



Policy Brief

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The Importance of Improving Gender Data in ASEAN for Just and Inclusive Energy Transition Policy Planning

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Highlights

- The energy transition presents an opportunity to enhance women's contributions to the energy sector and transform energy's impact on women into a more positive, just and inclusive one.
- ASEAN has endorsed the new theme of the ASEAN Plan of Action for Energy Cooperation (APAEC) 2026-2030 of "Advancing Regional Cooperation in Ensuring Energy Security and Accelerating Decarbonisation for a Just and Inclusive Energy Transition". Mainstreaming gender as part of a just and inclusive strategy requires sex-disaggregated data. It is crucial to identify and address the development gaps towards a more gender-responsive energy sector.
- Sex-disaggregated data can help policymakers understand the different needs, experiences, and priorities of men and women in relation to the energy sector. This is essential for creating well-informed and gender-responsive policies while avoiding unintended negative consequences, especially for women. By highlighting women's contributions and challenges, it raises awareness of their role in the energy transition, fostering greater opportunities for women and a more inclusive, equitable energy future.
- Based on leading studies, there are several key gender data categories to be collected and monitored, not limited to the following: 1) Education, 2) Recruitment and Workforce, 3) Entrepreneurship and Financial Inclusion, 4) Decision-making, and 5) Energy Infrastructure and Access.
- This brief proposes to complement the existing regional energy database, which ACE is tasked with as a knowledge hub, that includes sex-disaggregated data of the above categories to assist policy and decision-makers in implementing a just and inclusive energy transition in ASEAN.

Introduction

The concept of a "just and inclusive energy transition" has gained traction in ASEAN in recent years, which also includes ensuring the rights of disadvantaged groups through gender-responsive policies that address women's socioeconomic vulnerabilities and enhance their participation in the energy transition [4], [5]. While no region-wide gender-responsive energy policies exist, some national laws in Indonesia, the Philippines, Thailand, and Vietnam acknowledge and incorporate gender issues or so-called "gender-sensitive." To progress beyond recognition, advancing gender-responsive policymaking in the energy sector necessitates targeted interventions that promote gender equality, foster women's empowerment and provide equal opportunities for women and men to derive environmental, social and economic benefits.

A critical component of this approach is the use of sex-disaggregated data to identify development disparities and design, monitor and evaluate the impacts of energy transition policies and programmes more effectively [6]. Such data enables policymakers to understand gender gaps and make informed decisions that can lead to increased opportunities for women in the sector and a more inclusive and equitable energy future.

Figure 1 42nd ASEAN Ministers on Energy Meeting



The ASEAN Declaration on the Gender-Responsive Implementation of the ASEAN Community Vision 2025 and the Sustainable Development Goals emphasises building the capacity of ASEAN Member States (AMS) to develop sex-disaggregated databases at national and sub-national levels, including data collection, management, analysis, dissemination, and ensuring access to high-quality data for key sectors [7]. The 2022 ASEAN RE-Gender Roadmap further underscores the need for sex-disaggregated data for reliable gender statistics in energy policy and planning [6]. Currently, ASEAN is in the first phase of implementing this roadmap, focusing on raising gender awareness in the energy sector and developing a renewable energy gender database.

However, the limited relevant gender-energy data continues to be a major obstacle. The publicly available energy-gender data in ASEAN tends to originate from external sources instead of the national open public database (Table 1). For example, the brief compiled on energy-gender data from the World Economic Forum (WEF), International Labour Organisation (ILO), and various other databases to reveal an insight into women’s participation and employment situation in Science, Technology, Engineering, and Mathematics (STEM) in ASEAN [8].

Table 1 Sex-Disaggregated Energy-Related Data Available in ASEAN Level

Indicator	Share Percentage	Source
Women graduate from STEM education	19.3%	USAID, 2022 [8]
Women students in STEM education	42% (Average)	WEF, 2022 [9]
Women’s employment rate in the energy sector	8%	UN Women, 2021 [10]
Women in energy leadership positions	11% Women Cabinet Ministers	UN Women, 2023 [11]

Outside the region, there is the EU's inclusion of sex-disaggregated employment data in its Labour Force Survey and Directorate General of Energy (DG ENER) database, and Lekela Power's use of internal gender data to address disparities in its African plants [9], [10]. Publicly accessible resources, such as the IEA's Gender and Energy Data Explorer and EIGE's Gender Statistics Database, provide additional data [11], [12].

In the region's best practices, the Philippines is advancing the integration of gender considerations in the energy sector through its Department of Energy's Gender Toolkit. The toolkit helps implement the Gender and Development Budget policy and other laws related to women's participation and representation in politics and national development strategies. The gender toolkit supports the generation of sex-disaggregated data while simultaneously enhancing officials' data collection and use capacity. The Toolkit serves as a guide for the Gender and Development (GAD) Focal Point System. All Department of Energy projects are required to submit a GAD checklist to assess gender responsiveness [13], [14].

This policy brief acknowledges the importance of sex-disaggregated data tailored to ASEAN and identifies the energy-gender data gaps and their dimensions in the energy sector. It also showcases key indicator data needed for gender analysis in just energy policy and planning. Moreover, it recommends possible frameworks to collect and share sex-disaggregated data for AMS. From a broader perspective, this policy brief aims to raise awareness, within the ASEAN governance on the need for energy-gender data for more inclusive participation of women in the energy transition.

Methodology and Limitations

This study uses a qualitative approach, reviewing databases to assess the availability of sex-disaggregated energy data and identify data gaps. It examines data collection methods, the most recent datasets, data custodians, and data governance. Due to limited data availability, the study relies on existing datasets from national statistical agencies and government bodies, including energy-related ministries, to pinpoint key areas and indicators for an energy-gender database. The study faces limitations, including variability in data quality and coverage, as well as gaps in temporal and spatial data. Despite these challenges, the findings provide valuable insights and practical recommendations for creating a comprehensive energy-gender database for ASEAN.

The Evidence-Based Gender Dimensions in the Energy Sector

Overall, women in ASEAN are disadvantaged across all these areas of development, despite the potential benefits of the energy transition. However, literature reviews reveal notable disparities across several key energy-related dimensions. This brief identifies five main dimensions for the sex-disaggregated data for consideration: access, education, employment, decision-making, and entrepreneurship. The proposed dimensions to be developed for the energy-gender data in ASEAN and its background are shown in **Figure 2**.

Figure 2 Gender Dimensions in the Energy Sector

<p>Energy Access</p>	<ul style="list-style-type: none"> • Examining unequal energy access disproportionately impacts women, especially in terms of health, as they often face the harshest consequences of energy poverty. • Monitoring energy access affects women's quality of life and safety, underscoring the need for equitable energy solutions that address gender-specific challenges in health and well-being.
<p>Education</p>	<ul style="list-style-type: none"> • Assessing details of women's participation in STEM education and their transition rate into the workforce by sector, including the renewable and clean energy sectors. • Reviewing the indicators related to this will help to understand the challenges in improving women's enrolment, performance, and even employability which enabling the identification of effective strategies.
<p>Employment</p>	<ul style="list-style-type: none"> • Data on energy sector jobs remains limited and fragmented, even when ASEAN Labour Force Survey has been conducted and ASEAN Employment Outlook has been conducted. • Tracking this information could assist in reshaping current hiring practices and workplace environments that may disadvantage women.

Decision-Making

- Monitoring this ensures that gender perspectives are represented and championed for by high-level decision-makers, promoting a more balanced and inclusive approach to energy issues.
- Tracking these metrics reveals the influence women hold in energy-related high-level decision-making, identifying areas for improvement and driving progress toward inclusive policies in the sector.

Entrepreneurship

- Progress towards more distributed energy sector shall offer opportunities women as an entrepreneurs however there are challenges such as capacity and access to finance.
- Tracking this progress can help assess the resources needed to support women in starting and scaling energy-related businesses.

The energy sector impacts women across multiple dimensions, revealing significant gender disparities. One major issue is energy access, where unequal distribution disproportionately affects rural women, especially in terms of health, as they often bear the brunt of energy poverty [15]. Developing datasets on energy access for rural women will help track ASEAN's energy transition progress towards affordable, reliable, sustainable, and modern energy access for all, leaving no one behind.

In education, a substantial gender gap in STEM fields limits women's ability to meet job market demands and transition into energy-related careers [8]. According to an education readiness assessment study, the region is not yet fully prepared to provide robust formal education in renewable energy, creating further obstacles for women entering this sector [16].

Additionally, employability and workforce participation are hampered by the lack of supportive work environments, which contributes to lower representation of women in technical fields such as engineering and their overall contribution to the just transition [8].

While progress has been made in leadership roles, with more women in executive positions, representation in policy and decision-making within energy remains very limited. This lack of diverse perspectives in leadership hinders the development of inclusive energy policies that address varied needs, particularly in clean energy initiatives [15]. Seven out of the 10 ASEAN countries have data on the number of women participating in decision-making bodies. For the seven countries with data, it is scattered temporally.

Lastly, in entrepreneurship, women face considerable challenges in accessing the funding and resources required to start and scale energy-related businesses since they lack ownership of land [17]. These barriers limit women's participation in energy entrepreneurship, reducing the sector's potential for inclusive growth. Only four countries in ASEAN have women's land ownership statistics, thus limiting opportunities to enhance the livelihoods of women [15].

Addressing and tracking the gendered dimensions of—energy access, workforce participation, education, leadership and decision-making, and entrepreneurship—is essential for a more equitable and effective energy transition, with women as integral contributors to the sector's growth and innovation.

Inclusive policies with gender approaches, such as sex-disaggregated data collection requirements, can ensure that everyone benefits from the transition. More women's involvement is not only a basic human right, but it will also leverage the potential of the energy sector by involving women. It is pivotal to collect sex-disaggregated data to better understand gender differences and conduct analysis in guiding policymakers toward advancing a just and inclusive energy transition.

The Availability of Sex-disaggregated Data for Policy Monitoring

There is currently a limited amount of gender-specific data focused exclusively on ASEAN. However, it is possible to derive such data by extracting it from available global datasets, if provided. **Table 2** focuses on the ASEAN data custodians related to energy data areas. The ASEAN Gender Outlook indicates that data availability for SDG gender-related indicators remains low [15], [18].

Table 2 List of Data Custodians in AMS

Country	National Statistics Agency	Energy-Related Ministry Database
Brunei Darussalam	Department of Economic Planning and Statistics	Integrated with a statistical agency
Cambodia	National Institute of Statistics (NIS)	Integrated with a statistical agency
Indonesia	Badan Pusat Statistik (BPS)	Energy & Economic Statistics Indonesia
Lao PDR	Lao Statistics Bureau (LBS)	Integrated with a statistical agency
Malaysia	Department of Statistics Malaysia (DOSM)	MyEnergy Stats
Myanmar	Central Statistical Organisation (CSO)	Energy Statistics Ministry of Energy
Philippines	The Philippine Statistics Authority (PSA)	Philippine Power Statistics
Singapore	Department of Statistics Singapore (DOS)	Singapore Energy Statistics (SES)
Thailand	National Statistical Office of Thailand (NSO)	Energy Policy and Planning
Viet Nam	General Statistics Office (GSO)	Integrated with statistical agency

There is a significant lack of data breakdown at the country level, which may shed light on some of the energy-gender issues. Few member states provide sex-disaggregated data on the 5 key areas highlighted in this policy brief.

The existing data is scattered across official government institutions, indicating the need for cross-institutional collaboration between relevant stakeholders to share the data collection. Table 3 shows the existing sex-disaggregated data that can support the analysis of energy-gender nexus.

Table 3 Availability of Sex-Disaggregated Data Related to Energy in ASEAN

Country	National Statistic Agency	Energy-Related Ministry Database	Time Series
Brunei Darussalam	Department of Planning, Development and Research, Ministry of Education	Intake, enrolment, and graduates according to gender by award level and field of education for higher education in STEM	2014-2018
	Department of Economic Planning and Statistics	Employment by sex and occupation in the energy industry	2014-2022
Cambodia	National Institute of Statistics	Main occupation in mining, by sex	2019

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Country	National Statistic Agency	Energy-Related Ministry Database	Time Series
Cambodia	National Institute of Statistics (DHS Program)	Access to clean cooking and percentage distribution of households by sex of head of household	2022
Indonesia	Badan Pusat Statistik	Labour Force Situation in Indonesia, by sector (mining, manufacturing, electricity, storage, transportation) and sex	2005-2024
	Ministry of National Development Planning	Financial access strand, financial services use, sources of informal credit, land ownership, main income source, and financial decision method, by gender	2017
	The National Team for the Acceleration of Poverty Reduction	Household by gender data, including access to water and electricity	2013
Malaysia	Department of Statistics Malaysia	Labour participation rate in the mining and quarrying industry, by sex	2017-2022
	Department of Statistics Malaysia	Proportion of seats held by women in the national parliament and local governments, by sex	2016-2022
Myanmar	Ministry of Planning and Finance	Employment by occupation (technicians and associate professionals, skilled agricultural workers, plant and machine operators and assemblers) and sex	2019
	Ministry of Labour, Immigration and Population	Source of energy and water by sex of the household head	2014
Philippines	Central Bank of the Philippines	Account ownership by gender	2017
	Philippine Statistics Authority	Access to clean cooking and percentage distribution of households by sex of head of household	2022
Singapore	Ministry of Manpower	Employed residents by detailed occupation (Associate Professionals & Technicians, Plant & Machine Operators & Assemblers) and sex	2001-2023
Thailand	Bank of Thailand	Access to financial services, deposits/savings service, loan service, money transfer services, payment services, and usage of e-payments, by gender	2020

Notes: Data for Viet Nam is not available

The lack of sex-disaggregated data on a national level is related to technical capacity. The UN Women’s Assessment on gender statistics finds that challenges in producing, analysing, and using gender statistics are due to duplication of efforts, lack of collaboration, uncertain responsibilities assignment, and low engagement with relevant actors [19]. The findings from the conferences support the statement and ASEAN Secretariat interviews that there is a strong need for government officials and staff to receive “gender training” [20].

Data Gaps from the Existing Sex-Disaggregated Database

This section will examine the data gaps from the research findings above (Table 3), whether the category has specific energy data disaggregated by gender, up-to-date data that reflect current conditions or trends, and provides historical data. Table 4 shows that only a few member states collected the recent data associated with energy-gender nexus, which was categorised into decision-making, energy access, entrepreneurship, employment (in STEM or energy-related sector), and education (in STEM). It was found that some AMS already included or focused on gender in their surveys, albeit there is room for improvement.

Table 4 Number of ASEAN Countries with Energy Data Disaggregated by Sex

Category	Countries with Data	Countries with Recent Data (2020 or later)	Countries with Time Series Data (more than one data point)
Energy Access	4	2	0
Education	1	0	0
Employment	7	5	4
Decision-making	1	1	1
Entrepreneurship	0	0	0

Note: Based on existing Table 3

The lack of availability and factuality of the sex-disaggregated data related to the energy sector in ASEAN is apparent. Only about half of the AMS holds sex-disaggregated data on the three categories that can be used to analyse the energy sector better. The other accessible data either do not have disaggregation by gender, are not specific enough in their sub-category, or are not available at all. Even when the data is available, it is hard to guarantee its relevance since most of them are outdated and therefore might not reflect the current situation. This issue is more prominent when the data is a single point, making it challenging to analyse trends over time with the lack of historical data.

Energy statistics have traditionally been produced at aggregate levels and with a macro lens, largely associated with economic data, which limits the possibility of carrying out gender analysis with existing energy statistics [21].

Even as the statistics are increasingly being consolidated at a more granular level, most are household-level measures, making it challenging to conduct gender-specific analysis since it does not capture any intra-household inequalities that may exist, among others, energy access, consumption, or energy-related decision-making.

Moreover, ASEAN faced challenges in terms of resources and capacity to collect and analyse disaggregated data. Unlike aggregated data, sex-disaggregated data involves a larger sample size, sophisticated and expensive data collection tools, as well as skilled individuals to collect and analyse the data. National statistical agencies usually create statistics on data that are disaggregated by gender, age, and other categories. Besides, not many national statistics agencies can clean, analyse, and report the data, although they have experience in curating data [22].

Recommendations

Integrating gender data into the regional energy database is essential to support ASEAN's energy transition policy and planning. A focused set of key recommendations must be prioritised to establish the availability of sex-disaggregated data and improve the quality.

1. Establishing a strong energy-gender data foundation

Integrate the energy-gender nexus into the ASEAN Plan of Action for Energy Cooperation (APAEC) and it is strongly advised to include comprehensive energy-gender data development within the ASEAN Energy Database System (AEDS) to inform ASEAN's energy transition policy and planning. This approach would support ASEAN's energy transition policy and planning efforts, with additional guidelines and toolkits developed to ensure consistent data collection, utilisation, and monitoring, thereby maintaining data quality and reliability.

2. Strengthening stakeholder coordination to maximise resources

Enhanced coordination with stakeholders is vital to drive these efforts, particularly through partnerships with the ASEAN Secretariat such as the ASEAN Commission on the Promotion and Protection of the Rights of Women and Children (ACWC) and the ASEAN Gender Mainstreaming Steering Committee (AGMSC), is essential to avoid duplicative efforts. In addition, expanding the ASEAN Energy Outlook data collection via working group to include energy-gender data and improving inter-ministerial collaboration will further strengthen these initiatives.

3. Building capacity among key stakeholders for sustainable impact

Capacity building is essential for addressing national-level challenges, especially through improving the collection and accessibility of sex-disaggregated data in the renewable energy sector. Annual monitoring and evaluation of the energy-gender database will drive continuous improvement, supported by training programmes for government officials and stakeholders that focus on gender perspectives, data skills, and gender-responsive policy planning. Encouraging countries to report their progress will also promote accountability and ensure the database becomes a robust tool for holistic energy policy planning.

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