



PAPER • OPEN ACCESS

The political economy of gender mainstreaming in energy access in Senegal

To cite this article: Thomas W Klug *et al* 2024 *Environ. Res.: Climate* **3** 045011

View the [article online](#) for updates and enhancements.

You may also like

- [Linking cumulative carbon emissions to observable climate impacts](#)
Claude-Michel Nzotungicimpaye and H Damon Matthews
- [Broadening the scope of anthropogenic influence in extreme event attribution](#)
Aglaé Jézéquel, Ana Bastos, Davide Faranda et al.
- [Coupling human dynamics with the physics of climate: a path towards Human Earth Systems Models](#)
Francisco J Tapiador and Andrés Navarro

ENVIRONMENTAL RESEARCH CLIMATE



PAPER

OPEN ACCESS

RECEIVED

1 February 2024

REVISED

30 May 2024

ACCEPTED FOR PUBLICATION

6 August 2024

PUBLISHED

23 September 2024

Original content from this work may be used under the terms of the [Creative Commons Attribution 4.0 licence](#).

Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.



The political economy of gender mainstreaming in energy access in Senegal

Thomas W Klug^{1,*} , Rajah Saporapa², Victoria Plutshack³, Mawunyo Agradi⁴, Sarah Appiah⁵ and Isaac Nunoo⁶

¹ Potsdam Institute for Climate Impact Research (PIK) e V, Telegrafenberg A 31, Potsdam 14473, Germany

² The University of North Carolina at Chapel Hill College of Arts and Sciences, Murray Hall, 121 South Rd Suite 3202, Chapel Hill, NC 27599-3100, United States of America

³ Duke University, 140 Science Dr, Durham, NC 27708-0187, United States of America

⁴ Department of Economics and Actuarial Science, University of Professional Studies Accra, Box LG 149, Accra, Ghana

⁵ University of Ghana Department of Economics, PO Box LG50. Legon, Accra, Greater Accra, Ghana

⁶ School of Economics Faculty of Commerce, University of Cape Town, Private Bag X3, Rondebosch 7701, South Africa

* Author to whom any correspondence should be addressed.

E-mail: tommyklug1@gmail.com

Keywords: gender mainstreaming, energy access, political economy, Senegal, climate change, just transition, women's empowerment

Abstract

In June 2017, the Economic Community of West African States adopted the Policy for Gender Mainstreaming in Energy Access to integrate gender equity in West Africa's energy and climate policy making. The policy represents the first regional gender and energy policy in the world, establishing a framework to enhance understanding at the nexus of gender and energy, improve the inclusivity of policies, programs, and initiatives, and increase women's participation in the field of energy in the public and private sectors. Each member state developed a National Action Plan (NAP) to operationalize these goals and align implementation with national contexts and policy priorities. This study examines the experience of Senegal's NAP development, from 13 semi-structured interviews of key stakeholders and document review. We use the Actors, Objectives, Context political economy framework to understand how Senegal's economic and political structures, historical and social context, and influence of key stakeholders shaped their efforts to mainstream gender in the country's energy sector. We then describe four main objectives of actors in government, civil society, and the development space involved in policy development, summarizing these as: electricity access, economic development, access to clean fuels and technologies for cooking, and gender equity. We find that the objectives of government and development actors are reflected in the emphasis on energy access in the NAP and the government's long-term development agenda, though a critical lack of engagement with the private sector has limited the policy's efforts to mainstream women across energy sub-sectors beyond clean cooking. Women's civil society organizations, historically less engaged with energy issues, have nonetheless achieved considerable success in advocating for increased women's political participation. This advocacy has set a precedent for policies promoting 'positive discrimination' for women and marginalized groups, evident in policy activities aimed at electrifying women's economic sectors.

1. Introduction

Recent policies to address the distributive aspects of the energy transition arise from the imperative for climate policy to secure widespread public support, increasing politicization of energy and climate issues, and in response to concurrent climate and economic challenges. Disparities in the impacts of global crises, as evidenced by the COVID-19 pandemic and climate-related disasters, underscore an uneven distribution of burden across countries, communities, and individuals. This asymmetry is particularly pronounced for women and gender minorities, especially those in low- and middle-income countries, who face heightened

vulnerabilities to climate change. Gender-blind climate policy also threatens to reinforce historical inequalities, including women's exclusion from the energy sector. Given the sector's substantial contribution to global greenhouse gas emissions, ensuring women have equal access to decision-making roles and private sector careers is a growing demand for a gender-just transition.

One approach to inclusion of gender minorities in programs, policies, and institutions is known as gender mainstreaming. Gender mainstreaming as a practice became popularized following the Fourth World Conference on Women held in Beijing in 1995 (Alston 2014). Gender mainstreaming refers to 'the process of assessing the implications for women and men of any planned action, including legislation, policies or programs, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic, and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality' (ECOSOC 2006). Since its inception, gender mainstreaming was a product of transnational global politics and multilateral approaches to governance (Walby 2005). Gender mainstreaming has become a highly contested approach, attributed in part to the complex and multi-dimensional nature of gender equality, and has received criticism for failing to enact sufficient institutional change (Grown *et al* 2016).

The energy sector has been historically slow to adopt gender mainstreaming due to its highly technical approach to ensure affordable and reliable access to clean energy. For the energy sector, planning and policy making is implemented in a gender-blind way, with the implicit assumption that energy policies benefit men and women equally (Clancy 2009). This approach to energy policy making is especially prevalent in sub-Saharan Africa despite the highly gendered nature of energy use at the household and community levels (Musango *et al* 2020, Mang-Benza *et al* 2023). Diffusion of gender mainstreaming principles to the energy sector was facilitated in part by the ENERGIA international network on gender and sustainable energy, which also emerged as a product of the 1995 Beijing Conference. ENERGIA focuses its work in African and Asian countries, having first conducted gender audits of national energy policies in 20 countries between 2005 and 2011. These audits revealed that gender was not a high priority in the energy sector, there was a lack of knowledge around gender mainstreaming among both energy and gender specialists, and a lack of gender disaggregated data (*ibid*), which represent important preconditions for gender mainstreaming to be successful.

Gender disparities in the energy sector are especially prominent in sub-Saharan Africa (Mang-Benza *et al* 2023). Energy use and gender equity are highly interconnected and are hypothesized to enable a virtuous cycle (Das *et al* 2023). Given the potential of energy access as a cross-cutting enabler of development outcomes, including health, education, agriculture, transportation, cooking, heating, etc. addressing gendered disparities in energy access can enable women's empowerment and the achievement of SDG 5: Gender Equality (Jeuland *et al* 2021). In Nigeria, bioethanol stoves were found to save women time on cooking and improve health outcomes (Amanda *et al* 2016). In Mali and Senegal, off-grid electricity access was found to increase women's free time, enable income-generating activities, and improve girl's attendance and performance in school (Denton 2004, Sovacool *et al* 2013). An emerging thread of research describes how gender equity can simultaneously enable the uptake of modern and efficient energy (Das *et al* 2023). In Senegal for instance, there is evidence that women's intra-household bargaining power and embeddedness in informal institutions can influence the adoption of clean cooking fuels (Sonne 2016). Institutional gender inequality is exemplified by gendered access to grid electricity, as women's lower economic and political power limits their ability to afford and lobby for grid connections (Mang-Benza *et al* 2023).

In recognition of such challenges, the Economic Community of West African States (ECOWAS) signed into a law the Policy for Gender Mainstreaming in Energy Access (PGMEA). Signed by the ECOWAS heads of state in June 2017, this policy represents the first regional gender and energy policy in the world, with five major objectives underscoring historical gender mainstreaming strategies:

1. Expand awareness of gender inequality in the energy sector;
2. Improve the inclusion of women in energy policies and programs;
3. Increase women's public sector participation in energy;
4. Ensure equal opportunity of women in energy in the private sector; and
5. Establish a gender responsive monitoring and evaluation framework.

Following ratification of the regional policy, member states were tasked with creating National Action Plans (NAPs) to define the activities and investments each country would undertake to operationalize the PGMEA according to each state's development priorities and capacities. Development of the NAPs took place between 2019 and 2021, coordinated by independent consultants hired by the ECOWAS Center for Renewable Energy and Energy Efficiency (ECREEE). These consultants solicited inputs from key

stakeholders in government, civil society, and the private sector, and organized workshops to develop and eventually validate the finalized NAPs.

In Senegal, the NAP sets itself apart from other countries' NAPs by incorporating a large set of activities to address women's energy needs, such as clean cooking and biogas investments, electrification of women's enterprises, and gender mainstreaming in rural electrification projects. The NAP leverages existing programs and partnerships (namely with civil society and international actors such as the Millennium Challenge Corporation and the German development agency, GIZ). Moreover, the NAP aligns closely with Senegal's wider national development agenda, particularly focusing on the objectives of economic development and universal energy access.

Previous studies linking gender mainstreaming to feminist theory have noted that there is a dearth of research dissecting the role of operations of power in gender mainstreaming, and a gap between the expansive theoretical work on gender equity and empirical gender research (Zalewski 2010). Lessons from the empirical literature highlight the shortcomings of gender mainstreaming initiatives, by failing to build staff capacity, allocate sufficient funding, and evaluate the outcomes. These practical failures are symptomatic in part due to political barriers, including a lack of political will to pursue more gender transformative policies or the appropriation of women's issues by disingenuous political actors or institutions to placate the demands of feminist movements (Grown *et al* 2016, Zeinab 2017). This paper attempts to fill this gap, offering a critical examination of the policy development process for gender mainstreaming in Senegal's energy sector. This study represents the first of its kind to apply a political economy analysis to a gender mainstreaming policy, and contributes to an emerging thread of literature on the gender politics of the West African energy sector.

The objectives of this study are two-fold. We first aim to understand the unique political economy factors that contributed to development of Senegal's NAP (referred to as the PANGE).⁷ We seek to understand how the PANGE was shaped by national economic and political structures, key actors, development priorities, and social norms. Second, we aim to understand how these factors may influence implementation of the PANGE in Senegal, and furthermore the PGMEA in the ECOWAS. This study, and the theoretical framework underpinning the analysis, attempts to shed light on the policy design process of the PANGE, and therefore does not examine implementation of the policy. To unravel the political dynamics shaping development of the PANGE, this study uses the Actors, Objectives, Context framework developed by Jakob *et al* (2020) to identify how the objectives of key actors in Senegal's gender and energy sectors shaped the PANGE.

The rest of the paper is organized as follows. Section 2 describes Senegal's key energy and climate policies and Section 3 discusses Senegal's historical experiences with gender policies and gender mainstreaming. Section 4 outlines the contents of the PANGE and how it is distinguished from other ECOWAS country plans. Section 5 describes our main research questions and methods. Section 6 summarizes the stakeholder objectives most salient in development of the PANGE, while section 7 discusses these findings in the context of implementation of the PANGE, the regional policy, and Senegal's gender-just energy transition.

2. Energy and climate policy in Senegal

In Senegal, the state plays a large role in coordinating the energy sector and expanding electricity access. This national mandate is reflected in the government's 'Plan Sénégal Emergent 2035' (PSE), announced by President Macky Sall in 2014 (GoS 2014). While the plan outlines a development agenda for all economic sectors, energy goals are featured prominently following public dissatisfaction with power outages and supply challenges of the state-owned electricity company, Senelec. Political commitments to expand energy access are also underscored in the plan, which aims to achieve universal electrification by 2025, primarily through private sector financing. Simultaneously, the government has made efforts to decarbonize the energy sector, expanding its utility-scale solar and wind projects, which represented 27% of the country's total generation in 2020. Liquefied natural gas is also expected to be added to Senegal's energy generation mix since the discovery of offshore oil and gas deposits in 2014 (van den Bold 2022). Still, energy access and affordability remains a persistent problem for rural areas in particular, with only 47% of the population electrified and 4% with access to clean cooking fuels (World Bank 2020).

Senegal's Nationally Determined Contribution (NDC), updated in 2020, outlines its commitment to the Paris Agreement, with an agreed 7% reduction in greenhouse gas emissions by 2030 or 29% reduction contingent on external financial support. In terms of its mitigation commitments, emissions reductions will be found in the energy, transport, agricultural, forestry, and waste sectors. The NDCs adaptation commitments highlight the role of renewable energy expansion (namely wind and solar) and promotion of clean cookstoves, biogas, sustainable charcoal, and energy efficient technologies. An estimated \$8.7 billion

⁷ Plan d'Actions National pour l'Intégration du Genre dans l'Accès À l'Énergie Sénégal.

and \$4.3 billion USD is required for reaching the country's mitigation and adaptation goals, respectively, which is expected to be mainly financed by international donors. While the country's progress towards its NDC has so far been disappointing, a new national development strategy (Plan Sénégal Emergent Vert or PSE vert) is currently being formulated to secure its climate goals. Current setbacks of Senegal's NDC include a shortage of external financing, poor integration of the NDCs with sectoral policies, and no clear strategy for phasing out fossil fuels (Ahmadou 2023).

3. History of gender mainstreaming in Senegal

In 2005, Senegal passed a National Strategy for Equity and Gender Equality (SNEEG), developed through a consultation between government and civil society. With the broad goal of eliminating gender inequalities and committing to equitable access of development resources, the plan establishes a political and legal framework for operationalizing gender equity in cross-sector policy making. The SNEEG outlines several thematic areas to address gender-based violence, improve gendered access to healthcare and education, and promote women's political participation and access to economic opportunities. These objectives are supported with awareness raising activities, updating curriculum, creating strategies for intervention, and identifying partnerships with civil society organizations. The policy gives recognition to women's roles in society and within the household, calling for a sharing of household tasks and decision-making power (Ministère de la Femme, de la Famille et du Développement Social 2005).

The first iteration of the SNEEG received criticism for not adequately exploring gender relations, providing concrete recommendations for policy or institutional change, or interfacing with local civil society actors (Nageeb *et al* 2005), though many of these concerns have been addressed in the 2015 update to the policy. Still, effective implementation has been hindered by a lack of political will (New Faces New Voices 2020). Further, similar to Senegal's NDC, the SNEEG does not contain sectoral strategies for implementation, and gives virtually no attention to the energy sector (Ministère du Pétrole et des Energies 2020). The SNEEG's update for another ten-year period in 2015 gave a stronger focus to women's economic development and clearer alignment with the PSE (Ministère de la Femme, de l'Enfant et de la Famille 2015).

In 2010, under direction of the Ministry of Women, Family, and Children, Senegal's National Assembly passed the Gender Parity Law, receiving international attention and representing one of the country's most ambitious policies to promote gender equality in political participation. The law requires political parties to ensure at least half of candidates in local and national elections were female. While not always followed and favored by male parliamentarians, the law has increased the number of seats held by women from 19% in 2001 to 43% in 2017 (one of the highest in the region). Senegal now has the seventh highest proportion of women in parliament in the world, and third highest in Africa (International Idea 2022). The passage of the parity law was largely attributed to persistent lobbying of the Senegalese women's movement to former President Abdoulaye Wade, who passed the policy into law after response to civil society petitions, to counteract waning political popularity, and to better align the state with international norms (Tøraasen 2017).

ENERGIA conducted a gender audit in Senegal in 2001 to better integrate gender in the country's policies and programs. Further gender audits were conducted with Enda Energie, ENERGIA, PERACOD, and Energy 4 Impact in 2007, 2011, and 2016 with the Ministry of Energy and Petroleum (MPE) (Ministère du Pétrole et des Energies 2020). Gender audits are a key precursor to gender mainstreaming efforts since they are tools to identify and analyze the factors that hinder efforts to mainstream gender in policies and programs by identifying the specific ways in which gender issues are, or are not, addressed in existing policy formulation and implementation (Clancy and Mohlakoana 2020). Gender audits had a legacy of encouraging institutions to mainstream gender by equipping them with the requisite knowledge of gender gaps. For example, GIZ's Program for the Promotion of Renewable Energies, Rural Electrification and Sustainable Supply in Domestic Fuel (PERACOD) integrated gender approaches in their programs following ENERGIA's gender audit in Senegal. The gender audits also led to the installation of gender desks in the MPE in Senegal (*ibid*).

4. Senegal's National Action Plan (the PANGE)

Senegal's NAPs is an 87-page document, which describes the context and main goals of the PANGE, a list of actors, and their respective roles and responsibilities, a SWOT (strengths, weaknesses, opportunities, and threats) analysis of gender mainstreaming in the energy sub-sectors, and a list of proposed activities, steps for legal and administrative implementation of the PANGE, a strategy for monitoring and evaluation of impacts, and an overview of the validation process including a list of stakeholders consulted.

The document was developed according to the following timeline: ECREEE hired independent consultants in 2019 to draft the individual country action plans. The consultant hired to develop Senegal's

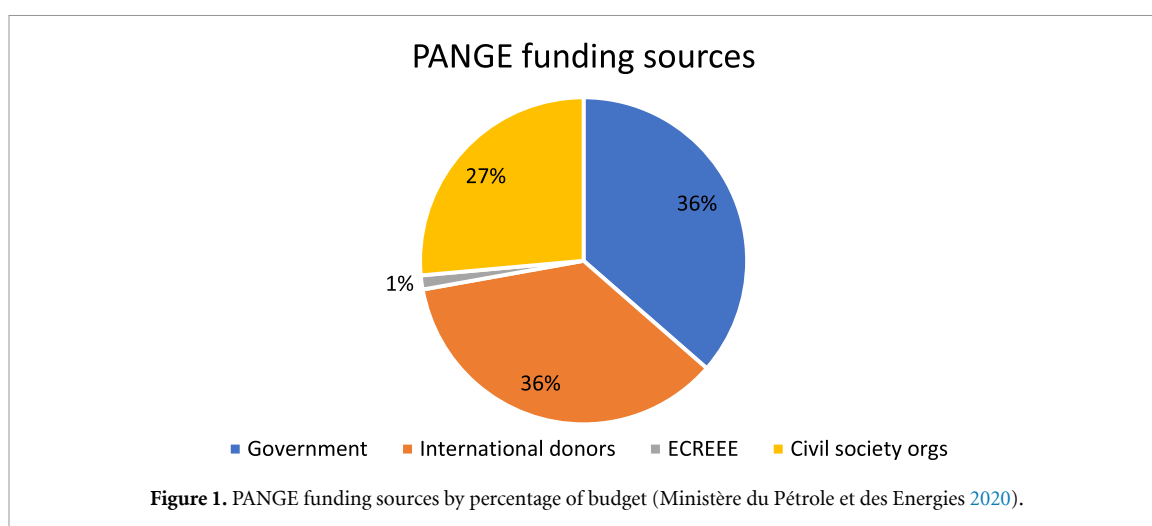
Table 1. Objectives, activities, implementing actors and budget of Senegal's PANGE (Ministère du Pétrole et des Energies 2020).

Objective	Number of activities	Key Implementing actors	Budget (USD)
1. Achieve a widespread understanding of energy and gender considerations at all levels of society	3	- Ministry of Petroleum and Energy (MPE) - Civil society - Universities	\$221,000
2. Ensure that all energy policies, programs and initiatives, including large energy infrastructures and investments, are nondiscriminatory, gender-inclusive, gender-balanced and directed towards addressing inequalities, particularly energy poverty, differentially affecting men and women in the region - 50% of energy policies by 2020 and 100% by 2030 will be gender sensitive - 50% of government energy projects, programs, and initiatives will integrate gender by 2020 and 100% by 2030	12	- Gender Focal Units (multiple ministries) - MPE - Civil Society - MCC - GIZ - ECREEE - Private sector	\$5,321,000
3. Increase women's public sector participation in energy-related technical fields and decision-making positions - At least 25% of female employees in the public energy sector by 2020 and 50% by 2030	9	- MPE - Civil society - ECREEE - MCC - ASER - Energy4Impact	\$1,878,500
4. Ensure that women and men have equal opportunities to enter and succeed in energy-related fields in the private sector - At least 25% of female employees in the private energy sector by 2020 and 50% by 2030	9	- MPE - MCC - GIZ - Civil society - MPE - ASER - PNB	\$408,000
5. Establish and maintain a gender responsive monitoring, accountability and review framework for objectives 1–4	4	- Gender Focal Unit (MPE) - Ministry of Finance - MCC	\$85,000

NAPs engaged with various stakeholders in 2019 and 2020. The consultant, in coordination with the Ministry of Petroleum and Energy (MPE), organized several roundtables with key stakeholders during this period to finalize and eventually validate the NAPs in October 2020. Stakeholders from government, civil society, the private sector, and international partner organizations were included in the consultation. A total of 29 organizations were officially consulted in the development of the PANGE.

While the consultation was relatively inclusive a wide range of actors, the list does not represent the full range of stakeholders working on energy and gender issues in Senegal. Other relevant organizations absent from the official consultation include Africa Clean Energy Technical Assistance Facility (ACE-TAF), a UK funded program to stimulate private investment in off-grid technologies. While ACE-TAF was not officially consulted, they still played a role in development of the PANGE, having developed a Gender and Social Inclusion Strategy for implementation of the PANGE with the MPE (ACE-TAF 2021). Actors from academia, including universities, research institutes and think tanks, are relatively underrepresented in the PANGE, including the Centre d'Études et de Recherches sur les Énergies Renouvelables and the University of Gaston Berger. Similar to other countries' NAPs, the private sector is also underrepresented, the only private sector actors consulted include Bonergie, a solar energy company, GroFin, a small-and-medium enterprise financier, and Senelec, the state-owned electricity utility (Ministère du Pétrole et des Energies 2020).

The PANGE is structured similarly to other countries' NAPs; its major objectives organized according to the five overarching objectives of the PGMEA framework, highlighted below. Each objective is operationalized by a set of activities, actors responsible for implementing these activities, and anticipated budget (summarized in table 1).



As indicated in table 1, the PANGE emphasizes (in terms of the number of activities listed and budget) objectives 2 and 3 (i.e., mainstreaming gender in all policies and programs, and increasing women's participation in the public energy sector). The activities list a range of stakeholders for implementation, from government (mainly the Ministry for Petroleum and Energy) to unspecified civil society actors, to international organizations (mainly Millennium Challenge Corporation, GIZ, and Energy4Impact).

Advocacy-related activities such as, 'Hold national awareness raising, advocacy and communication campaigns with decision-makers and the general public' are mostly assigned to civil society and government actors. Energy access-related activities such as, 'Implement energy access programs for the development of agricultural products companies (farming, fishing) managed by women' are mainly assigned to government and international actors. Activities related to mainstreaming gender in energy policies and programs (Objective 2) and increasing women's public energy sector participation (Objective 3) are to be implemented by the gender focal units established in each ministry, with financial support from a range of sources. Monitoring and evaluation of the policy is coordinated by the MPE with funding support from development partners (Ministère du Pétrole et des Energies 2020). Figure 1 shows the breakdown of funding sources for implementation of the PANGE.

Senegal's NAPs contains several elements that distinguish the plan from other countries' NAPs. The PANGE contains activities related to expanding energy access such as rural electrification, clean cooking, and productive uses. Activities related to rural electrification address how gender can be mainstreamed in government and private sector initiatives: 'Identify gender-friendly pilot actions to be integrated into rural electrification programs and projects (Objective 2),' and 'Support rural electrification concessionaires in integrating the gender dimension into their programs (Objective 4).' With regards to clean cooking, the PANGE contains two related activities: 'Facilitate access to butane gas and modern cooking equipment in rural areas (Objective 2),' and 'Support research on technologies, equipment and fuels to improve access to energy services (Objective 2).' Lastly, several activities have a stronger framing around women's economic empowerment, including: 'Implement energy access programs for the development of agricultural products companies (farming, fishing) managed by women (Objective 2),' and 'Encourage women-led businesses to disseminate biogas (Objective 4)' (Ministère du Pétrole et des Energies 2020).

The abundance of activities related to energy access is unique to Senegal's NAPs, and is not prompted by the PGMEA policy framework, which contains no explicit objectives related to energy access. By extension, the PGMEA policy framework is technology-neutral, whereas the PANGE explicitly mentions the promotion of biogas and solar to achieve its energy access-related targets. The PANGE also makes clear its intended alignment with Senegal's PSE development strategy, of which universal energy access is key outcome (Ministère du Pétrole et des Energies 2020).

Other notable categories of activities include the more procedural, such as 'Take gender into account in revisions of administrative, legal and regulatory texts (Objective 2),' and advocacy-related such as 'Hold national awareness-raising, advocacy and communication campaigns with decision-makers and the general public (Objective 1).' The remaining category of activities centers around promoting women's inclusion and promotion in the private energy sector through trainings, internships, preference in hiring processes, and uplifting female role models, such as 'Select 50 young girls carrying out projects to organize in a network and coach with the support of women champions in the sector (Objective 4)' (Ministère du Pétrole et des Energies 2020).

Finally, apart from the MPE, the PANGE relies heavily on civil society and donor organization partnerships to implement the NAP activities. While it makes no specific mention of civil society organizations in the implementation section, key development partners include: Millennium Challenge Corporation, GIZ, and Energy4Impact. The PANGE also calls on ECREEE to support with its capacity building-related activities (Ministère du Pétrole et des Energies 2020).

5. Research questions

By understanding which (and how) actors have influence over the development of the PANGE, we shed light on the political economy of Senegal's energy and gender sectors. The political economy of these sectors determines who has decision-making power in policy making, whose voices are marginalized, and the process by which policies are constructed and implemented. This study therefore attempts to answer the following questions:

1. How is the construction of Senegal's NAPs influenced by economic and political structures, institutions, and social norms at the national and international levels?
2. What are the implications for implementation of the policy?

The next section outlines our methodological approach and data collected, followed by the main findings and lessons for implementation.

6. Methodology

In order to understand the political economy of gender and energy issues in Senegal, we employ a modified version of the Actors, Objectives, Context (AOC) Framework developed by Jakob *et al* (2020) and operationalize the framework through elite interviews in addition to document review (Bogner *et al* 2018). This section will explain how we have adapted the framework for our context, how we answer our research questions through semi-structured interviews, and outlines the process of data analysis.

The AOC Framework is designed to articulate how the selection of policy options is influenced by the objectives of social and political actors, bearing in mind their context and the form in which past policies influence the acceptability of future policy options. The framework posits that the objectives of social actors are mediated by context, which impacts the objectives they seek to achieve. How those objectives are then integrated into the objectives of political actors is also influenced by context, which in turn determines which policy options political actors support and, eventually, choose (Jakob *et al* 2020). Put another way, policy development is determined by actor dynamics (which actors and activities are prioritized), which in turn impacts policy choices. This framework offers a tool to structure analysis of how policy decisions reflect the political economy of policy sector actors, as has been done in the context of national coal energy policies (Dorband *et al* 2020, DeStephano *et al* 2022, Jakob and Steckel 2022). The framework, particularly when used comparatively, explains why countries in similar situations adopt different policies, revealing potential entry points for policy change.

However, the policy development process for ECOWAS's PGMEA differs from the national policy contexts in which this framework was developed. In particular, the framework of the policy itself is already defined by regional ECOWAS political actors, which narrows the scope of the policy options available to those options that relate to the PGMEA's five overarching goals. Additionally, rather than social actors seeing their objectives realized through appeals to political actors (such as civil society advocating for gender parity to elected political leaders), the policy is developed by a single consultant, who seeks input from both social and political actors in parallel. Therefore, we offer up the framework in figure 2, which represents the AOC Framework for the Policy on Gender Mainstreaming in Energy Access.

To operationalize this framework to answer our research questions, we engaged in elite and expert interviews, as well as policy document review and a review of both peer-reviewed and grey literature. In order to capture key actors represented in the revised AOC framework, we contacted various social actors (e.g. civil society organizations, international organizations, private sector companies), political actors (e.g. MPE, Ministry of Women, Family, and Children) and the policy architect (i.e. the NAP consultant). We refer to this actor classification in the following sections. We also contacted actors involved in the development of the ECOWAS Regional Policy (the PGMEA). Recruitment was restricted to those actors involved in the policy development process, which aligns with the AOC framework's explicit focus on elite interviews and given that gender mainstreaming efforts focus on the policy level, rather than at all levels of society. Given this, we did not recruit interviews with stakeholders at the local or household levels since these types of actors were not directly involved in policy development.

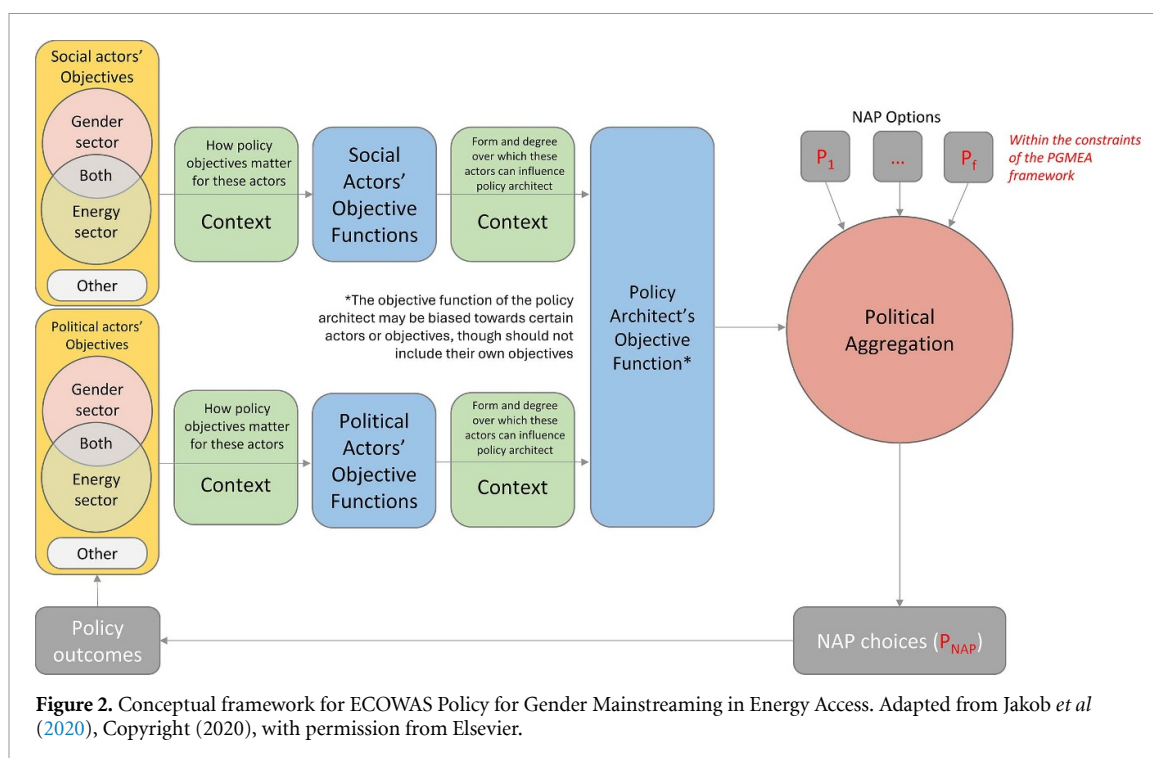


Figure 2. Conceptual framework for ECOWAS Policy for Gender Mainstreaming in Energy Access. Adapted from Jakob *et al* (2020), Copyright (2020), with permission from Elsevier.

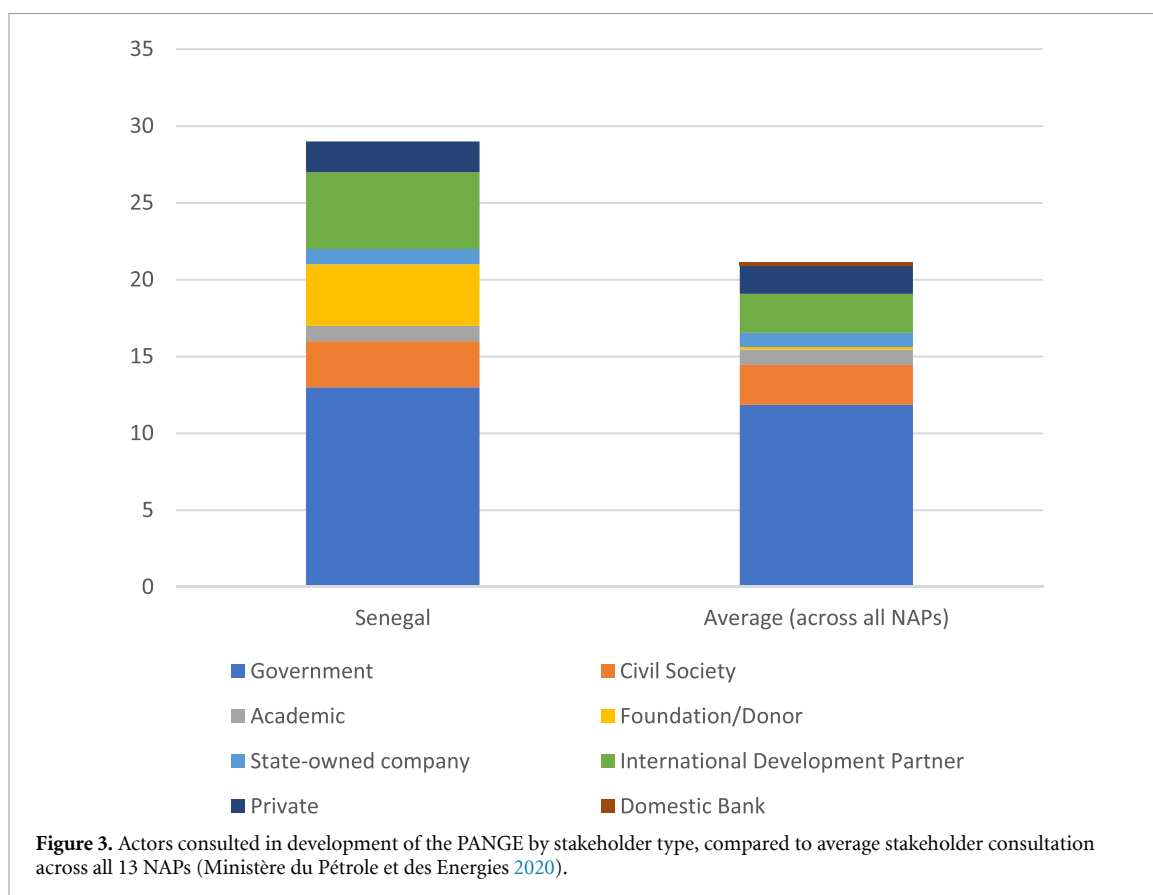


Figure 3. Actors consulted in development of the PANGE by stakeholder type, compared to average stakeholder consultation across all 13 NAPs (Ministère du Pétrole et des Energies 2020).

The country NAPs typically include a list of consulted organizations (see figure 3), which we used as a starting point for identifying stakeholders to interview. We also did additional desk research to identify key stakeholders in the social, political and policy architect groups, and then used snowballing to capture additional actors not officially consulted as part of the policy development process. This was important to gain a sense of which actors were included and not included in the policy consultation, as well as to capture additional context on the gender politics within Senegal's energy sector.

Table 2. List of stakeholders interviewed.

Interview Number	Institution	Actor Type	Language	Gender
SENEGAL01	Ministry of Petroleum and Energy Gender Focal Unit	Government	French	Woman
SENEGAL02	Action Solidaire International (ASI)	Civil Society	French	Man
SENEGAL03	Energy 4 Impact	International Org	English	Man
SENEGAL04	Senelec (Senegalese Electricity Utility)	Government	French	Woman
SENEGAL05	EnDev/GIZ	International Org	French	Woman
SENEGAL06	PED/GIZ	International Org	French	Woman
SENEGAL07	Independent Gender Expert	Civil Society	French	Woman
SENEGAL08	Africa Clean Energy/Tetra Tech	International Org	English	Man
SENEGAL09	Independent Gender Expert	Consultant	French	Man
SENEGAL10	Ministry of Women, Family and Children Directorate of Equity and Gender Equality	Government	French	Woman
SENEGAL11	Federation of Women's Associations of Senegal (FAFS)	Civil Society	French	Woman
SENEGAL12	Millennium Challenge Corporation (MCC)	International Org	French	Woman
REGIONAL01	National Renewable Energy Laboratory (NREL)	Think Tank	English	Woman
REGIONAL01	Sustainable Energy Solutions	Consultant	English	Woman

Our research draws on findings from 13 semi-structured interviews with 14 stakeholders conducted virtually, over Zoom, in 2021 and 2022. The stakeholders interviewed covered a wide range of key actors involved in policy development from government, academia, civil society, and development organizations (see table 2). Interviewees were identified via the list of consulted stakeholders included with the appendix of Senegal's NAP, and via purposive snowball sampling methods. Interviews were carried out in English or French and recorded with written or verbal consent of the interviewee before the start of the interview.

Interviews were transcribed, translated in English (if necessary), and qualitatively coded by researchers using the Dedoose software. Researchers coded interview transcripts for key information related to major actors, objectives, and relevant contextual information. A list of actor objectives was reviewed and summarized into four overarching objectives that structure our analysis, presented in the next section.

We present how the key actors involved in PANGE development align themselves with these four objectives and how the objectives are (or are not) reflected in the PANGE. We expand upon this Actor-Objective analysis with contextual information provided from the interviewees to illustrate how political, social, and economic considerations impact the translation of actor objectives into the PANGE (as described by the adapted AOC framework). Lastly, we supplement our findings, wherever relevant, with interview excerpts and other literature to demonstrate how we arrived at our conclusions. We interpret these findings in the last section to highlight key takeaways for implementation of the PANGE in Senegal.

7. Findings

We find that the objectives of actors consulted in the PANGE can be organized under four overarching themes: electricity access, economic development, clean cooking, and gender equity. In the following sections we summarize how key actors conceptualized each objective and how they are linked to gender mainstreaming. In the discussion section, we critically examine how these objectives are herein reflected in the activities of the PANGE.

7.1. Electricity access

Electricity access is a primary objective of 12 of the 29 officially consulted organizations in the development of the PANGE. Due to geographic disparities in access, there is special emphasis placed on the electrification of rural areas where energy access rates are the lowest. Increasing the country's electricity access rates is a decisive objective of many actors in government including the MPE, The Rural Electrification Agency (ASER), and the state-owned electricity utility company, Senelec.

Of the political actors consulted, the MPE has the broadest mandate, in charge of setting the strategic direction of the electricity sector, diversifying Senegal's electricity mix, and achieving the country's ambitious energy access agenda (SENEGAL01). Agencies like ASER represent the technical arms of the MPE, and development partner projects (e.g. GIZ and MCC) are supervised by the MPE (SENEGAL06). Similarly, the MPE is responsible for overseeing, allocating (and raising) funds, and coordinating with the actors who will

implement the PANGE. By design of the PGMEA and the existing structure of Senegal's energy sector, the MPE holds the most authority in implementation of the PANGE. Prior to the PANGE and institutionalization of the gender focal units in each of the ministries, there was no unifying strategy to mainstream gender in energy sector policies (SENEGAL07).

The unbundling of Senegal's electricity sector is crowding in new private investment in electricity generation through Independent Power Producers (IPPs). Despite private investment, IPPs have had limited success in achieving ambitious energy access goals and affordability (van den Bold 2022). As a representative from the electric utility explained: *The heart of Senelec's business is not so much the gender aspects, the core of Senelec's business is really the supply of electricity at a lower cost for populations and households. That's the core business* (SENEGAL04). At the same time, the connection between SDG 5 (gender equity) and SDG 7 (energy access) was acknowledged as being crucial: *...to ensure women's empowerment, women must necessarily have access to electricity* (SENEGAL04). Unlike the government ministries, Senelec did not have a gender focal unit at the time this study was conducted.

Both Senelec and the MPE adopt gender mainstreaming through a lens of 'positive discrimination,' wherein policies and programs should be designed to give special preference to women. This is exemplified in the MPE's Law on Local Content, designed to promote local value chains in the petroleum sector, which also gives preference to women-owned enterprises (SENEGAL01). For Senelec, the utility's efforts to mainstream gender are centered around its Project PASE, a World Bank funded initiative to invest in last mile electrification. The project also supports the gender-sensitive resettlement of households displaced from grid expansion, though these are relatively isolated interventions. 'Positive discrimination' in program design is also given to youth, who are identified by Senelec as another important vulnerable population: *We do not want to target all households. We had to take the gender dimension into account in our targeting, so that at least those households headed by women or young people could be positively discriminated against* (SENEGAL04).

Electricity access was also a key objective for social actors, and namely development organizations, including MCC and GIZ. MCC has multiple interests in Senegal's power sector and has a long relationship working with the government on electricity access and sector reforms. In 2019, MCC signed a US\$600 million Compact to improve the financial viability of the power sector and quality of electricity provision (van den Bold 2022). MCC was instrumental in the passage of Senegal's new Electricity Code in 2022, which is designed to liberalize the production, distribution, and transmission of electricity, and expand opportunities for off-grid production and renewable sources (de Richoufftz 2022). GIZ's EnDev and Programme Énergie Durable (PED) also work in close partnership with the MPE and ASER on electricity access projects, though with a more explicit focus on economic development, discussed in the next section (SENEGAL05, SENEGAL06).

With respect to the PANGE, MCC discussed the importance of gender mainstreaming in terms of ensuring equitable benefits for vulnerable segments of the population from MCC projects, thereby preventing the perpetuation of gender inequalities within their initiatives. As a representative from MCC explained: *We recognize the interest of this policy of ECOWAS and, moreover, this is why we have made the national gender and energy action plan a prerequisite for the first release of the Compact. So, if this action plan was not developed in Senegal, we would not be able to move forward in the implementation of the Compact* (SENEGAL12). MCC considered their work with the MPE and Senelec to ensure implementation of the NAP as part of their mandate. MCC is meanwhile preparing a gender audit of Senelec (SENEGAL12).

In the context of Senegal's energy access challenges, political actors have the mandate and responsibility to their electorate to improve the nation's electricity access. Social actors, namely development partners, also underscore the importance of expanding access and have established long-term collaborations on electrification projects and sector reforms. Gender equity is discussed in this context to the extent that electrification projects do not exacerbate gender inequalities, and gender mainstreaming has been adopted by the MPE, and to a more limited extent by Senelec, to target female-headed household and businesses. Although Senelec shows reluctance in embracing gender mainstreaming initiatives, the utility acknowledges the necessity of considering the impacts on vulnerable groups in its grid expansion efforts, especially in light of pressure from international funders.

7.2. Energy for economic development

Mainstreaming gender in productive use of energy interventions was a commonly cited objective of many social actors working in international development, including the ACE-TAF, GIZ, Energy4Impact, and the World Bank's Project PASE supporting Senelec. However, the importance of economic development in the context of women's empowerment was mentioned in nearly all stakeholder interviews.

In the context of rural development, energy has historically been distinguished between residential use and productive use. Residential uses of energy are expected to increase rural quality of life while productive uses are expected to increase rural productivity, economic growth, and employment (Cabral et al 2005).

Interventions promoting productive use of electricity without a gender lens are more likely to benefit men than women, as men typically own more businesses and perform more electricity-intensive tasks (Pueyo 2019). This gap has necessitated the mainstreaming of gendered approaches within productive use of energy interventions to unlock a 'virtuous cycle' between women's empowerment and clean energy adoption (Das et al 2023).

GIZ, much like the MCC, has a long history of partnership with the Senegalese government. GIZ leads various energy access-related projects in cooperation with the MPE, including EnDev and PED. These projects seek to create and scale income generating opportunities from solar energy with the aim of improving living conditions, creating jobs, and diversifying local economies (SENEGAL05, SENEGAL06). A close partner of EnDev, ACE-TAF also emphasized the importance of solar energy for productive use within the context of creating economic opportunities for women and youth migrating from rural areas (SENEGAL08). The UK-based non-profit Energy4Impact also emphasized the importance of energy as a cross-cutting enabler of economic development, stating: *We support micro businesses and SMEs in Africa to access energy and we do so through providing business development support, capital access support, and technical support related to energy or agriculture. A lot of the entrepreneurs that we support are women owned enterprises* (SENEGAL03).

Action Solidaire International, a Senegal-based social actor that focuses on sustainable development, stressed the importance of energizing economic sectors where women are already involved in production, explaining: *We can say that women are very dynamic across many sectors, such as the fisheries sector, but also in market gardening, agriculture, and livestock. We have a massive and decisive presence of women who really need access to energy and therefore in the design of national energy policies, the State must now take these factors into account* (SENEGAL02). Supporting women in existing sectors of production was also an approach taken by Project PASE in Senelec: *We identified women's groups and worked with them to find out exactly what the need was. It is in this sense we had to equip them with a mill, a sheller, and equipment for processing agricultural products...it allowed them to strengthen their income-generating activities with this equipment* (SENEGAL04).

Actors varied in their interpretations of productive use of energy enabling gender equity. Some actors, like PED, Energy4Impact, and Project PASE, described how their efforts to mainstream gender built upon identifying women and women-owned enterprises already receiving financial or technical assistance from their projects. This mirrors the 'positive discrimination' approach favored by the MPE and Senelec discussed in the last section. In its acknowledgment of energy as a cross-cutting enabler of development, Energy4Impact describes how energy's productive potential can enable women to start a business, earn income, and gain recognition and political power within their communities: *From our work with (female) entrepreneurs you are also in a way helping women to become actors of change, as we say, most of the time or champions. So out of the 300 you are supporting maybe 15 or 30 will have a very huge impact, and it will totally change their business, their family, and the community* (SENEGAL03). The viewpoint of energy enabling women's access to new economic opportunities is somewhat juxtaposed with the acknowledgement by Action Solidaire that women already occupy roles in the economy (such as market gardening, fisheries, agriculture, and livestock) and need access to clean and modern energy sources (SENEGAL02).

In summary, energy for economic development is a key objective of many social actors (particularly those working in sustainable development) in part due to the high development impact potential of energy interventions. These actors leverage women's existing roles in Senegal's labor force to target and electrify women owned enterprises mirroring the 'positive discrimination' approach taken by political actors in rural electrification. Unlike the motivations for gender mainstreaming explored in the last section, framings of gender associated with energy for economic development emphasize women's capabilities and capacities for economic empowerment more often than characterizing them as a vulnerable population.

7.3. Access to clean fuels and technologies for cooking

Clean cooking emerges as a common goal for political and social actors engaged in the PANGE, even amid a waning focus on the domestic fuels sector (SENEGAL06). Key development players include GIZ's EnDev and the World Bank's PROGEDE program, while government involvement features the MPE, Ministry of Environment and Sustainable Development, the Ministry of Health, and the National Domestic Gas Program (PNB).

Like other countries experiencing high rates of energy poverty, access to clean cooking in Senegal remains a persistent issue. Household air pollution generated from cooking with biomass fuels is a leading cause of lower respiratory tract infections, which are the third leading cause of premature deaths in Senegal each year (IHME 2019). Biomass fuel burning also contributes to ambient air pollution, and unsustainable biomass fuel use is a major contributor of forest loss and natural resource degradation (Mwema and Gheewala 2011). In arid regions where fuelwood is scarcer, households rely more heavily on animal dung for cooking, which carries its own unique health risks (Sovacool et al 2016, Gafa and Egbendewe 2021).

The Senegalese government has a long history of promoting improved cookstove (ICS) production beginning with the BAS (*ban ak suuf*) program in 1982 to train local manufacturers to produce improved stoves (Gueye and Madon 1983). Despite the program's success in facilitating the distribution of improved stoves to rural consumers, it failed to create a sustainable market for ICS by over-emphasizing subsidies for consumers and not investing in ICS producers (Bensch and Peters 2013). BAS's lack of supply side support was addressed in 2006, when the Senegalese government launched the FASEN (*Foyers Améliorés au Sénégal*) initiative, with support from GIZ, under the PERACOD program. This initiative is the main ICS promotion program still operating in the country today, targeting both rural and urban populations (ibid).

Numerous international organizations have also worked on advancing clean cooking access in Senegal. Despite women's involvement in the production of ceramics and distribution and sale of improved stoves, ICS production is a profession mostly occupied by men. Thus, gender-neutral government initiatives like BAS and FASEN, have mostly targeted and benefitted male-owned enterprises. Acknowledging this disparity, the World Bank's Sustainable and Participatory Energy Management Project (PROGEDE) and EnDev have worked with the Senegalese Ministry of the Environment and Sustainable Development and MPE towards mainstreaming women in ICS production (Hammond et al 2015). A representative from EnDev highlighted this challenge, stating: *In the area of improved stove production, we have a lot more men than women. And today, our challenge is to get women involved in the production of improved stoves so that it is balanced* (SENEGAL05). EnDev also currently leads a project financed by the Green Climate Fund to support supply and demand-side interventions of ICS to improve women's livelihoods and reduce greenhouse gas emissions (EnDev 2019).

In development of the PANGE, the Ministry of the Environment and Sustainable Development, Ministry of Health, and Senegal's PNB reinforced the priority of diversifying domestic fuel use (Ministère du Pétrole et des Energies 2020). Given the limitations of fuelwood (and thus charcoal) availability in some regions of the country, biogas production from agricultural and livestock waste offers a locally produced alternative to biomass burning for cooking. The PNB program became a strategic priority for the Government of Senegal in 2015 under a new partnership with the European Union and World Bank, though the impact of the program has been low to date (Diouf and Miezan 2019).

Senegal's clean cooking transition has been an enduring challenge for political and social actors alike, exemplified by several waves of interventions targeting demand and supply of ICS. One of the initial goals of ICS diffusion was to reduce deforestation, and due to gendered cultural norms, women frequently shoulder a disproportionate burden in fuelwood collection and cooking activities. ICS interventions have increasingly recognized a growing body of literature on the gendered health and time use impacts of traditional cooking (Das et al 2023). Consequently, it is unsurprising within the clean cooking context that gender equity is cast as addressing the vulnerabilities faced by women performing these hazardous tasks. However, echoing the frames used within energy for economic development discussions, EnDev positions women as agents of change in its mission to mainstream them into ICS production.

7.4. Gender equity

While many actors frame their objectives in the context of gender equity, some emphasize a more explicit focus on gender equity as a fundamental objective, rather than a narrower view of gender equity as a co-benefit of energy access or economic development goals. Notably, the Ministry of Women, Family, and Children, and social actors including the MCC and the Federation of Women's Associations of Senegal (FAFS), fall into this category.

Those actors seeking a broader transformation of women's role in society are unsurprisingly women's civil society, as evidenced by their lobbying for the Gender Parity Law in 2010. One such social actor is FAFS, which represents an umbrella organization of 475 women's associations throughout the country, operating with a national office and regional cells to support the integration of gender in public policies and promote women's empowerment particularly in health, local governance, and education (SENEGAL11). FAFS works closely with the Ministry of Women, Family, of Children and maintains a dialogue with government to communicate on behalf of its members. A representative of FAFS summarized their core mission accordingly: *The gender issue, we see it from the angle of equity and equality between the sexes, and also taking into consideration the specific needs of each vulnerable layer* (SENEGAL11). FAFS has a broad mandate, though engages to a smaller degree in advocacy at the intersection of gender and energy access.

At the government level, The Ministry of Women, Family, and Children has historically held the mandate of achieving gender equity in Senegal, the PANGE representing a departure from this authority. The Ministry's objectives, to institutionalize gender in all public institutions, and establish a social, legal, and economic environment favorable to gender equality by engaging all cross-sections of civil society, are operationalized by the SNEEG (SENEGAL10). The Ministry also emphasized the importance of education and equitable economic opportunity, suggesting that the PANGE should *align with the aspects of the SNEEG to direct the equitable benefits of men and women and economic opportunities favorable to the achievement the*

SNEEG (SENEGAL10). By nature of its mandate, the Ministry approaches gender equity with a more intersectoral lens, and coordinates between the 33 gender focal points embedded in each government ministry, agency, and department, which are funded annually with 10 million CFA (USD\$16,500) through the office of the President (SENEGAL01, SENEGAL10).

As mentioned earlier, the SNEEG's initial omission of energy access-related targets is mirrored in the absence of civil society advocacy of women's energy access needs (SENEGAL11). Still, a representative from the Ministry acknowledged the importance of women's roles in the energy sector, saying, *I also think that the low awareness of women and their role in energy production and entrepreneurship in the energy sector is a challenge to be taken up... There are challenges related to the socio-cultural context, with deeply rooted social stereotypes and the non-sensitivity of the private sector to gender mainstreaming* (SENEGAL10).

The frames used by these actors situate women as a vulnerable group, but also highlight the critical inclusion of youth and people with disabilities as other important segments of the population. Unlike other actor's framings of gender inequalities, FAFS and the Ministry of Women explicitly make reference to the root causes of these inequalities, namely, patriarchal social norms. FAFS captured this perspective by stating: *We are a patriarchal society that has socio-cultural realities. The woman mother is not always valued but does not always have the prerogatives that she should have in society. We are also a society where really the vulnerable strata have very often been left behind* (SENEGAL11). A representative from the MCC asserted that a lack of conceptual clarity in discussions about gender with government actors risks undermining political will for gender mainstreaming. *Even at the level of the government, some ministries or others, (LGBT) aspects come up, and I think it is this process that has really slowed down the institutionalization of gender that the government has been discussing for more than ten years* (SENEGAL12).

The MCC's conceptualization of gender equity appears to go beyond 'ensuring equitable benefits of its projects,' as discussed in section 7.1. In fact, the leveraging of its compact funding over the PANGE is worthy of examination. This is not the first time MCC has leveraged compact funding to further gender equality goals. In 2006, MCC stated they would require gender equality in a number of economic rights as a precondition to signing a compact with the Government of Lesotho (Chiongson et al 2012). MCC's appreciation for the role of gender equality in development can be traced to its adoption of its Gender Policy in 2006, which recognized women as key economic actors, and identified gender inequality as a significant constraint to economic growth and poverty reduction (Seitz and Adato 2012).

The Ministry of Women, Family, and Children, the MCC, and FAFS take a more expansive view of gender equality, by focusing on the causes and conditions of gender inequalities. Their interventions aim to raise awareness and change patriarchal social norms and ensure equal rights are enshrined in laws and policies. A significant challenge faced by these actors is persuading political leaders of the importance of gender equity, compounded by disagreements over which groups should be included in this definition. These actors employ various strategies, such as lobbying for government reforms like the Gender Parity Law and, in the case of MCC, withholding development aid to secure political commitments to gender mainstreaming.

8. Discussion

Senegal's PANGE reflects the objectives outlined above, largely taking shape as an energy and development policy. This is evidenced by the PANGE's inclusion of energy access-related activities (namely electricity access and clean cooking) supported by government and development partners and the PANGE's intended integration with the government's PSE development strategy. The PANGE targets the domestic fuels sector with activities to expand access to modern cooking equipment and biodigesters for women. The PANGE also addresses the power sector in relation to electricity access, with two activities to mainstream gender in rural electrification projects and programs. The PANGE also contains activities to electrify existing sectors of women's economic activity, with programs to support the electrification of agricultural products companies managed by women (Ministère du Pétrole et des Energies 2020). The inclusion of these activities emerges from the context of Senegal's energy poverty challenges and a multi-decade history of interventions by political and social actors (namely development organizations) to improve energy access, and more recently to address economic development and gender inequalities. It is perhaps unsurprising that existing development interventions are mirrored in Senegal's PANGE which featured nearly three times more participation from international social actors on average (figure 3).

There is an under-emphasis on mainstreaming women in the wider energy sector (e.g. off-grid solar, fossil fuel extraction, the electricity utility, etc.), which is partly stems from a lack of engagement with the private sector and the limits of public intervention in these sub-sectors. From early validation workshops of the PGMEA regional policy, there was a belief among some electricity utility representatives that 'a customer is a customer,' signaling early resistance to gender mainstreaming as a mutually beneficial strategy (REGIONAL01). The absence of private sector consultation stemmed from a common belief among actors

(including the MPE) that the profit-seeking motives of private companies were fundamentally misaligned with gender mainstreaming (SENEGAL01). It is within this context that private sector actors were largely absent from the policy design process, and activities to achieve Objective 4 of the PGMEA: 'Ensure equal opportunity in the private sector' represent a key gap in the PANGE. This exclusion is not unique to our case, as historically, gender mainstreaming approaches have been less preferred by the private sector, which opts for strategies of diversity management to improve corporate performance (Prügl 2011). Still, civil society actors have emphasized the importance of gender parity in the private sector, and some organizations like Energy4Impact are taking steps to diversify the male-dominated cookstove production sector (SENEGAL03).

Historically, women's civil society organizations have focused on the domains of health, education, and social welfare, as opposed to energy and climate change, which international organizations have adopted relatively sooner (Barnes and Burchard 2013). This is captured by Energy4Impact and ACE-TAF who promote the role of energy as a multi-dimensional enabler of development, and the former indicating the limits to achieving gender equity if interventions are focused only on sectors like health and education (SENEGAL03, SENEGAL08). Due to the limited historical engagement of women's civil society organizations and the gender ministry in Senegal with energy issues, their objectives, though not conflicting with PANGE, are less directly aligned with the goals of PGMEA. The gender ministry's limited involvement was also reinforced by the reluctance of the MPE to coordinate closely with the Ministry of Women (SENEGAL08, SENEGAL10). The policy development process by itself may have heightened these actors' sensitivity to energy issues, in the same way the PANGE aims to sensitize energy sector actors to gender issues.

Actors consulted in the PANGE have different objectives and different understandings of how gender relates to them. For example, some actors may believe in an approach to gender equality situated in sameness (equal opportunity) while others may envision equality is centered in difference (special programs) (Walby 2005). Additionally, women are often labeled as a vulnerable group in PANGE discussions, though not from an individual or victimhood perspective, but from a structural view of the gendered aspects and causes of energy poverty that limit individual agency and resources (Virokannas *et al* 2020). These differing conceptualizations mirror broader social divisions regarding gender equality in Senegal, which can challenge policy development (Sieveking 2007).

Many actors, particularly political actors and international social actors, take an approach to gender mainstreaming that favors 'positive discrimination,' conceptualized by these actors as giving preference to women or women-owned enterprises in their initiatives. This is reflected in PANGE activities such as 'Implement energy access programs for the development of agricultural products companies (farming, fishing) managed by women (Objective 2)' and 'Give priority to female candidates in vacancy notices (Objective 4)' as well as the prioritization given to women's enterprises in the MPE's Law on Local Content. This approach has a historical basis in gender policy making in Senegal with passage of the Gender Parity Law in 2010. This approach of gender equity through 'positive discrimination' is most closely related to an equality centered in difference (e.g. special programs).

Actors in Senegal's gender space, namely the Ministry of Women, Family, and Children, and the Federation of Women's Associations Senegal, adopt a more nuanced perspective on gender issues, placing particular emphasis on the social and cultural barriers hindering women's empowerment. For these actors, prioritizing awareness raising and ensuring women have equal rights and opportunity (an equality centered in sameness) to social and economic advancement is crucial. The framing of women as agents of change (or female champions) is connected to the objective of economic empowerment, important to many development actors, and especially Energy4Impact. Elsewhere, some organizations have found an entry point to tackling gender inequality in the private sector via this narrative, training women as entrepreneurs in the off-grid energy sector (Gray *et al* 2019, Klege *et al* 2021). This framing is captured under Objective 4 of the PANGE (increase women's private sector participation) by the activity 'Use and serve as an example of successful female role models in the energy sector to inspire others' (Ministère du Pétrole et des Energies 2020).

Among nearly all actors, women are characterized as a vulnerable population. The discourse on gender equality also brings to the forefront the needs of other vulnerable groups, notably youth and rural populations. This concern is partly rooted in concerns about unemployment for women and youth, coupled with an ongoing out-migration from rural areas that is likely to be exacerbated by climate change (Chort *et al* 2017). However, there exist drawbacks to overly broad conceptualizations and advocacy for additional vulnerable groups (e.g. LGBT communities, victims of gender-based violence, and people with disabilities) in association with gender, as highlighted by the MCC (SENEGAL12). This explains the narrower definition of gender used in the PANGE, as discrepancies in defining gender risk actors not finding alignment in their objectives, thereby hindering policy development.

9. Implications for policy implementation

The activities outlined in Senegal's NAPs require an estimated budget of nearly 4.7 billion CFA (USD\$7.6 million) over the next 10 years. The budget to successfully implement the PANGE will require support from external funders, though crowding in sufficient funding to implement all activities is a major concern of certain stakeholders (SENEGAL02, SENEGAL07). Furthermore, reliance on external funding for implementation reinforces the influence of foreign donors over the actions and outcomes of the policy, who can offer funding towards activities aligned with their objectives in the PANGE. Sufficient funding for the establishment and maintenance of gender desks is essential for building the necessary expertise for gender mainstreaming (Pueyo et al 2020).

A representative from GIZ emphasized the importance of aligning their organizational objectives with the PANGE, stating: *We cannot deviate from our objectives and our indicators...and we support by ensuring that [the PANGE] is related to our objectives and our indicators so that we can justify the technical support that is put in place* (SENEGAL06). A representative from Energy4Impact also underscored this, stating that: *When we design a project many donors want to see whether there is an alignment with government priorities so of course in this section, we say that not only we have participated in the process, but we are aligned with government priority, so this is useful to have it in that document as well* (SENEGAL03). Thus, international organizations had strong incentives to align the PANGE with their institutional objectives (and those of their funders). On the other hand, now that the policy has been validated, it also provides an opportunity for civil society to hold the government accountable to dedicate more public funding and commit to implementing the PANGE (SENEGAL02).

In Senegal, as in other ECOWAS countries, there was an absence of gender mainstreaming in energy access policies until the adoption of the PGMEA. But following adoption of the PGMEA, there was a need to popularize the policy at the national level and engage key stakeholders in government, civil society, and the private sector. Much of this work was carried out by Action Solidaire International, which held a series of workshops to provide training on gender mainstreaming which helped to socialize the policy. A representative from Action Solidaire International noted that a lack of financial support from ECREEE to facilitate popularization of the policy was a key challenge and represents a broader challenge in regional policy making (SENEGAL02). A lack of capacity and training on gender mainstreaming also hinders implementation, as noted by several interviewees. Further, a lack of gender-disaggregated data and data collection infrastructure will impede successful evaluation of the PANGE, if sufficient investments are not made to address Objective 5 of the PGMEA: *Establish and maintain a gender responsive monitoring, accountability, and review framework for objectives 1–4*. A preliminary report on the results of the PANGE implementation confirms that financial support, the availability of gendered data, and capacity in gender-based analyses are persistent challenges of the MPE's Gender Focal Unit. With respect to private sector participation, the report highlights the challenges of Senelec to mainstream gender and a lack of women's representation in the hydrocarbons sector remains a key gap (Ministère du Pétrole et des Energies 2020).

Our study offers several implications for Senegal's just energy transition (and opportunities for socially just climate policy, more generally). This is of particular relevance given Senegal's Just Energy Transition Partnership, which proceeded similar agreements with South Africa, Indonesia, and Vietnam (Houston and Ruppel 2022). The PANGE demonstrates the challenges of mainstreaming women into male-dominated sectors of production, and more broadly, the challenges associated with integrating justice and equity principles from social actors. While the long-term goals of Senegal's just energy transition may not necessarily involve the sustained inclusion of women and other underrepresented groups in a fossil fuel industry under global pressure to phase out, there are significant opportunities to recruit and train women for careers in the power sector. The political economy of the PANGE emphasizes the importance of conceptual clarity in advocating for the inclusion of underrepresented populations. Perhaps most critically, policy makers, development partners, and civil society must make efforts to meaningfully engage with the private sector to ensure that opportunities exist for everyone to benefit from the low carbon energy transition.

Data availability statement

All data that support the findings of this study are included within the article (and any supplementary information files).

Acknowledgments

This study is part of a cross-case research project funded by the Sustainable Energy Transitions Initiative (SETI) and Environment for Development (EfD) Initiative in 2021. The authors also acknowledge financial support by the Werner Siemens Foundation.

Appendix. Semi-Structured Interview Protocol & Questionnaire

A.1. Introduction

In our framework, we understand the policy outcome as the result of the bargaining of different actors with different priorities and their relative influence (power) in the policy making process. The aim of the questionnaire is to provide a guideline for questions to be asked. The conversation and questions asked will depend upon the person interviewed and the way in which the conversation develops. The standard conversation should proceed as follows:

- **Thanks for availability and willingness to participate**
- **Explanation of project:** *Together with my colleagues, we are working on a research project dealing with the implementation of ECOWAS's PGMEA. In particular, we would like to better understand the objectives of different actors involved in gender and energy access policy, its implementation and the synergies and trade-offs of integrating gender mainstreaming and other development priorities. We are conducting interviews with stakeholders from politics, business and civil society. We are interested in the perspectives of your organization or institution as well as your personal perspective.*
- **Information about the interview:**
- *The interview will take 30–60 min.*
- *If you allow, I would like to record the interview, as I am performing too many interviews in a short time period and this helps me to better document the perspectives of different stakeholders.*
- *Although your answers may be quoted in the analysis, your name and title will not be used. If there are any questions you do not want to answer, it's no problem at all!*
- *Check that a consent form has been sent, and confirm consent*

A.2. Objectives and Priorities

We want to understand your organization and its objectives.

1. First, let me ask you about your work, which topics do you work on?
 - a. What is your organization working on and what is its mandate or objectives?
 - b. Have you heard of the ECOWAS PGMEA or the National Action Plan on Gender?
 - a. If yes, have you been involved with ECOWAS's PGMEA or the National Action Plan on Gender?
 - c. What has been your involvement with gender work or energy access work, in general at [insert organization name here]?

[Note goals from 1.1.2 later questions]

A.3. National Action Plan

We are interested in the content and development of [insert country name]'s National Action Plan as outlined in the PGMEA.

1. What are most important aspects of the National Action Plan?
2. From the perspective of your organization, how is the National Action Plan useful for you?
3. *[if no National Action Plan exists]* What is the timeline for formulating [insert country name]'s National Action Plan?
4. *[if no National Action Plan exists]* What have been the challenges in formulating [insert country name]'s National Action Plan?
5. Which departments/organizations are involved in developing the National Action Plan?
 - a. Is your department involved in developing, guiding, implementing or advocating for the National Action Plan?

- b. Do you see the interests of your organization or challenges reflected in the National Action Plan?
- c. Which other actors are involved in developing the National Action Plan [civil society, community organizations, trade association]? How would you describe their involvement? (i.e. advocacy, public pressure campaigns, stakeholder engagement efforts, etc.)

A.4. Policy Implementation

We are interested in better understanding who is responsible for policy implementation.

1. Will your organization be involved in implementing the National Action Plan? If yes, how?
2. Are there aspects of the National Action Plan that you are excited about or feel will be particularly successful?
3. What are the challenges that your organization faces in implementing the National Action Plan?
 - a. Did your organization have the expertise to implement this policy in-house, or have you needed to bring in external expertise?
 - b. What challenges do you anticipate for your organization in monitoring and evaluating the NAP's objectives?
4. [*if involved in Policy or National Action Plan*] How is the Ministry of Energy planning to fund the budget? Is the majority funded through Ministry? Are there other external funders?
5. [*if doing work through National Action Plan*] How are your activities in the National Action Plan being funded?
6. Is there coordination between certain stakeholders involved in implementing the National Action Plan? If so, how?
7. Is there conflict (or potential for conflict) between certain stakeholders involved in implementing the National Action Plan? If so, why?

A.5. Contextual issues: Gender, Energy Access and perspectives

As every other country, [insert country] has historical experiences with gender and energy access, separately and together, that play a role in the challenges they face.

1. What are the challenges and opportunities for tackling gender and energy issues in [insert country name]?
 - a. [*if relevant*] Is this reflected in the policy-making process?
2. Have you observed buy-in/support for gender mainstreaming policy? From which actors and why?
3. Have you observed resistance to gender mainstreaming policy? From which actors and why?
4. To what extent is public participation a part of the process of policy development?

A.6 Other key actors

1. What role do civil society organizations play in gender and/or energy access efforts? Who are the key actors in civil society? What role does it play in the regions and at the local level?
2. Are there specific industries or economic sectors where gender/energy access efforts play a bigger role? Who are the key actors?
3. What role do political parties play? How do the parties distinguish themselves on this issue? What role do they play in the regions and at the local level?

LAST QUESTION: Is there anyone you can connect us with who would be valuable to speak to?
[Not all questions may be relevant for all actors and a subset of these questions may be used]

ORCID iDs

Thomas W Klug  <https://orcid.org/0000-0003-2793-5634>

Sarah Appiah  <https://orcid.org/0000-0003-2300-009X>

Isaac Nunoo  <https://orcid.org/0000-0001-5076-4883>

References

ACE-TAF 2021 *Senegal: Gender and Social Inclusion (GESI) Strategy to Implement the National Action Plan to Integrate Gender Issues in Energy Access (PANGE)* (available at: www.ace-taf.org/kb/senegal-gender-and-social-inclusion-gesi-strategy-to-implement-the-national-action-plan-to-integrate-gender-issues-in-energy-access-pange/) (Accessed 5 June 2023)

- Ahmadou L 2023 *Is Senegal on the Right Track to Achieve Its NDC Commitments?* (International Development Research Centre (IDRC))
- Alston M 2014 Gender mainstreaming and climate change *Women's Stud. Int. Forum* **47** 287–94
- Amanda N, Shupler M, Alexander D, Olamijulo J, Ibigbami T, Ana G, Ojengbede O and Olopade C O 2016 Sustained usage of bioethanol cookstoves shown in an Urban Nigerian City via New SUMs algorithm *Energy Sustain. Dev.* **35** 35–40
- Barnes T and Burchard S 2013 'Engendering' politics: the impact of descriptive representation on women's political engagement in sub-Saharan Africa *Comparative Political Studies* (available at: https://journals-sagepub-com.proxy.lib.duke.edu/doi/full/10.1177/0010414012463884?utm_source=summon&utm_medium=discovery-provider) (Accessed 5 June 2023)
- Bensch G and Peters J 2013 Alleviating deforestation pressures? Impacts of improved stove dissemination on charcoal consumption in urban Senegal *Land Econ.* **89** 676–98
- Bogner A, Flick U, Littig B and Menz W 2018 Generating qualitative data with experts and elites 1 *Oliver's Yard, 55 City Road London EC1Y 1SP* (SAGE Publications Ltd) pp 652–65
- Cabraal R A, Barnes D F and Agarwal S G 2005 Productive uses of energy for rural development *Annu. Rev. Environ. Resour.* **30** 117–44
- Chiongson R A, Desai D, Marchiori T and Woolcock M 2012 Role of law and justice in achieving gender equality *World Development Report* (available at: <http://hdl.handle.net/10986/9194>) (Accessed 5 June 2023)
- Chort I, de Vreder P and Zuber T 2017 *Gendered Internal Migration Patterns in Senegal* (available at: <https://hal.science/hal-01497824>) (Accessed 19 May 2024)
- Clancy J S 2009 Late developers: gender mainstreaming in the energy sector *Proc. DSA Annual Conf. 2009, Development Studies Association (DSA)* pp 1–12 (available at: <https://research.utwente.nl/en/publications/late-developers-gender-mainstreaming-in-the-energy-sector>) (Accessed 5 June 2023)
- Clancy J S and Mohlakoana N 2020 Gender audits: an approach to engendering energy policy in Nepal, Kenya and Senegal *Energy Res. Soc. Sci.* **62** 101378
- Das I, Klug T, Krishnapriya P P, Plutshack V, Saporapa R, Scott S, Sills E, Kara N, Pattanayak S K and Jeuland M 2023 Frameworks, methods and evidence connecting modern domestic energy services and gender empowerment *Nat. Energy* **8** 435–49
- de Richouffitz P 2022 *The New Electricity Code—Renewables—Senegal* (available at: www.mondaq.com/renewables/1256964/the-new-electricity-code) (Accessed 31 January 2024)
- Denton F 2004 Reducing the gap between projects and policies: a comparative analysis of the 'butanisation' programme in Senegal and the multifunctional platform (MFP) experience in mali *Energy Sustain. Dev.* **8** 17–29
- DeStephano P, Hernandez Perez B, Huepe Minoletti C, Klug T and Plutshack V 2022 Positioned for consensus. market-based approaches, civil society and the role of the state in chile's coal phase-out *The Political Economy of Coal: Obstacles to Clean Energy Transitions* (Routledge) pp 60–77
- Diouf B and Miezian E 2019 The biogas initiative in developing countries, from technical potential to failure: the case study of Senegal *Renew. Sustain. Energy Rev.* **101** 248–54
- Dorband I I, Jakob M and Christoph Steckel J 2020 Unraveling the political economy of coal: insights from Vietnam *Energy Policy* **147** 111860
- ECOSOC 2006 Women and girls Last? Averting the second post-Katrina disaster *The Consortium on Gender, Security and Human Rights* (available at: <https://genderandsecurity.org/projects-resources/research/women-and-girls-last-averting-second-post-katrina-disaster>) (Accessed 5 June 2023)
- EnDev 2019 *Promotion of Climate-Friendly Cooking: Kenya and Senegal* (EnDev) (available at: <https://endev.info/countries/promotion-of-climate-friendly-cooking-kenya-and-senegal/>) (Accessed 31 January 2024)
- Gafa D W and Egbendewe A Y G 2021 Energy poverty in rural West Africa and its determinants: evidence from Senegal and Togo *Energy Policy* **156** 112476
- GoS 2014 *Plan for an Emerging Senegal* (available at: www.economie.gouv.sn/en/dossiers-publications/publications/pse) (Accessed 5 June 2023)
- Gray L, Boyle A, Franks E and Victoria Y 2019 The power of small-scale solar: gender, energy poverty, and entrepreneurship in Tanzania *Dev. Pract.* **29** 26–39
- Grown C, Addison T and Tarp F 2016 Aid for gender equality and development: lessons and challenges *J. Int. Dev.* **28** 311–9
- Gueye M and Madon G 1983 Etude de Cas: le Programme Foyers Améliorés Au Sénégal in *Energie et Développement. Case History: the Improved Cookstoves in Senegal* *Revue de l'Energie* **356** 626–42 (available at: <https://pascal-francis.inist.fr/vibad/index.php?action=getRecordDetail&idt=12463995>)
- Hammond A, Schomer I, Ngom A, Seck A and Lopes Janik V 2015 *Improving Gender Equality and Rural Livelihoods in Senegal through Sustainable and Participatory Energy Management* (World Bank) (available at: <http://hdl.handle.net/10986/22111>) (Accessed 5 June 2023)
- Houston L J and Ruppel O C 2022 Just energy transitions in progress? The partnership between South Africa and the EU *J. Eur. Environ. Plan. Law* **19** 31–54
- IHME 2019 *Senegal* (Institute for Health Metrics and Evaluation) (available at: www.healthdata.org/research-analysis/health-by-location/profiles/senegal) (Accessed 31 January 2024)
- International Idea 2022 *Senegal Leads in Women's Political Participation* (available at: www.idea.int/news/senegal-leads-womens-political-participation)
- Jakob M, Flachsland C, Christoph Steckel J and Urpelainen J 2020 Actors, objectives, context: a framework of the political economy of energy and climate policy applied to India, Indonesia, and Vietnam *Energy Res. Soc. Sci.* **70** 101775
- Jakob M and Steckel J C (eds) 2022 *The Political Economy of Coal: Obstacles to Clean Energy Transitions* (Routledge) (available at: www.routledge.com/The-Political-Economy-of-Coal-Obstacles-to-Clean-Energy-Transitions/Jakob-Steckel/p/book/9780367491024) (Accessed 5 June 2023)
- Jeuland M et al 2021 Is energy the golden thread? A systematic review of the impacts of modern and traditional energy use in low- and middle-income countries *Renew. Sustain. Energy Rev.* **135** 110406
- Klege R A, Visser M, Barron A M F and Clarke R P 2021 Competition and gender in the Lab vs Field: experiments from off-grid renewable energy entrepreneurs in Rural Rwanda *J. Behav. Exp. Econ.* **91** 101662
- Mang-Benz C, Jodoin L, Onibon D, Yogan Y, Gaye I and Kola E 2023 Making energy justice work for women in rural sub-Saharan Africa: a Qualitative diagnostic from Benin, Senegal, and Togo *Energy Policy* **173** 113345
- Ministère de la Femme, de l'Enfant et de la Famille 2015 *Stratégie Nationale Pour l'Équité et l'Égalité de Genre 2016–2026* (available at: <https://en.unesco.org/creativity/policy-monitoring-platform/strategie-nationale-pour-lequite>) (Accessed 5 June 2023)
- Ministère de la Femme, de la Famille et du Développement Social 2005 *Stratégie Nationale Pour l'équité et Le Genre (SNEEG) (2009–2015)* (available at: www.ilo.org/dyn/natlex/natlex4.detail?p_isn=94906&p_lang=en) (Accessed 5 June 2023)

- Ministère du Pétrole et des Energies 2020 *Plan d'Action National Pour l'Intégration Du Genre Dans l'Accès À l'Énergie Sénégal (PANGE)*
- Musango J K, Smit S, Ceschin F, Ambole A, Batinge B, Anditi C, Petrulaityte A and Mukama M 2020 Mainstreaming gender to achieve security of energy services in poor urban environments *Energy Res. Soc. Sci.* **70** 101715
- Mwema F and Gheewala S H 2011 A Review of Biomass Energy Dependency in Tanzania *Energy Proc.* **9** 338–43
- Nageeb S, Sieveking N and Spiegel A 2005 353 *Engendering Development in Muslim Societies: Actors, Discourses and Networks in Malaysia, Senegal and Sudan* (Universität Bielefeld, Fak. für Soziologie, Forschungsschwerpunkt Entwicklungssoziologie)
- New Faces New Voices 2020 *Women's Financial Inclusion in Senegal* (available at: <https://idl-bnc-idrc.dspacedirect.org/handle/10625/59155>) (Accessed 5 June 2023)
- Prügl E 2011 Diversity management and gender mainstreaming as technologies of government *Politics Gender* **7** 71–89
- Pueyo A 2019 *A Gender Approach to the Promotion of Productive Uses of Electricity* (Institute of Development Studies. Policy Briefing) (available at: <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/14578>) (Accessed 5 June 2023)
- Pueyo A, Carreras M and Ngoo G 2020 Exploring the linkages between energy, gender, and enterprise: evidence from Tanzania *World Dev.* **128** 104840
- Seitz V and Adato M 2012 *Principles into Practice: Gender Equality and Poverty Reduction through Growth* (available at: www.mcc.gov/resources/doc/principles-into-practice-gender-equality-and-poverty-reduction-through-grow) (Accessed 5 June 2023)
- Sieveking N 2007 'We don't want equality; we want to be given our rights': Muslim women negotiating global development concepts in Senegal *Africa Spectrum* **42** 29–48 (available at: www.jstor.org/stable/40175166?casa_token=YY7SM8xaktYAAAAA:Mrh1RanwTNgJ_aXUKpVZTCFhNr_ZGik88-32dTJtqM3plrua-uKJz0HLehsQVwh_2wcBDaqvZuFqmwlgcNY8PpxH52FtVHrYQo0d-lr9ObpdoZHb7joA)
- Sonne S E W 2016 Understanding the Determinants of clean fuel adoption in Senegal: do informal institutions and women's intrahousehold bargaining power matter? *Green Growth Knowledge Platform (GGKP) Fourth Annual Conf. on Transforming Development Through Inclusive Green Growth* (Jeju International Convention Center, Republic of Korea, 6-7 September, 2016) (available at: http://www.greenfinanceplatform.org/sites/default/files/C1_Sonne_Understanding_determinants_of_clean_fuel_adoption_Senegal.pdf)
- Sovacool B K, Clarke S, Johnson K, Crafton M, Eidsness J and Zoppo D 2013 The energy-enterprise-gender nexus: lessons from the multifunctional platform (MFP) in mali *Renew. Energy* **50** 115–25
- Sovacool B K, Heffron R J, McCauley D and Goldthau A 2016 Energy decisions reframed as justice and ethical concerns *Nat. Energy* **1** 1–6
- Tøraasen M 2017 *Gender Parity in Senegal—A Continuing Struggle* (CMI) (available at: <https://ssrn.com/abstract=3648097>) (Accessed 5 June 2023)
- van den Bold M 2022 In pursuit of diverse energy futures: the political economy of electricity in Senegal *Environ. Plan. E* **5** 1807–830
- Virokannas E, Liuski S and Kuronen M 2020 The Contested Concept of Vulnerability—a Literature Review: vulnerability-Käsitteen Kiistanalaiset Merkitykset—Systemaattinen Kirjallisuuskatsaus *Eur. J. Soc. Work* **23** 327–39
- Walby S 2005 Gender mainstreaming: productive tensions in theory and practice *Soc. Politics* **12** 321–43
- World Bank 2020 *World Bank Open Data* (available at: <https://data.worldbank.org/indicator/EG.ELC.ACCS.RU.ZS?locations=SN>) (Accessed 5 June 2023)
- Zalewski M 2010 'I don't even know what gender is': a discussion of the connections between gender, gender mainstreaming and feminist theory *Rev. Int. Stud.* **36** 3–27
- Zeinab K 2017 Decoding gender mainstreaming: gender policy frameworks in an era of global governance *Yale J. Int. Aff.* **12** (available at: https://heinonline.org/hol-cgi-bin/get_pdf.cgi?handle=hein.journals/yajoina12ion=9&casa_token=nhLiN2oSGcAAAAA:sYWVg9szHZyboWi9ZDPc125uTS6RFULMj0SGsNZX7gbR7Zad_1P-g1ZOCIPoYMWxMfwcwTlExQ)