PROMOTING A GENDER-JUST ENERGY TRANSITION IN ASEAN

This paper aims to promote and support the development of a gender-just energy transition (G-JET) framework for the consideration of ASEAN and its member states. It scopes critical pathways on promoting gender in JET; identifies four key barriers that impede progress in this area – regulatory, financial, knowledge and awareness, and technical – and proposes recommendations on raising awareness and improving the database on G-JET, integrating gender into policy design, developing a monitoring and evaluation framework, and establishing policy implementation oversight to overcome these barriers.

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Introduction

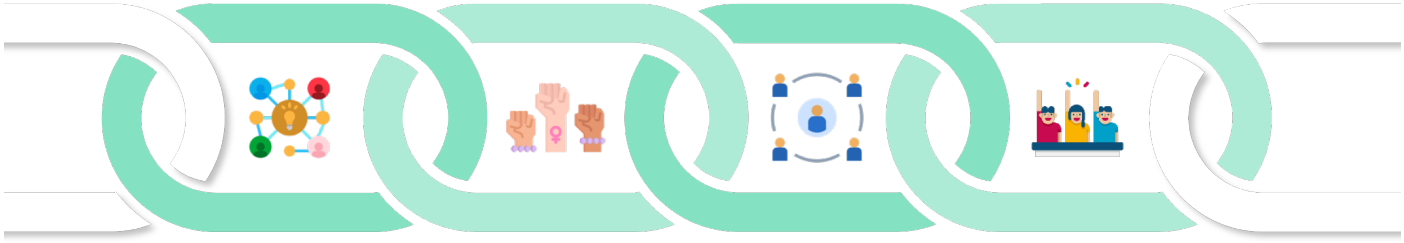
The Association of Southeast Asian Nations (ASEAN) region is collectively the fourth-largest energy consumer in the world (Zarim & Sastry, 2024). With an annual growth rate of three percent over the past two decades (IEA, 2022), the region's carbon emissions have been growing at an annual average of three percent compared to the global average of one percent in 2022. ASEAN member states (AMS) are also among the most highly vulnerable to the adverse impacts of climate change with the Philippines, Thailand, Cambodia and Vietnam ranked among the top 20 countries in the world on climate-related loss events between 2000 and 2019. Rising temperatures and sea levels, seasonal air pollution, and extreme and unpredictable weather events are threatening ASEAN's economy and population (Arriola, 2024).

Addressing both rising energy demand and the adverse impacts of climate change has spurred AMS into the pathway of energy transition by decreasing its dependence from fossil fuels towards renewable energy (RE) sources. AMS has collectively set ambitious energy transition targets: 23 percent renewables in primary energy supply and 35 percent in installed capacity by 2025, and decarbonization by 2050 and 2060. However, energy transitions will have implications that do not impact everyone equally. This is particularly the case for women who bear a significant burden of energy poverty[1] and are disproportionately affected by the adverse effects of climate change (Wahono, et al., 2023). This burden is further exacerbated by intersecting factors such as class, disability, traditional roles assigned to women such as unpaid care and domestic work (UCDW), and location. These create varying levels of disadvantages across multiple dimensions in the energy sector. Thus, the gendered implications of energy transitions require a more inclusive and intersectional approach.

This is the rationale behind just energy transition (JET) – to ensure an equitable and fair transformation of the energy system toward a sustainable and low carbon future based on the four core principles of recognition-based justice, procedural justice, distributional justice, and remedial justice. JET emphasizes social and economic equity for all stakeholders including women and marginalized groups to ensure that no one is left behind. It contributes to realizing the United Nations (UN) Sustainable Development Goals (SDGs) particularly SDG5 on achieving gender equality and empowering all women and girls; SDG7 on ensuring universal access to affordable, reliable, sustainable and modern energy; and SDG13 on taking urgent action to combat climate change and its impacts. The ASEAN Centre for Energy (ACE) in 2022 stated that enhancing women's participation in the energy sector will improve business performance, increase innovation, reduce labor shortages, and enable greater community buy-in. Women will bring diverse perspectives and innovation drawing from their experiences as household energy managers and end-users, particularly in the rural areas, that will provide critical inputs in shaping JET policies. According to the 6th International Conference on Gender Research in 2023, achieving gender equality is crucial for a successful JET. Thus, a gendered JET approach should consider women's needs and interests, and promote their active participation as entrepreneurs-producers, employees, consumers, and leaders in both the public and private sectors.

[1.] Energy poverty refers to a lack of access to adequate, affordable, reliable, safe, and sustainable energy services in the household (Wahono, et al., 2023)

Pathways on Promoting Gender in JET



Small-scale, locally-owned, locally-appropriate and gender-representative energy systems

Address individual and systemic barriers to female labor force participation in a just energy transition

Ensure a human-centered and community-based energy transition that leaves no one behind

Encourage the active and meaningful participation of women and marginalized people in the energy transition

Integrating appropriate small-scale, locally-owned, and gender-representative energy systems

Women have the opportunity to manage and operate decentralized energy system(s).

Small-scale, locally-owned and gender-representative energy systems are decentralized, community-driven energy systems that actively involve women in management and operation. These systems place energy production facilities closer to where the energy is consumed, harnessing RE sources such as solar, hydro and biogas. This approach decentralizes energy systems and empowers local communities by enabling their control over their energy resources and infrastructure, and the active participation of women and marginalized communities as energy prosumers[2] by addressing their specific energy needs and ensuring their participation in decision-making processes.

Energy production across AMS is highly centralized; mainly state-owned utilities and vertically integrated models[3]. Notably, only Malaysia and Vietnam have achieved universal access to electricity in the ASEAN region (Ienanto, Richard, & Yurnaidi, 2021). This highlights the need for the integration of small-scale RE systems to supplement existing centralized energy infrastructures to achieve full electrification in the region, particularly in remote communities. Energy accessibility remains a significant barrier to gender equality and women, who often bear the primary responsibility for household energy management, and are disproportionately affected. Strengthening energy democracy through appropriate small-scale, locally-owned, and gender-representative systems can help address these gaps by providing reliable and sustainable energy to underserved communities that will contribute in alleviating poverty by creating income opportunities for women, and provide girls with more time for education and development (Bharadwaj, 2022).

2. Prosumers are energy consumers who also produce energy (Šajn, 2016).

3. Vertically integrated markets allow for independent power producer generation, but state-owned enterprises remain single buyers (IEA, 2022)

CASE STUDY: Oxfam CORE Project in the Philippines

The island village of Hilabaan in Eastern Samar faces significant challenges, including vulnerability to frequent typhoons and a lack of reliable electricity which has hindered community activities at night. Historically dependent on household-based diesel generators and kerosene lamps, the community's energy needs were insufficiently met. To address this, Oxfam Pilipinas and Sentro para sa Ikauunlad ng Katutubong Agham at Teknolohiya (SIKAT) introduced a microgrid solar-powered renewable energy system in February 2022, delivering sustainable electricity to 124 households. This initiative not only reduced reliance on fossil fuels and helped mitigate climate change impacts, it also empowered the Hilabaan Women's Association by establishing a social enterprise. The powerhouse now also functions as a charging station, generating additional income for women through affordable service fees and monthly consumer dues. This project exemplifies a scalable model for sustainable energy solutions in off-grid communities, fostering both environmental and economic resilience.

Source: Oxfam Pilipinas

Addressing individual and systemic barriers to female labor force participation (FLFP) in JET

Women have the opportunity to participate and be more engaged in the energy sector workforce.

Traditionally, the energy sector has been male dominated, offering limited opportunities and minimal job creation for women that has led to numerous barriers for them. Addressing barriers to FLFP is emerging as a crucial element for driving JET with a shift towards comprehensive gender integration and recognizing that training alone will not suffice if women are burdened with UCDW or confined to specific sectors. Enhancing FLFP in the energy sector can lead to diverse perspectives and innovation, improved stakeholder engagement, better governance and decision-making, and promotion of sustainable practices that collectively contribute to a more effective and inclusive energy transition.

Only eight percent of women are employed in conventional energy[4] industries in ASEAN (Rakhiemah, Pradnyaswari, Fairuza, Adami, & Christian, 2024). This disparity can be traced back to the science, technology, engineering and mathematics (STEM) fields where reproductive and UCDW responsibilities often push women to leave during education or career progression. Women across AMS who are pursuing STEM degrees also encounter lower hiring rates in the energy sector compared to their male counterparts. Compounding this are persistent gender bias and discriminatory hiring practices (including low representation in the energy sector, restriction of women to lower paying and precarious jobs, and unequal pay for equal work), inadequate support for women's career advancement, and perceived additional costs associated with hiring women.

AMS are aware of these and are addressing barriers to FLFP in the energy work force. A common thread across the region is to promote awareness and transform societal norms in order to boost women representation in the energy work force. It should be noted that women's participation in the energy work force is not solely hindered by a lack of skills or opportunities but by other factors too such as gender-based violence and harassment (GBVH) and the burden of UCDW. This burden is particularly restrictive in single, female-led households. Addressing barriers to FLFP have significant economic implications with the International Labour Organization (ILO) estimating that closing

[4.] Power provided by traditional means such as coal, wood, gas, etc., as opposed to alternative energy sources such as solar power, tidal power, wind power, etc. (GEMET/PHC)

gender gaps in the labor market could add USD 3.1 trillion to the ASEAN region's collective gross domestic product (GDP) by 2025. But as the energy sector evolves, the required skillset of the workforce will also change thus requiring upskilling and reskilling with a tighter focus on women, in line with the Just Energy Transition Partnership (JETP) being implemented in Indonesia and Vietnam.

CASE STUDY: Women in Mining and Energy (WiME) Indonesia

Women in Mining and Energy (WiME) Indonesia was established in 2019 and supported by the Minerals & Energy for Development Alliance (MEfDA) and the Australian Government's aid program (AusAid) to promote and support the participation of women in Indonesia's mining and energy sectors. WiME Indonesia empowers women, fosters leadership opportunities, and supports professional development for women through the following programs:

- Ruang XY: Public discussions on sector-based best practices and challenges.
- Masterclass: Knowledge sharing sessions on essential soft skills.
- Relung (Ruang Leluasa): Forum for women to express workplace concerns and pressures.
- Female STEM Graduate Mentorship Program: Mentoring program for female STEM graduates.
- Internship Program: Professional exposure for students and fresh graduates.

WiME Indonesia have had significant success and impacts, conducting 11 Ruang XY sessions, seven Masterclasses, and three Relung forums. It also mentored six female STEM graduates and received 476 applications for mentorship and internships. These programs foster a supportive environment, equipping women with the skills and opportunities needed to thrive in the mining and energy sectors. Collectively, it underscores the importance of not only technical skills but also the mental and emotional support required to encourage women's participation in the energy workforce. Encouraging similar initiatives across the region can foster greater gender diversity and inclusion, unlocking untapped economic potential and driving overall sectoral growth.

Source: WiME's Website

Ensure a human-centered and community-based energy transition that leaves no one behind

Women have the opportunity to share the benefits of the energy transition or to mitigate and seek redress for environmental and social costs.

A holistic approach to energy transition integrates both human-centered and community-based principles. This means that women can share the benefits of the energy transition and seek redress for environmental and social costs resulting from the development of large-scale energy plants as well as the phasing out of coal-powered energy plants. It involves prioritizing end-user needs, engaging communities in decision-making, providing technical assistance for their participation in energy projects, and designing policies that specifically cater to marginalized groups as well as mandating Environment and Social Impact Assessment (ESIA) for projects. Currently, the gender-specific impacts of energy projects are often overlooked, neglecting concerns like women's access to land, health, safety, mobility, displacement, and resettlement. However, the principle of 'leave no one behind' has emerged with UN Climate Change Executive Secretary Simon Stiell highlighting that solutions to the climate crisis are meant to be inclusive, adding that "…everyone - women, indigenous peoples, and youth in all their diversity - have equal opportunities to benefit from these transitions." (UNFCCC, 2023)

Access to energy is a fundamental human right. It is imperative that development in the energy sector must ensure that no one is left behind. As the ASEAN region's demand for large-scale RE projects continues to grow, it is critical to ensure that women benefit from these projects and are also adequately protected. A human-centered and community-based energy transition not only contributes to achieving universal energy access in the region, it also promotes social justice, reinforcing ASEAN's commitment to inclusive development. By considering social impacts, policies can be designed to address the specific needs of vulnerable populations, reducing inequality and fostering social cohesion. Adequate guidelines are needed for public involvement in the EIA process. Special consideration should be given to vulnerable groups within the local community such as indigenous people, women, people with disabilities, and those below the poverty line that may need additional support to be able to participate effectively. Incorporating a gender impact assessment within the EIA process helps ensure that the differing impacts of environmental changes and project development on men and women are understood and addressed. Ensuring that women and marginalized groups participate effectively in decision-making can foster more equitable and inclusive outcomes (UNESCAP, 2022).

CASE STUDY: Nam Theun 2 Hydropower plant in Lao PDR

The Nam Theun 2 Hydropower plant in Lao PDR, with a capacity of 1070 MW, exemplifies the importance of gender-responsive assessment for effective project development. A comprehensive gender analysis was undertaken, identifying women and girls from ethnic and vulnerable households who were provided special support during relocation. The Laos Women Union (LWU) and gender specialists collaborated to implement a gender-responsive Social Development Plan and a Relocation Action Plan, ensuring adequate compensation. These gender actions had legal backing, with land titles extended to married couples as co-owners and compensation payments made jointly to couples. Furthermore, alternative livelihoods were created, including traditional activities implemented by women such as chicken rearing and handicrafts. This case underscores the significance of gender-responsive assessment in fostering equitable and sustainable project outcomes.

Source: Integrating Gender Equality into Large-Scale Energy Project by Ana Victoria Rojas, Senior Gender and Energy Adviser, IUCN Global Gender Office

Encourage the active and meaningful participation of women and marginalized people in the energy transition

Women have the opportunity to assume pivotal decision-making roles within the energy sector, contributing to policies formulation.

Encouraging the active and meaningful participation of women and marginalized people in energy transition involves creating inclusive opportunities for their engagement at all levels of decision-making and implementation, and ensuring their equitable involvement in energy policy formulation. Enabling women and marginalized groups to participate in decision-making processes can harness alternative knowledge systems and expertise, while also ensuring that project impacts on local communities are comprehensively addressed (Bharadwaj, 2022). Despite the growing recognition of women's crucial role in addressing climate change and advancing the energy transition, their participation as decision-makers in this area remains restricted (Feenstra, 2021). However, efforts to expand women's participation in the energy sector have been escalating. An example is the Clean Energy Ministerial (CEM) and International Energy Agency (IEA) jointly organizing the Clean Energy, Education, and Empowerment (C3E) initiative to promote women's

participation in clean energy thereby enhancing international collaboration for gender equality (Ienanto, Aprilyani, & Merdekawati, 2021).

Women are crucial in energy production, distribution, and use particularly in impoverished communities. Overlooking their contributions could diminish the effectiveness and sustainability of essential energy projects and policies, and could lead to gender-blind approaches in planning, financing, and implementation (Habtezion, 2012). This pathway presents an opportunity for ASEAN to increase women's voices that could contribute in creating more sustainable policies and practices, by including them in decision-making in both political and other spheres, with affirmative action for the most disadvantaged demographic affected by gender inequality, namely impoverished women and girls from ethnic minorities and remote areas (ACE, 2024). Enabling opportunities for women, especially indigenous women with traditional ecological knowledge, to participate in decision-making could enhance efforts to promote environmental conservation. When women are actively involved in decision-making bodies at various levels — whether political, administrative, or grassroots — policies will be able to respond to the diverse needs and priorities of all community members. This comprehensive representation ensures that energy policies and environmental strategies address the real concerns of women and marginalized groups, which is critical in achieving gender inclusivity and the successful implementation of energy policies.

CASE STUDY: The Ministry of Energy and Mineral Resources (MEMR) – Indonesia

In Indonesia, the Ministry of Energy and Mineral Resources (MEMR) promotes gender equality through various initiatives. Currently, 20% of director positions in the ministry are held by women, totaling 11 out of 55 units. This marks an increase from 2011, where only 12.7% of director positions were held by women. Overall, the participation of women in MEMR as employees has also increased from 22.8% in 2011 to 27.5% in 2021.

Andriah Feby Misna, Director of Bioenergy at MEMR, shared her perspective on women in the energy-climate transition in ASEAN. She emphasized that her participation as a woman in energy decision-making represents a significant stride toward gender equality in advancing the energy transition. As Director, her leadership exemplifies a commitment to promoting green energy solutions and empowering sectors with significant female representation. Her work focuses on achieving Indonesia's emissions reduction targets through bioenergy, which offers green and RE solutions across various sectors. Initiatives include waste management, biogas from manure, and biomass stove programs, particularly benefiting women-intensive sectors (Misna, 2021).

Source: ASEAN Climate Change and Energy Project, ASEAN Women in Energy-Climate

Challenges and Recommendations

There are persistent regulatory, financial, knowledge and awareness, and technical barriers hindering the advancement of a gender-just energy transition (G-JET).

Regulatory Barriers

ASEAN has adopted regional policy frameworks that affirmed its member states' commitment to gender equality: 2023 ASEAN Foreign Ministers' Meeting Joint Ministerial Statement, ASEAN Comprehensive Recovery Framework, 2017 ASEAN Declaration on the Gender-Responsive Implementation of the ASEAN Community Vision 2025 and Sustainable Development Goals, 2021–2025 ASEAN Gender-Mainstreaming Strategic Framework and 1988 ASEAN Declaration on Women's Advancement. However, these policy instruments do not necessarily inform other high-level declarations like the 2023 Joint Ministerial Statement of the 41st ASEAN Ministries on Energy Meeting. Likewise at the national level, most AMS have enacted gender equality policies and regulations. However, ASEAN is yet to formulate a collective gender responsive energy policy. For example, the ASEAN Plan of Action of Energy Cooperation (APAEC) Phase II: 2021–2025 does not mention gender, women, or differentiated roles and responsibilities in accelerating a G-JET. To address this, ACE recently developed a roadmap to provide guidance for AMS in formulating a gender-responsive RE policy and accelerating RE deployment in the region that can be the platform in introducing a gender-responsive energy policy for the APAEC Phase III: 2026–2030.

Financial Barriers

From 2010 to 2019, a total of USD 707.1 million in development finance was spent for various energy and gender programs in ASEAN. This comprised 3.3 percent of the total amount devoted to energy projects over the last decade with the share for gender projects at a similar 2.7 percent. Allocations for projects that have both the gender and energy access objectives are expected to be much smaller (Rakhiemah, Pradnyaswari, Fairuza, Adami, & Christian, 2024). ASEAN collectively receives 6.2 percent of the total global development finance and because of funding constraints,

small-scale projects are often not prioritized as these are considered less profitable compared to larger-scale projects. Development finance devoted to energy and gender programs increased from USD 29.8 million in 2014 to USD 225.1 million in 2016 which is 6.4 percent of the total budget spent globally (Rakhiemah, Pradnyaswari, Fairuza, Adami, & Christian, 2024) or USD 11.4 billion. This is a small share compared to 35 percent in Asia and 29 percent in Africa.

Development finance is mobilized only in the form of Official Development Assistance (ODA) grants (88.4%) and loans (11.16%). Other development finance schemes like loans, loan guarantees, equity investment and other forms of financial assistance exist but are not fully utilized. Furthermore, green financing and climate finance initiatives have largely failed to systematically incorporate gender considerations in the funding criteria and project implementation, which further limit the effectiveness of these programs in addressing gender equality.

Knowledge and Awareness Barriers

Across ASEAN, women have less access to STEM fields and technical roles unlike men. An "Assessment of Women's Participation in the Energy Sector in Southeast Asia" conducted by United States Agency for International Development (USAID) highlighted several challenges.

- Deeply ingrained social norms contribute to gender segregation in tertiary education, undermining women's empowerment and limiting their opportunities in STEM fields.

- Cultural beliefs, traditions, and social values hinder gender equality, affecting women's decisions to enter STEM fields. The lack of role models and promotion mechanisms perpetuate misconceptions that engineering is dangerous and unsuitable for women who are assigned to traditional caregiving roles, thereby impacting FLFP participation.

Gender awareness in the AMS around energy transition and what it entails must be actively promoted. According to research (Pearl-Martinez & Stephens, 2017), increasing the number of women in the energy sector will broaden social awareness of their inclusion in energy transition efforts. Raising awareness on the significance of women's participation in energy transition deliberately and intentionally must be undertaken simultaneously (Sumarno, Yusgiantoro, Fitriyanti, & Khusna, 2024).

Technical Barriers

Numerous research reports published including by ACE cite the lack of data on gender and energy as a core obstacle in advancing G-JET in ASEAN. May Thazin Aung of the International Institute for Environment and Development mentioned during an Eco-Business podcast series (Eco-Business, 2023) that data insufficiency may happen due to two reasons: a prevalent perception that gender is unimportant and the skewed research capacities of AMS. In the same podcast, Amira Bilqis of ACE mentioned that the gender and energy nexus is understood in "a general sense, but details are not visible yet". The ASEAN's sex-disaggregated data collection is still evolving. Additionally, current indicators used in the energy sector are predominantly technical, focusing on measurements such as kilowatt-hours (kWh), megawatts (MW), greenhouse gas (GHG) emissions, and infrastructure metrics that leave out a comprehensive understanding of women's contributions and needs in the energy sector. Compounding this complexity is the underreporting of women's contributions in informal sectors and UCDW because they are often overlooked in traditional economic metrics. This underscores the need for social indicators that capture the broader scope of women's impact in energy contexts.

Conclusion and Recommendations

Addressing regulatory, financial, knowledge and awareness, and technical barriers are imperative in realizing G-JET. These proposed recommendations are aligned with the ASEAN RE Gender Roadmap that was published in 2022 by ACE. Several potential entry points in promoting these recommendations include engaging with the crafting of APAEC Phase III, the annual ASEAN Ministers on Energy Meeting (AMEM) and the Renewable Energy Sub-Sector Network (RE-SSN) meeting, and supporting ACE's initiative on promoting gender in JET. For this purpose, the following recommendations are offered for consideration:

Raise awareness and improve the database on G-JET

There is a need for reliable and high-quality information on gender in the RE database. The following actions are proposed for this purpose:

- Establish strategic partnerships with diverse stakeholders and nodal networks in ASEAN to facilitate collaboration, resource sharing and investment mobilization for gender-inclusive energy projects for a G-JET.
- Create a regional platform on G-JET that will serve as the hub for coordination, information sharing, and advocacy in driving gender equity in energy policies and practices.
- Mandate the ASEAN RE Information and Training Centre to develop a standardized G-JET database with gender-disaggregated data and social indicators that will be collected at various stages (including data on the collective number of women employed or affected by the transition).
- Engage formal and informal education channels like technical and vocational educational and training (TVET) institutions, provincial learning centers, and other educational platforms to promote awareness on G-JET.

Integrate gender into policy design

The objective is to increase the rate of women in STEM education and who are informally and formally working in the RE sector, diversify RE models that are being developed and operated by women, create enabling environments for women-led RE businesses, and mitigate the potential risks of JET projects on women and other vulnerable groups. The following actions are proposed for this purpose:

- Initiate research that will deepen appreciation of women in the energy sector towards meaningfully informing JET efforts and encouraging women in STEM in partnership with academic institutions.
- Incorporate mandatory gender-responsive or gender-transformative policy design processes into the ASEAN RE Long Term Roadmap to include integrating gender assessments for all proposed policies to ensure that these are inclusive and address the specific barriers faced by women.

- Incorporate the development of a gender-responsive budget and financial framework into the ASEAN RE Long Term Roadmap, and advocate for the full integration of gender considerations into financial planning and resource allocation.

- Develop financing schemes and guidelines that specifically support women in the RE sector and integrate these into national frameworks (including enabling private sector partners engaged in public private partnerships (PPPs) to reward equal pay for equal work).

Develop a monitoring and evaluation (M&E) framework

There is a need to develop measurable and feasible Key Performance Indicators (KPI) and valid data to monitor if women's participation is increasing and if the quality of life of poor households is improving. The following actions are proposed for this purpose:

- Identify and define KPIs that will effectively measure the progress and impact of gender-responsive policies in the RE sector (i.e. minimum number of women engaged in design consultations, potential impact of projects on women's employment, number of hours spent on care, etc.).
- Organize workshops on the monitoring and evaluation of gender-responsive energy policies to build capacity among stakeholders and gather relevant inputs in refining these.

Establish policy implementation oversight

The objective is to enable an effective gender-responsive policy environment that will accelerate RE deployment, generate measurable and valid data on women's participation and employment, and facilitate inclusive and sustainable RE projects:

- Establish a Renewable Energy and Gender Working Group (REGWG) to oversee the implementation and evaluation of gender-responsive policies based on an established M&E framework. This working group should include diverse representation from government agencies, civil society organizations (CSOs), women's organizations and grassroots groups, academic institutions with researchers in gender and energy, the private sector, and community representatives, particularly women from marginalized groups.
- Develop an actionable work plan and implement a structured review process detailing specific actions, timelines, and responsible parties for achieving the targets and outcomes.

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