

A Guide to a Just and Inclusive Energy Transition in ASEAN

January 2025

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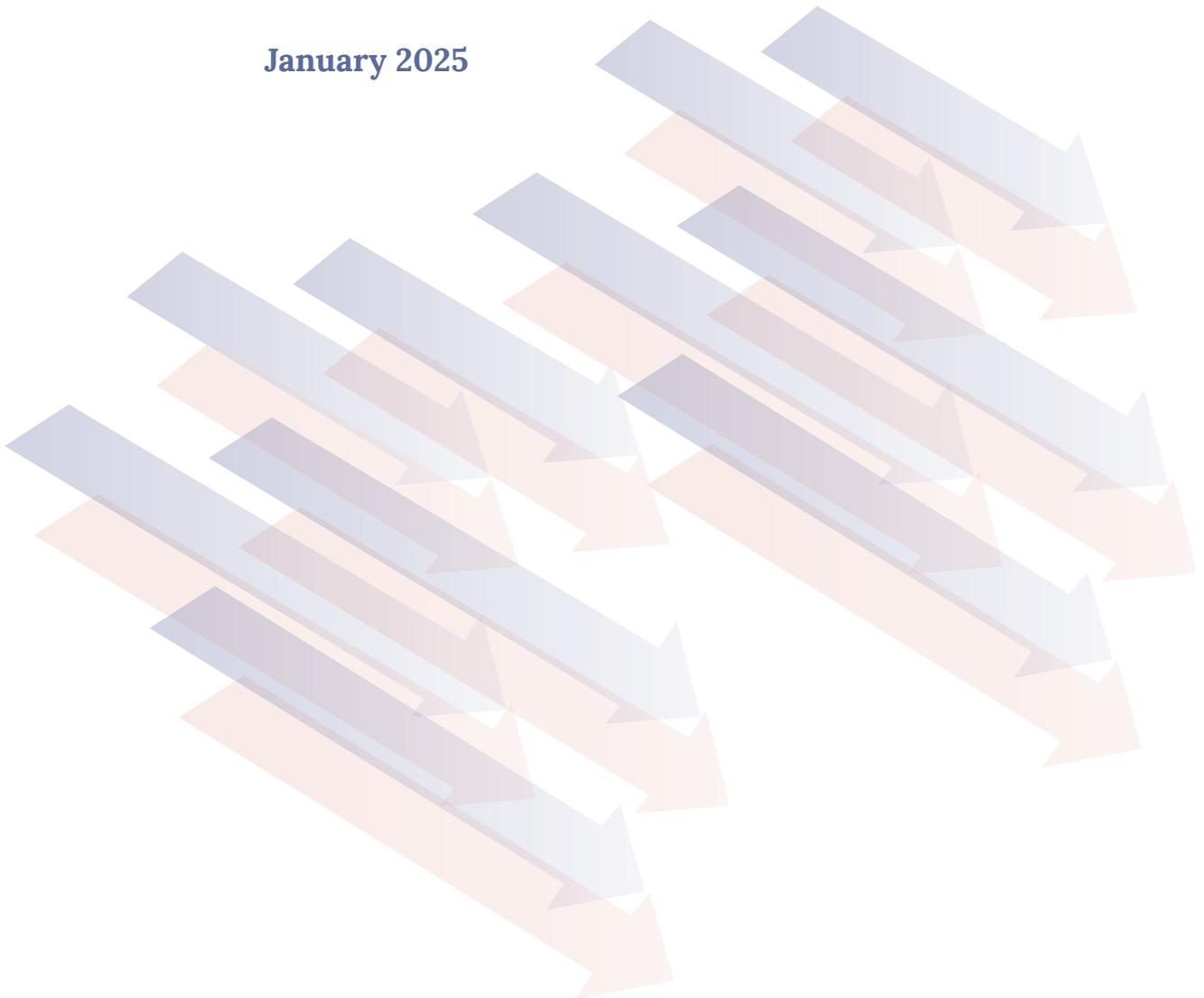
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About ASEAN Centre for Energy

Established on 1 January 1999, the ASEAN Centre for Energy (ACE) is an intergovernmental organisation within the Association of Southeast Asian Nations' (ASEAN) structure that **represents the 10 ASEAN Member States' (AMS) interests in the energy sector**. ACE supports the implementation of the ASEAN Plan of Action for Energy Cooperation (APAEC), a blueprint for better collaboration towards upgrading energy. The Centre is guided by a Governing Council composed of Senior Officials on Energy from each AMS and a representative from the ASEAN Secretariat as an ex-officio member.

The three key roles of the ACE:

1. As a catalyst to unify and strengthen ASEAN energy cooperation and integration by implementing relevant capacity building programmes and projects to assist the AMS develop their energy sector.
2. As the ASEAN energy data centre and knowledge hub to provide a knowledge repository for the AMS.
3. As an ASEAN energy think tank to assist the AMS by identifying and surfacing innovative solutions for ASEAN's energy challenges on policies, legal & regulatory frameworks and technologies.

Keeping the region's energy security, affordability, and sustainability is a fundamental concern of the ASEAN energy sector. Hosted by the Ministry of Energy and Mineral Resources of Indonesia, ACE's office is located in **Jakarta, Indonesia**. For more information: aseanenergy.org.



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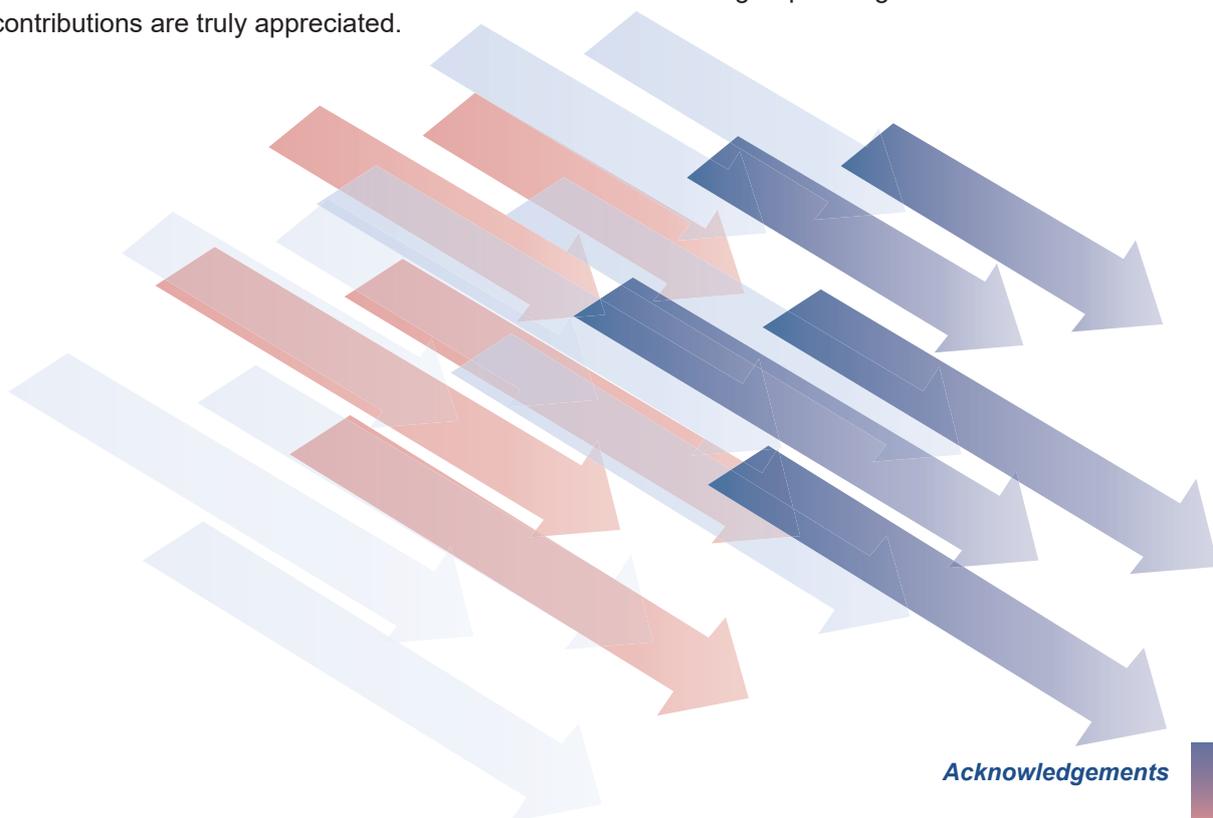
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Foreword

ASEAN has been actively working together to address its energy trilemma ever since the launch of the first ASEAN Plan of Action for Energy Cooperation (APAEC) in 1999. As of the development of this report, the region is nearing the completion of the second phase of APAEC 2016-2025 and is preparing the next cycle that would tailor the region's diverse perspectives and priorities. The 42nd ASEAN Ministers on Energy Meeting (AMEM), hosted by the Lao PDR, has endorsed the new theme for the APAEC 2026-2030 '*Advancing Regional Cooperation in Ensuring Energy Security and Accelerating Decarbonisation for a Just and Inclusive Energy Transition*'.

To embrace this vision of ASEAN's energy landscape post-2025, it is crucial to establish a shared understanding of what a Just and Inclusive Energy Transition truly means for the region. This common perspective will shape not only the trajectory of the transition itself but also its profound implications for future energy policies and regional development strategies. The ASEAN Centre for Energy is at the forefront of facilitating its implementation. We are glad to collaborate with Oxfam through the I-JET (Influencing Just Energy Transition in Asia) Program to publish this Guide.

This report, A Guide for a Just and Inclusive Energy Transition, is an initial effort to further raise the awareness of a Just and Inclusive Energy Transition. By fully acknowledging the current state and diversity of AMS, we provide a starting point of discussion that would be translated in the regional and national context. The guide puts a focus on five priority sectors: (1) Energy Access and Affordability; (2) Energy and Employment; (3) Education, Capacity Development, and Skills; (4) Gender, Social Inclusion and Protection of Disadvantaged Groups; (5) Inclusive Governance. The report also provides recommendations and a policy toolkit as practical support for ASEAN policymakers during the development of upcoming APAEC and national energy policies.

As the title suggests, we hope this report serves as a valuable guide for AMS in mainstreaming Just and Inclusive Energy Transition on respective energy transition policies. We encourage all the stakeholders to work collaboratively to advance this agenda, driving a resilient, sustainable, and inclusive energy future for ASEAN.

Beni Suryadi

Acting Executive Director





Executive Summary

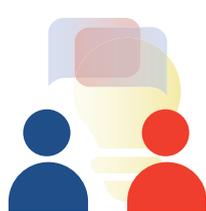
In 2024, the Joint Ministerial Statement of the 42nd ASEAN Ministers on Energy Meeting (AMEM) endorsed the theme of the next APAEC (ASEAN Plan of Action for Energy Cooperation) 2026–2030 as “Advancing Regional Cooperation in Ensuring Energy Security and Accelerating Decarbonisation for a **Just and Inclusive Energy Transition**” [1].

Given the complex challenges of energy transition globally and within the region, maintaining ASEAN centrality in **defining a common understanding of a just and inclusive energy transition**, along with codifying its principles and prioritised sectors, would enhance the effectiveness of a regional energy transition plan and strengthen collaborative efforts for a regional people-centric approach.

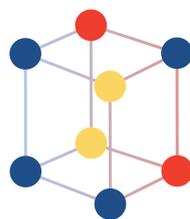


To build a shared understanding of a JIET, **this report provides guidance on implementing and integrating just and inclusive principles into energy policymaking.**

This guide also informs the APAEC, emphasising the unlocking of resources, attracting investment, and delivering targeted benefits such as rural electrification, women’s empowerment, and specialised skills development that prioritises local needs, protects vulnerable communities, and fosters sustainable opportunities for workers and communities.



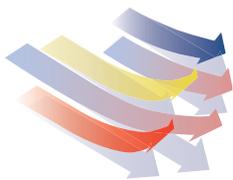
Thus, this heuristic guide aims to foster a common understanding, share knowledge, and highlight best practices to support equitable, inclusive, and just energy transition policies toward a low-carbon future in ASEAN by guiding the selection and navigation of relevant approaches so that informed decisions can be made.



Mainstreaming the just and inclusive energy transition framework into the regional energy blueprint **can leverage the implementation of energy projects, and harness social acceptance, women’s roles and impact, and potential support to unlock the necessary financing** for deploying low-carbon technologies while simultaneously improving energy access for underrepresented communities.



The term “just and inclusive energy transition” should be understood beyond energy system transformation (i.e. coal phase down, energy technology transition, and low carbon technology), so that the transition is considered a reflection of a wide range of processes at different scales and across various economic, social and environmental domains, which address a range of processes that are oriented towards aligning global, regional, and national priorities with the principles of justice, inclusiveness, gender equality, environmental sustainability, and social protection.

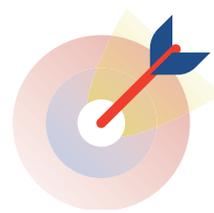


Just and Inclusive Energy Transition in ASEAN can be defined as “**the transition from fossil fuels to the low carbon-based energy system in ASEAN with a focus on protecting and empowering ASEAN people, strengthening energy resilience and energy security, to realise the full potential of an ASEAN sustainable energy future**”.



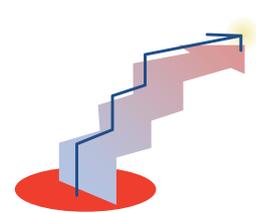
To guide ASEAN’s just and inclusive energy transition, this Guide proposes ten guiding principles to be considered at relevant regional blueprint milestones:

- (1) **affordability;**
- (2) **accessibility;**
- (3) **energy security;**
- (4) **sustainability;**
- (5) **fair distribution of cost and benefits;**
- (6) **widest inclusion and participation;**
- (7) **recognition and empowerment;**
- (8) **fair economic growth;**
- (9) **gender equity;**
and
- (10) **intergenerational equity.**



There are five prioritised sectors for ASEAN to make the JIET approach feasible:

- (1) **Energy Access and Affordability;**
- (2) **Energy and Employment;**
- (3) **Education, Capacity Development, and Skills;**
- (4) **Gender, Social Inclusion and Protection of Disadvantaged Groups; and**
- (5) **Inclusive Governance.**



To help track progress and guide the implementation of the JIET, steps that could be taken include defining the metrics in five prioritised sectors, and monitoring and inclusive evaluation

Recommended next steps

1. Identify and leverage existing ASEAN initiatives that align with JIET principles;
2. Conduct in-depth studies on the intersection of energy and socioeconomic factors to provide valuable insights for targeted policy development;
3. Identify ASEAN energy focal points to coordinate efforts, facilitate knowledge sharing, and strengthen regional collaboration in achieving a sustainable and inclusive energy future;
4. Conduct regular regional forums and exchanges related to a Just and Inclusive Energy Transition;
5. Develop implementation plans and monitoring mechanisms to track progress on JIET integration and impact across AMS



Through a holistic just and inclusive energy transition framework, comprehensive policies, and strengthened collaboration, **ASEAN can effectively manage the complexities of the energy transition while unlocking substantial economic, social, and environmental benefits, solidifying its role as a prominent leader in the global clean energy movement.**



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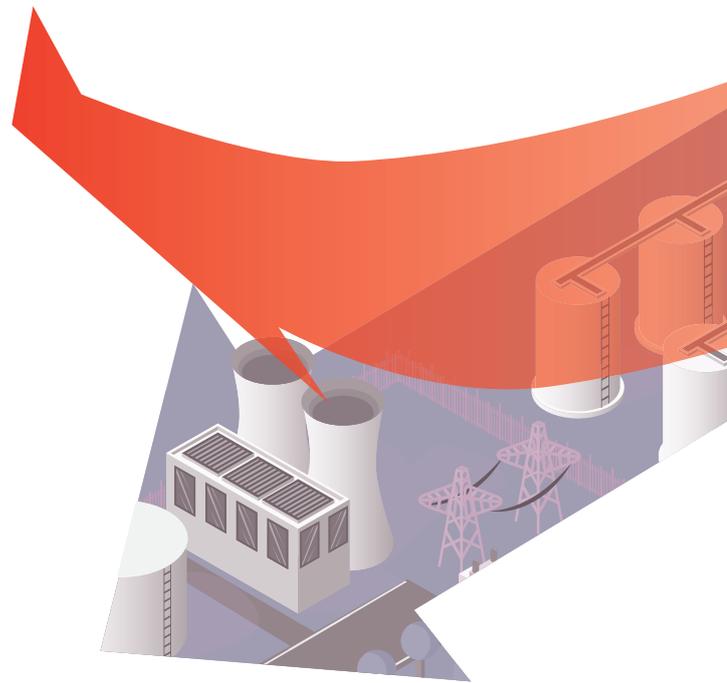
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Chapter 1

Introduction

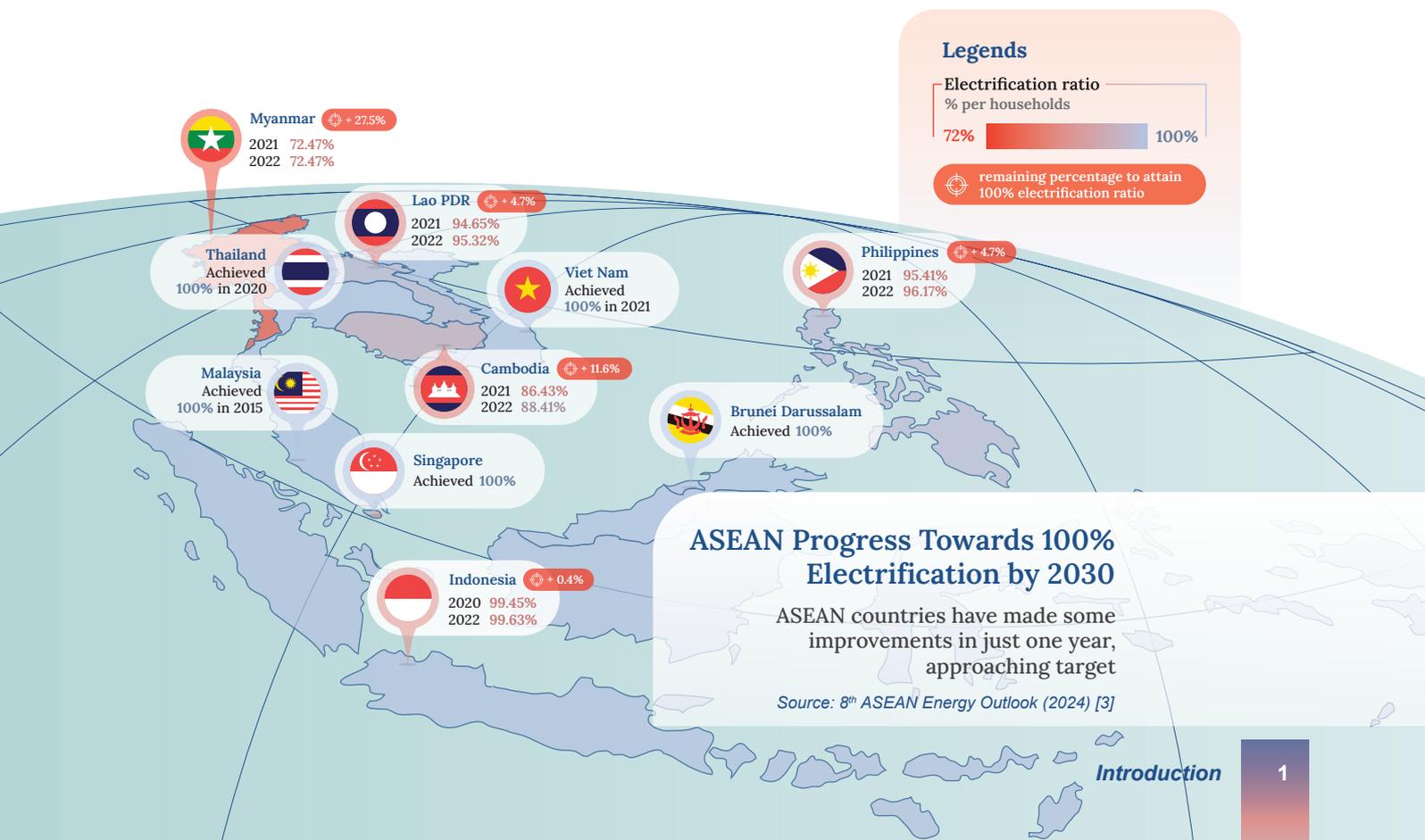
This report, **A Guide to a Just and Inclusive Energy Transition in ASEAN**, aims to work on common understanding, along with knowledge sharing and awareness of best practices to support the energy transition policies and planning towards a more equitable, inclusive, and just shift to a low-carbon energy system in the region. While introducing a perspective of just and inclusive energy transition (JIET), this report also presents a principle that serves as guidance for the action plan or milestones within the next phase of the ASEAN Plan of Action of Energy Cooperation (APAEC).



By aligning with regional and national initiatives, ASEAN shall aspire to unlock potential resources and direct investment and generate benefits such as targeted rural electrification, expanded opportunities for women, and specialised skills development. Recognising ASEAN's unique social and energy landscape, this approach addresses local needs, safeguards vulnerable communities and workers, and identifies opportunities for advancing their priorities in the transition towards a sustainable future.

1.1 Southeast Asia's Energy Landscape and Its Challenges Related to a Just and Inclusive Energy Transition

All ASEAN Member States (AMS) have committed themselves to achieve the United Nations 2030 Agenda for Sustainable Development, including Sustainable Development Goal (SDG) 7, ensuring “access to affordable, reliable, sustainable, and modern energy for all”. In support of this goal, and to provide clear pathways in achieving all the shared goals of AMS in the energy sector, the APAEC was introduced, with three numerical targets by 2025: (1) 32% energy intensity (EI) reduction from the 2005 level, (2) 23% renewable energy (RE) share in total primary energy supply (TPES), and (3) 35% RE share in installed capacity [2]. APAEC, currently in the 2021-2025 Phase, identified its strategies to balance the energy trilemma of energy security, energy equity, and environmental sustainability.



However, achievement of SDG7 and regional targets remains short.

According to the 8th ASEAN Energy Outlook (AEO8) (2024), energy demand in the region under the Baseline Scenario will increase by 2.6 times by 2050 from the 2022 level [3]. At the same time, targets for affordable and clean energy access are still ongoing for several member states. As of 2022, an estimated 3.45 million ASEAN households still lacked electricity, and 167 million people did not have access to clean cooking. The AEO8 projected that ASEAN will achieve a 100% electrification rate by 2040 [3]. However, the region is expected to fall short of achieving universal clean cooking access by 2050; it is estimated that 87% of the total population will have access to such facilities. While the AMS are on track to achieve the regional aspiration of a 35% RE share in installed power capacity by 2025, they are projected to be short in the remaining two targets: RE in TPES and EI reduction (see **Table 1.1**).

Table 1.1 ASEAN Achievement of APAEC Targets

By 2025	RE Share in Energy Mix (TPES)	RE Share in Installed Power Capacity	Energy Intensity Reduction*
Regional Target	23%	35%	32%
Projection **	19.6%	39.6%	31%

*) EI reduction target based on 2005 level

**) Based on the ASEAN Member States Targets Scenario (ATS) from AEO8 [3]

In 2022, renewables power capacity amounted to 105.6 GW, equivalent to 33.5%, growing from 19.1% in 2005 with solar having the most significant uptake. Whilst the installed capacity from other sources mostly declined or was stagnant in 2022, RE-based power plants such as hydro, biomass, solar, wind and geothermal capacity have increased. This results in electricity generation from RE sources reaching 29.2% in 2022. Hydro was the primary contributor, accounting for 19.5% of the electricity mix, followed by solar PV (3.1%), geothermal (2.1%), and wind (1.1%). Rapid generation growth was observed in hydro and solar PV, adding 54.1 TWh and 20.7 TWh, respectively, between 2020 and 2022 [3].

Increased extraction of critical minerals poses environmental, social, economic, and political challenges.

The transition to clean energy sources will drive increased extraction of critical minerals—such as copper, lithium, nickel, and cobalt—which are essential for technologies like wind turbines, solar panels, and electric vehicle batteries. Key opportunities in the ASEAN market are evident in Indonesia and the Philippines, which together account for nearly 60% of global nickel extraction [4]. However, mineral extraction and processing pose environmental, social, economic, and political challenges, making a just and inclusive energy transition essential to balance these impacts. This requires responsible extraction practices with safeguards, such as Social Licences to Operate and effective waste management, to ensure socially just, sustainable, and equitable outcomes that protect affected communities.

Rapid shifts towards low-carbon energy systems require huge infrastructure building that will impact communities.

The rapid shift from carbon-intensive to low-carbon energy systems presents challenges, demanding substantial investment in infrastructure like grid modernisation, storage solutions, and transmission lines to connect remote renewable sources to demand centres [5]. High upfront costs and financing obstacles, especially in countries with less mature financial markets, add complexity. Socio-economic impacts also need careful management to ensure social equity and minimise disruptions, particularly in communities reliant on fossil fuels. Resistance from workers, fears of job losses, and concerns over transition fairness can create social challenges.

The AMS have made limited progress in adopting a people-centred approach in their energy transition processes.

The principles most applied by AMS in developing energy policies focus on the energy trilemma, which emphasises three key aspects: security, affordability, and sustainability. Similarly, policymaking processes often follow the triple helix model, which involves collaboration between academia, industry, and government. Most of the time, these approaches overlook the socioeconomic impacts on vulnerable communities and lack mechanisms to actively involve local populations, highlighting a gap in inclusivity and fairness.

By placing a special emphasis on enhancing the resilience of vulnerable groups during the transition, AMS can leverage potential support to unlock the necessary financing for deploying low-carbon technologies while simultaneously improving energy access for underrepresented communities. As illustrated in the Solar Home System project in Indonesia, the inclusion and people-centred approach to the project may result in solar technology gaining community acceptance and ownership, and acting as an empowering tool for rural electrification. As donor countries mainstream gender and inclusion more in their parameters, it is important for ASEAN to adjust accordingly to leverage this potential support [6]. As ASEAN stands at a critical juncture in terms of needing to secure a clean energy supply, the future of the clean energy transition demands a pragmatic people-centred approach, as well as a just and inclusive energy transition that prioritises collaborative action.

These cases illustrate that a well-designed financial model, a local-based implementing agency, and active stakeholder participation and capacity building can transform a project into a success story, significantly enhancing electricity access, gender equality and empowerment, and poverty reduction. Moreover, to be able to replicate the success on a larger scale, a whole-of-government approach is needed to mainstream the gender impacts of just energy transition policies, with foreign assistance as a catalyst [7], [8].

Therefore, a gradual approach ensuring that 'no one is left behind' will be crucial as ASEAN continues to pursue its ambitious RE-installed capacity targets, under the current and enhanced targets on the upcoming APAEC. A just and inclusive energy transition can catalyse the scaling up of the ASEAN community's welfare and well-being at the forefront of the transition.

1.2 The Need for a Common Definition of a Just and Inclusive Energy Transition in ASEAN

The concept of a just and inclusive energy transition (JIET) is understood differently across AMS due to the absence of a common definition. A shared understanding could facilitate more cohesive regional policies and actions, enabling AMS to collaboratively leverage resources and expertise for a sustainable energy transition that prioritises community well-being. With a unified approach, ASEAN can align its diverse energy transition strategies under a common framework, potentially enhancing the effectiveness of regional initiatives and attracting greater financing opportunities for inclusive development.

Best Practices

- The ASEAN Green Jobs Forum, held in Kuala Lumpur in 2024, emphasised the importance of integrating just and inclusive principles into energy transition strategies to secure equitable outcomes across the region [9].
- The ASEAN Taxonomy for Sustainable Finance addresses critical sustainable finance issues, including principles that prioritise fairness and justice in the green energy transition, further underscoring the value of a cohesive JIET framework [10].

Momentum for a JIET has gained global attention, highlighted by the declaration at COP28 (2023), which called for gender-responsive just transitions and climate action partnerships [11]. Although no AMS signed this agreement, ASEAN forged a collective commitment to seek to align their current efforts related to the Gender-Responsive Just Transitions & Climate Action Partnership in light of the 29th Session of the Conference of the Parties (COP29 in 2024) [12].

In the energy sector, the Joint Ministerial Statement from the 39th ASEAN Ministers on Energy Meeting (AMEM) in 2021 and from the 41st AMEM in 2023 emphasised the region's dedication to strengthening energy resilience and bolstering energy security, with the mention of the Just and Inclusive Energy Transition [13], [14]. It set the stage for the instigation of wide-ranging discussions on the emerging issues of this transition.

Furthermore, the 42nd AMEM (2024) endorsed the theme for APAEC 2026-2030: **Advancing Regional Cooperation in Ensuring Energy Security and Accelerating Decarbonisation for a Just and Inclusive Energy Transition**, signifying the growing recognition of the need for a unified JIET approach to meet ASEAN's ambitious decarbonisation goals [1].

Some ASEAN countries have embedded a just and inclusive approach in their energy transition roadmap.

Best Practices



Indonesia's development vision for 2045 encompasses eight development agendas, including just and equitable development.



The Philippines Energy Plan 2023-2050 prioritises inclusive and sustainable development in the clean energy transition [15].



Malaysia's national energy transition roadmap consolidates just transition with efforts to prepare transition workers in transition to convert to new employment opportunities while upholding social inclusivity [16].

These are a range of examples that are oriented toward integrating the principles of justice, inclusiveness, gender equality, environmental sustainability, and social protection into global, regional, and national priorities. The term “just and inclusive energy transition” in relation to ASEAN, and specifically to Indonesia and Viet Nam, is closely associated with the collaborative framework of the Just Energy Transition Partnership (JETP) initiatives on financial and technical assistance to phase out coal dependency, enhance RE adoption, and address the social implications of energy transition; this framework was launched in 2022 and supported by the International Partners Group (public and private stakeholders who invest in the initiative) [17], [18]. Thus, a separate definition will be introduced to be differentiated from the JETP initiative.

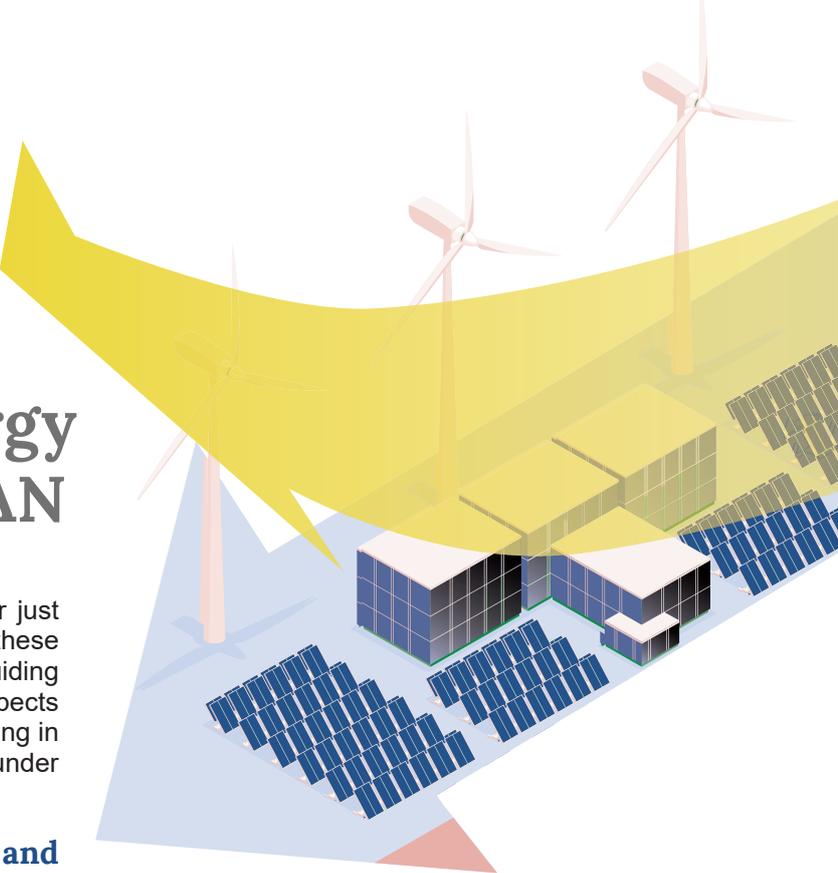
In addition, it is important to note that a reference to the “just and inclusive energy transition” term should be understood as extending beyond energy system transformation (i.e. fossil fuels transition, new technology adoption), to encompass a transition that reflects a wide range of processes at different scales and across various economic, social and environmental domains.

ASEAN's energy transition goals underscore the critical need for a just and inclusive approach that balances rapid decarbonisation with the welfare and well-being of its communities. By embedding justice and inclusivity into the energy transition, AMS can better attract essential financing and investments that drive progress. The illustrated projects demonstrate the potential of such an approach, showing how prioritising community welfare strengthens the foundation for sustainable development and finding alignment in JIET's understanding of achieving sustainable and socially responsible energy transitions across the region.

Given the complex challenges of energy transition globally and within the region, maintaining ASEAN centrality in **defining a common understanding of a just and inclusive energy transition**, along with codifying its principles and prioritised sectors, would enhance the effectiveness of a regional energy transition plan and strengthen collaborative efforts for a regional people-centric approach.

Chapter 2

The Concept and Approach of a Just and Inclusive Energy Transition in ASEAN



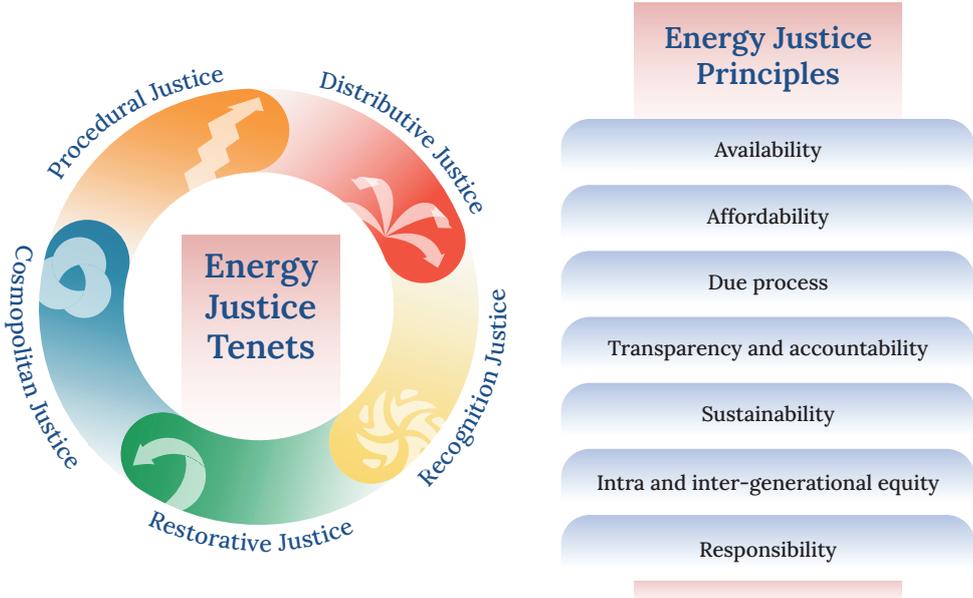
This section examines global best practices for just and inclusive energy transitions, adapting these concepts to the ASEAN context. It presents guiding principles to assist AMS in integrating these aspects into their energy policymaking effectively, including in developing activities in each programme area under the APAEC [2].

2.1 The Global Concept of a Just and Inclusive Energy Transition

The concept of just and inclusive energy transition has been widely discussed within academic literature and at the global level. Foundational research defines justice in the energy sector as the exercise of managing responsibilities to confer direct benefits on the affected society, advance sustainable development, promote environmental benefits, advance technologies, empower women, and protect children [19]. Subsequent studies have emphasised energy justice as ethical consumption and a consciousness of the effects of climate change [20], [21].

The research has then evolved into a definition of energy justice as a global energy system that fairly disseminates both the benefits and costs of energy services and one that has representative and impartial energy decision-making [22]. The definition is used in complementary ways in various case studies of just transition, which aim to mitigate the risks of growing inequality in relation to access to clean energy services, technologies, job opportunities, and gender disparities. From the scholarly work, the three dimensions and right principles were further defined in **Figure 2.1** which illustrates the foundational tenets and principles of energy justice that are commonly defined by the literature on energy transition.

Figure 2.1 Tenets and Principles of Energy Justice



Source: ACE's compilation from multiple resources [23], [24].

Since then, frameworks of a just transition have been proposed by scholars working on specific energy technologies and regions, and the principles and criteria have been used to assess and promote just energy transition in different geographical regions [25]–[28]. As a guiding concept, just transition has begun to appear in international frameworks and conventions. The Paris Agreement on climate change in 2015 included in its preamble the imperatives of a just transition in accordance with nationally defined development priorities [29]. In the following years, several international organisations integrated just the transition aspect into their work plan and strategies, as listed in **Table 2.1**.

Table 2.1 The Just Energy Transition Tenets and their Definitions

Tenet	Definition
 <p>Procedural Justice</p>	The process of policy decision-making is transparent and includes representations from all stakeholders involved.
 <p>Distributive Justice</p>	The distribution of costs and benefits of the energy transition is shared fairly amongst the impacted communities.
 <p>Restorative Justice</p>	The negative impacts of energy extraction, production, and consumption—especially on marginalised and vulnerable communities—are addressed by working toward solutions that restore balance, fairness, and well-being.
 <p>Recognition Justice</p>	Vulnerable or misrepresented communities are identified, and their social protection is included in the policymaking.
 <p>Cosmopolitan Justice</p>	Individual, community, or national benefits are treated equally in the transition process.

Source: ACE's compilation from multiple resources [30]–[32].

Over the past decade, frameworks for a just transition have been developed to assess and promote fair energy transitions across various regions and technologies. Such guiding concepts have also appeared in policy conventions such as the Paris Agreement's 2015 preamble acknowledging the importance of just transitions in alignment with national development priorities [29]. In recent years, organisations have incorporated just principles into their strategies, with increasing traction in developed and emerging economies. For instance, the International Labour Organization (ILO) launched a pilot under its “Green Initiative” to promote employment, social protection, and equity in the shift to greener economies, supporting national climate commitments in countries including Ghana, the Philippines, and Uruguay [33].

The diverse approaches and definitions of “just” and “inclusive” highlight the concept's richness, fundamentally promoting transparency, inclusion, equity, and access in the shift from fossil fuels to RE (see **Table 2.2**). Many countries now explicitly reference just and inclusive transition principles in their energy strategies, reflecting a commitment to a fair and balanced approach to clean energy.

Table 2.2 Global Definitions of a Just Transition

Conventions/ Institutions	Definition
The United Nations in the Committee for Development Policy input on the 2023 sustainable development agenda theme	Ensuring that no one is left or pushed behind in the transition to low-carbon and environmentally sustainable economies and societies
ILO	Greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities, and leaving no one behind
World Bank	"Just Transition for All" is defined as initiatives that put people and communities at the centre of the transition; that create the plans, policies, and reforms needed to mitigate environmental impacts, support impacted people, and build a new clean energy future with stakeholders.
South Africa Presidential Climate Commission Report	A just transition aims to ensure a quality of life for all South Africans by enhancing climate resilience, adapting to adverse climate impacts, and achieving net zero greenhouse gas emissions by 2050, based on the best available science. It supports the goals of decent work for all, social inclusion, and poverty eradication. By centring decision-making on those most affected—such as the poor, women, people with disabilities, and the youth—a just transition empowers these groups and prepares them for future opportunities. Additionally, it strengthens the resilience of the economy and society through affordable, decentralised RE systems, equitable access to water resources, and sustainable land use, particularly for the most vulnerable.
Japanese Trade Union Confederation (at COP23, 2017)	"Just Transition" is one of the "Responsible Measures" that provide comprehensive solutions to transition-related challenges such as unemployment, while also playing a crucial role in achieving sustainable development and continuous economic growth.

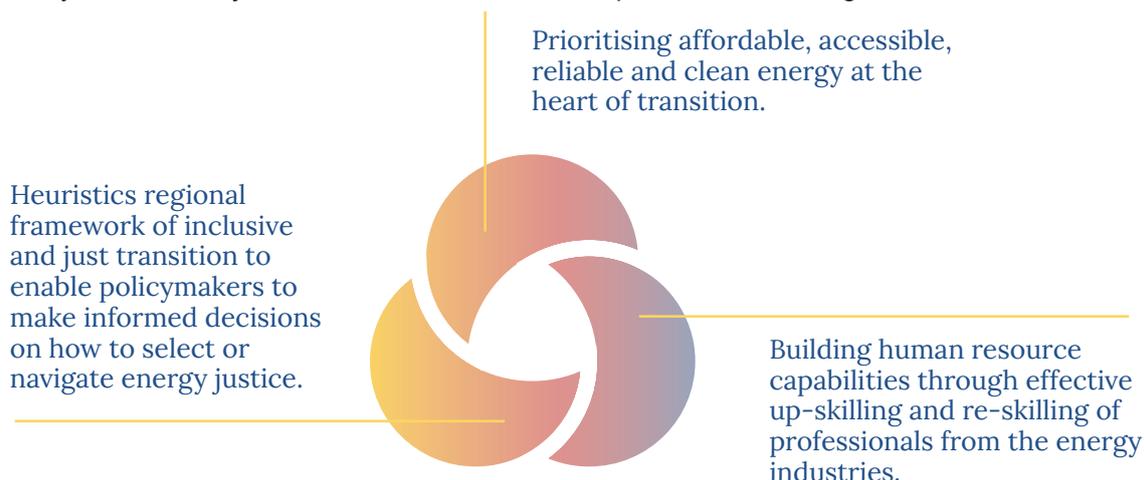
Source: ACE's compilation from multiple resources [34]–[38].

Since energy transition requires a holistic whole-system synergy, the approach to energy transition should be **proactive and encompass a whole of the ASEAN community approach**. The need to strengthen the region's economic competitiveness to assert a greater role in the energy transition as a whole to narrow the development gap remains crucial. Therefore, **synergies with national development and strategies** are needed to provide clarity of direction and track progress in the region's energy transition efforts. To this end, the approach will be **phased** so that it is **gradually tailored** to energy resource potential and availability, as well as the socio-economic development needs of each AMS.

What would be useful for ASEAN is defining the just and inclusive energy transition through a sustainable development lens to ensure compound climate risks are captured. As such, the JIET for ASEAN may be defined as:

“
The transition from fossil fuels- to the low carbon-based energy system in ASEAN with a focus on protecting and empowering ASEAN people, strengthening energy resilience and energy security, to realise the full potential of an ASEAN sustainable energy future.
”

In summary, an inclusive just transition for ASEAN encompasses the following:



2.2 Guiding Principles

Some studies on the social dimensions of the energy transition have been carried out to help highlight areas where policy interventions are needed to prevent exacerbating social inequality. For example, a study in Indonesia analysed the role of community energy in addressing the problems of inequality in rural areas, and a study in India finds that job transition needs a viability of policies such as job training programmes and relocation assistance that allow workers to take advantage of higher-skilled, higher-paid livelihoods [39], [40].

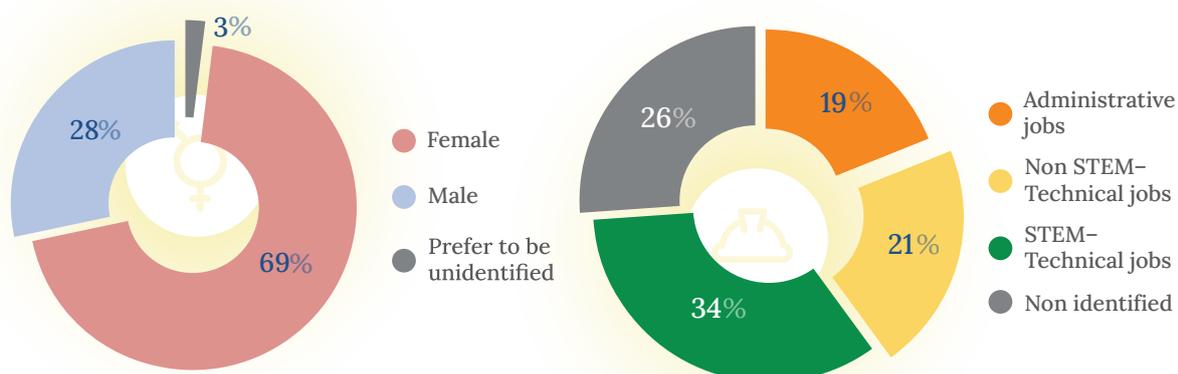
However, limited work has specifically examined the perception of the inclusive and just transition of AMS. To provide a more nuanced understanding of this concept, ACE conducted two surveys to examine energy professionals' perspectives and interpretations of the transition within the ASEAN context. These surveys enable evidence-based policymaking and the understanding of the needs of affected communities in ASEAN, which can be tailored as guiding principles of the transition.

Methodology: Surveys in 2024

The studies, Energy-Gender Survey (n=88) and Just and Inclusive Energy Transition Survey (n=16) in ASEAN, contain multiple-choice, open-ended, and rank-based questions related to the principles of justice, equality, and fairness in the transition initiatives, as well as recommendations for mainstreaming a just and inclusive energy transition into current initiatives at the regional and national levels. The Energy-Gender survey respondents were 69% female and 26% male, with the largest proportion working in science, technology, engineering and mathematics (STEM)-technical jobs (see **Figure 2.2**). The Just and Inclusive Energy Transition survey respondents were distributed across various sectors, with 31% representing non-governmental organisations, the largest group. The industry and private sector made up 25% of the respondents, followed by government agencies and school/university/research groups, each comprising 19% of the total. A smaller portion, 6%, came from other sectors.

Figure 2.2 is the profile of respondents in terms of their gender and jobs from the Energy-Gender survey conducted by ACE.

Figure 2.2 Survey Respondents Profile



Source: ACE Energy-Gender Survey [41].

Surveys Results Overview

A common theme among respondents regarding a just and inclusive energy transition was the need to recognise vulnerable communities, their needs, and the impacts of the transition on these groups, as mentioned by 38% of respondents. Another frequently highlighted concept was the energy trilemma, where 88% of respondents believed the transition should ensure energy security, affordability, and environmental sustainability, underpinned by principles of equity, justice, and inclusivity to build a greener economy. About 22% of respondents also emphasised universal energy accessibility, while 25% of respondents identified procedural justice—such as public consultation, participation, and transparency—as essential to a just and inclusive transition.

Regarding a people-first approach, respondents felt it should account for impacts on jobs, education, reskilling, and access to platforms for public consultation, and prioritise those most affected. While 30% of respondents expressed optimism that ASEAN is progressing towards a just and inclusive transition, about 14% felt current efforts by AMS remain insufficient—identifying the need to accommodate more women to take part in the energy transition. Key recommendations included increased support for countries like Myanmar and Lao PDR, greater emphasis on justice over economic profit, stronger national climate-energy policies, supportive regulatory frameworks, and commitment to phasing out fossil fuels.

Respondents also suggested actions to initiate the transition, such as educational programmes, policies to reduce fossil fuel consumption (especially of coal), public engagement, special funds for a just transition, RE development aligned with each country’s capacity, and regional collaboration. Survey findings highlighted affordability, accessibility, inclusive decision-making, and the recognition of vulnerable communities, particularly women, as core principles. To achieve these goals, regional partnerships, supportive regulations, RE project financing, and technical capacity building were seen as essential foundations for advancing a JIET.

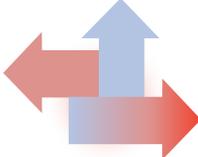
The guiding principles are outlined in more detail in **Table 2.3**. These guidelines are intended for use by AMS to cross-reference their energy transition initiatives. These principles aim to enhance the confidence of AMS in leveraging support for low-carbon transition financing and achieving a regional people-centred transition.

Table 2.3 Guiding Principles

		
<p>Affordability</p>	<p>Accessibility</p>	<p>Energy security</p>
<p>The cost of energy resources is affordable to the whole population, including low-income communities.</p>	<p>Availability and sufficiency of clean energy access for energy consumers, including fair and accessible clean energy for all.</p>	<p>An energy system is capable of securing energy supply and providing reliable access to energy.</p>



Table 2.3 Guiding Principles (continued)

		
Sustainability	Fair distribution of costs and benefits	Inclusion and participation
Energy resources should be utilised and managed with not only consideration for biodiversity conservation/protection, but also the restoration of environmental harm, prevention of future harm, and compensatory restoration of environments to communities.	The costs and benefits of an energy system shift are allocated fairly among different communities and actors, with an equal access and pathway to energy transition for everyone regardless of their gender, age, race, or religion.	The consideration of all people's participation in energy decision-making, with feedback mechanisms to encourage inclusive, meaningful participation of underrepresented, vulnerable, and impacted communities.
		
Recognition & empowerment	Fair economic growth	
Identification of impacted and vulnerable people in energy consumption and production, along with existing measures to avoid the further burden and to ensure the empowerment of these communities so that they may become climate resilient.	Decarbonisation initiatives promote economic growth and economic diversification of the country, regions and communities, such as by creating new markets and local value chains, as well as opportunities to reduce poverty and inequality.	
		
Gender equality	Intergenerational equity	
Women are able to participate in and benefit from the energy transition as change agents and rights receivers.	Future generations have a right to consume energy resources undisturbed by the damage that our energy system inflicts on the world today.	

Source: ACE's compilation from multiple resources [42]–[48], in no particular order.

Given that energy transition demands holistic, system-wide synergies, ASEAN's approach should be proactive, adopting a community-wide strategy. Strengthening the region's economic competitiveness to play a larger role in the energy transition and closing the development gap is essential. Aligning energy transition efforts with national development plans will provide clear direction and enable progress tracking across the region. This approach will be phased and gradual, tailored to the energy resource potential, availability, and socio-economic needs of each AMS.

Chapter 3

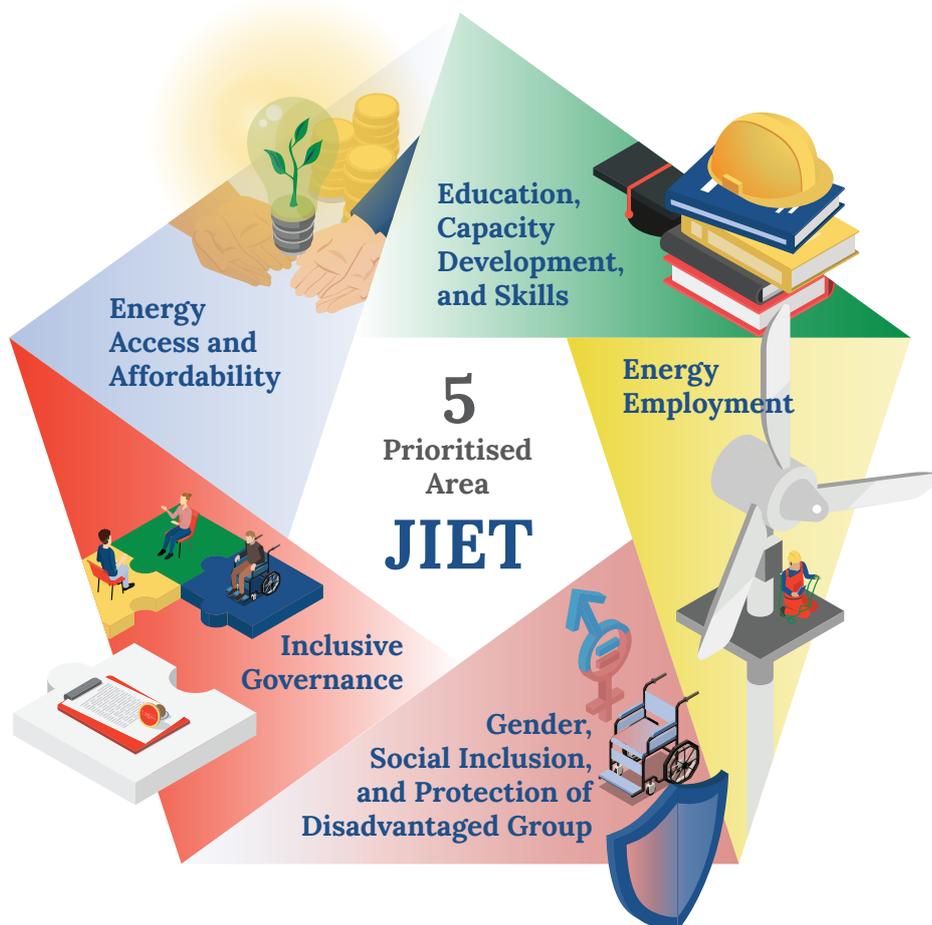
Accelerating the Just Energy Transition in ASEAN: Challenges and Opportunities

Accelerating the energy transition in ASEAN involves not only the complex challenges of technology and financing but also the need to address barriers to a people-centred transition, often sidelined in favour of more immediate energy sector concerns. However, a just and inclusive transition offers an opportunity to transform these barriers into pathways for broader benefits and sustainable growth.



This chapter presents an overview of the current challenges and opportunities to implement a JIET in the ASEAN context. The first section includes a closer look and assessment of the prioritised areas for AMS to consider in the upcoming APAEC as illustrated in **Figure 3.1**: (1) energy access and affordability; (2) energy and employment; (3) education, capacity development and skills; (4) gender, social inclusion and protection of disadvantaged groups; and (5) inclusive governance [6], [49], [50]

Figure 3.1 Five Prioritised Areas of a Just and Inclusive Energy Transition in ASEAN



3.1 Priority Areas on Just and Inclusive Energy Transition in ASEAN



Access and Affordability

Ensuring affordable and accessible energy for all is a fundamental pillar of a just and inclusive energy transition in ASEAN. It is a critical enabler of sustainable development to ensure that all people, regardless of their socioeconomic status or geographic location, have access to affordable and clean energy. Without such equitable access, marginalised communities and vulnerable populations will experience disproportionate socio-economic impacts of the transition, hindering their ability to improve their quality of life, access essential services and engage in income-generating economic activities. Thus their vulnerability will be further entrenched.

Despite ongoing policy efforts, the ASEAN region has not yet achieved full access to affordable and clean energy, including clean cooking fuel. According to the AEO8, about 3.4 million households lack electricity access and 167 million people lack clean cooking access [3]. Improving access to electricity services and clean cooking remains a challenge due to the lack of electrical grid connections, leading to reliance on diesel generators or traditional biomass that poses health and environmental risks.

Traditionally in ASEAN the preference for large-scale energy infrastructure may restrict the expansion of electricity access and exacerbate existing inequalities [51]. This could manifest through the displacement of local communities and the disruption of their livelihoods due to changes in land use patterns.

Alongside maintaining energy security, **electricity affordability** is also considered a priority in realising an equitable energy transition in the region, especially in the developing AMS. In 2022, household electricity tariffs across AMS vary widely, from USD 0.02 per kWh in Myanmar to USD 0.23 per kWh in Singapore [3]. This disparity in tariff structures reflects the significant differences in GDP per capita, with Singapore at USD 84,000 and Myanmar at USD 1,187, showing that relative to GDP per capita, electricity costs make up a smaller proportion in Singapore compared to Myanmar.

Several member states have undertaken initiatives to improve energy affordability, such as harmonising tariff structures under power-state utilities and private licences in Cambodia, as well as providing subsidies to maintain rates at an affordable level for low-income households in Indonesia [3], [52]–[54]. Additionally, the cost improvements can be explored through the **integration of holistic supporting infrastructure** needed for variable RE deployment such as grid modernisation and digitalisation, increased grid capacity, etc. into the energy mix to reduce and shift demand from peak hours, avoid grid congestion and mitigate higher electricity costs.

To overcome the above challenges, AMS should strive to not only connect consumers with access to electricity but also balance the reliability, sustainability, and affordability of the overall energy system. This implies diversifying the clean energy supply to reduce the impact of price volatility from fossil fuel sources. Incorporating various RE types like solar, wind, hydro, and geothermal, as well as devising innovative solutions such as energy storage and grid enhancements, are essential. Additionally, AMS could consider the development of decentralised energy systems, like microgrids, to improve access in remote and hard-to-reach areas while empowering local communities. This would enable local communities to play an active role as energy producers or electricity distributors through community-owned and community-driven RE projects and mini-grids, allowing them to reap tangible benefits beyond just electricity access [55].

Besides ensuring affordable costs for residential consumers, AMS needs to ensure affordability of energy costs for businesses to maintain industrial competitiveness. The AEO8 analysed that the introduction of carbon pricing without systematically improving the energy system would lead to approximately a 15% increase in electricity costs within ASEAN, may have negative impacts on trade balances, and reduce industrial competitiveness and economic security [3]. Systematically improving the existing energy system also means levelling the playing field of RE development and fossil fuel such as removing fossil fuel subsidies or other incentives and providing tailored financial measures to support vulnerable groups (e.g. low-income class, small and medium enterprises/SMEs) to obtain affordable electricity tariffs.

The next step to ensure that energy access and affordability are achieved for the ASEAN population would be that ASEAN countries establish baseline statistics that not only identify people without electricity access but also go further to analyse households, SMEs and commercial consumers' electricity consumption patterns. This information could help better align electricity supply with demand-side responses and give consumers more informed choices in seeking out those cleaner energy sources that would be suitable for their needs.



Education and Capacity Development

Greening the workforce can have a small effect on occupations or significantly change them, requiring the creation of new jobs or diminishing/phasing out the old ones. However, a just energy transition can offer pathways to other viable occupations for the workers most affected. In fact, greening the energy mix through RE and energy efficiency opportunities can have a net increase of 18 million jobs. However, the transition to green jobs depends on an understanding of the re-skilling and re-training needs of the green economy. Green skills are “the knowledge, abilities, values, and attitudes needed to live in, develop, and support a sustainable resource-efficient society” [56].

The policy mix for promoting green jobs, green skills and the just transition is broad, and thus, coordination and coherence between all these fields are essential for success. These policies include various fields such as education planning, employment policies, industrial policies, sectoral level policies, and training/educational/skill development policies.

The ILO (2022) has released a study assessing the status of green jobs in ASEAN countries [56]. The study reveals that despite some efforts in AMS, there are still important gaps in the knowledge and data sources for driving green jobs in the process of the energy transition. These include gaps in understanding the supply and demand drivers for green jobs, impacts on labour standards, occupational health and safety, and implications for education, training, and vocational education systems.

The status of Technical and Vocational Education and Training (TVET) and curriculum development in ASEAN for the energy transition varies across the region, reflecting differences in economic development, educational infrastructure, and national priorities. However, there is a growing recognition across ASEAN countries of the critical role that TVET plays in preparing the workforce for the energy transition, particularly the important role of regional cooperation in advancing TVET. The ASEAN TVET Council (ATC), established in 2020, seeks to harmonise TVET systems across the region and promote the development of skills for emerging industries, including those related to RE [57]. Initiatives like the International Labour Organization’s Skills for Green Jobs project are helping to integrate green skills into TVET systems, demonstrating a coordinated effort to align education with the needs of a green economy [58]. Giving the workforce the skills necessary for an energy transition was also featured in the ASEAN TVET Council Regional Policy Dialogue in February 2024 [59].

Curriculum modernisation to include energy transition topics is ongoing across ASEAN. Singapore’s Institute of Technical Education is offering specialised programmes in sustainable energy. Other countries like Indonesia are opening TVET centres to align with the demands of green technologies and RE sectors together with development partners, while Thailand has been particularly active in integrating RE training into its curricula, such as at the Asian Institute of Technology and Thailand’s Department of Alternative Energy Development and Efficiency, Ministry of Energy on training for solar PV installation [60].

“**Aligning TVET curricula with industry needs, particularly in fast-evolving sectors like RE would need swift action policy.**”

As an example, in Viet Nam, due to the low installed capacity for solar PV and wind turbines, there is still limited demand for and availability of local technical expertise. Project developers usually retrain workers on-the-job getting support from foreign experts. This can considerably affect local value and job creation since highly skilled labour is still imported while the companies are willing to hire local skilled workers. This would be an opportunity for universities and technical schools to align their training with the demands of the RE sector. Such training is currently absent in the Vietnamese educational institutes and many electrical engineers are not familiar with RE-related technologies [61]. Thus, timely and systemic training and re-skilling of the local workforce, investment in TVET infrastructure, and curriculum development are still needed and are essential parts of the just energy transition. Public-private partnerships and international support from development partners are also beneficial in overcoming these challenges and ensuring that TVET systems in ASEAN are prepared to support the region’s energy transition.

Furthermore, beyond preparing workers for future industries and recognising the need to navigate complex regulatory frameworks and stakeholder dynamics to achieve a just and inclusive energy transition, various civil society organisations in Southeast Asia have advocated incorporating capacity-building initiatives within energy transition policies and programmes [62]. The aim is to ensure that affected communities and diverse non-state actors, such as civil society organisations, are equipped for and have relevant knowledge

about the emerging green economic and social transformation and the trajectory of national and regional development. These capacity-building programmes play a crucial role in enhancing energy literacy and enabling meaningful engagement in policy-making processes. To optimise the results, the programme needs to be tailored based on targeted stakeholders. For instance, it may be arranged to provide specialised training for policymakers, regulators, and government officials to enhance their understanding of energy transition policies and best practices. Meanwhile, for local communities, it is more beneficial in the format of hands-on workshops and educational campaigns to raise awareness and enable their participation in decentralised energy solutions.



Energy Employment

The energy transition will create new jobs in the construction and maintenance of RE facilities, transmission, grid enhancement, and energy efficiency initiatives. The AEO8 projected that under the ASEAN Member States Target Scenario (ATS)—official government’s current energy plans and targets, ASEAN will gain an additional 13.5 million renewable jobs by 2050 compared to 2020, predominantly in solar and wind, while experiencing job losses of around 1.4 million in the fossil fuel sector [3]. Another global study indicated that for every USD 1 million shifted from conventional to sustainable energy, there is a potential to create 7 additional jobs [63]. Although job growth in RE and energy efficiency sectors is expected to more than compensate for the losses, the geography, occupations, skill levels, and wages may differ and could necessitate further enhancements in the policies supporting skills development and fairer wage compensation.

Recognising that the energy sector is a critical enabler of economic growth and employment in ASEAN, AMS shall ensure that the transition optimises opportunities for decent job creation and secure livelihoods for all. Currently, several member states have emphasised the importance of workforce transition planning within their energy plans. Malaysia has projected the creation of 207,000 jobs, with the majority in green economy sectors, under the National Energy Policy (2022–2040) [64]. The Philippine Energy Plan (2023–2050) also stated the need for cooperative work to support workers in the transition to a clean economy [15].

Cambodia aims to transition to a cleaner energy mix by increasing solar capacity to a 30% share of the energy mix and hydropower to 21% by 2040, as well as the capacity of bioenergy and energy storage [65]. This is in line with the Royal Government of Cambodia’s Pentagonal Strategy-Phase I for 2023–2028, focusing on Growth, Employment, Equity, Efficiency and Sustainability. This strategy fosters socio-economic growth through five strategic pentagons: (1) developing human capital; (2) diversifying the economy and enhancing competitiveness; (3) fostering private sector growth and job creation; (4) ensuring resilient, sustainable and inclusive development; and (5) advancing the digital economy and society.

The Philippines has introduced several frameworks to support initiatives for new job opportunities supporting entrepreneurship, such as the Green Jobs Act, digital literacy programmes and entrepreneurship workshops, Go Business, the Women Entrepreneurs’ Finance Initiative, and the Gender Responsive Economic Actions for the Transformation Women Project. They were designed to empower women entrepreneurs by providing them with skills, resources, and access to markets and finance to grow their businesses. The programmes also introduce mentoring with established businesses to help small industries access funds and markets.

One key challenge is the potential job displacement in traditional fossil fuel-based industries as the transition to cleaner energy sources accelerates. Many AMS rely heavily on coal, oil, and gas production, as well as energy-intensive manufacturing, which could face workforce disruptions. Alternative opportunities for the region are to equip the workforce with relevant skills aligned with emerging low-carbon industries. For instance, ASEAN is well positioned to be an RE manufacturing hub, such as in solar, as it now owns 9-10% of global cell and module capacity spread across almost all AMS, excluding Myanmar and the Lao PDR [66].

To seize this opportunity, among others, AMS need to leverage the abundance of Southeast Asia’s critical mineral reserves by strengthening sustainability practices as well as enhancing transparency and accountability in the transition of mineral industries and the promotion of regional supply chain development. Collaboration in developing a regional supply chain system is imperative to support ASEAN’s initiatives towards sustainable transport and energy transition. Promising progress has been seen in the 2023 ASEAN Leaders’ Declaration on Electric Vehicle Ecosystem [67]. Nevertheless, the spatial misalignment between the technical potential of RE and the distribution of demand as well as the concentration of local communities (e.g. urban areas) necessitates that AMS identify potential new low-carbon economic activities beyond the energy sector based on local assets and capacity.



Gender, Social Inclusion, and Protection of Disadvantaged Group

Climate change burdens the genders unequally. Women can be weighed down more heavily, since in some instances they are the prime caretaker and energy manager of the household [68], [69]. At the same time, the energy transition as a response to climate change should encompass tackling gender-based socio-economic disparities and highlight the greater importance to women of issues like access to high-quality, clean energy services and universal citizen participation in energy decision-making [70]. For instance, according to AEO8, only four out of ten AMS will achieve universal clean cooking access by 2030 with the current policy efforts (ATS) [3]. This can make women more vulnerable to both climate change itself, as well as climate and energy policies. Therefore, it is necessary to actively design low-carbon transition strategies that are socially equitable, inclusive, and gender-just. There are several key actions that can be taken to make the transition gender-just such as accelerating access to clean energy for all, increasing women's share in green employment, supporting women in transition education, and fully engaging and amplifying women's voices in policy making [71].

In 2017, ASEAN declared its commitment to gender-responsive implementation of the ASEAN Community Vision 2025 followed by the establishment of the ASEAN Gender Mainstreaming Strategic Framework 2021–2025 and Comprehensive Recovery Framework [72], [73]. These documents emphasise the importance of improving gender-disaggregated data and regional gender statistics, bridging resource gaps, promoting women's equal involvement in decision-making, and including gender-responsive approaches in the integrated policy frameworks.

At the national level, countries have adopted gender-responsive policies or have taken part in treaties supporting women. Some examples of such national policies include The National Gender Mainstreaming Policy: Presidential Instruction No. 9 (2000) and The Gender Equity and Equality Index and Gender Mainstreaming Institutionalization Indicators to measure the progress of gender equality in development (2012), as well as the National Action Plan on Gender and Climate Change (RAN GPI) in Indonesia, the 10-year Women's Development Strategy (2016–2025) in the Lao PDR, Malaysia's 5-year Plans (2011–2015)/(2016–2020)/(2021–2025), the Gender Equality and Women's Empowerment Plan (2019–2025) in the Philippines, and The National Strategy on Gender Equality (2011–2020) in Viet Nam.

In order to expand and accelerate such efforts at a regional level, ASEAN is developing an "ASEAN Gender-RE Roadmap" to incorporate gender-responsive approaches in policies especially related to RE. The roadmap aims to address issues related to the limited data about the connection between RE and gender, gender inequality in access to jobs, unsupportive educational and cultural norms, and limited access to finance. Thus, such a roadmap should include raising awareness and developing a database of gender impacts in RE, gender integration in policy formulation, developing a gendered monitoring and evaluation framework, and adequate policy implementation and oversight to ensure sustainability [74]. This is in alignment with other existing frameworks and principles, such as the United Nations Guiding Principles on Business and Human Rights [75].

In the surveys conducted by ACE (see **page 8**) on a just and inclusive energy transition, it is clear that respondents provided their understanding of the notion through abstract concepts such as climate justice and equality to more detailed definitions including some concerns about recognition justice, energy accessibility and affordability, environmental sustainability, and equal participation in decision-making. Only 13 respondents explicitly mentioned the importance of considerations for gender-based inequalities in their definition of a just and inclusive energy transition. About 80% of respondents believed that the energy sector is dominated by men and 93% were hopeful that the energy transition can offer more equitable opportunities for women.

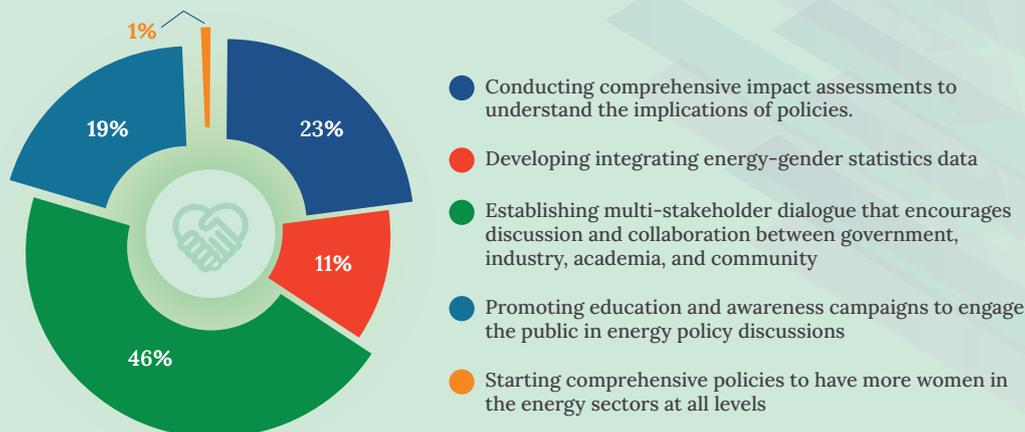
Eight respondents (or 9% of respondents) believed that ASEAN's mandate for women's empowerment, providing equal education for women, and the social and cultural prosperity brought about by a just and inclusive energy transition can offer more opportunities for the involvement of women. Also, as women are believed to have higher environmental concerns, a just energy and inclusive transition can provide more engaging opportunities for them. In general, many respondents emphasised women's limited presentation in the energy sector, especially in leadership and decision-making roles, while mentioning women's equal potential for taking on higher-level positions and STEM-related roles. They also believed that including more women in the energy sector would provide new ideas and perspectives that can help better understand and address the needs and concerns of various groups of people. While the survey provided respondents with a range of choices as the rationale for the barriers to women's participation in leadership roles in the energy sector, the option with the highest vote (n=4) was identified in the points below, which are also reflected in some studies [25], [68].

Gender bias and discrimination in hiring and promotion; Unconscious bias in workplace culture; Lack of flexible work arrangements (e.g., remote work, part-time options).

All respondents except one believed that gender mainstreaming should be integrated into ASEAN's energy blueprint.

The *Energy-Gender Survey* illustrates the recommendations for policymakers to ensure a just transition.

Figure 3.2 Respondents' Preferred Measures to be Undertaken by Policymakers for a Just Energy Transition



Source: ACE Energy-Gender Survey [41]

The respondents' dominant preferences for energy-gender data to be collected were those on education and workforce transition concerning the pathways and employability of women in the energy sector, and women's participation in entrepreneurship within the energy sector including ownership and leadership roles. Almost half of the respondents believed that such data should be available and accessible at the regional and national levels to be utilised for the improvement of gender equity.

While the survey indicates the respondents' concern for women's underrepresentation in the energy sector, it also reveals they are also confident and hopeful that through a just and inclusive energy transition framework there would be more opportunities for women's engagement in the energy sector, including in the leadership roles. The transition should clearly define how it would incorporate gender mainstreaming throughout the process, develop mechanisms for eliminating gender-biased hiring decisions, provide facilitating packages for women to diminish the impact of social roles restricting their ability to engage in the energy transition process, foster open and multistakeholder dialogue for all especially the underrepresented groups, compile and use gender-disaggregated data to locate the opportunities for improvement and promote education and training for the workforce in transition with the focus on specific needs of the separate genders.

Studies have recognised that the unequal distribution of family caregiving responsibilities, disproportionately placed on women, can limit their professional and personal growth, leading to persistent inequality in life opportunities between women and men across generations. This disparity is a key concern for gender justice. The undervaluation of care work and its restrictive impact on women's development are central issues that a just and inclusive energy transition seeks to address. To address this, recognising and valuing women's unpaid care work is needed, followed by implementing policies to reduce the disproportionate burden of unpaid care work on women, redistribute resources to address the economic inequalities that stem from women's unequal care burdens, and enhance women's representation in decision-making processes at all levels [76].

Furthermore, besides the risk of exacerbating gender inequality, the energy transition may disproportionately impact other vulnerable groups such as informal workers, the elderly, and people with disabilities. To address these challenges, the expansion of social protection programmes could include extending unemployment benefits, providing income support, offering health insurance, conducting skills training, and implementing job matching schemes specifically designed for these vulnerable groups to cushion immediate socio-economic disruption.

Inclusive Governance



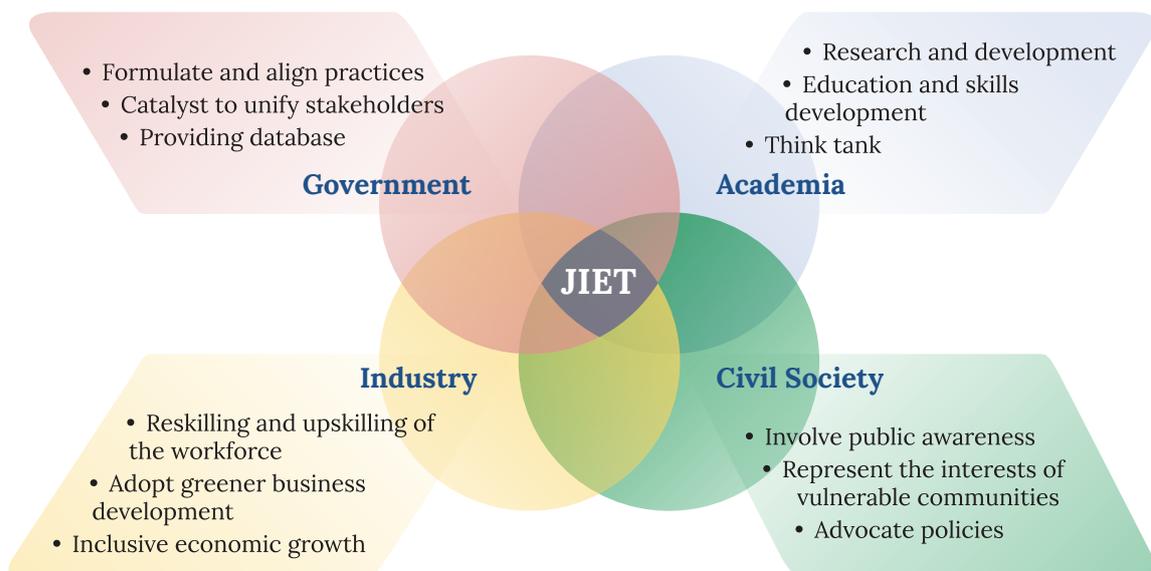
The energy transition process is inherently complex, with wide-ranging ramifications for society, the economy, and the environment [77]. This complexity implies that the success of a JIET hinges on the broader consensus of stakeholders to collaboratively work towards shared goals. Yet, in most cases, there is a lack of meaningful participation from diverse parties, particularly marginalised groups, in the design and implementation of energy policies and programmes.

A just and inclusive energy transition that leaves no one behind must be grounded on energy policies that maximise benefits while mitigating the adverse effects of factors like land-use changes and the disruption of local livelihoods due to the installation of RE plants. The complex nature of this transition demands the creation of effective strategies that are coherent at regional and national levels yet driven by local imperatives for a just and inclusive shift.

Moreover, a participatory consultative approach and social dialogue mechanisms can serve as essential tools for fostering continuous communication among relevant stakeholders and promoting a participatory policymaking process. This process can help build broad consensus, making the necessary transitions both possible and acceptable. These mechanisms can be implemented at regional, national, and local levels. At the national and, where applicable, local levels, AMS can introduce policies that regulate inclusive representation and participation, not only in energy project implementation but also in spatial, energy and workforce planning, as well as in project development and monitoring. To ensure the relevance of these policies, AMS should closely monitor and evaluate the equity and distributional impacts of energy policies and programmes, making adjustments to address any disparities. At the regional level, facilitating knowledge-sharing and peer learning among AMS can help identify and scale up best practices for inclusive policymaking in the energy sector, potentially accelerating the transition process.

The AEO8 has presented several concerns related to an inclusive transition such as the disparate energy access of hard-to-reach areas, disproportionate negative impacts of low-wage workers, potential displacement of indigenous people, uneven capacity of stakeholders, and the need for financing of clean energy and emission reduction projects [3]. It creates the assumption that governmental actors cannot lead collectively binding decisions through conventional top-down decision-making. Instead, political decisions require the involvement of diverse and heterogeneous actors, thus enabling bottom-up governance [78].

Figure 3.3 Quadruple Helix Stakeholders' Map of a Just and Inclusive Energy Transition



The quadruple helix model for inclusive policymaking (see **Figure 3.3**) is essential in light of the complex nature of the energy transition. It integrates perspectives of key stakeholder groups—government, academia, industry, and civil society—each playing a critical role in creating holistic and equitable policies. Governments provide the regulatory framework, policies, and incentives necessary to guide equitable energy practices while ensuring accessibility for all. **Academia contributes through research offering** evidence-based and data-driven insights and developing technologies that can enhance inclusivity. The industry offers practical expertise, helping shape feasible solutions that align with market realities, such as

re-skilling and up-skilling the workforce. Civil society represents the voices of communities, advocating the inclusion of marginalised groups and ensuring that policies address local needs and social equity.

3.2 Equitable Financing Opportunities for a Just and Inclusive Energy Transition

Above all the priority areas mentioned, it is important to consider that sourcing and allocation of finance inherently involve social dimensions. A study has reported that it is essential to examine financial instruments from global, national, and subnational perspectives to ensure that the funds for energy transition benefit all groups [79]. While AMS are making progress in mobilising finance for RE and the energy transition, more attention is needed to ensure that financial flows reach marginalised and vulnerable groups.

There have been developments in just transition-related energy investments under the JETP initiatives in South Africa, Indonesia, Viet Nam, and Senegal, announced after COP26 [80]–[83]. JETP coordinates financial resources and technical support from the IPG (Europe, North America, and Japan) to accelerate the drive towards clean energy sources. Each country has a specific investment area focused in accordance with its needs. Another initiative, the Energy Transition Mechanism (ETM) initiated by the Asian Development Bank (ADB) and parent countries aims to finance projects and retire coal power assets earlier than planned. ADB's work on ETM aims to ensure a just energy transition, protecting the livelihoods of workers and communities affected by the shift to clean energy [77]. However, these financial instruments must grow out beyond the energy system, integrating a people-centred energy transition at multiple scales.

Best Practices

- As it is estimated that there is USD 76 million in funding dedicated to energy and gender programmes through bilateral and multilateral agreements, there are opportunities to integrate gender considerations, as well as inclusive and just energy transitions, into these initiatives and projects to improve energy access rates [6].
- The European Bank for Reconstruction and Development launched its Just Transition Initiative in 2020. This initiative aims to ensure that the benefits of the green economy transition are equitably shared, while also safeguarding vulnerable countries, people, and regions. Under this initiative, RE projects have been mobilised, such as the deployment of solar PV systems at a former coal mine site in North Macedonia.

Financial institutions are increasingly adopting environmental, social and governance (ESG) policies, that can support equitable just transition pathways. Some private companies and development banks have begun to incorporate the principles of a just transition into their sustainability strategies and these policies, demonstrating opportunities for AMS to access just energy transition financing via alignment of the ASEAN Sustainable Finance Taxonomy. Ensuring that projects adhere to environmental and socio-economic compliance would be a way to promote the financing of activities that aim to achieve the SDGs, including poverty eradication and gender equality. The Multilateral Development Banks, such as the ADB, Islamic Development Bank, and African Development Bank Group, have published a high-level statement that includes a commitment to integrate just transition aspects through financing, policy engagement, technical advice, and knowledge sharing in priority countries [84]. Similar initiatives are being undertaken by the Agence Française de Développement (AFD) in supporting Indonesia's energy transition commitment through network renovation projects and loans to private and public operators to fund small RE projects through credit lines [85].

Moreover, at the national level, ASEAN countries have put forth ambitious plans and government-supported initiatives and investment schemes to accelerate the transition. Malaysia plans to increase its renewable electricity capacity to 40% by 2035 mainly through hydropower followed by solar PV [86]. The country can benefit, for example, from robust frameworks around direct renewable power purchases to stimulate a market for corporate power procurement agreements. The initiation of third-party access will bolster further investment in the region, which will allow companies to directly purchase renewables from generators [87]. The Philippines plans to increase its renewable electricity capacity to 35% by 2030 through hydropower, geothermal, bioenergy, solar and wind [15]. Foreign ownership restrictions were lifted in 2022 which should increase the financial flows to the country [88].

Moreover, Viet Nam published Power Development Plan VIII on May 2023 sets an ambitious goal to phase out coal in the power sector by 2050, with solar and wind power projected to comprise 60% of the total installed capacity by then [89]. The projected benefits of the coal phase-out in Viet Nam by 2050 include an estimated USD 3.6 billion in human health improvements and USD 1.2 billion in environmental damage reduction, totalling USD 4.8 billion in 2023 [90]. Similarly, Singapore plans to increase renewables import capacity and maximise its solar potential up to 8.6 GWp, according to the Singapore Green Plan 2030 [91].



Chapter 4

Next Steps

To help track progress and guide the implementation of JIET, there are steps and policy toolkit that could be taken in all prioritised sectors.

4.1 Steps

Step 1

Identify and leverage existing ASEAN initiatives that align with JIET principles

ASEAN has established visions and targets in line with the JIET framework, including the ASEAN Vision and the 2030 Agenda, the ASEAN Economic Community Vision, the ASEAN Economic Community Strategic Plan, and the APAEC 2016-2025, among others. JIET principles are in synergy with the common values and principles in the existing ASEAN initiatives, such as being people-centred, sustainable, inclusive, and resilient.

Therefore, the recognition of a JIET as a cross-sectoral and cross-pillar priority area across the ASEAN Economic Community, ASEAN Political-Security Community, and ASEAN Socio-Cultural Community will pave the way for the operationalisation of the JIET in the region. With JIET complementary at all levels of the Three Pillars of the ASEAN Community—including human rights, education, health, rural development, poverty eradication, labour economic prosperity, and energy security—leveraging it as a priority area will enhance cooperation and collaboration with other sectoral bodies/committees. Such an approach will also enable AMS to uncover potential synergies across sectors (e.g. transport and energy), and issue areas (e.g. decarbonisation and empowerment).

In parallel, the ongoing implementation of the ASEAN Strategy for Carbon Neutrality and the progress in further developing the APAEC 2026—2030 under the theme “Advancing Regional Cooperation in Ensuring Energy Security and Accelerating Decarbonisation for a Just and Inclusive Energy Transition” provide a strong opportunity for AMS to leverage current initiatives to align with JIET-prioritised sectors and principles. Therefore, the APAEC Drafting Committee should consider mainstreaming these sectors and streamlining the guiding principles to ensure cohesive integration across policies.

Step 2

Conduct in-depth studies on the intersection of energy and socioeconomic factors to provide valuable insights for targeted policy development

Studies on the JIET, using surveys, focus group discussions, interviews, and other qualitative/quantitative methods will guide appropriate interventions to ensure that the move towards a sustainable energy future does not disproportionately burden vulnerable populations or exacerbate existing inequalities within the region. Relevant study topics include:

1. Identification of impacted and vulnerable people with regard to energy consumption and production;
2. Equity and fairness to local communities brought by different energy technologies in the ASEAN context;
3. Job creation arising from new technology and employment areas of the transition at the local, national and regional levels, implying analysis of labour market changes;

4. Procedural justice mechanisms that are applicable at the regional level to include the voices of marginalised and underrepresented communities;
5. Energy project-specific implications on vulnerable and rural/customary communities;
6. Policy analysis pertaining to the energy sector transition at the country and regional levels to identify opportunities presented by the energy transition while mitigating risks and ensuring an equitable, inclusive and sustainable pathway forward benefitting all;
7. Operationalisation of the JIET in energy projects, in line with the priority areas and the implementation of its monitoring and evaluation.

Step 3

Identify ASEAN energy focal points to coordinate efforts, facilitate knowledge sharing, and strengthen regional collaboration in achieving a sustainable and inclusive energy future

At the national level, AMS should identify dedicated focal points or coordinating bodies to develop inclusive policy-making and oversee the implementation of JIET policies and programmes, ensuring alignment with local contexts and development priorities. This will involve establishing robust monitoring and evaluation mechanisms to track progress, identify challenges, and make necessary adjustments over time. The focal points should be equipped with knowledge of the JIET and necessitate strong and capable institutions and empowered stakeholders.

Step 4

Conduct regular regional forums and exchanges related to a Just and Inclusive Energy Transition

Regional forums and exchanges are beneficial to measure and increase public awareness and understanding of the just transition process, and track the level of engagement from diverse stakeholders in energy decision-making, in the form of:

1. **Specific capacity-building activities** targeting displaced workers (male and female), governments, women, and other relevant stakeholders, with the aim of enhancing workers' skills to match with new low-carbon economic activities, supporting government officials and policymakers in JIET policies, educating individuals about energy efficiency, conservation and responsible resource management and promoting women leaders in the energy sector.
2. **Matchmaking and knowledge-sharing platforms** in a multistakeholder format that includes governments, financiers, startups, accelerators, investors, business leaders, trade unions, vulnerable groups representatives, and civil society, as well as promoting a shared understanding of JIET, such platforms could serve as unique peer-to-peer connections and meetings with investors.

Step 5

Develop implementation plans and monitoring mechanisms to track progress on JIET integration and impact across AMS

Monitoring and evaluation are crucial for tracking progress by providing a structured framework to assess the effectiveness, equity, and impact of policies and projects. The framework must adhere to JIET principles and priority areas, and consider whether the policy implementation has had any specific impact on a diverse range of people. Part of the monitoring efforts can be effectively coordinated by ASEAN focal points, which serve as regional hubs. In addition, developing mechanisms for public oversight and accountability in the implementation of a JIET in the energy transition plans.

4.2 Policy Toolkit

Policymakers may also consider the following list of questions but are not limited to them in deciding which would be most helpful when conducting energy policy planning [92]. The purpose of this exercise is to open internal discussion and reflection on how to develop and review policy frameworks based on guiding principles and prioritised areas. This tool is designed to be adapted to the existing diversity of national contexts in ASEAN and the region itself.

Table 4.1 Policy Toolkit on Just and Inclusive Integration in the Energy Transition Policy Development

Energy Access and Affordability	Questions	Remarks for Policymakers
<input type="checkbox"/>	Does the policy refer to a study or provide evidence that assesses further consumption patterns according to the different energy needs, including understanding its disaggregation between sexes?	
<input type="checkbox"/>	Does the policy refer to a study or provide evidence that assesses the impact of the adoption on energy expenses in relation to income?	
<input type="checkbox"/>	Does the policy consider affordability on par with the other aspects of the energy trilemma during its development?	
<input type="checkbox"/>	Does the policy classify contextualised metrics of energy poverty for AMS?	
<input type="checkbox"/>	Does the policy aim to systematically improve the energy system to avoid negative impacts of increased tariffs and trade balances, and the reduction of industrial competitiveness and economic security?	
<input type="checkbox"/>	Does the policy establish certain targets for energy access (electrification and clean cooking rate) aligned with the SDG7 goals and beyond?	
<input type="checkbox"/>	Does the policy establish certain targets of energy affordability aligned with the SDG7 goals and beyond?	
<input type="checkbox"/>	Does the policy consider how to gather capital investment to achieve these targets to be spent in a timely manner and to reach those in need in order to prioritise affordability?	
<input type="checkbox"/>	Does the policy pave pathways to the establishment of tailored financial measures or mechanisms to support vulnerable groups to obtain affordable electricity tariffs?	



Table 4.1 Policy Toolkit on Just and Inclusive Integration in the Energy Transition Policy Development (continued)

Energy Education and Capacity Development	Questions	Remarks for Policymakers
<input type="checkbox"/>	Does the policy refer to studies or provide evidence that assesses further the inter-relation between the energy sector and education or capacity development and its impact, including its projection of the required workforce and its skills?	
<input type="checkbox"/>	Does the policy acknowledge and consider the required workforce changes that may impact workforce trends (including the rise of new and/or growing roles)? And does the policy also recognise re-skilling and up-skilling?	
<input type="checkbox"/>	Does the policy aim to further enable the education providers or institutions to be better prepared to impart the needed knowledge and skills for energy transition jobs?	
<input type="checkbox"/>	Does the policy in the education sector promote equal access to opportunities for skills acquisition and recognition for all?	
<input type="checkbox"/>	Does the policy support responsive training, capacity building, and curricula in the formal and informal education systems, both STEM and non-STEM (law, business management, finance, etc.) that match the demand skills demanded for the energy transition?	
<input type="checkbox"/>	Does the policy facilitate collaborative work between governments, businesses, labour unions, education providers, and civil society for low-carbon energy-related education?	
<input type="checkbox"/>	Does the policy pave the way for high-impact strategies and initiatives e.g., green energy jobs plan, common certifications of skills?	



Table 4.1 Policy Toolkit on Just and Inclusive Integration in the Energy Transition Policy Development (continued)

Energy Employment	Questions	Remarks for Policymakers
Workforce		
<input type="checkbox"/>	Does the policy refer to a study or provide evidence that assesses the impact on energy employment e.g., employability, workforce trend shifts, etc?	
<input type="checkbox"/>	Does the policy consider workforce-development investments across the energy spectrum and its related industries both upstream and downstream?	
<input type="checkbox"/>	Does the policy mandate collaborations to accelerate and facilitate skills-based hiring to broaden the pool of talent?	
<input type="checkbox"/>	Does the policy integrate social protection systems that align with international labour standards for those who are affected by the transition to low-carbon energy?	
<input type="checkbox"/>	Does the policy establish incentives for private sectors which generate green job creation, e.g., tax relief for green skills training programmes?	
Entrepreneurship		
<input type="checkbox"/>	Does the policy consider the development of decentralised energy systems, e.g. microgrids, to improve access in remote and hard-to-reach areas while empowering local communities to play an active role as energy producers or electricity distributors through community-owned and community-driven energy projects and mini-grids, allowing them to reap tangible benefits beyond just electricity access?	
<input type="checkbox"/>	Does the policy support low-carbon energy entrepreneurs in becoming investment-ready through improving the quality of climate-enhancing investments or rebalancing the opportunity-risk calculation?	

Table 4.1 Policy Toolkit on Just and Inclusive Integration in the Energy Transition Policy Development (continued)

Gender, Social Inclusion, and Protection of Disadvantaged Group	Questions	Remarks for Policymakers
Raising Awareness and Learning Exchange		
<input type="checkbox"/>	Was the policy developed after sex-disaggregated data collection and gender analysis of the energy sector as the problem identification?	
<input type="checkbox"/>	Does the policy implicitly promote the awareness of gender, social inclusion and protection of disadvantaged groups?	
Women's high-level decision-makers		
<input type="checkbox"/>	Does the policy and its policymakers acknowledge women's and men's distinct decision-making powers over energy sources or technologies that need to be considered and inform policy-making processes?	
<input type="checkbox"/>	Does the policy recognise women and/or girls as essential agents of change in the energy sector?	
<input type="checkbox"/>	Does the policy recognise the need to increase women's participation in policy and decision-making processes and the energy sector at large?	
<input type="checkbox"/>	Can the policy identify specific actions on how to enable women to participate in the energy sector and set targets on women who can be more involved as stakeholders, e.g., the % mandatory attendance of women in capacity building?	
Enhanced Energy Database		
<input type="checkbox"/>	Is the policy based on sufficient, necessary and up-to-date data?	
<input type="checkbox"/>	If yes, does the policy mandate the transparency of such data to be accessible to the public?	
<input type="checkbox"/>	If not, does the policy mandate the establishment of data indicators and a mechanism for their collection?	
<input type="checkbox"/>	Does the policy mandate detailed disaggregated data from various social aspects, e.g. gender, income-based expenses, etc?	

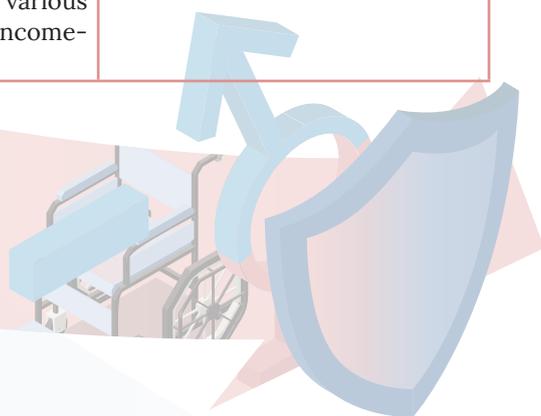


Table 4.1 Policy Toolkit on Just and Inclusive Integration in the Energy Transition Policy Development (continued)

Gender, Social Inclusion, and Protection of Disadvantaged Group (continued)	Questions		Remarks for Policymakers	
	Protection of Disadvantaged Group			
	<input type="checkbox"/>	Can the policy address indirect benefits to education, health, reduced indoor air pollution, and well-being of men and women and girls/men and boys?		
<input type="checkbox"/>	Can the policy assess the displacement of local communities and the disruption of their livelihoods due to changes in land use patterns for energy-related infrastructure?			

Inclusive Governance	Questions		Remarks for Policymakers
	<input type="checkbox"/>	Does the development of the policy involve both women and men equally?	
	<input type="checkbox"/>	Does the policy allocate resources dedicated to the implementation of the just and inclusive energy transition implementation?	
	<input type="checkbox"/>	Does the policy co-create with the minimum quadruple helix (government, private sector, academia, and society) parties through adequate duration and systemic multistakeholder dialogue?	
	<input type="checkbox"/>	Does the policymaking incorporate cross-agency or cross-institution efforts and multilevel governance (local, state/provincial level, national level)?	
	<input type="checkbox"/>	Does the policy also mandate a monitoring plan that includes gender-sensitive indicators (both qualitative and quantitative) and set targets, e.g. the percentage of women who are aware of the project, the number of men and women trained, the relative participation rates of men and women, and the percentage of women who benefit from the projects?	
	<input type="checkbox"/>	Does the policy also mandate a monitoring plan that includes minority or disadvantaged groups indicators?	

Appendix A - Abbreviation

ACE	: ASEAN Centre for Energy
ADB	: Asian Development Bank
AECSP	: ASEAN Economic Community Strategic Plan
AEO	: ASEAN Energy Outlook
AFD	: Agence Francaise de Development
AMEM	: ASEAN Ministers on Energy Meeting
AMS	: ASEAN Member States
APAEC	: ASEAN Plan of Action for Energy Cooperation
ASEAN	: Association of Southeast Asian Nations
ATC	: ASEAN TVET Council
ATS	: AMS Targets Scenario
COP	: Conference of the Parties
EI	: Energy Intensity
ESG	: Environmental, Social and Governance
ETM	: Energy Transition Mechanism
GDP	: Gross Domestic Product
ILO	: International Labour Organization
IPG	: International Partners Group
JETP	: Just Energy Transition Partnership
JIET	: Just and Inclusive Energy Transition
RE	: Renewable Energy
SDG	: Sustainable Development Goals
SME	: Small and Medium Enterprises
STEM	: Science, Technology, Engineering, and Mathematics
TPES	: Total Primary Energy Supply
TVET	: Technical and Vocational Education and Training
USD	: United States Dollar

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