of Targeted Efforts to Support Female Employees: The findings indicated that there is a notable lack of targeted efforts by organizations to increase female representation in technical roles. Many interviewees expressed that there are currently no initiatives aimed at encouraging women to take on technical positions, with some even questioning the necessity of such efforts due to perceptions of physical strength as a prerequisite for technical jobs. This absence of support reflects a broader trend of underestimating women's potential in the field, which ultimately hinders efforts to promote gender equality within the energy sector.

[27] Refers specifically to roles that require specialized skills in Science, Technology, Engineering, and Mathematics (STEM) fields, as well as hands-on technical positions, such as technicians and engineers, in the energy sector.

Limited Opportunities for Decision-Making Participation: The assessment established that while some women are provided with opportunities to participate in decision-making processes, their involvement remains minimal and often contingent on their positions within the organization. Interviews revealed that decision-making is frequently dominated by male leaders, and the lack of female representation in leadership roles further perpetuates this cycle. The findings indicated that even when women are included in decision-making discussions, their contributions may not carry the same weight as those of their male counterparts, limiting their influence on organizational outcomes.

Internal Practices and Barriers to Advancement: The study noted that internal practices within organizations deters women from actively participating in decision-making processes and career advancement. KII respondents indicated that cultural and religious practices often create environments that discourage women from asserting themselves in male-dominated spaces. Additionally, the limited number of women with technical skills further reinforces perceptions that they are less qualified to contribute meaningfully to decision-making discussions.

Accessibility to Positions and Roles: The assessment established that certain roles within the energy sector are often viewed as inaccessible to women, particularly those requiring physical strength, such as managers, drivers, and engineers. Respondents highlighted that cultural norms and the physically demanding nature of these positions contribute to this exclusion. The findings indicated that making these roles accessible to women requires a shift in organizational culture and the implementation of strategies aimed at enhancing women's capabilities and confidence in pursuing these roles.

Barriers for Equal Participation of men and women in Science, Technology, Engineering and Mathematics (STEM) in education and employment

The study revealed that significant barriers inhibit equal participation of men and women in STEM fields. These barriers affect both educational pursuits and employment opportunities, contributing to the persistent gender gap in STEM. The following barriers were noted from KII with ESPs.

Socio-Cultural Norms and Attitudes:

The findings highlighted social and economic barriers that hinder equal participation of men and women in the energy sector in Somaliland, particularly in the fields of Science, Technology, Engineering, and Mathematics (STEM).

Social Barriers

1. **Gendered Perceptions of STEM:**. Discussions with focus group discussion (FGD) revealed that societal beliefs often categorize STEM disciplines, particularly engineering and technical fields, as masculine domains. These perceptions have a tangible impact on female enrollment in STEM fields, especially in disciplines like electrical engineering. Gendered perceptions of STEM roles discourage women from pursuing these fields, as they often feel unwelcome and undervalued in such environments. Interviews conducted with senior female graduates from educational institutions, such as the University of Hargeisa and Gollis University, underscores these challenges. According to the interviews, only two females are pursuing electrical engineering programs at these universities. Moreover, the number of female graduates in STEM fields from both institutions has not exceeded 20 over the past six years. This stark underrepresentation highlights the systemic barriers and societal expectations that steer women away from STEM, especially technical disciplines like engineering. Participants in FGDs further elaborated that societal and familial expectations reinforce the belief that engineering and technical fields are better suited for men. These perceptions contribute to a lack of encouragement and support for women to break into these traditionally male-dominated disciplines.
2. **Cultural Expectations and Domestic Roles:** Cultural expectations significantly influence women's educational choices. FGD respondents noted that in various communities, education is viewed as more relevant for boys, which reinforces the belief that women should prioritize domestic responsibilities over career aspirations. This cultural bias was discussed as a barrier that not only limits women's educational opportunities but also perpetuates the notion that they are less capable in technical roles.
3. **Lack of Female Role Models:** Furthermore, discussions with senior female graduates highlighted the absence of female role models in STEM fields as a significant barrier. Respondents indicated that many senior women lack inspiration and mentorship because there are few visible examples of women succeeding in technical or engineering roles within their communities.

Economic Barriers

1. **Limited Access to Education:** Economic constraints also play a crucial role in hindering women's access to education in Somaliland. FGD respondents discussed how many families struggle to afford education for girls, particularly in rural areas, which limits opportunities for women to pursue further education in STEM fields.
2. **Employment Opportunities:** Participants noted that the energy sector often favors men in hiring practices. FGD discussions with women denoted difficulties in securing jobs in this field, citing gender biases and limited job opportunities as significant barriers. Additionally, respondents pointed out that there are often fewer initiatives aimed at supporting women's employment in technical roles.

3. **Gender Bias in Educational Environments:** The findings established that gender bias within educational institutions presents a significant barrier to equal participation in STEM. Many educational environments reflect underlying biases that adversely affect the experiences of female students. Senior female graduates noted that women often face discouragement from teachers and peers when expressing interest in STEM subjects, reinforcing the idea that these fields are not meant for them. Furthermore, the study revealed that curricula frequently lack representation of female contributions to STEM, further diminishing the sense of belonging among female students.

4. **Employment Discrimination and Workplace Culture:** The findings also indicated that even after overcoming educational barriers, women in STEM face considerable challenges in the workforce. Employment discrimination, rooted in gender stereotypes and biases, remains a persistent issue. Many employers still hold the misconception that women are less committed to their careers due to family responsibilities, resulting in biased hiring practices and limited opportunities for advancement. Additionally, the study established that workplace culture in many STEM fields often reflects a male-dominated environment that can be unwelcoming to women. Respondents highlighted issues such as a lack of support, exclusion from networking opportunities, and the expectation for women to conform to masculine norms to fit in. These factors not only hinder women's professional development but also contribute to high turnover rates among female employees in STEM.

Empowering Women in the Energy Sector

Ongoing gender mainstreaming efforts: The findings from the KII with Energy Sector Personnel (ESPs) revealed a mixed landscape of awareness and implementation. Many respondents acknowledged the existence of various gender mainstreaming initiatives within their organizations, including awareness campaigns and programs focused on promoting women's participation in traditionally male-dominated roles, such as call center operations. These initiatives are primarily driven by management, indicating a top-down approach that highlights leadership commitment to fostering gender equality. While some organizations reported successes, such as an increase in female employment, others noted challenges stemming from entrenched societal norms and perceptions that hinder women's engagement in certain sectors, particularly in technical roles within the energy industry.

Moreover, the interviews highlighted that despite some progress, the effectiveness of these initiatives remains variable. While organizations like Telesom Company are planning to promote gender equality through provision of more job opportunities for women, the overall success of gender mainstreaming efforts is still a work in progress. The findings noted that Telesom has initiated a new effort aimed at enhancing women's participation within the company and the broader energy sector. This initiative includes targeted training programs designed to empower women with the skills and knowledge necessary to thrive in the energy industry. By focusing on improving women's participation, Telesom recognizes the importance of gender diversity in fostering innovation and driving sustainable development. These training sessions not only provide technical skills but also aim to build confidence among female employees, enabling them to take on leadership roles and participate more actively in decision-making processes.

Government Institutions Lead in Gender Policy Implementation: The study assessed the institutions involved in implementing gender policies in Somaliland's energy sector and established that several key government entities play a crucial role. The findings indicate that the Ministry of Employment, Social Affairs and Family (MESAF), is primarily responsible for these initiatives. Additionally, other ministries, such as the Ministry of Education and the Ministry of Justice, contribute to promoting gender inclusivity across various sectors. The study noted that these institutions collaborate with NGOs and international organizations to enhance the effectiveness of gender policy implementation, showcasing a coordinated approach to addressing gender equality within the energy sector. Based on the desk review conducted, the National Gender Policy appears to have overlooked considerations related to the energy sector. The lack of specific provisions or strategies addressing gender-specific needs and challenges within the energy sector represents a missed opportunity to promote gender equity and empower women and marginalized groups

Successful Educational Initiatives Enhance Gender Awareness: The study assessed the notable measures implemented by various educational institutions and established that significant initiatives, such as the establishment of technical schools and awareness campaigns, aim to improve gender equality in the energy sector. .; workforce, breaking traditional barriers to entry in this male-dominated field. The findings revealed that these initiatives have contributed to a growing societal understanding of gender issues and the importance of education for both genders. Key success factors identified include enhanced community awareness and increased access to educational opportunities, which empower women and improve their participation in the energy workforce. However, challenges remain in addressing traditional gender norms that continue to hinder progress, suggesting a need for ongoing efforts to shift societal perceptions.

Energy Education Nexus: The study established that the preparation for careers in the energy sector by educational institutions in Somaliland is inadequate, particularly for women. While various universities and technical institutions, including Hargeisa University, Gollis University, and Hargeisa Technical Institute, offer programs relevant to the energy sector, discussions with Energy Service Providers (ESPs) revealed significant gaps in the practical skills acquired by both men and women graduates. The findings noted that many students graduate with a theoretical understanding of concepts such as electrical installation and renewable energy technologies but lack the hands-on experience necessary to thrive in the field. This gap in practical training not only hampers employability but also perpetuates the cycle of gender disparity, as women may feel less confident in their abilities to perform in male-dominated environments where practical skills are highly valued.

The findings noted that while institutions are responsible for teaching STEM-related subjects, they often do not provide adequate resources or training opportunities that reflect the current demands of the energy sector according to interviews with ESPs. Many graduates reported lacking the necessary equipment and facilities to gain practical skills during their education. The study highlighted that the disparity in course offerings, particularly in vocational training centers, limits the exposure students, especially women, have to the practical aspects of energy-related fields. It was also noted from the discussions that women graduating in STEM fields often lack the essential skills required to secure employment in the energy sector. This situation is exacerbated by societal perceptions that view engineering and energy work as male domains, leading to lower female enrollment in STEM programs and fewer opportunities for women to develop the skills needed to succeed in these roles.

Discussions with ESPs revealed that there is a need for a more tailored approach in educational programs to bridge the skill gaps observed in graduates. There is a consensus that educational institutions must prioritize hands-on training and real-world applications in their curricula.

Limited Availability of Gender Experts in the Private Sector: The study assessed the availability of gender experts within the energy sector and established that there is a limited presence of dedicated specialists within private sector organizations. The findings indicated that while some gender specialists are affiliated with governmental and non-governmental organizations, private companies often lack personnel specifically trained in gender affairs. This gap in expertise hinders the effective implementation of gender policies and the advancement of gender equality initiatives within the private sector, highlighting a critical area for improvement in the overall gender landscape of the energy sector.

The study also assessed the level of formal training in gender issues among professionals and established that this training varies significantly across different institutions. The findings indicated that while ministries such as the Ministry of Education have implemented training programs to enhance awareness of gender equality, some key informants revealed a lack of awareness regarding the formal training of gender experts in the private sector.

Programs Targeting Women's Participation

The findings from the KII with ESPs indicated that various programs are actively working to enhance women's participation in the energy sector. These initiatives have created roles for women in areas such as customer care and call center operations, thereby providing them with essential employment opportunities. While these efforts represent a step toward inclusivity and a positive cultural shift within the sector, they fall short of addressing the full spectrum of STEM-related technical positions. Roles such as customer care and call center operations, though important, do not leverage the technical skills or expertise that targeted STEM initiatives aim to cultivate. The majority of women employed in the sector are concentrated in administrative roles, while only a few advance into technical positions. Additionally, organizations have adopted hiring practices that prioritize women, reflecting a positive cultural shift towards inclusivity within the sector. The focus on empowering women through employment not only increases their visibility but also contributes to a broader recognition of their contributions to the energy industry. This progressive approach aims to dismantle historical barriers that have restricted women's roles, paving the way for a more equitable work environment.

Moreover, the analysis revealed that educational and training initiatives are crucial in supporting women's entry into energy-related fields. Programs offering skills-oriented scholarships and targeted educational opportunities have emerged, specifically designed to equip women with the necessary knowledge and skills. While there are commendable efforts to promote awareness and education regarding women's potential contributions, challenges remain in ensuring consistent access to these resources, particularly in regions where dedicated efforts are limited.

The Role and Impact of Women in Energy Value Chains: Access, Participation, and Profitability

The study findings on the role and impact of women in energy value chains reveal a multifaceted engagement that significantly influences both local economies and individual livelihoods. Women are not only primary consumers of energy products but also key participants in the selling and distribution of energy resources such as gas, charcoal, and firewood. Their involvement in various energy value chains, including food processing and retail businesses, underscores their critical role in ensuring energy accessibility within their communities. This active participation highlights the necessity of recognizing women as vital contributors to energy markets, capable of driving demand and enhancing supply chains, which ultimately supports broader economic development.

Moreover, the findings illustrate a clear interdependence between access to energy sources and overall business profitability. Reliable energy access is essential for increasing productivity, enabling businesses to operate efficiently and meet customer demands. In instances where energy access is disrupted, businesses face operational challenges that can diminish income and profitability. Notably, the study found that sectors such as internet connectivity and food services significantly benefit from stable energy supplies, leading to enhanced business operations and customer engagement. This interplay between energy access and profitability emphasizes the need for targeted interventions that empower women in energy value chains, thereby fostering sustainable economic growth and improving community resilience.

CONCLUSION & RECOMMENDATIONS

Conclusion

In conclusion, the findings illustrate a complex landscape of energy usage among households, with electricity from interconnected grids or isolated systems being the predominant energy source, utilized by 77.4% of respondents. The data indicates regional disparities, with Sahil and Maroodijex showcasing the highest electricity usage at 93.7% and 92.5%, respectively, while Sool lagged significantly at only 27.1%. Charcoal and firewood emerge as the second and third most common sources of energy, particularly in regions like Awdal and Sool, where affordability and accessibility dictate preferences. The reliance on traditional fuels reflects both economic constraints and cultural practices, with gender roles influencing decision-making around energy sources. Despite a substantial portion of households expressing a desire for electricity access, barriers such as costs and limited infrastructure hinder wider adoption.

The findings on energy usage in households reveal a distinct shift in the reliance on traditional fuels such as kerosene and candles, with a notable trend towards alternative energy sources. While kerosene usage was most prominent in the Awdal region, it has largely become confined to specific purposes like cooking and infrequent applications, reflecting a broader transition to more accessible and efficient energy options. Similarly, the extremely low incidence of candle usage underscores this shift, as communities increasingly turn to alternatives for lighting and other needs. The reliance on dry cell batteries remains significant, particularly for portable lighting and electronic devices, indicating their essential role in households with limited access to electricity. Furthermore, although LPG is recognized for its efficiency and environmental benefits, socioeconomic barriers hinder its widespread adoption, with many households continuing to depend on traditional fuels due to affordability issues. The limited use of solar PV home systems highlights the need for increased awareness and accessibility, especially in urban areas, where installation costs and knowledge gaps persist.

The findings indicate a notable engagement gap in household and community discussions around energy issues, particularly concerning the low frequency of such discussions and limited participation in broader community forums. While 35% of households engage in energy-related discussions, this involvement predominantly features female-headed households, revealing gender dynamics in energy discourse. Interestingly, a significant portion of the population (23.3%) expressed a willingness to engage in these discussions, primarily focusing on rising electricity costs and energy conservation methods. However, the overall low participation rates in community forums and the lack of awareness surrounding energy initiatives highlight a critical need for enhanced communication and education on energy issues. Furthermore, the findings reveal that traditional gender roles significantly influence women's participation in energy sectors, with many facing cultural barriers and systemic constraints that limit their involvement in decision-making processes. Through grassroots efforts, women are working to ensure that their voices are heard in energy planning and decision-making, Despite some women actively advocating for energy services in regions like Awdal, the overall participation remains low, underlining the importance of targeted interventions to empower women, improve access to training, and foster a more inclusive approach to energy planning and entrepreneurship.

The study found that 83.4% of respondents, mostly female, identified safety concerns for women and girls due to inadequate lighting or energy access. Additionally, 88.6% of respondents confirmed that improved energy access, such as street lighting, positively impacted women's safety. More than half (53.5%) acknowledged the risks of gender-based violence associated with collecting fuel or accessing energy services. Focus group discussions with women revealed that poor lighting increases the risk of gender-based violence, with participants emphasizing that poorly lit areas facilitate crimes like harassment, assault, and theft, especially at night. The lack of energy access limits women's mobility and exposes them to predatory behavior, affecting their sense of security. The study highlighted that improving lighting and energy access is crucial to reducing these risks and creating a safer environment for women and the community as a whole.

The study also underscored the critical yet limited role of women in energy-related businesses such as selling or distributing cooking fuels (such as charcoal, wood, or liquid petroleum gas (LPG)), as well as solar energy solutions (such as solar lanterns, and solar-powered .appliances., revealing that only 5.9% of respondents reported female entrepreneurship in this sector, primarily among female-headed households. Women face significant challenges, including lack of capital, confidence, and training, which hinder their ability to start and sustain energy-related enterprises. Despite these obstacles, the findings highlighted the vital role women play as primary users and consumers of energy products, suggesting that enhancing their participation could improve energy access and economic viability in their communities. The study further illustrates that reliable energy access not only boosts the profitability of women-led businesses but also strengthens overall value chains, thereby fostering broader economic growth. Therefore, addressing gender gaps in energy access through targeted training and support initiatives is essential for empowering women, promoting sustainable development, and driving innovation within the energy sector.

The analysis of gender-specific barriers to energy access in Somaliland reveals a multifaceted landscape where cultural, economic, and societal factors intersect to hinder women's full participation in the energy sector. The findings indicate that a substantial number of households recognize the unique challenges women face in accessing electricity, primarily rooted in cultural norms and discrimination. This not only restricts women's ability to manage daily responsibilities effectively but also amplifies safety concerns in the absence of reliable energy sources.

Female energy entrepreneurs encounter significant barriers that limit their potential within the sector. The predominance of traditional roles, coupled with a lack of access to affordable and reliable energy resources, stifles their growth and competitiveness. The pressing need for targeted support initiatives is evident, as such measures could empower women by enhancing their access to energy solutions and fostering a conducive environment for entrepreneurial ventures.

The stark gender imbalance in employment within the energy sector further compounds these challenges. Women remain underrepresented in technical roles, with societal perceptions and cultural beliefs often portraying energy-related jobs as unsuitable for them. The absence of targeted efforts to support women's advancement in these roles exacerbates the issue, creating a cycle of underrepresentation and perpetuating gender stereotypes.

In the realm of STEM education and employment, barriers such as socio-cultural norms, limited access to education, and the lack of female role models impede women's participation. Discrimination in hiring practices and unwelcoming workplace cultures further discourage women from pursuing careers in these fields, despite their qualifications.

Despite the obstacles, ongoing gender mainstreaming efforts and the commitment of government institutions to implement gender policies indicate a pathway towards progress. The collaboration between governmental entities and NGOs to promote gender inclusivity reflects an understanding of the need for systemic change. Additionally, successful educational initiatives aimed at increasing gender awareness have started to reshape societal perceptions, though challenges remain.

Addressing gender-specific barriers in the energy sector requires a comprehensive approach that encompasses policy change, targeted support for women, and a commitment to challenging cultural norms. By investing in women's empowerment and fostering an inclusive environment, Somaliland can unlock the full potential of its energy sector, benefiting not only women but society as a whole.

Recommendations

Promotion of Cleaner Energy Alternatives: The assessment highlighted notable health implications associated with firewood usage, particularly regarding smoke exposure. The study recommends the exploration and promotion of cleaner energy alternatives, such as LPG and solar energy, to mitigate health risks. This initiative should be led by Ministry of Energy and Minerals (MoEM) in collaboration with the health ministry and environmental organizations through public health campaigns and subsidies for cleaner technologies. Addressing this gap is vital for improving public health outcomes and reducing environmental degradation.

Community Engagement in Energy Policies: The findings indicated a lack of community engagement in energy discussions, leading to decisions made without public consultation. It is recommended that both the MoEM and local governments facilitate community forums to encourage participation in energy policy discussions. This should involve energy providers and community leaders, ensuring diverse voices, particularly from marginalized groups, are heard. Enhancing community involvement will promote transparency and trust, leading to more effective energy solutions.

Strengthening Women's Participation in Energy Planning: The assessment revealed varying levels of women's participation in energy planning across regions. The study recommends the establishment of targeted programs to enhance women's engagement in energy discussions and decision-making. This can be achieved through training and capacity-building workshops, spearheaded by MoEM, local actors, NGOs, and local community organizations. Empowering women in these roles is essential for promoting gender equity and improving energy solutions that address the needs of all community members.

Importance of Gender-Inclusive Participation for Sustainable Energy Development: The findings underscored the importance of fostering gender-inclusive participation in energy-related decision-making for achieving sustainable energy development. FGDs revealed that community members generally recognize the potential benefits of involving women in energy decision-making, particularly in areas related to household energy management and community welfare. Inclusive participation could help ensure that energy solutions are responsive to the needs of all community members, including women who manage household energy use and could offer unique insights into sustainable practices. Promoting gender inclusivity in energy leadership would not only empower women but also lead to more equitable and effective energy solutions, ultimately benefiting the community as a whole.

Enhanced Awareness Campaigns: The assessment revealed a need for more awareness campaigns on renewable energy. The study recommends the development of targeted awareness campaigns to educate communities about the benefits of renewable energy sources. This should be implemented by governmental and non-governmental organizations using diverse media platforms. Increasing awareness is significant for fostering community acceptance and uptake of renewable energy solutions. To shift cultural norms and encourage greater female participation in the energy sector, targeted community engagement programs should be launched. These programs should aim to raise awareness about the benefits of women's involvement in energy and challenge stereotypes about gender roles in the sector. This could include media campaigns, community dialogues, and school outreach programs that highlight successful female role models in the energy industry and demonstrate the positive economic impacts of women's participation in energy businesses and jobs. Specific outcomes for these programs could include increasing the enrollment of women in energy-related training programs, improving women's representation in energy-sector job markets, and raising the public's awareness of gender equality issues in energy access and employment. The programs should also engage community leaders, traditional elders, and local influencers to advocate for women's participation in energy projects and decision-making processes. A clear goal could be to reach 10,000 individuals annually through community outreach efforts, with a measurable increase in the number of women enrolling in energy training programs and entering the energy workforce. These community engagement initiatives should be closely tied to other gender equity measures, such as regulatory revisions and vocational training programs, ensuring that awareness and support for women's participation in energy are woven into the broader gender inclusion strategy. Regular impact assessments should be conducted to evaluate the effectiveness of these engagement efforts, measuring shifts in attitudes and behaviors regarding women's roles in the energy sector.

Addressing Cultural Barriers to Women's Participation: The study highlighted cultural norms that limit women's engagement in technical roles. It is recommended that organizations such as Electricity Service Providers and educational institutions implement initiatives aimed at challenging and changing cultural perceptions regarding women's capabilities in technical fields. This can be facilitated by community leaders and women's advocacy groups through public awareness campaigns and community dialogues. Addressing these cultural barriers is essential for creating an inclusive workforce in the energy sector.

Mentorship Programs for Women in STEM: The findings revealed a lack of role models and mentorship for women in STEM. It is recommended that mentorship programs be established to connect young women with experienced professionals in STEM fields. This initiative should be led by educational institutions and women's organizations, focusing on creating networks and mentorship opportunities. Such programs are essential for building confidence and encouraging women to pursue careers in STEM.

Strengthening Women's Groups in Energy Sector: The assessment highlights the crucial role that organized women's groups play in enhancing engagement and increasing participation within the energy sector. A notable example is the Somaliland Women in Energy Organization (SWEO), which serves as a strategic partner dedicated to transforming the energy landscape by promoting gender equality and empowering women professionals. SWEO has made significant strides in advocating for women's leadership and gender-inclusive energy policies, while also providing essential technical training and mentorship opportunities for women in the sector. Despite their impactful work, there is a recognized need to further build SWEO's capacity to broaden its outreach and effectively engage with all key stakeholders and sectors across Somaliland. Expanding this capacity would enable SWEO to strengthen its advocacy network, drive more comprehensive energy discussions, and ensure the integration of diverse voices and perspectives within energy policy and decision-making processes. Empowering SWEO to reach a wider audience will not only boost women's visibility and participation but also contribute to a more inclusive and sustainable energy sector.

Establishment of Energy Center: To address the gap in essential skills for both male and female STEM graduates in the energy sector, we recommend the establishment of a dedicated Energy Center. This center should provide comprehensive training that includes both hard and soft skills tailored to the needs of graduates from STEM disciplines, regardless of gender. To support the successful implementation of this initiative, funding should be allocated for the construction of a dedicated facility. In the short term, rented space can be used, equipped with the necessary tools, technology, and resources to facilitate effective training programs. Additionally, qualified personnel should be employed to deliver high-quality instruction and mentorship. The center should develop training manuals and curricula that emphasize practical, hands-on experience, ensuring that participants not only learn theoretical concepts but also gain valuable skills that enhance their employability in the energy sector. By establishing this Energy Center, the MoEM can empower both male and female STEM graduates, fostering their successful entry into the workforce and promoting gender equity and diversity within the energy sector. This initiative could also include scholarships and internship programs designed to encourage greater participation of both genders in energy-related STEM education and provide practical experience.

Enhance Funding and Support for Women-Led Projects: To empower women in the energy sector, it is essential to increase access to capital specifically designed for women entrepreneurs. Establishing dedicated funding programs can provide the financial resources necessary for these women to launch and expand innovative energy solutions. Such initiatives can not only facilitate the growth of individual enterprises but also stimulate broader economic development within the community. Furthermore, there should be a concerted effort to encourage investors to prioritize women-led startups in the energy sector. By showcasing the unique perspectives and approaches that women bring to addressing energy challenges, investors can be motivated to support ventures that are not only financially viable but also responsive to the specific needs of their communities. Promoting the potential of women-led projects to contribute to sustainable energy solutions will help shift investment patterns and create a more equitable energy landscape. Additionally, mentorship and networking opportunities can be incorporated into funding programs to connect women entrepreneurs with seasoned professionals and potential investors, further enhancing their chances of success. Providing training in business development and financial management will also empower women to effectively utilize the capital they receive, ensuring their projects thrive and make a lasting impact.

Strategies for Gender Equity: The assessment revealed a lack of targeted efforts to support female employees in technical roles. It is recommended that organizations adopt clear strategies aimed at increasing female representation in technical positions. This should be driven by organizational leadership through diversity and inclusion initiatives that prioritize hiring and promoting women. Creating equitable organizational environments is crucial for achieving gender parity in the energy sector and fostering innovation. To support women's competitiveness and leadership in sectors like renewables and digital energy, it is essential to invest in ongoing skills training, certification, and technical courses. Additionally, implementing family-friendly policies is crucial for promoting work-life balance. This includes offering flexible work options, remote work opportunities, and paid parental leave, along with access to childcare facilities. Encouraging women's involvement in leadership and policy-making roles is also vital. This can be achieved by providing leadership development programs and ensuring women's inclusion in energy policy discussions to influence sustainable practices. Finally, fostering a safe and inclusive workplace culture is imperative. This involves enforcing strict anti-harassment policies and providing a safe reporting mechanism, along with implementing diversity training to promote respect and understanding among all employees. To enhance the visibility and recognition of women's contributions in the energy sector, it is important to celebrate their achievements through awards, publications, and case studies. Additionally, efforts should be made to ensure women are represented as speakers, panelists, and authors at industry events and conferences. Furthermore, developing skill sets in emerging technologies is crucial. This includes providing access to training and certifications in renewable energy, energy efficiency, and digital energy solutions.

Supporting lifelong learning and reskilling in areas such as data analysis, automation, and climate-resilient energy systems will help women keep pace with industry advancements.

Policy and Legal Regulatory Reforms: To ensure gender inclusion in Somaliland's energy sector, it is essential to amend existing energy policies and regulations to explicitly mandate the participation of women in all facets of the sector. This could involve incorporating specific gender-focused provisions into the Energy Policy and the Energy Act. For instance, one potential amendment could be setting minimum quotas for women's representation in key governance bodies, such as the Energy Regulatory Commission, the Ministry of Energy, and other decision-making bodies related to the energy sector. A recommended target might be at least 30% female representation in leadership roles across these entities within the next five years. The implementation of these quotas should be accompanied by clear timelines and benchmarks for progress, with regular reporting to ensure accountability. In addition, a robust monitoring mechanism should be established to track gender balance in all relevant committees, councils, and boards within the energy sector. The mechanism could include regular gender audits, feedback from stakeholders, and reporting from the relevant authorities on the effectiveness of these initiatives. Furthermore, any amendments should also mandate the development of gender-sensitive policies in energy projects, ensuring that women's specific needs and roles in the sector are considered in energy planning, infrastructure development, and policy implementation.

Gender-Focused Vocational Training Programs: Incorporating gender-specific vocational training initiatives is critical to empowering women with the necessary skills to participate in and contribute to the energy sector. These training programs should be designed to address the gender disparities in skill development and should focus on equipping women with both technical and managerial skills relevant to energy-related fields. For example, training programs could cover areas such as renewable energy technologies, energy efficiency, grid management, and entrepreneurship in energy businesses. Clear, measurable targets should be set for these programs, such as the number of women to be trained annually, ensuring that these programs cater to women from diverse backgrounds, including rural communities, and those with lower levels of formal education. A target could be set to train at least 500 women in energy-related fields within the first two years. Additionally, the programs should have regular assessments and evaluations to measure the effectiveness and impact on women's employment and advancement in the energy sector. These assessments should track metrics such as job placement rates, the retention of women in the energy workforce, and their progression into leadership roles. The training programs should also include mentorship components and partnerships with energy companies to facilitate practical experience and employment opportunities.

Economic Incentives for Employers: To encourage companies within the energy sector to hire, train, and retain women, the government should introduce targeted economic incentives. These could include tax breaks, subsidies, or preferential government contracts for companies that meet gender inclusion targets. For example, energy companies that achieve a certain percentage of female employees (e.g., 30% women in their workforce) or establish women-focused training programs could receive financial incentives, such as reduced tax rates or access to government contracts. Incentives could also be linked to companies demonstrating sustained efforts to support gender equality, such as implementing gender-sensitive recruitment practices, offering equal pay for equal work, and ensuring women's advancement within the company. Performance metrics should be clearly defined, such as the number of women employed or promoted in leadership positions, with companies required to report these metrics annually. A rating system could be developed to rank companies on their gender inclusivity efforts, with those ranking highly receiving public recognition, government-backed certifications, or additional business opportunities.

Monitoring and Evaluation Frameworks: A comprehensive monitoring and evaluation (M&E) framework should be established to track and assess the progress of gender inclusion initiatives within the energy sector. This framework should include the collection and analysis of gender-disaggregated data to measure the effectiveness of gender-focused policies, programs, and interventions. Key performance indicators (KPIs) could include the number of women employed in the energy sector, the percentage of women in leadership positions, and the number of women trained in energy-related fields. Regular reporting and data analysis will enable decision-makers to assess progress, identify challenges, and adjust strategies as needed. The M&E framework should also include qualitative assessments, such as surveys or focus groups with women working in the energy sector, to gather insights on their experiences, challenges, and suggestions for improvement. Additionally, gender audits should be conducted annually, ensuring that gender-responsive measures are implemented effectively across all energy-related policies and initiatives. The M&E process should also be transparent and publicly accessible, with annual reports published to track the government's commitment to gender equality in the energy sector.

Gender Action Plan (GAP)

The proposed Gender Action Plan (GAP) aims to promote gender equality and ensure the empowerment of women and marginalized groups within the context of this gender and energy assessment. This implementation framework is structured to guide the ministry through phased actions, timelines, and performance indicators that will assess the progress and outcomes. It outlines the steps needed to ensure the plan's successful execution and impact

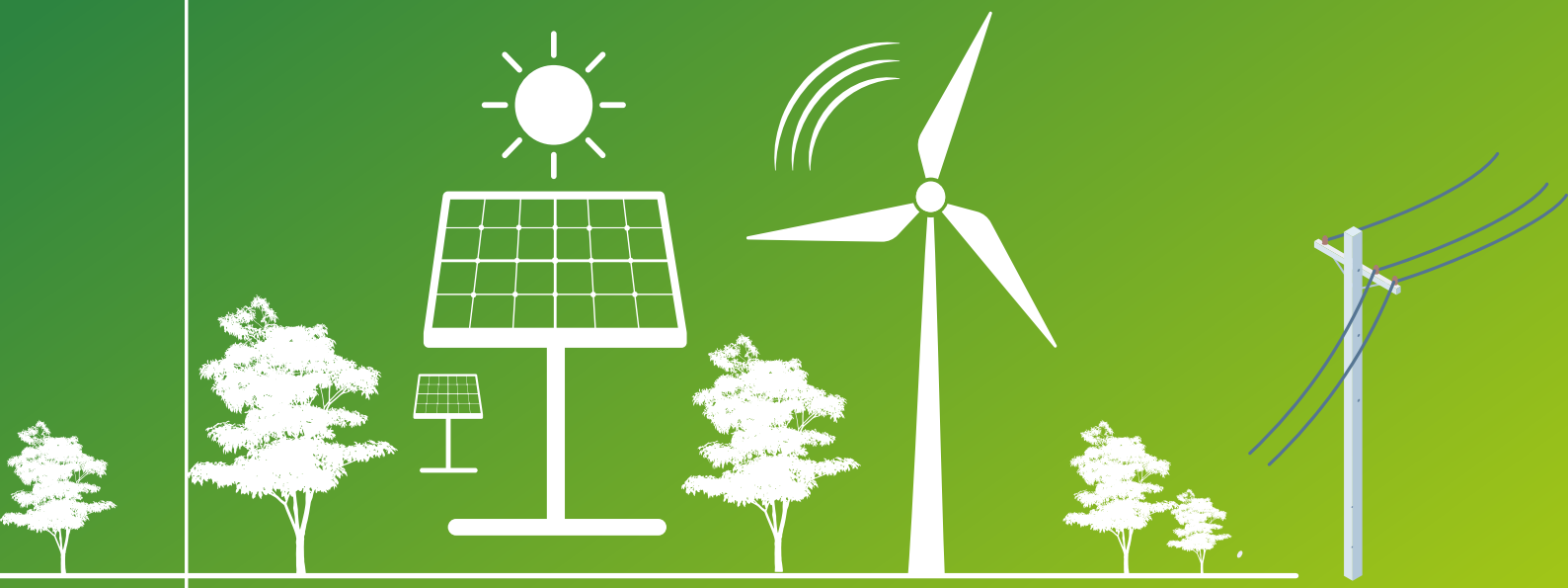
Table 27: Gender Action Plan (GAP)

Phase	Objectives	Actions	Performance Indicators	Timeline
Phase 1: Immediate Actions	Conduct gender assessment and gap analysis. Raise awareness about gender equality. Initiate targeted recruitment efforts for women. Establish baseline data.	-Conduct a Gender Assessment (gender dynamics, challenges, and opportunities). -Stakeholder Engagement -Recruitment and Outreach (gender-sensitive recruitment). -Data Collection (baseline statistics).	-. - Percentage increase in women participating. -Baseline data collected on gender disparities. - Number of gender-sensitive policies developed.	0-6 Months
Phase 2: Short-Term Actions	Build capacity among women. Incorporating specific gender-focused provisions into legislations such as the Energy Policy and the Energy Act Integrate gender-responsive programming. Create leadership opportunities for women. Monitor and evaluate effectiveness.	- Capacity Building and Training (workshops for women on skills, leadership). - Integration of Gender-Responsive Actions (across all activities). - Leadership Development (female leadership positions). - Regular Monitoring (data collection and analysis).	- Number of women trained/mentored. - Proportion of women in leadership roles. - Gender-responsive policies integrated. - Increase in women's representation in decision-making bodies.	6-12 Months
Phase 3: Medium-Term Actions	Scale up gender mainstreaming. Foster institutional change. Enhance women's economic and political empowerment. Conduct an in-depth evaluation.	- Mainstream Gender Across Programs (ensure all sectors have gender-sensitive approaches). - Women's Economic Empowerment (access to resources, training, platforms). - Institutional Capacity Building (training local institutions). - End-of-Phase Evaluation (impact assessment).	- Proportion of budget allocated to gender-responsive activities. - Number of women benefiting from economic programs. - Gender-sensitive policies or regulations developed. - Increase in women's participation in economic and political decision-making.	1-3 Years
Phase 4: Long-Term Actions	Sustain gender equality efforts. Institutionalize gender-responsive policies. Ongoing monitoring and adaptation.	- Institutionalization of Gender Policies (embed in local government frameworks). Gender policies can be integrated into local governance structures, ensuring that they are consistently applied at all levels of decision-making. This includes policy development, budgeting, and implementation processes. - Sustainability Plans (community-led initiatives). - Ongoing Monitoring and Adaptation (continuous evaluation). - Knowledge Sharing and Advocacy (promote gender equality).	- Degree of institutionalization of gender policies. - Sustainability plans in place. - Number of advocacy campaigns conducted. - Long-term gender equality impact (improvements in health, education, employment for women).	3+ Years

Breakdown of Actions:

Timeframe	Key Focus	Objectives
Short-Term (0-12 Months)	Awareness & Training	Conduct gender assessments, launch awareness campaigns, start recruitment for women, develop monitoring and evaluation frameworks.
Medium-Term (1-3 Years)	Integration & Empowerment	Build women's leadership and skills, integrate gender-sensitive practices, continue advocacy, and monitor progress.
Long-Term (3+ Years)	Sustainability & Institutionalization	Ensure continued gender-responsive practices, institutionalize gender policies, measure and report long-term outcomes.

ANNEXES



Data Collection Tools

Key Informant Guide Group 1

National Gender Diagnostic Assessment for the Energy Sector of Somaliland

Key Informant Guide for Government officials; *Ministry of Energy and Minerals (MoEM) Staff Members, Somaliland Energy Commission, Ministry of Employment, Social Affairs and Family (MESAF), Ministry of Rural Development, Ministry of Education, and Ministry of Health, Local Authorities*

Region		**Interviewer Name**	
District		**Interviewer Code**	
Location		**Supervisor Name**	
Respondent Name		**Start time**	
Date of the Interview		**End time**	

INFORMED CONSENT - [TO BE READ BY INTERVIEWER TO RESPONDENT – EXPLAIN IN LOCAL LANGUAGE]

Good morning/evening, my name is **[Insert Name]** an interviewer from HACOF, an independent research company in Somaliland. I am here today on behalf of the Somaliland Ministry of Energy and Minerals to interview you to better understand your thoughts and perception regarding gender dynamics across the energy sector value chain in Somaliland from production and transmission to end-user consumption. The Ministry of Energy and Minerals through this seeks to better understand gender dynamics in energy sector, identify barriers to gender inclusivity, and propose actionable recommendations to promote equal opportunities and foster a more inclusive energy sector in Somaliland.

We would also like to let you know that this interview is voluntary; there is no obligation to speak to me if you do not want to and choosing to or not to participate will not affect you in any way. Your responses will be completely confidential, and no one will be able to trace your responses back to you. The interview will take approximately 1 hour.

Do you want to ask any questions?

Yes	No
1	2

Would you like to participate in this survey?

Yes	No
1	2

If NO, end survey

Demographic Information.

No.	Key Informant	Role/Occupation	Years experience on the occupation
1			
2			

Introduction

Moderator introduces himself/herself

Let's start by knowing you.

Before we begin, let us quickly get to know a little bit more about each other. Can you share with me a little bit more about yourself?

- First, can you confirm that you are (insert name of respondent)?
- Can you tell me a little bit about what you do here, your role and how long you have been in your role?
- How long has your Organisation/institution been in place?.

Current state of Gender Equality in Somaliland?

*Based on the scale of one to five where 1: Extremely worsened, 2: Somewhat worsened 3: Remained the same 4: Somewhat improved 5: Extremely Improved (*Tick where applicable)

Question	*1: Extremely worsened*	*2: Somewhat worsened*	*3: Remained the same*	*4: Somewhat improved*	*5: Extremely Improved*
How would you describe the current state of gender equality in Somaliland compared to other years with regards to decision-making at the government level					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to employment					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to education access					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to access to energy					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to community participation					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to access to assets or resources					

Implementation of Gender Equality in Somaliland

1. What institutions/ministries are responsible for implementing gender policies?
2. What are the notable measures (programmes and projects) they have implemented? have these been successful? What have been the success or failure factors?
3. Do they have formal training in gender issues?

Government engagement and gender equality in Somaliland

1. Is there a gender focal point in the ministry or institution you work for? if so, please describe his/her role.
2. Is there an energy focal point in the ministry in charge of gender? If so, please describe his/her role
3. Is the focal point provided with a team (gender focal unit)? If so, what is the professional background of the staff in the unit? What is the professional background of the focal point?
4. What resources are made available to the unit and/or the focal point (financial resources, human resources, work tools, etc.)
5. What are the focal points (or unit's) involvement in policy drafting and programme/project implementation? If there is no gender focal point in the ministry or institution, does the ministry or institution consult with the ministry in charge of gender in Somaliland (or other gender institutions and experts) during policy drafting and project/ programme implementation?
6. Are gender considerations included in energy programmes and projects during elaboration and during implementation? If so, how?
7. Does your organization gather or employ gender disaggregated information in its activities planning, monitoring or reporting?
8. In your opinion, what competence is lacking for implementing gender and energy policy in Somaliland?

Gaps in national policies, budgets, and practice in achieving equal access to energy services and technologies by men and women

1. Is there certain legislation or practices that encourage (directly or indirectly) unequal access to resources (e.g. land, access to finance and technology etc.) for men and women, explain?
2. Is gender equality considered in the national energy policies, what are they and how are they implemented?
3. In budgeting, are there funds dedicated to identifying and addressing gender gaps in the energy sectors – e.g. capacity building, awareness raising, developing gender-responsive policies (or policy reform for gender equality) or gender-responsive investment promotion and business development?
4. If yes, do you think the funds allocated are sufficient to achieve gender equality?
5. Is there a team (or expert) overseeing (evaluating and reporting on) the mainstreaming of gender perspectives in energy programmes and projects? If yes, is this coordinated with the Ministry of Women and Human Rights Development?

Barriers for Equal Participation of men and women in Science, technology, engineering, and mathematics (STEM) in education and employment

1. What educational institutions prepare students for STEM tertiary education (higher education, vocational, etc.)?
2. What are course offerings at the institutions pertinent to the energy sector?
3. What skills are students acquiring at graduation?
4. What skills are needed by Energy Service Providers (ESPs) at employment?
5. Do skills gaps exist at graduation and employment? Do gendered skill gaps exist at graduation and employment?
6. How significant is the difference between the number of male students and the number of female students in STEM?
7. What do you think could be the reasons for this?
8. Are there targeted efforts to increase the number of female students in STEM? Do you think this is necessary, and why?
9. Are there social and cultural norms and attitude that deter women from studying STEM?
10. Are there enough women role models for female STEM students?

Women Access to assets in the energy sector

1. Is there a difference between how households access energy and how ESPs access energy based on their ability to access various assets? If so, is there a gender dynamic and how does this affect overall energy access?
2. How would you describe the gender relations within your community with regard to household access to energy?
3. How should the community and other stakeholders go about in improving the gender relations within the community for easy household energy access?
4. How do these relations affect the access to the various resources necessary for women to become productive members of the society or engage in energy supply?
5. How would you describe the gender relations with regard to ESPs and their ability to access equipment and capital to ensure adequate supply of energy in the community?
6. How should the community and other stakeholders go about in improving the gender relations among the ESPs in the energy sector?

Beliefs and perceptions

1. How do traditional gender roles influence the participation of men and women in the energy sector in your community (both in education and employment)?
2. Can you describe the workplace culture in the energy sector and how it affects women's participation?
3. What are the perceived benefits of involving women in energy projects for the community?
4. What are the prevailing perceptions about men's and women's access to and control over energy resources and technologies in your area?
5. How can these norms, beliefs, and perceptions be improved within the energy sector?

Key Informant Guide Group 2

National Gender Diagnostic Assessment for the Energy Sector of Somaliland

Key Informant Guide for Private Sector: *Energy Service Providers (ESPs)*

Region		**Interviewer Name**	
District		**Interviewer Code**	
Location		**Supervisor Name**	
Respondent Name		**Start time**	
Date of the Interview		**End time**	

INFORMED CONSENT - [TO BE READ BY INTERVIEWER TO RESPONDENT – EXPLAIN IN LOCAL LANGUAGE]

Good morning/evening, my name is **[Insert Name]** an interviewer from HACOF, an independent research company in Somaliland. I am here today on behalf of the Somaliland Ministry of Energy and Minerals to interview you to better understand your thoughts and perception regarding gender dynamics across the energy sector value chain in Somaliland from production and transmission to end-user consumption. The Ministry of Energy and Minerals through this seeks to better understand gender dynamics in energy sector, identify barriers to gender inclusivity, and propose actionable recommendations to promote equal opportunities and foster a more inclusive energy sector in Somaliland.

We would also like to let you know that this interview is voluntary; there is no obligation to speak to me if you do not want to, and choosing to or not to participate will not affect you in any way. Your responses will be completely confidential, and no one will be able to trace your responses back to you. The interview will take approximately 1 hour.

Do you want to ask any questions?

Yes	No
1	2

Would you like to participate in this survey?

Yes	No
1	2

If NO, end survey

Demographic Information.

No.	Key Informant	Role/Occupation	Years experience on the occupation
1			
2			

Introduction

Moderator introduces himself/herself

Let's start by knowing you.

Before we begin, let us quickly get to know a little bit more about each other. Can you share with me a little bit more about yourself?

- First, can you confirm that you are (insert name of respondent)?
- Can you tell me a little bit about what you do here, your role and how long you have been in your role?
- How long has your Organisation/institution been in place?

Current state of Gender Equality in Somaliland?

*Based on the scale of one to five where 1: Extremely worsened, 2: Somewhat worsened 3: Remained the same 4: Somewhat improved 5: Extremely Improved (*Tick where applicable)

Question	*1: Extremely worsened*	*2: Somewhat worsened*	*3: Remained the same*	*4: Somewhat improved*	*5: Extremely Improved*
How would you describe the current state of gender equality in Somaliland compared to other years with regards to decision-making at the government level					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to employment					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to education access					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to access to energy					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to community participation					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to access to assets or resources					

Implementation of Gender Equality in Somaliland's Private Sector

1. What institutions/ministries/Chamber of Commerce/Business Associations are responsible for implementing gender policies in the energy sector?
2. What are the notable measures (programmes and projects) they have implemented? have these been successful? What have been the success or failure factors?
3. Who are the gender experts that you work with?
4. Do they have formal training in gender issues?

Assessment of ongoing Gender Mainstreaming Efforts

1. Do you know of other gender mainstreaming efforts (energy related or not) where you operate?
2. Who is initiating and implementing these efforts?
3. Have they been successful? If so, in what way? If not, why?
4. If the efforts have not been successful, what do you think should have been done differently?

Programs targeting women's participation:

1. Are there any programs specifically designed to increase women's participation in the energy sector? Please describe.
2. What initiatives exist to support women's education and training in energy-related fields?
3. How do you measure the success of these programs?

Barriers that Female Energy Entrepreneurs face and needs that they have to become fully competitive in their work

1. Do you know any women entrepreneur involved in energy businesses? What are their areas of focus ?
2. Do they face any particular barriers in the energy sector as opposed to other sectors?
3. What are those barriers?
4. What can be done to alleviate these barriers?
5. Do women participate in energy value chains and markets?
6. What are some of the energy value chains that women engage in within the community?
7. What are some of the businesses that women participate in that require access to various types of energy?
8. What specific effects can be associated between access to energy sources and overall value chain production or profitability?
9. How does access to energy impact these businesses and value chains in the markets?
10. What are some of the value chains and potential value chains that are benefiting from the energy access? How do they benefit?

Barriers for equal participation of men and women in the energy sector

1. How significant is the difference between the number of male employees and the number of female employees in your organization?
2. What is the percentage of women and men in technical positions and administrative positions?
3. What do you think could be the reasons for this – i.e. more or less female staff in admin or technical roles?
4. For technical employees, are there targeted efforts to increase the number of female employees? Do you think this is necessary, and why?
5. If you think targeted measures are necessary, what could be done to increase the number of females employed as technical staff?
6. If targeted measures are being implemented, is this sufficient enough and what additional measures should be put in place?
7. Are women in your organization (or other energy-related organizations) given equal opportunity to participate in decision-making processes? If so, how?
8. Do you feel that women take advantage of these opportunities? Explain.
9. Are there any internal practices that deter women from participating openly to decision-making processes?
10. Are there roles/positions that are not accessible to women in your organization (or other energy-related organizations)? If so, what are the main reasons this?
11. If so, what are the factors that could make the roles /positions accessible to women?

Barriers for Equal Participation of men and women in Science, Technology, Engineering and Mathematics (STEM) in education and employment

1. What educational institutions prepare students for STEM tertiary education (higher education, vocational, etc.)?
2. What are course offerings at the institutions pertinent to the energy sector?
3. What skills are students acquiring at graduation?
4. What skills are needed by ESPs at employment?
5. Do skills gaps exist at graduation and employment? Do gendered skill gaps exist at graduation and employment?
6. How significant is the difference between the number of male students and the number of female students in STEM?
7. What do you think could be the reasons for this?
8. Are there targeted efforts to increase the number of female students in STEM? Do you think this is necessary, and why?
9. Are there social and cultural norms and attitude that deter women from studying STEM?
10. Are there enough women role models for female STEM students?

Gaps in national policies, budgets, and practice in achieving equal access to energy services and technologies by men and women

1. Is there certain legislation or practices that encourage (directly or indirectly) unequal access to resources (e.g. land, access to finance and technology etc.) for men and women, explain?
2. Is gender equality considered in the national energy policies of the countries where you operate, what are they and how are they implemented?
3. In budgeting, are there funds dedicated to identifying and addressing gender gaps in the energy sectors – e.g. capacity building, awareness raising, developing gender-responsive policies (or policy reform for gender equality) or gender-responsive investment promotion and business development?
4. If yes, do you think the funds allocated are sufficient to achieve gender equality?
5. Is there a team (or expert) overseeing (evaluating and reporting on) the mainstreaming of gender perspectives in energy programmes and projects? If yes, is this coordinated with the Ministries of Gender?

Women Access to assets in the energy sector

1. Is there a difference between how households access energy and how ESPs access energy based on their ability to access various assets? If so, is there a gender dynamic and how does this affect overall energy access?
2. How would you describe the gender relations within your community with regard to household access to energy?
3. How should the community and other stakeholders go about in improving the gender relations within the community for easy household energy access?
4. How do these relations affect the access to the various resources necessary for women to become productive members of the society or engage in energy supply?
5. How would you describe the gender relations with regard to ESPs and their ability to access equipment and capital to ensure adequate supply of energy in the community?
6. How should the community and other stakeholders go about in improving the gender relations among the ESPs in the energy sector?

Beliefs and perceptions

1. How do traditional gender roles influence the participation of men and women in the energy sector in your community (both in education and employment)?
2. Can you describe the workplace culture in the energy sector and how it affects women's participation?
3. What are the perceived benefits of involving women in energy projects for the community?
4. What are the prevailing perceptions about men's and women's access to and control over energy resources and technologies in your area?
5. How can these norms, beliefs, and perceptions be improved within the energy sector?

Key Informant Guide Group 3

National Gender Diagnostic Assessment for the Energy Sector of Somaliland
Key Informant Guide for Women's Organizations/Community Members/Community Leaders/Youth Groups, Educational Institutions, Senior Female Graduates from the STEM Field

Region		**Interviewer Name**	
District		**Interviewer Code**	
Location		**Supervisor Name**	
Respondent Name		**Start time**	
Date of the Interview		**End time**	

INFORMED CONSENT - [TO BE READ BY INTERVIEWER TO RESPONDENT – EXPLAIN IN LOCAL LANGUAGE]

Good morning/evening, my name is **[Insert Name]** an interviewer from HACOF, an independent research company in Somaliland. I am here today on behalf of the Somaliland Ministry of Energy and Minerals to interview you to better understand your thoughts and perception regarding gender dynamics across the energy sector value chain in Somaliland from production and transmission to end-user consumption. The Ministry of Energy and Minerals through this seeks to better understand gender dynamics in energy sector, identify barriers to gender inclusivity, and propose actionable recommendations to promote equal opportunities and foster a more inclusive energy sector in Somaliland.

We would also like to let you know that this interview is voluntary; there is no obligation to speak to me if you do not want to, and choosing to or not to participate will not affect you in any way. Your responses will be completely confidential, and no one will be able to trace your responses back to you. The interview will take approximately 1 hour.

Do you want to ask any questions?

Yes	No
1	2

Would you like to participate in this survey?

Yes	No
1	2

If NO, end survey

Demographic Information.

No.	Key Informant	Role/Occupation	Years experience on the occupation
1			
2			

Introduction

Moderator introduces himself/herself

Let's start by knowing you.

Before we begin, let us quickly get to know a little bit more about each other. Can you share with me a little bit more about yourself?

- First, can you confirm that you are (insert name of respondent)?
- Can you tell me a little bit about what you do here, your role and how long you have been in your role?
- How long has your Organisation/institution been in place?

Current state of Gender Equality in Somaliland?

*Based on the scale of one to five where 1: Extremely worsened, 2: Somewhat worsened 3: Remained the same 4: Somewhat improved 5: Extremely Improved (*Tick where applicable)

Question	*1: Extremely worsened*	*2: Somewhat worsened*	*3: Remained the same*	*4: Somewhat improved*	*5: Extremely Improved*
How would you describe the current state of gender equality in Somaliland compared to other years with regards to decision-making at the government level					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to employment					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to education access					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to access to energy					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to community participation					
How would you describe the current state of gender equality in Somaliland compared to other years with regards to access to assets or resources					

Barriers that Female Energy Entrepreneurs face and needs that they have to become fully competitive in their work

1. Do you know any women entrepreneur involved in energy businesses? What are their areas of focus ?
2. Do they face any particular barriers in the energy sector as opposed to other sectors?
3. What are those barriers?
4. What can be done to alleviate these barriers?
5. Do women participate in energy value chains and markets?
6. What are some of the energy value chains that women engage in within the community?
7. What are some of the businesses that women participate in that require access to various types of energy?
8. What specific effects can be associated between access to energy sources and overall value chain production or profitability?
9. How does access to energy impact these businesses and value chains in the markets?
10. What are some of the value chains and potential value chains that are benefiting from the energy access? How do they benefit?

Barriers for Equal Participation of men and women in Science, Technology, Engineering and Mathematics (STEM) in education and employment

1. What educational institutions prepare students for STEM tertiary education (higher education, vocational, etc.)?
2. What are course offerings at the institutions pertinent to the energy sector?
3. What skills are students acquiring at graduation?
4. What skills are needed by ESPs at employment?
5. Do skills gaps exist at graduation and employment? Do gendered skill gaps exist at graduation and employment?
6. How significant is the difference between the number of male students and the number of female students in STEM?
7. What do you think could be the reasons for this?
8. Are there targeted efforts to increase the number of female students in STEM? Do you think this is necessary, and why?
9. Are there social and cultural norms and attitude that deter women from studying STEM?
10. Are there enough women role models for female STEM students?

Existing gaps within Somaliland of equal access by men and women to key resources, including finances, land, and technology

1. In your opinion, are there other resources (in addition to land, finance, technology) that if women had access to, would increase their access to energy?
2. Are there practices (driven by social norms, perceptions, cultures or traditions) within Somaliland that prevent women from having access to these resources?
3. Do you believe that these practices can be changed? If so, how?
4. Do differences exist between gender access to tangible assets (land, capital and tools) and intangible assets (knowledge, education and information) within the community? What are some of the differences?
5. What are the effects of these differences when it comes to the energy sector?
6. How should the community go about in improving the gender relations within the community in reference to the energy sector?

Women Access to assets in the energy sector

1. Is there a difference between how households access energy and how ESPs access energy based on their ability to access various assets? If so, is there a gender dynamic and how does this affect overall energy access?
2. How would you describe the gender relations within your community with regard to household access to energy?
3. How should the community and other stakeholders go about in improving the gender relations within the community for easy household energy access?
4. How do these relations affect the access to the various resources necessary for women to become productive members of the society or engage in energy supply?
5. How would you describe the gender relations with regard to ESPs and their ability to access equipment and capital to ensure adequate supply of energy in the community?
6. How should the community and other stakeholders go about in improving the gender relations among the ESPs in the energy sector?

Beliefs and perceptions

1. How do traditional gender roles influence the participation of men and women in the energy sector in your community (both in education and employment)?
2. Can you describe the workplace culture in the energy sector and how it affects women's participation?
3. What are the perceived benefits of involving women in energy projects for the community?
4. What are the prevailing perceptions about men's and women's access to and control over energy resources and technologies in your area?
5. How can these norms, beliefs, and perceptions be improved within the energy sector?

FGD Guide

National Gender Diagnostic Assessment for the Energy Sector of Somaliland
Focus Group Discussion Guide

HACOF will conduct 18 FGDs across all the regions in Somaliland (Awdal, Sanaag, Sool, Togdheer, Sahil, and Maroodijex) targeting community members. FGDs for men and women will be conducted differently

Region		**Interviewer Name**	
District		**Interviewer Code**	
Location		**Supervisor Name**	
FGD Category		**Start time**	
Date of the Interview		**End time**	

INFORMED CONSENT - [TO BE READ BY INTERVIEWER TO RESPONDENT – EXPLAIN IN LOCAL LANGUAGE]

Good morning/evening, my name is **[Insert Name]** an interviewer from HACOF, an independent research company in Somaliland. I am here today on behalf of the Somaliland Ministry of Energy and Minerals to interview you to better understand your thoughts and perception regarding gender dynamics across the energy sector value chain in Somaliland from production and transmission to end-user consumption. The Ministry of Energy and Minerals through this seeks to better understand gender dynamics in energy sector, identify barriers to gender inclusivity, and propose actionable recommendations to promote equal opportunities and foster a more inclusive energy sector in Somaliland.

We would also like to let you know that this interview is voluntary; there is no obligation to speak to me if you do not want to, and choosing to or not to participate will not affect you in any way. Your responses will be completely confidential, and no one will be able to trace your responses back to you. The interview will take approximately 1 hour.

Do you want to ask any questions?

Yes	No
1	2

Would you like to participate in this survey?

Yes	No
1	2

If NO, end survey

DEMOGRAPHIC QUESTIONS

What is your name?

No.	FGD Participant Name	Age	Gender	Education Level	Occupation
1					
2					
3					
4					
5					
6					
7					
8					
9					

Key Questions

ENERGY USE

1. What are some of the types of the energy used by the households in your community? Why do you use these types of energy?
2. What are the types of energy used for cooking in the community? Why do community members prefer to use these types of energy for cooking?
3. What are the types of energy used for lighting in the community? Why do community members prefer to use these types of energy for lighting?

USE OF ELECTRICITY FROM INTERCONNECTED GRID and ISOLATED SYSTEM

1. What are some of the common energy sources are used in the community?
2. Does the community have electricity connection?
3. What are the main reasons for households being connected to grid electricity? What is the level of connection within the community?
4. What are common purposes for electricity usage in the community?
5. How often do you experience electricity cut or blackouts and what are back up forms of energy within the community during blackout or during interruptions in electricity?

USE OF LPG

1. Is the use of LPG common within the community? What are it's core uses within the community?
2. What is the price per cylinder or tank of LPG? Where do community members get LPG cylinders?

USE OF SOLAR PV

1. Is the use of solar PV common within the community? What are the common uses of solar PV in the community?
2. What is total cost paid for the solar PV? Do you think they are affordable?
3. Are the maintenance costs of solar PV affordable?

USE OF KEROSENE

1. Is the use of Kerosene common within the community?
2. What are prices of kerosene per litre?
3. What are common purposes for kerosene usage in the community?

USE OF CANDLES

1. Is the use of candle common within the community?
2. What are prices of candle?
3. What are common uses of candle in the community?

USE OF DRY CELL BATTERIES

1. Is the use of dry cell batteries common within the community? What are their common uses?
2. What are prices of dry cell batteries?

USE OF ELECTRIC GENERATOR SET

1. Is the use of electric generator common within the community? What are key uses of electric generator?
2. How many households are connected to electric generators?
3. What type of fuel does the electric generator set use?
4. What are the prices of diesel and petrol used in the electric generator?

USE OF FIREWOOD

1. Is the use of firewood common within the community?
2. What are the sources of firewood in the community?
3. Who collects firewood? What are gender roles around firewood collection?

USE OF CHARCOAL

1. Is the use of charcoal common within the community?
2. What is the cost of charcoal per 2kg container? Does cost of charcoal vary in the market?

PARTICIPATION

1. Does the community hold discussions on energy issues and how to plan for energy? What are some of the issues discussed during the community energy discussions and meetings?
2. How do women take part in the community energy committees? Do they have decision making roles?
3. How often do the discussions take place?
4. What other issues would like to see discussed in these communities?

Gender norms and roles related to energy access/use:

1. How do traditional gender roles in your community affect who makes decisions about energy use?
2. Are there certain energy-related tasks that are considered "women's work" or "men's work"? Why?
3. How have changing energy technologies affected gender roles in your community?
4. What is the impact of the impact of inheritance laws on women's access to and control over assets and resources in the energy sector?
5. What challenges are faced by women-headed households in accessing clean energy and participating in the energy sector?
6. What are some of your attitudes and feelings regarding energy use and other energy related issues within your community ?

Women's participation in community energy planning:

1. Based on your knowledge and understanding, are women allowed to participate in community energy planning meetings?
2. Are they (women) given enough notice or enough information regarding their participation in community energy planning meetings or discussions?
3. How would you describe women involvement in community discussions about energy needs and solutions?
4. What barriers do women face in participating in community energy planning? How can their participation in planning be enhanced?
5. What do you think are the main constraints women face in participating in organizations or activities in the area?
6. What societal norms and expectations related to assigned gender roles and their influence on women's participation in the energy sector?
7. How does women participation in decision-making processes within the energy sector influence their access to energy services?
8. Do you have interactions with relevant ministries and organizations within the energy sector?

Gender-based violence risks related to energy access:

1. Are there safety concerns for women and girls related to lack of lighting or energy access?
2. How has improved energy access (e.g. street lighting) affected women's safety in the community?
3. Are there any risks of gender-based violence associated with collecting fuel or accessing energy services?

Participation of women in Science, Technology, Engineering, and Mathematics (STEM) in education and employment

1. What educational institutions prepare students for STEM tertiary education (higher education, vocational, etc.)?
2. What are course offerings at the institutions pertinent to the energy sector?
3. What skills are students acquiring at graduation?
4. What skills are needed by Energy Service Providers (ESPs) at employment?
5. Do skills gaps exist at graduation and employment? Do gendered skill gaps exist at graduation and employment?

Women Entrepreneurship in Energy value chain and markets

1. Do women participate in energy value chains and markets?
2. What are some of the energy value chains that women engage in within the community?
3. What are some of the businesses and value chains that women participate in that require access to various types of energy?
4. What specific effects can be associated between access to energy sources and overall value chain production or profitability?
5. How does access to energy impact these businesses and value chains in the markets?

Women Access to assets in the energy sector

1. How would you describe the gender relations within your community with regard to the energy sector?
2. How should the community go about in improving the gender relations within the community?
3. How do these relations affect the access to the various resources necessary for women to become productive members of the society?
4. Do differences exist between gender access to tangible assets (land, capital and tools) and intangible assets (knowledge, education and information) within the community? What are some of the differences?
5. What are the effects of these differences when it comes to the energy sector?
6. How should the community go about in improving the gender relations within the community in reference to the energy sector?

Beliefs and perceptions

1. What are some of the norms and beliefs that influence women and men behaviours within the community with regards to the energy sector?
2. How does the various norms and beliefs influence the structure, and type of activities that women and men engage including their specific responsibilities in the energy sector?
3. How do these norms, beliefs, and perceptions affect the men's and women's behaviour, participation and decision-making capacity in the energy sector?
4. How do the norms, beliefs, and perceptions facilitate or limit men and women's access to education, services, and economic opportunities in the energy sector?
6. How can these norms, beliefs, and perceptions be improved within the energy sector?

Household Survey Questionnaire

National Gender Diagnostic Assessment for the Energy Sector of Somaliland

Household Questionnaire

SECTION 1: INTRODUCTION

Region		**Interviewer Name**	
District		**Interviewer Code**	
Location		**Supervisor Name**	
Village Name		**Supervisor Code**	
Respondent Name		**Start time**	
Date of the Interview		**End time**	
Capture GPS			

INFORMED CONSENT - [TO BE READ BY INTERVIEWER TO RESPONDENT – EXPLAIN IN LOCAL LANGUAGE]

INTERVIEWER NOTE: ASK TO SPEAK TO HOUSEHOLD HEAD OR REPRESENTATIVE OF THE HEAD OF HOUSEHOLD

Good morning/evening, my name is **[Insert Name]** an interviewer from HACOF, an independent research company in Somaliland. I am here today on behalf of the Somaliland Ministry of Energy and Minerals to interview you to better understand your thoughts and perception regarding gender dynamics across the energy sector value chain in Somaliland from production and transmission to end-user consumption. The Ministry of Energy and Minerals through this seeks to better understand gender dynamics in energy sector, identify barriers to gender inclusivity, and propose actionable recommendations to promote equal opportunities and foster a more inclusive energy sector in Somaliland.

We would also like to let you know that this interview is voluntary; there is no obligation to speak to me if you do not want to, and choosing to or not to participate will not affect you in any way. Your responses will be completely confidential, and no one will be able to trace your responses back to you. The interview will take approximately 45 minutes.

Do you want to ask any questions?

Yes	No
1	2

Would you like to participate in this survey? If No, thank the respondent and end the interview.

Yes	No
1	2

SECTION 2: DEMOGRAPHIC QUESTIONS

4. **District**

Location	District Name
Awdal	
Sanaag	
Sool	
Togdheer	
Sahil	
Maroodijex	

5. What is your age? (Pick age range and code accordingly)
    a. Less than 18 years
    b. 18-25 years
    c. 26-35 years
    d. 36-45 years
    e. 46-60 years
    f. 61 and above
6. Gender? (Observe – DO NOT ASK THE RESPONDENT)
    a. Male
    b. Female
7. Are you the head of your household ?(**NOTE**: A head of households is the person who brings incomes and makes decision for the household)
    a. Yes
    b. No
8. What is the gender of your household head ?
    a. Male
    b. Female

9. What is your residential status?
    a. Resident
    b. Refugee
    c. Internally Displaced Person (IDP)
    d. Refugee/IDP returnee
10. How long have you been living in this district? DO NOT READ. SINGLE RESPONSE
    a. Less than 6 months
    b. 6 months to 1 year
    c. 1 to 3 years
    d. 3 to 5 years
    e. More than 5 years
11. Characteristics of the house:

8.1 Type of house		**8.2. Predominant material on the floor**	
1. Brick house		1. Earth/sand	
2. Stone house		2. Cement	
3. Concrete-stone house		3. Tiles	
4. Mud		4. Wooden floor	
5. Wood		5. Others	_____ **(specify)**
6. Others	_____ (specify)		

12. What is the total number of rooms in the household (Excluding, Kitchen, garage and storage) ?
13. The house that our household occupies is :

Rented		**How much?**
Owned (built by themselves)		
Owned (bought)		
Owned (inherited)		
Other way?	_____**(specify)**	

14. How many household members (including you) have been living in this household for the past 6 months?

    .....

15. What is the highest level of education that you have completed? (SINGLE RESPONSE. DO NOT READ)
    a. No formal education
    b. Primary education
    c. Secondary education
    d. Tertiary Education (University/College)
    e. Post Graduate (Masters, MBA, PhD)
    f. Madrassa/Koranic school only
16. What is your current marital status? SINGLE RESPONSE
    a. Married
    b. Divorced / separated
    c. Widow/Widower
    d. Never married/ Single
17. What is your household's main source of income? SINGLE RESPONSE
18. From the above mentioned income source, which of the following describes your occupation :
    a. Employer
    b. Self-employed
    c. Employee
    d. Unpaid family worker
    e. Household worker
    f. Other (Specify)

SECTION 2: SOURCES OF ENERGY

19. Are the following energy sources used in your home?

		Yes	No
1	Electricity from interconnected grid or isolated system		
2	Kerosene		
3	Candle		
4	Dry cell batteries		
5	Car batteries		
6	LPG		
7	Solar PV home system		
8	Firewood		
9	Animal dung		
10	Crop residue		
11	Electric generator set		
12	Charcoal		
13	Coal		
14	**Other (specify)** _____		

20. Who in your household usually makes decisions about energy-related purchases (e.g. stoves, solar panels, etc.)?
    a. Husband
    b. Wife
    c. Father
    d. Mother
    e. Sister
    f. Brother
    g. Father – in – law
    h. Mother- in- law
    i. Grandfather
    j. Grandmother
    k. Other
21. Who decides how much money to spend on energy (electricity, fuel, etc.) each month?
    a. Husband
    b. Wife
    c. Father
    d. Mother
    e. Sister
    f. Brother
    g. Father – in – law
    h. Mother- in- law
    i. Grandfather
    j. Grandmother
    k. Other
22. When considering a new energy source or appliance, whose opinion matters most?
    a. Husband
    b. Wife
    c. Father
    d. Mother
    e. Sister
    f. Brother
    g. Father – in – law
    h. Mother- in- law
    i. Grandfather
    j. Grandmother
    k. Other

USE and NON-USE OF ELECTRICITY

23. Does your home have an electricity connection?
    a. Yes
    b. No

24. If your home has no electricity, please indicate whether the following statements are major, minor or not a reason to explain why the household is not connected to the grid?
Code: Major Reason = 1 Minor Reason = 2. Not a Reason = 3

	Not a reason	Minor reason	Major reason
1. Electricity is not available in my area			
2. Our household can't pay the connection fee			
3. Our household can't pay the cost of house wiring			
4. Our household can't afford the monthly payment			
5. Our household can't afford to buy electrical equipment			
6. We are satisfied with present energy source			
7. We do not see any application of electricity			
8. Other reason_____			

25. If your home has no electricity, would you like to have access to grid electricity?

a. Yes
b. No

USE OF ELECTRICITY FROM INTERCONNECTED GRID and ISOLATED SYSTEM

26. Please indicate the following are major, reasons for your household connecting to grid electricity. (select multiple)

a. For better lighting within the home
b. For better safety outside the home
c. To improve income
d. Because electricity is cheaper than other fuels
e. For education of your children
f. For information and/or the news
g. For entertainment
h. Other reason_____

27. Does your home have an electric meter

    a. Yes
    b. No

28. If yes, How many households are connected to the same electric meter including yours ? .....

29. Do you own a business? If yes, is your shop/business also connected to grid electricity?

    a. Yes
    b. No

30. What is the average usage and payment for one month (30 days) of electric service for your household ?

Usage (KWh)		**Cost (USD)**	
Does not know		Does not know	

31. How much did you pay for the installation of the electric meter?

Enter the amount in USD	
Did not Pay	
Does not Know	

32. **A. Does your household use electricity for the following purposes?**

29 A. Does your household use electricity for the following purposes?			29 B. In general, how many hours per day for eachactivity?	
Use type	Yes	No	How many hours	**Does not know**
1. Lighting				
2. Cooking				
3. Electric appliances				
4. Family business				
5. Farm irrigation				
6. Other _____(Specify)				

33. **Electricity supply during the dry season :**

30.A. In your opinion, your household electricity supply during the dry season is:		30.B. During the dry season, how many times is the household's electricity services failedfor more than 30 minutes?		30. C. During the dry season, could you please estimate the amount of hours (in total) electricity service is not been available to your home due to electricity cuts or blackouts?		30.D. During the dry season, how often do the household experience dimming ofthe light?	
Normal		Number of times		Enter hours with fraction		Often	
Irregular		Never				Rarely	
Do not know		**Do not know**		**Do not know**		**Never**	

34. **Electricity supply during the rainy season :**

31A. In your opinion, your household electricity supply during the rainy season is:		31B. During the rainy season, how many times is the household's electricity services failed for more than 30 minutes?		31C. During the rainy season, could you please estimate the amount of hours (in total) electricity service isnot been available to your home due to electricity cuts or blackouts?		31D. During the rainy season, how often do the household experience dimming ofthe light?	
Normal		Number of times		Enter hours with fraction		Often	
Irregular		Never				Rarely	
Do not know		**Do not know**		**Do not know**		**Never**	

35. **A. In case of power failure, what backup equipment does the household use if any ? :**

	Yes	No
a. Candles		
b. Kerosene wick lamp		
c. Gas lamp		
d. Dry cell batteries		
e. Car/Motorcycle battery		
f. Generator		
g. Other _____(Specify)		

36. **Does your household use the following plug-in electric appliances?**

33A. Does your household use the following plug-in electric appliances?			33B. How many of eachappliance does the household use?	33C. What is the sum of all hours for all appliances used during the last 24 hour period?	
			Code: Enter the number or "–999" for do not use.	Code: Enter hours of use with fraction, or "–999" for do not use.	
Appliance Type	Y	N		No. of hours	**No. of minutes**
1 Radio					
2 Sound equipment					
3 TV black and white					
4 TV colour					
5 Recording video/DVD					
6 Electric motors					
7 Refrigerator					
8 Microwave oven					
9 Electric stove					
10 Electric iron					
11 Fan					
12 Washing machine					
13 Domestic water pump					
14 Electrical sewing machine					
15 Electric drill					
16 Electric saw					
17 Electric pump for irrigation					
18 Others?_____(Specify)					

USE OF KEROSENE

37. In the past month did your household use kerosene?

    a. Yes
    b. No

38. A. How many litres of kerosene do you use ? (Liters)

    B. What is the price of each litre of kerosene you use per month? (USD per Litre)

39. **A. Does your household use kerosene for the following purposes?**

36A. Does your household use kerosene for the following purposes?			37B. On average, how many hours for each activity?	
	Yes	No	Average hours	**Does not know**
1. To start firewood				
2. Lamp lighting				
3. Cooking				
4. Other (specify)				

USE OF CANDLES

40. In the past month, did your household use candles for lighting?
    a. Yes
    b. No

41. How many candles did your household use in the past month?

42. What is the price of each candle?

43. A. Does your household use candles for following purposes?

40A. Does your household use candles for following purposes?			40B. On average, how many hours for each activity?	
	Yes	No	Average hours	**Does not know**
1. Home use				
2. Family business use				
3. Other (specify)				

USE OF DRY CELL BATTERIES

44. In the past month did your household use dry cell batteries at home?
    a. Yes
    b. No

45. A. Does your household use batteries of the following sizes?

42A. Does your household use batteries of the following sizes?			42B. In a typical month, how manydry batteries of . . . did your household use in the past month?	42C. What was the priceof each battery of size . . .?
	Y	N	Code: Enter number of dry cell batteries.	**Code: Enter price in USD of battery.**
1. Large (Size D and C)				
2. Small (Size AA and AAA)				

46. **Use dry cell batteries for**

43A. What does your household use dry cellbatteries for?			43B. How many hours per day does your household use the . . .?	
			Enter number of hours used per day	
	Yes	No	Hours	**Minutes**
Radio				
Clock				
Flashlight				
Others?_____ (Specify)				

USE OF LPG

47. In the past month did your household use LPG at home?

a. Yes
b. No

48. What size gas cylinder/tank does your household use at home?

45A. What size of gas cylinder/tank does your householduse at home?			45B. What is the price per cylinder or tank of LPG?	45C. How many days does one cylinder of LPG last?
	Y	N	Enter price in USD per cylinder	**Enter number of days one cylinder**
1. 6 kg Cylinder				
2. 13 Kg Cylinder				
3. Other specify size in Kg ofcylinder _____				

49. Does your household use LPG follow purposes?

46A. Does your household use LPG for the followingpurposes?			46B. On average, how many hours for each activity?	
	Yes	No	Hours	**Does not know**
1. Lamp lighting				
2. Cooking				
3. Appliances				
4. Other _____ **(Specify)**				

50. Does the household use the following gas appliance?

47A. Does the household use the following gas appliance?			47B. How many of each appliance does your household have?	47C. What is the sum of all hours for all . . . used during the last 24hour period?		47D. What is the sum of all days for all . . . used during the last month?
Type of appliance	Y	N	Enter number ofappliances	Enter number of hours		**Enter number of days**
				Hours	Minutes	
1. Gas lamp						
2. LPG stove						
3. LPG stove andoven						
4. Refrigerator						
5. Freezer						
6. Other _____ **(Specify)**						

USE OF SOLAR PV HOME SYSTEM

51. In the past month did your household use a solar PV home system (SHS) to provide electricity at home?
    a. Yes
    b. No

52. What was total cost paid for the solar PV home system (include all the components)? (Cost USD)
53. In which year did the household obtain the solar PV home system? (Year).
54. How much did your household spend on repairs or maintenance of the solar PV home system in the last 12 months? (Cost USD)
55. What is the size in watt peak (Wp) of the solar PV system? (Enter the size of the solar PV in Wp)
56. Does your household use PV system for the following purposes?

53A. Does your household use PV system for the following purposes?			53B. On average, how many hours for each activity?	
	Yes	No	Hours	**Does not know**
1. Lighting				
2. Cooking				
3. Appliances				
4. Home business				
5. Other _____ (Specify)				

57. Does the household use the following electric appliances, which are powered by electricity from solar PV system?

	54. A. Does the household use thefollowing electric appliances, which are powered by electricity from solar PV system?			54.B. How many of each appliance does your householdhave?	54.C. What is the sum of all hours for all appliances used during the last 24 hour period?	
		Y	N	Enter the average number ofappliances	Hours	**Minutes**
1	Radio					
2	Sound equipment					
3	TV					
4	Video recorder					
5	DVD					
6	Domestic water pump					
7	**Others _____ (Specify)**					

USE OF ELECTRIC GENERATOR SET

58. In the past month did your household use an electric generator set to provide electricity at home?
    a. Yes
    b. No

59. The electric generator set that you use is:
    a. Owned?
    b. Rented?
    c. Allowed to use by another home or company?
    d. Not applicable

60. If own, what was total cost paid in cash for the electric generator set (include all the components)? (Cost USD)

61. If rented, how much is the monthly payment? (Cost USD)

62. In which year did the household obtain an electric generator set? (Year)

63. Type of fuel for the electric generator set

60.A. What type of fuel does the electric generator set use?				60.B. How many litres of fuel did your household use for gen-set last month?	60.C. What is the price per unit?
		Yes	No	No. of litres	**USD/. per liter**
1	Diesel				
2	**Petrol**				

64. On an average, how much did your household spend per month on repairs and/or maintenance of electric generator set? (Cost USD)

65. **Use electric generator set for the following purposes?**

62.A. Does your household use electric generatorset for the following purposes?			62 B. On average, how many hours for each activity?	
	Yes	No	Hours	**Does not know**
1. Lamp lighting				
2. Cooking				
3. Appliances				
4. Home business				
5. Other_____(Specify)				

66. **Does the household use the following electric appliances, which are powered by electricity from generator set?**

63A. Does the household use the following electric appliances, which are powered by electricity from generator set?				63B. How many of each appliance does your household have?	63C. What is the sum of all hours for all appliances used during the last 24 hour period?	
		Y	N	Avg. no. of appliances	Hours	**Minutes**
1	Radio					
2	Sound equipment					
3	TV					
4	Video recorder					
5	DVD					
6	**Others (Specify) _____**					

USE OF FIREWOOD

67. In the past month did your household use firewood at home?
    a. Yes
    b. No

68. How does your household obtain firewood for domestic use?
    a. Purchase only
    b. Collected/gathered only
    c. Purchase and collect
    d. Others? _____ (Specify)

69. If purchased

66A. What is the cost per bundle of firewood		66B. On average, how many days will this bundle last?	66C. What was the one-way distance travelled (in meters) to make this purchase?	66D. How long did it take to travel one-way to make this purchase of firewood?		
*Don't include transportation cost		Enter number of days firewood lasted.	Enter distance in kmtravelled	Enter time in hours and minutes		
Total KES/.	Decimal				Hours	Mins
				Adult Male		
				Adult Female		
				Boy/Girl		

70. If purchased,

67A. How reliable is your firewood supply?		67B. Does the cost vary much			
Very reliable		No			
Fairly reliable		A little		Give reason à	
Unreliable		**A lot**		**Give reason à**	

71. If collected,

68A. How many times did your household collect firewood last month? Number of collection	**68B. Where did** you collect it from?		**68C. On average, how** many total days did the previous collected firewood last? No. days firewood lasted.	**68D. What was the one-**way distance travelled in the previous collection of firewood? Distance in meters travelled
	Farm			
	Forest			
	Other	_____		

72. In the last week, how much time (hours per week) was used in collecting firewood by the followingmembers?		
Enter number of hours	Enter hours of use with fraction	
Use Type	Hours	Minutes
Adult Male		
Adult Female		
Boys		
Girls		

USE OF CHARCOAL

73. In the past month did your household use charcoal at home?
    a. Yes
    b. No

74. If yes,

71A. What is the cost per 2kg container of charcoal		71B. On average, how many days will this 2kg container last?	71C. What was the one-way distance travelled (in meters) to make this purchase?	71D. How long did it take to travel one-way tomake this purchase of charcoal?		
*Don't include transportation cost		Enter number ofdays charcoal lasted.	Enter distance in kmtravelled	Enter time in hours and minutes		
Total USD.	Decimal				Hours	Mins
				Adult Male		
				Adult Female		
				Boy/Girl		

75. If yes,

72A. How reliable is your charcoal supply?		72B. Does the cost vary much			
Very reliable		No			
Fairly reliable		A little		Give reason à	
Unreliable		A lot		Give reason à	

76. **USE OF COOKING STOVE and COOKING**

73A. What is the main stove that your household uses to cookall meals? Enter only ONE		73B. Where is this stove located?		73C. What type of fueldoes your household usually use with this stove? Enter type of fuels thatis used most often with this stove.		73D. Does your household use any other kind of fuel withthis stove? Enter the second most often used fuel		73.E. Who usually tends to this stove ?
Open fire, e.g. three stones		Outdoors		Firewood		Firewood		Adult male
Traditional stove no chimney		Semi-enclosed		Crop residue or wood chips		Crop residue or wood chips		Adult female
Traditional stove with chimney		Separate kitchen		Dung cakes		Dung cakes		Boys
Gas/kerosene stove		In living area		Charcoal		Charcoal		Girls
Improved cookstove		Outdoors		Coal		Coal		
Electric stove		Other (specify)	___	Kerosene		Kerosene		
Other	_____ (Specify)			LPG		LPG		
				Electricity		Electricity		
				Other (specify)	____	Other (specify)	____	

77. On average, how many meals do you cook a day using the stove?

78. If you use an improved cookstove, what type?

79. Where did you hear about improved cookstoves?

80. Where did you buy your improved cookstove?

81. If you do not use an improved cookstove, why not?
    a. Too expensive
    b. Do not know where to buy
    c. Do not know what an improved cookstove is
    d. Do not like the look of them
    e. Food doesn't taste good
    f. Cultural beliefs
    g. Other (Specify) _____

82. How has access to electricity changed the time you spend on household chores?

MOBILE PHONE

83. How many mobile phones do you have in your household?

84. Where do you charge your mobile phone?
    a. At home
    b. At a neighbour's house
    c. Other

85. What source of energy do you use to charge your mobile phone?
    a. Grid electricity
    b. Car battery
    c. Dry cell batteries
    d. Small solar panels (i.e. solar lantern)
    e. Solar PV home system
    f. Electric generator
    g. Other (specify) _____

HOUSEHOLD PARTICIPATION

86. Within the household, do you discuss energy issues and how to plan for energy?
    a. Yes
    b. No

87. If yes, what issues do you discuss?

88. How often do such discussions take place?
    a. Daily
    b. Weekly
    c. Monthly
    d. 6-monthly
    e. Yearly
    f. Rarely

89. If no, would you like have such discussions?

    a. Yes
    b. No

90. What issues would you like to discuss?

91. How do you get information on energy services and products?

    a. Text message
    b. Radio
    c. TV
    d. Community meetings
    e. Newspaper
    f. Notices
    g. Hagbad
    h. Word of mouth
    i. Other

COMMUNITY PARTICIPATION

92. Beyond the household, are there any other forums for you to discuss issues in the energy sector?

    a. Yes
    b. No

93. How often do such forums take place?

    a. Monthly
    b. Every 6 months
    c. Yearly
    d. Once or twice only

94. How often do you participate?

    a. Monthly
    b. Every 6 months
    c. Yearly
    d. Once or twice only

95. Are women allowed to participate in these forums ?

    a. Yes
    b. No

96. Who organizes the forums?
97. What were the issues discussed?

98. In the future, would you like to be involved in forums to discuss energy issues?

    a. Yes
    b. No

99. If yes, How would you like to hear about them?
    a. Text message
    b. Radio
    c. TV
    d. Community meetings
    e. Newspaper
    f. Notices
    g. Hagbad
    h. Word of mouth
    i. Other

WOMEN'S PARTICIPATION IN THE ENERGY SECTOR

100. Are there certain energy-related tasks that are considered "women's work" or "men's work"?
    a. Yes
    b. No
101. If yes, What kind of tasks are considered "women's work" ?
102. If yes, What kind of tasks are considered "Men's work" ?
103. Have changing energy technologies affected gender roles in your community?
    a. Yes
    b. No
    c. Don't Know
104. Are there constraints faced by women that limit their participation in activities within the energy sector?
    a. Yes
    b. No
105. What do you think are the main constraints women face in participating in organizations or activities within the energy sector?
    a. Limited time
    b. Lack of support from family
    c. Limited confidence
    d. Limited education
    e. Other (specify)
106. Are you a member of the community electrification committee?
    a. Yes
    b. No
107. Are women allowed to be members of the community electrification committee?
    a. Yes
    b. No
108. If no, why are women not allowed to be members of the community electrification committee?

109. Do women take part in energy committees?

    a. Yes
    b. No

110. Do women have decision making roles in energy committees?

    a. Yes
    b. No

Women's entrepreneurship in energy-related businesses

111. Do you or any women in your household run a business related to energy (e.g. selling solar lamps, phone charging services)?

    a. Yes
    b. No

112. Are there challenges that women face in starting or running energy-related businesses?

    a. Yes
    b. No

113. What challenges do women face in starting or running energy-related businesses?

114. Have you received any training or support for energy-related entrepreneurship?

    a. Yes
    b. No

115. Are there opportunities for women to enhance their skills, train, obtain education in order to inclusively participate in the energy sector?

    a. Yes
    b. No

Gender-specific barriers to electricity access

116. Do women in your community face any specific challenges in accessing electricity that men don't?

    a. Yes
    b. No

117. Are there cultural norms that affect women's ability to adopt new energy technologies?

    a. Yes
    b. No

118. Does lack of electricity specifically impact women's daily lives and opportunities?

    a. Yes
    b. No

119. How does lack of electricity specifically impact women's daily lives and opportunities?

Gender-based violence risks related to energy access:

120. Are there safety concerns for women and girls related to lack of lighting or energy access?

    a. Yes
    b. No

121. Has improved energy access (e.g. street lighting) affected women's safety in the community?

    a. Yes
    b. No

122. Are there any risks of gender-based violence associated with collecting fuel or accessing energy services?

    a. Yes
    b. No

– End of survey –

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