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ASEAN PLAN OF ACTION FOR ENERGY COOPERATION (APAEC) 2026-2030

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2026-2030

ASEAN Centre for Energy (ACE)
Jakarta

CONTENTS

LIST OF COMMON ABBREVIATIONS

ACE	ASEAN Centre for Energy
ACV	ASEAN Community Vision
ADC	APAEC Drafting Committee
AEA	ASEAN Energy Awards
AEC	ASEAN Economic Community
AEDS	ASEAN Energy Database System
AEEMTRC	ASEAN-European Community Energy Management, Training and Research Centre
AEO7	7th ASEAN Energy Outlook
AEO8	8th ASEAN Energy Outlook
AERN	ASEAN Energy Regulators Network
AFOC	ASEAN Forum on Coal
AICEE	ASEAN International Conference on Energy and Environment
AIMS	ASEAN Interconnection Masterplan Study
AMEM	ASEAN Ministers on Energy Meeting
AMS	ASEAN Member States
APAEC	ASEAN Plan of Action for Energy Cooperation
APG	ASEAN Power Grid
APG-AP	APG Advancement Programme
APGCC	ASEAN Power Grid Consultative Committee
ASCOPE	ASEAN Council on Petroleum and Energy
ASEAN	Association of Southeast Asian Nations
ASEAN EEE MRA	ASEAN Sectoral Mutual Recognition Arrangement for Electrical and Electronic Equipment
BIMP	Brunei Darussalam–Indonesia–Malaysia–Philippines
BIMP-EAGA	BIMP-East ASEAN Growth Area
BIMP-PIP	BIMP-Power Integration project
CCS	Carbon Capture and Storage
CCT	Clean Coal Transformation
CCUS	Carbon Capture, Utilisation and Storage
CEFIA	Cleaner Energy Future Initiative for ASEAN
CNE	Civilian Nuclear Energy

LIST OF COMMON ABBREVIATIONS

CO2	Carbon Dioxide
DPs	Dialogue Partners
EC	European Community
EE	Energy Efficiency
EEB	Energy Efficient Building
EE&C	Energy Efficiency & Conservation
EE&C-SSN	Energy Efficiency & Conservation Sub-Sector Network
EI	Energy Intensity
ESCOs	Energy Service Companies
FS	Feasibility Studies
GB	Green Building
GEDSI	Gender Equality, Disability and Social Inclusion
HAPUA	Heads of ASEAN Power Utilities/Authorities
HVDC	High-Voltage Direct Current
IEA	International Energy Agency
IOs	International Organisations
Lao PDR	Lao People's Democratic Republic
LNG	Liquefied Natural Gas
LTMS	Lao PDR-Thailand-Malaysia-Singapore
LTMS-PIP	LTMS-Power Integration Project
MEPS	Minimum Energy Performance Standards
MLP	Methane Leadership Program
MoU	Memorandum of Understanding
MPT	Multilateral Power Trade
MTPA	Million Tonnes per Annum
MVE	Monitoring, Verification and Enforcement
NDCs	Nationally Determined Contributions
NEC-SSN	Nuclear Energy Cooperation Sub-Sector Network
NPP	Nuclear Power Plant
OGCSS	Oil & Gas Connectivity, Security, and Sustainability

LIST OF COMMON ABBREVIATIONS

PAECE	Programme Action for Enhancement of Cooperation in Energy
RE	Renewable Energy
RE-SSN	Renewable Energy Sub Sector Network
REC	Renewable Energy Certificate
REPP	Regional Energy Policy Planning
REPP-SSN	Regional Energy Policy Planning Sub-Sector Network
SAEMAS	Sustainable ASEAN Energy Management Certification Scheme
SDGs	Sustainable Development Goals
SEBs	Specialised Energy Bodies
SOE	Senior Officials on Energy
Solar PV	Solar Photovoltaic
SOME	Senior Officials Meeting on Energy
TAGP	Trans-ASEAN Gas Pipeline
TFEC	Total Final Energy Consumption
ToC	Theory of Change
TPES	Total Primary Energy Supply
ZEB	Zero Energy Buildings

Introduction

- About the ASEAN Plan of Action for Energy Cooperation
- The APAEC Through the Years

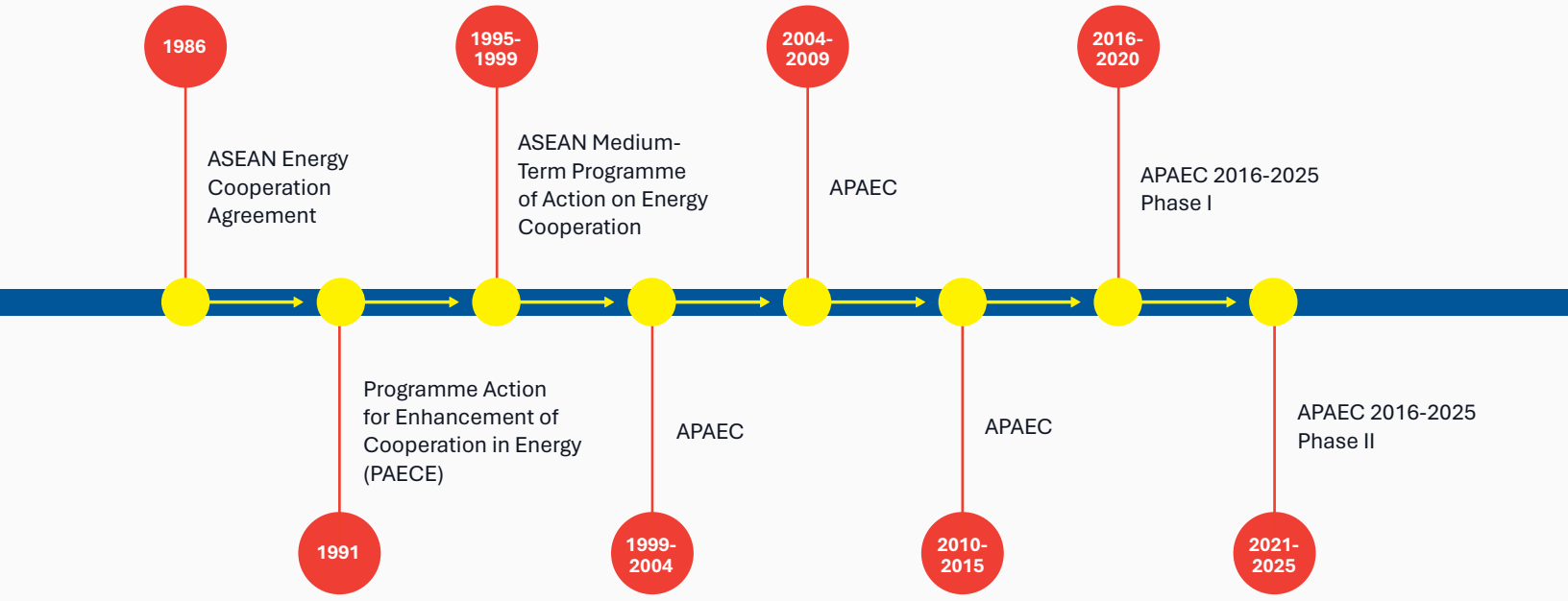
About the ASEAN Plan of Action for Energy Cooperation

The ASEAN Plan of Action for Energy Cooperation (APAEC) is the key strategic document in which the Association of Southeast Asian Nations (ASEAN) outlines regional energy priorities and cooperation initiatives in support of the **ASEAN Economic Community (AEC).** As a sectoral blueprint, the APAEC contributes directly to the broader objectives of the ASEAN Community Vision, particularly in advancing a resilient, sustainable and integrated ASEAN Community.

Developed through consensus among the ASEAN Member States (AMS), the APAEC provides a structured and time-bound framework for guiding multilateral energy cooperation and integration efforts within the region. It also serves as a platform for engagement with Dialogue Partners (DPs) and International Organisations (IOs), aimed at enhancing regional energy security, accessibility, affordability and sustainability.

The APAEC has been implemented through a series of multi-year cycles, each aligned with ASEAN's evolving economic, social and sustainable development priorities. These cycles reflect the region's enduring commitment to a unified and forward-looking energy agenda, while also capturing the dynamic evolution of regional energy cooperation, adapting to new challenges, emerging technologies, and shifting global energy and climate landscapes. Through this continual progression, the APAEC plays a pivotal role in advancing ASEAN's collective energy resilience, integration and long-term sustainability.

APAEC Through the Years



ASEAN's regional energy cooperation has evolved progressively over the decades, guided by a strong institutional foundation and shared vision. This cooperation was formally established with the signing of the **ASEAN Energy Cooperation Agreement in 1986** by ASEAN leaders, a landmark milestone that provided the legal and strategic basis for structured collaboration in the energy sector. This agreement has since served as the guiding framework for the formulation of the APAEC as the regional energy blueprint of ASEAN.

Building on the foundation of the cooperation agreement in 1986 and the review of the earlier **Programme Action for Enhancement of Cooperation in Energy (PAECE) endorsed in 1991,** ASEAN adopted the **ASEAN Medium-Term Programme of Action on Energy Cooperation (1995–1999).** The medium-term programme marked a shift towards a more focused and programmatic approach, identifying key cooperation areas: electricity, oil and gas, coal, new and renewable sources of energy, and energy efficiency. It also established dedicated ASEAN coordinating bodies for each area, setting the stage for more institutionalised and sector-specific collaboration.

APAEC 1999-2004: First Transformation of Energy Cooperation

The first cycle of APAEC (1999–2004) marked the initial operationalisation of ASEAN's formal energy cooperation framework. Developed under the umbrella of **ASEAN Vision 2020,** the **1998 Hanoi Plan of Action,** and building upon the refinement of the **Medium-Term Programme of Action on Energy (1995–1999),** this cycle translated high-level regional commitments into structured, action-oriented programmes aimed at advancing collective energy goals across ASEAN. The plan was prepared in mid-1998 by the **ASEAN-European Community (EC) Energy Management, Training and Research Centre (AEEMTRC),** which became the **ASEAN Centre for Energy (ACE)** in 1999 in collaboration with **the ASEAN Secretariat.**

This first version of the APAEC introduced six foundational Programme Areas, namely:

1. ASEAN Power Grid (APG)
2. Trans-ASEAN Gas Pipeline (TAGP)
3. Energy Efficiency and Conservation (EE&C)
4. New and Renewable Sources of Energy
5. Regional Energy Outlook, Energy Policy, and Environmental Analysis

This cycle was critical in operationalising regional mechanisms, defining institutional roles and initiating structured collaboration within ASEAN and also with external partners.

APAEC 2004-2009: Strengthening Commitments

Aligned with the Vientiane Action Programme (VAP) 2004-2010, the second APAEC cycle further strengthened regional cooperation. Significant milestones during this period included the signing of the Memorandum of Understanding (MoU) for the ASEAN Power Grid (APG) and the launch of the ASEAN Energy Awards (AEA) to recognise best practices in energy efficiency (EE) and renewable energy (RE). In this phase, Programme Area No. 6 has evolved into Regional Energy Policy and Planning (REPP), thereby taking on a broader role in overseeing implementation of the APAEC and providing strategic policy guidance.

APAEC 2010-2015: Expanding Engagement and Impact

The third cycle supported the realisation of the AEC Blueprint 2015, expanding ASEAN's regional and international engagement. Major developments included the establishment of the ASEAN Ministers on Energy Meeting (AMEM) and International Energy Agency (IEA) Energy Dialogue following the signing of an MoU between the ASEAN Secretary-General and the IEA Executive Director in 2011; the extension of the Trans-ASEAN Gas Pipeline (TAGP) cooperation for another 10 years through an updated MoU; and exceeding regional targets, achieving an 8% reduction in energy intensity (EI) based on 2005 levels and a 15% RE share in the total installed capacity by 2015.

Additionally, the programme area of "Coal" was transformed to *Coal and Clean Coal Technology* and a new programme area, *Civilian Nuclear Energy,* was introduced as a seventh programme area, supporting knowledge exchange and capacity building for peaceful nuclear energy use.

APAEC 2016-2025: Advancing Regional Integration and Transition

The fourth cycle, **APAEC 2016–2025,** spans a longer timeframe of ten years and is divided into two implementation phases:

- **Phase I (2016-2020)** focused on near- to medium-term strategies under the theme "Enhancing Energy Connectivity and Market Integration in ASEAN to Achieve Energy Security, Accessibility, Affordability and Sustainability for All".
- **Phase II (2021-2025)** continued the momentum with a sub-theme"Accelerating Energy Transition and Strengthening Resilience through Greater Innovation and Cooperation". This phase introduced higher aspirations and addressed emerging challenges such as the COVID-19 pandemic, climate change and the need for a sustainable recovery. It also emphasised private sector participation, digital transformation, financing mechanisms and the deployment of emerging energy technologies.

The development of the **APAEC 2026–2030** builds upon the foundation, experiences and lessons learned from previous cycles, while also taking into account emerging opportunities and evolving regional and global energy landscapes.

Background and Overall Framework

- Navigating Megatrends in ASEAN's Energy Future
- Aligning Energy Cooperation with ASEAN's Long-Term Vision
- Overview of APAEC Development Process
- APAEC 2026-2030 Objectives and Overall Framework

In developing APAEC 2026–2030, it is crucial to consider how emerging megatrends are reshaping ASEAN's energy landscape and influencing decision-making across the sector. At the same time, the plan must align with the region's long-term vision and broader ASEAN frameworks, particularly the ASEAN Community Vision 2045 and the AEC Strategic Plans 2026–2030. By understanding these trends and ASEAN's unique regional context, the APAEC can help the region seize opportunities, manage risks, and craft resilient, forward-looking strategies to ensure that energy continues to be a key driver of regional integration and sustainable development.

Navigating Megatrends in ASEAN's Energy Future

As ASEAN charts its course towards a sustainable, secure and integrated energy future, it must navigate an increasingly complex and dynamic global landscape. A range of powerful megatrends, from rapid technological advancement and accelerating climate change, to rising geopolitical tensions, political uncertainties, demographic shifts and recurring health crises, are reshaping the region's energy outlook. These forces are not only altering the way energy is produced, distributed and consumed, but are also challenging traditional planning models and governance structures. Understanding and anticipating these megatrends is essential for ASEAN to craft responsive and forward-looking energy strategies that promote resilience, inclusivity and long-term competitiveness. In this context, the development of APAEC 2026–2030 takes into account these transformative trends and incorporates them into the strategic direction of ASEAN's regional energy cooperation for the coming decade.

Climate Change

In contributing to the global efforts to combat climate change, ASEAN faces an urgent need to accelerate the shift towards sustainable and low-carbon energy systems. Additionally, climate change is also reshaping ASEAN's energy landscape by intensifying risks to energy infrastructure, disrupting supply chains and altering resource availability. Rising sea levels, extreme heat and more frequent storms threaten power plants, transmission lines and coastal energy facilities, particularly in vulnerable island and coastal nations. These impacts are prompting ASEAN to accelerate the transition towards low-carbon, climate-resilient energy systems. Climate change is also driving regional cooperation in carbon neutrality strategies and aligning national policies with global frameworks like the Paris Agreement, reinforcing the urgency for a sustainable and secure energy future.

Technology Advancement and Digitalisation

Technological advancement, including digitalisation, is transforming ASEAN's energy landscape by enabling smarter, more efficient and more responsive energy systems. Innovations such as smart grids, advanced data analytics, automation and AI-driven energy management are enhancing system reliability, integrating renewable energy, and optimising energy use across sectors. At the same time, the rapid growth of the digital economy is driving a surge in electricity demand and posing new challenges for power load management. This underscores the importance of ensuring that digitalisation contributes not only to efficiency and flexibility but also to sustainable energy consumption. In response, ASEAN's regional energy strategies are increasingly focused on digital infrastructure, innovation ecosystems and human capital development while also addressing challenges such as demand growth, cybersecurity and equitable access. Together, these efforts will help ensure energy systems remain agile, secure and future-ready.

Political Instability and Geopolitical Uncertainties

Political instability and geopolitical uncertainties pose significant risks to ASEAN's energy landscape by creating volatility in energy markets, disrupting supply chains and delaying cross-border infrastructure projects. Conflicts in major energy-producing regions, trade tensions and shifting global alliances can lead to price fluctuations and energy insecurity, particularly for import-dependent countries. At the same time, domestic political changes within the AMS may affect policy continuity, investment confidence and regulatory stability. In response, ASEAN is strengthening regional energy integration, promoting policy harmonisation, and diversifying its energy mix to reduce external dependencies and build a more resilient and coordinated energy future.

Demographic Shifts

Rapid urbanisation, population growth and a rising middle class are reshaping energy demand patterns across ASEAN. These trends are driving increased consumption of electricity, transport fuel and modern energy services, particularly in urban centres and industrial zones. At the same time, expanding populations in rural and remote areas underscore the need for inclusive and reliable energy access. In response, ASEAN's future energy strategies are increasingly focused on scaling up clean energy infrastructure, promoting energy efficiency and supporting smart urban development to ensure that energy systems can meet growing demand while remaining affordable, sustainable and equitable.

Pandemics and Health Crises

Pandemics have exposed vulnerabilities in ASEAN's energy systems by disrupting supply chains, delaying infrastructure projects and reducing energy demand across key sectors. These shocks highlighted the critical need for energy system resilience, particularly in ensuring uninterrupted access to power for essential services such as healthcare and digital connectivity. The experience has prompted ASEAN to reassess its energy priorities, placing greater emphasis on decentralised energy solutions, crisis preparedness and green recovery strategies that promote sustainability while supporting economic and public health resilience. Moving forward, future energy planning will need to be more adaptive, inclusive and capable of withstanding unexpected disruptions.

Aligning Energy Cooperation with ASEAN's Long-Term Vision

The ASEAN Community Vision (ACV) 2045 recognises that the region is facing a rapidly evolving global environment shaped by emerging megatrends, which present both challenges and opportunities. These include shifts in technology, climate, geopolitics, demographics and economic structures. In acknowledging these trends, ASEAN leaders have called for more innovative, inclusive and coordinated responses to ensure long-term regional resilience and prosperity. The APAEC 2026–2030 is developed in this spirit, serving as a key instrument to realise the Vision's aspirations for a resilient, dynamic and people-centred ASEAN.

The energy sector plays a vital role in realising this vision. Guided by this direction, APAEC 2026–2030 prioritises efforts to enhance energy security and resilience through regional integration and supply diversification, while also accelerating the energy transition by scaling up RE, improving EE and promoting green innovation. The strategy recognises the need for inclusive development, ensuring that energy policies and programmes incorporate gender equality, youth empowerment and social equity. In line with the Vision's call for greater coherence and integration, the APAEC also emphasises cross-sectoral collaboration, particularly with economic sectors such as industry, transport, agriculture and the environment sector, to drive systemic transformation. Lastly, it underscores the importance of institutional strengthening, data-informed planning and regional coordination to ensure effective implementation and sustained impacts, supporting ASEAN's collective journey towards a sustainable and future-ready energy landscape.

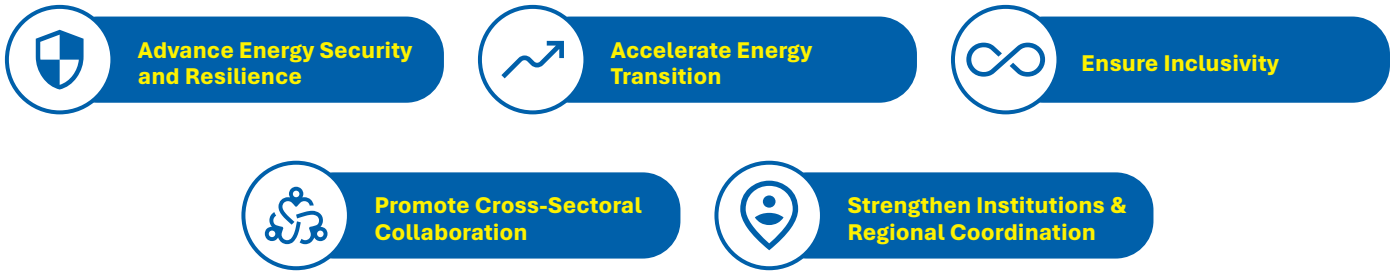


Figure 1. Core Directions for Regional Energy Cooperation in Support of ASEAN Community Vision 2045

In support of the ACV 2045, the **AEC Strategic Plan 2026–2030** has been developed to guide the region's economic transformation. The Plan outlines six strategic goals: *(1) an Action-Oriented Community, (2) a Sustainable Community, (3) an Enterprising, Bold and Innovative Community, (4) an Adaptable and Pro-active Community, (5) a Nimble and Resilient Community, and (6) an Inclusive, Participatory and Collaborative Community.* Within this framework, the energy sector is positioned as a key enabler, supporting sustainable growth and resilience. The five-year AEC Strategic Plan outlines future directions for the sector, including advancing the green economy, accelerating decarbonisation, ensuring energy security and affordability, and strengthening infrastructure resilience. Alignment between the APAEC and the AEC Strategic Plan is essential to ensure coherence and maximise impact, reinforcing ASEAN's collective journey towards a low-carbon, secure and inclusive energy future in line with ACV 2045.

Overview of APAEC Development Process

The development of the APAEC 2026–2030 was carried out through a highly collaborative and consultative process, led by the **APAEC Drafting Committee (ADC).** This committee consists of representatives from all ten AMS, nominated by their respective Senior Officials on Energy (SOE) Leaders, along with delegates from ASEAN Specialised Energy Bodies (SEBs), Sub-Sector Networks (SSNs), the ASEAN Secretariat and ACE, with representatives from Timor-Leste participating as observers. As the designated APAEC Secretariat, ACE has played a central role not only in coordinating the drafting process but also in facilitating the implementation and monitoring of the APAEC as it moves forward.

Commencing in early 2024, a series of ADC Meetings served as the primary platform for shaping the strategic direction of the new APAEC. These meetings were instrumental in conceptualising and formulating the overall APAEC framework, aligning the AMS' aspirations on regional energy cooperation with shared goals, and guiding decision-making throughout the process. To further ensure that the APAEC reflects regional and national priorities, ACE conducted dedicated consultations and a survey with ADC members to gather insights and feedback on key themes, priorities and the overall structure of the APAEC.

To complement the ADC consultations, a series of supporting studies and stakeholder dialogues were conducted involving DPs, IOs, academia and technical experts. These engagements played a critical role in ensuring that the development process was inclusive, evidence-based and responsive to the diverse perspectives and emerging needs of stakeholders across the ASEAN region.

The APAEC 2026 – 2030 is designed to fully align with the ACV 2045 and the AEC Strategic Plan 2026 - 2030. At the same time, it is firmly grounded in the national contexts of each AMS, taking into account their energy targets, Sustainable Development Goals (SDGs), Nationally Determined Contributions (NDCs) and broader national aspirations. This dual-level alignment ensures that regional initiatives are not only complementary to national strategies, but also that there is capacity to accelerate their implementation and strengthen the overall effectiveness of national energy efforts.

In addition to national and regional priorities, the development of APAEC 2026–2030 drew from key regional references and strategic frameworks, such as the ASEAN Energy Outlook, ASEAN Renewable Energy Long-term Roadmap (2025), the ASEAN Strategy on Carbon Neutrality (2024), the Framework for Circular Economy for the ASEAN Economic Community (2021), and other ASEAN sustainability-related agendas. These references have helped shape a forward-looking and resilient energy cooperation framework that can respond strategically to emerging global and regional challenges.

Most importantly, the new APAEC builds upon the achievements and lessons learned from the previous cycle (APAEC 2016–2025). Key takeaways from previous APAEC include:

1. The need to strengthen cross-sectoral coordination, not only among APAEC programme areas, but also with other relevant sectors beyond energy, with due consideration to a just and inclusive energy transition.
2. The importance of adopting a more holistic approach to programme planning, with a stronger focus on strategic and high-impact activities
3. The necessity for improved alignment between national and regional energy efforts
4. The value of broadening stakeholder engagement, particularly by involving the private sector, academia, civil society organisation, and youth, to foster a more inclusive and future-ready energy ecosystem in ASEAN.

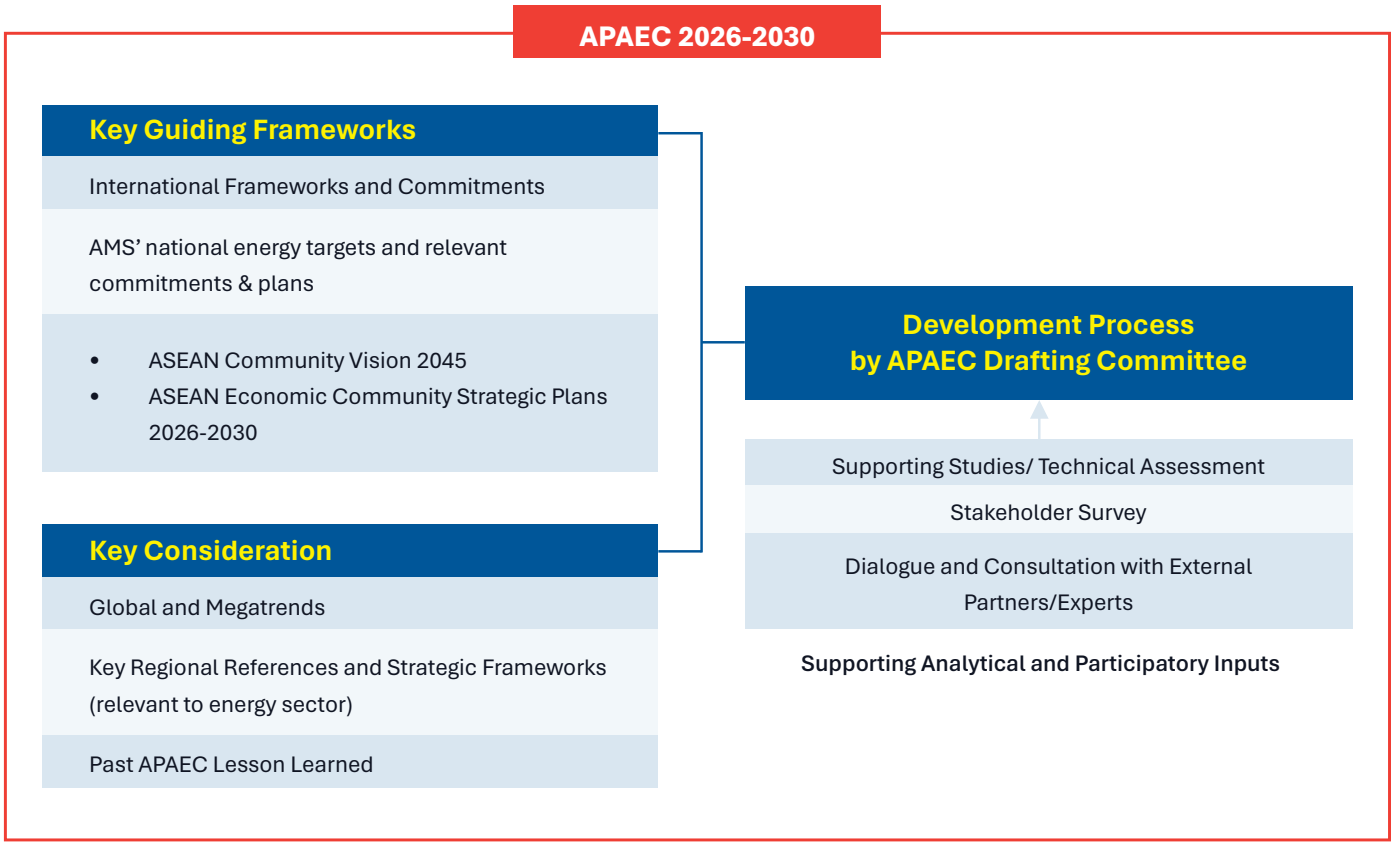


Figure 2. Key References and Frameworks Guiding the APAEC

APAEC 2026-2030 Objectives and Overall Framework

APAEC 2026–2030 serves as ASEAN's strategic blueprint to guide regional energy cooperation over the next phase. It reflects the region's collective commitment to address evolving energy challenges and opportunities through a unified and forward-looking approach. The APAEC is designed not only to support regional integration and policy alignment but also to drive the transformation of ASEAN's energy systems in a way that is secure, sustainable and inclusive.

Guided by the 20-year theme of ***"ASEAN Energy Future 2045: Secure, Resilient and Interconnected Low-Carbon Energy Future",*** and the five-year theme of ***"Advancing Regional Cooperation in Ensuring Energy Security and Accelerating Decarbonisation for a Just and Inclusive Energy Transition,"*** the APAEC 2026–2030 is structured around the following three key objectives:

- **Strengthen regional energy cooperation and connectivity**
  To promote coordinated policy development, cross-border infrastructure integration and joint action among the AMS in addressing shared energy challenges and advancing regional energy markets.
- **Enhance energy security, resilience and accelerate the energy transition**
  To ensure a reliable and diversified energy supply, improve system resilience to disruptions and promote the adoption of clean energy technologies and energy efficiency across the region.
- **Advance sustainable and inclusive energy development**
  To support economic growth and environmental sustainability while ensuring energy remains affordable, accessible and equitable, fostering innovation and collaboration across sectors and stakeholders.

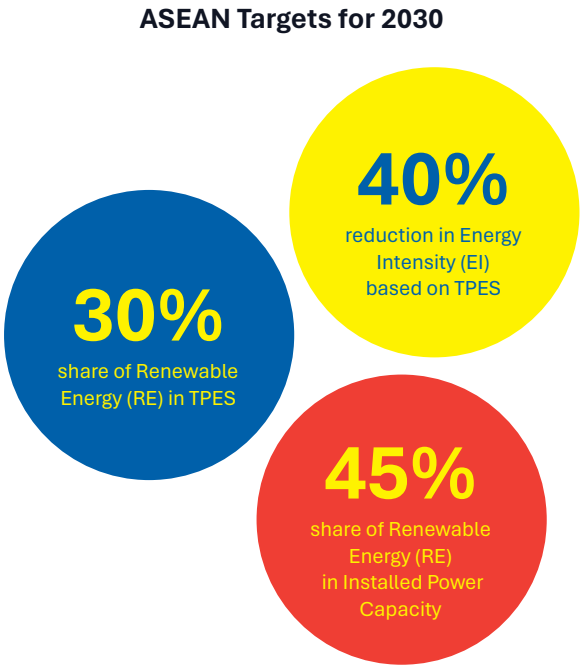


Figure 3. APAEC-Level Aspirational Targets by 2030

In addition to qualitative strategies, the APAEC 2026–2030 includes APAEC-level aspirational energy targets to ensure measurable progress in regional energy cooperation. The AMS have collectively set ambitions to achieve a 30% share of RE in total primary energy supply (TPES) and a 45% share of RE in installed power capacity by 2030. Furthermore, the region aims to achieve a 40% reduction in energy intensity (EI) based on TPES by 2030, compared to 2005. Efforts to achieve these targets are embedded across the strategies and action plans of all programme areas. As noted earlier, a key feature of this new five-year plan is the strengthening of cross-sectoral collaboration within and between programme areas. The strategies and action plans of the seven programme areas have been designed not only to address their respective objectives, but also to leverage synergies and maximise opportunities for cooperation.

A key enhancement in APAEC 2026–2030 is the integration of Theory of Change (ToC) thinking and the Result Chain Approach, providing a more structured, logical and impact-driven planning framework. The Theory of Change articulates the pathway of how ASEAN's collective energy actions are expected to achieve the desired long-term transformation, while the Result Chain operationalises this thinking into a clear sequence of inputs, outputs, outcomes and impacts.

Each of the seven Programme Areas is built around this integrated approach. The framework flows from:

- **Key Strategies:** providing overarching specific programme areas' directions,
- **Outcome-Based Strategies:** defining intermediate changes that reflect progress,
- **Action Plans:** guiding concrete initiatives and cooperation.

As supporting and operational actions, annual milestones and activities are identified under the purview of each SSN and SEB, serving as concrete initiatives to be implemented over the five-year period. These lists of annual milestones and activities will be treated as living documents, allowing for periodic adjustments to maintain coherence and responsiveness in the implementation of the APAEC throughout each year.

Additionally, for effective monitoring, a set of supportive indicators will be developed for each programme area. These indicators will serve as key tools for tracking performance and measuring progress towards the strategic objectives and aspirational targets of the APAEC.

Programme Area, Strategies, and Action Plans

APAEC 2026–2030 is designed to build upon the achievements of APAEC 2016-2025 Phase II: 2021–2025, while incorporating substantive updates to ensure continued relevance to the region's evolving priorities and strategic directions. In the formulation of the new APAEC, each programme area was subjected to a comprehensive review and careful assessment to reflect emerging developments and regional needs. Accordingly, ASEAN's energy cooperation under APAEC 2026–2030 will be advanced through the following seven programme areas:

	**ASEAN Power Grid (APG)**		**Oil & Gas Connectivity, Security, and Sustainability (OGCSS)**
	**Clean Coal Transformation (CCTR)**		**Energy Efficiency and Conservation (EE&C)**
	**Renewable Energy (RE)**		**Regional Energy Policy and Planning (REPP)**
	**Civilian Nuclear Energy (CNE)**		

The detailed strategies and action plans for each programme area over the five-year period are presented and discussed below.

ASEAN Power Grid

(APG)

Background

The APG is recognised globally as a key notable regional energy infrastructure project and a flagship initiative driving ASEAN's energy cooperation. As a strategic priority, promoting multilateral power trade (MPT) under the APG supports the AEC goals of enhancing regional energy security, resiliency and connectivity. Evolving from bilateral interconnections to sub-regional arrangements, the APG has been one of the key enablers of ASEAN's economic growth, helping to meet rising electricity demand, improving access to reliable and affordable energy, and strengthening the foundations for greater regional energy cooperation.

The Heads of ASEAN Power Utilities/Authorities (HAPUA) is mandated to oversee the implementation of the APG programme area under the APAEC. While HAPUA serves as the SEB responsible for guiding the initiative, the realisation of the APG also relies on close coordination and collaboration among utilities, policymakers, regulators and other key stakeholders. HAPUA collaborates closely with other APG-related bodies, such as the ASEAN Energy Regulators Network (AERN), the ASEAN Power Grid Consultative Committee (APGCC) and ACE to strengthen regional coordination, regulatory alignment and long-term energy resilience across Member States.

Key Achievements in APAEC 2016-2025 Phase II: 2021-2025

The APG has made substantial progress in enhancing regional power interconnectivity and promoting multilateral power trading, under the APAEC Phase II: 2021-2025. As of 2025, 9 of 18 priority interconnection projects under the ASEAN Interconnection Masterplan Study (AIMS) III, including the plan-to-grid interconnections, are operational, contributing a total interconnection capacity of 10.2 GW. The successful implementation of the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP) has formed a cornerstone of the region's efforts to realise the APG. The LTMS-PIP has since been enhanced to facilitate multilateral and multidirectional cross-border power trade. Inspired by the success of LTMS-PIP, the leaders from Brunei Darussalam, Indonesia, Malaysia and the Philippines initiated the Joint Statement of Brunei Darussalam-Indonesia-Malaysia-Philippines Power Integration project (BIMP-PIP) during the 41st AMEM in 2023, reflecting the sub-region's growing interest in exploring cross-border power trade and marking an important step towards broader regional power integration.

In advancing deeper regional integration, APAEC 2016-2025 Phase II: 2021-2025 has also made progress in strengthening the institutional and regulatory foundations of the APG. A notable milestone was the signing of the APG Enhanced MoU at the 43rd AMEM in 2025, which provides a high-level framework and guiding aspirations to advance regional cooperation on the APG. This Enhanced MoU builds upon and extends the first APG MoU signed in 2007, reaffirming Member States' collective commitment to greater power connectivity and integration across ASEAN.

Recognising the importance of subsea power cables as integral to realising the APG vision by 2045, ASEAN Ministers also endorsed the Terms of Reference for the ASEAN Subsea Power Cable Development Framework during the 43rd AMEM in 2025.This framework will provide greater clarity in AMS' laws and regulations regarding cross-border subsea power cable activities, as well as put in place credible, transparent and common regional technical, commercial and financial arrangements for subsea power cables.

The APG Advancement Programme (APG-AP) has also contributed to the APAEC 2016-2025 Phase II: 2021-2025. Outputs include the Study on the Roadmap for MPT and the ongoing updates on AIMS III Phase 3, which focuses on designing and implementing fully operational bilateral and multilateral power trading while outlining the key requirements for the establishment of MPT. Efforts to translate the APG vision into concrete implementation have continued through pre-feasibility and feasibility studies (FS). Significant progress has been made, including feasibility studies for key interconnections such as Peninsular Malaysia–Sumatra and North Kalimantan–Sabah, alongside new studies for other priority links. Going forward, efforts will also focus on securing funding to expand feasibility studies for additional priority projects. In parallel, enabling conditions for MPT are being strengthened through capacity building in project finance, harmonisation of technical standards, the establishment of dispute resolution mechanisms, and the development of supportive regional regulatory frameworks.

Strategies and Action Plans for 2026–2030

The APG remains a flagship initiative under APAEC 2026–2030, reflecting ASEAN's continued commitment to enhancing regional energy security, connectivity and sustainability. Building on past achievements, the new strategies place stronger emphasis on institutional coordination, robust planning, market readiness and the role of APG in accelerating the energy transition. Collectively, these measures seek to ensure that the APG evolves from being a physical infrastructure project to becoming a strategic enabler of cross-border electricity trade, clean energy integration and regional resilience.

A key focus is the strengthening of APG bodies' coordination to advance implementation and operations. This includes operationalising the Enhanced APG MoU which enhances the capacity and coordination among APG-related bodies.

Another priority lies in regional planning for interconnections and infrastructure development. The strategies highlight the need for a regular update of the AIMS, while also assessing the feasibility of proposed projects and deploying and strengthening regional frameworks to facilitate the transit and deployment of subsea interconnections and high-voltage direct current (HVDC). This reflects ASEAN's forward-looking approach to identifying new opportunities for interconnection that can unlock cross-border power trade and enhance energy system resilience.

In addition, the new strategies underscore the importance of expanding cross-border electricity trading and integrating clean energy into the APG framework. By advancing regulatory, policy, commercial and technical frameworks, ASEAN seeks to progressively enable cross-border electricity trade, while exploring financing mechanisms, grid modernisation, and digitalisation to ensure reliability and support decarbonisation. The inclusion of a dedicated strategy to promote a low-carbon APG supports ASEAN's clean energy transition and net-zero emissions aspirations. This entails updating regional targets for cross-border renewable electricity trade, exploring enabling policies and accelerating the integration of emerging low-carbon technologies.

Key Strategy	Strengthen APG planning and implementation to enhance regional energy security and connectivity, through infrastructure development, advancing market frameworks, and a coordinated regional cooperation framework

Outcome-based Strategies	Action Plans	
1. Strengthen APG bodies' coordination to advance APG implementation and operation	1.1.	Operationalise the APG Enhanced MoU
	1.2.	Strengthen coordination among APG bodies
	1.3.	Strengthen the capacity of APG bodies
2. Enhance regional planning for the APG cross-border interconnections and infrastructure	2.1.	Establish AIMS, the ASEAN Subsea Power Cables Development Framework and other initiatives for enabling APG infrastructure
	2.2.	Assess the feasibility of proposed cross-border interconnections under AIMS and APG Project Profiles
	2.3.	Explore relevant technology advancement to strengthen grid systems and cross-border interconnectors
3. Expand cross-border power trading by accelerating development of APG infrastructure and enhancing regional market integration	3.1.	Track the progress of APG development, including cross-border infrastructure and electricity trade
	3.2.	Advance regulatory, policy, commercial and technical frameworks to support cross-border electricity trading and regional market integration
	3.3.	Explore financing mechanisms and innovative business models for the development of APG interconnections and infrastructure
4. Drive a low-carbon APG as a regional cooperation strategy to decarbonise the ASEAN energy system and support net zero emissions goals	4.1.	Advance grid modernisation and digitalisation of ASEAN power system to ensure its capability towards energy transition
	4.2.	Explore the integration of emerging technologies to accelerate grid decarbonisation
	4.3.	Explore enabling policy and regulatory frameworks to accelerate cross-border clean and renewable electricity trading

Oil and Gas Connectivity, Security, and Sustainability

(OGCSS)

Background

OGCSS, formerly the TAGP, reflects ASEAN's broadened focus beyond pipeline infrastructure to encompass wider oil and gas cooperation, as well as energy security. With the region's energy demand expected to increase 2.6 times by 2050, oil and gas are expected to remain the largest contributors to the region's TPES. Oil supply, in particular, is projected to record the largest absolute increase among all fuels, rising by about 321.3 Mtoe between 2022 and 2050. This underscores the growing importance of ensuring reliable connectivity, security and sustainability across the oil and gas value chain.

This newly refined programme area aims to enhance energy connectivity, energy security measures and accessibility in sustainable practices within the oil and gas sector to meet regional energy demands responsibly. With the ASEAN Council on Petroleum and Energy (ASCOPE), which comprises national oil and gas companies or designated authorities from each AMS serving as the SEB overseeing oil and gas cooperation in the region, the expansion of the programme area from TAGP into OGCSS also reflects ASCOPE's expanded aspirations. As regional priorities evolve, ASCOPE seeks to broaden its focus to encompass key initiatives of oil and gas supply security, as well as the adoption of low-carbon and RE solutions within the sector.

Key Achievements in APAEC 2016-2025 Phase II: 2021-2025

Along with the APG, the TAGP has been the key energy infrastructure project driving regional energy cooperation. As of 2025, 13 cross-border pipelines had been constructed, measuring approximately 3,631 km in total and connecting six AMS. In 2024, the 42nd AMEM welcomed the amendment of the TAGP MoU that expanded the TAGP's coverage from the physical pipelines to include all liquefied natural gas (LNG)-related infrastructure and facilities. Thus, 14 regasification terminals have been developed across seven countries, with a combined capacity of 58.76 million tonnes per annum (MTPA).

Alongside infrastructure achievements under the TAGP framework, ASCOPE has played a pivotal role in advancing regional energy cooperation through the development and regular enhancement of the ASEAN Gas Infrastructure Technical Database to support planning, policy alignment, and investment facilitation. To strengthen the regional gas market, ASCOPE has facilitated dialogues on small-scale LNG and LNG bunkering, provided bilateral assistance and consultancy, and implemented advocacy efforts through FGDs, regional conferences, and knowledge-sharing sessions. Technical coordination has also been convened on downstream integration, gas market development, and gas-to-power strategies. Beyond TAGP, ASCOPE supports APAEC priorities on energy security and low-carbon transition through initiatives such as Decommissioning Guidelines, upstream fiscal benchmarking, and matured field frameworks, as well as capability-building programs including the Energy Transition Executive Course and CCS/CCUS Cross-Border Agreement analysis to contribute to ASEAN's long-term resilience and decarbonisation agenda.

Given the importance of reducing methane emissions from the oil and gas sector in achieving climate goals, ASEAN has initiated several initiatives including the development of a baseline for methane emissions in the oil and gas sector. The ASEAN Energy Sector Methane Leadership Program (MLP) is a regional initiative for capacity building in the oil and gas industry. It serves as the knowledge portal for methane emissions and enables actors to manage, report and reduce methane emissions. This commitment to reducing methane emissions was further reinforced when the 42nd AMEM announced initiatives to curb methane emissions in the region.

Strategies and Action Plans for 2026–2030

Building on the progress of the TAGP as a cornerstone of regional energy connectivity, the programme area of OGCSS expands the scope of cooperation to encompass broader initiatives in oil and gas supply security, sustainable practices and low-carbon solutions. To enhance the role of TAGP to enhance energy connectivity, security, and accessibility, the programme continues to promote gas market integration and the development of cross-border gas pipelines and LNG regasification terminals, while also advancing capacity-building efforts among gas advocacy stakeholders to foster a more inclusive and integrated gas market.

To strengthen regional collaboration on the oil and gas sector to enhance ASEAN energy supply security, OGCSS places greater emphasis on facilitating investment through joint venture development and exploring new strategic partnerships, alongside the deployment of advanced technologies to optimise resource development and embed sustainable practices across the asset lifecycle. The programme also supports enhancing technical capability and expertise among oil and gas stakeholders to ensure a secure and reliable energy supply across the region.

In support of ASEAN's long-term low-carbon energy transition, the programme area will contribute to the green diversification and decarbonisation in the oil and gas sector towards a low-carbon energy future, including promoting initiatives to reduce methane emissions and accelerate the adoption of emerging and decarbonisation technologies, such as hydrogen, carbon capture and storage (CCS), and carbon capture, utilisation and storage (CCUS), in oil and gas sector. Recognising the interlinkages between oil and gas cooperation and other areas of the APAEC, OGCSS will enhance cross-sectoral collaboration and work closely with related programme areas, such as APG, CCTR, RE, EE&C, and REPP, to promote integrated solutions and maximise synergies.

Key Strategy	**Enhance energy connectivity, energy security measures and accessibility in sustainable practices within the oil and gas sectors in order to meet regional energy demands responsibly**

Outcome-based Strategies	Action Plans	
1. Enhance the role of the TAGP to enhance energy connectivity, security and accessibility	1.1.	Encourage gas market integration among the AMS and enhance infrastructure development through cross-border gas pipelines and LNG regasification terminals
	1.2.	Strengthen the capacity, knowledge and skills of gas advocacy stakeholders to support an inclusive and integrated gas market
2. Strengthen the regional collaboration in the oil & gas sectors to enhance ASEAN energy supply security	2.1.	Support investment in oil and gas activities via joint venture development and explore new partnerships
	2.2.	Support the deployment of technologies to optimise resource development and promote sustainable practices throughout the life cycle of assets in the oil and gas sectors
	2.3.	Enhance the capability, skills and expertise of the stakeholders in the oil and gas sector so as to ensure a secure energy supply across the ASEAN region
3. Pursue green diversification and decarbonisation in the oil and gas sector towards a low-carbon energy future	3.1.	Promote and set initiatives to reduce methane emissions in oil and gas activities
	3.2.	Strengthen regional cooperation to promote the adoption of decarbonisation technologies in oil and gas activities

Clean Coal Transformation (CCTR)

Background

Coal remains a dominant component in ASEAN's energy landscape, particularly in electricity generation, where it accounted for 43.2% of the total generation mix in 2023. In the overall primary energy mix, coal contributed 30.5% in 2022. Moreover, coal exports from the region are expected to persist through 2050, albeit at a 45% declining rate in 2050 as compared to 2022 (146 Mtoe). This reflects coal's enduring role in supporting ASEAN's energy security and resilience. However, amid the era of energy transition, the region's direction is increasingly leaning towards a coal phase-down, with the AMS committing to stop the construction of new coal-fired power plants and to pursue cleaner, more sustainable energy pathways in line with their decarbonisation goals.

Against this backdrop, moving forward, the ASEAN Forum on Coal (AFOC) serves as the SEB responsible for this programme area. It is transforming the *Coal and Clean Coal Technology programme* area into *Clean Coal Transformation,* reflecting a shift from solely advancing high-efficiency, low-emission coal technologies to a broader approach that supports a responsible and managed coal transition.

As ASEAN progresses in its energy transition and gradually moves away from coal, the CCTR programme aims to explore more innovative pathways to promote a responsible and cleaner coal value chain that aligns with carbon neutrality goals and development objectives.

Key Achievements in APAEC 2016-2025 Phase II: 2021-2025

Notably, the region has deployed 29.7 GW of installed clean coal technology (CCT) capacity, including super critical and ultra super critical plants, and has deployed 15 coal-biomass co-firing plants, underscoring continued progress towards more efficient and lower-emission power generation.

The private sectors play a pivotal role in advancing responsible and sustainable practices within ASEAN's coal value chain. Through innovations in clean coal technologies and operational improvements, these industry players contribute to aligning the sector with regional energy transition pathways. To highlight these efforts, the 2024 Best Practices in Coal and Clean Coal Technology publication documents applications recognised through the ASEAN Coal Awards that demonstrate the successful adoption of clean coal technologies and strategies.

On the policy front, several dialogues aimed at advancing the energy transition within the coal sector have also been pursued under APAEC 2016-2025 Phase II: 2021-2025. Through the Assessment of the Role of Coal in the ASEAN Energy Transition and Coal Phase-out, ASEAN noted the importance of gradual steps towards a just transition away from coal.

As part of its strategic outreach to advance regional action and enhance public awareness on clean coal technologies, ASEAN has convened several key events aimed at promoting dialogue and knowledge-sharing. To further advance research, development and innovation in clean coal technology, ASEAN has undertaken several important initiatives. The establishment of the ASEAN Centre of Excellence on CCT reflects the region's commitment to strengthening technical capacity and fostering collaboration in cleaner coal technologies.

Strategies and Action Plans for 2026–2030

The CCTR programme area under APAEC 2026–2030 aims to promote a responsible and cleaner coal value chain that supports ASEAN's carbon neutrality aspirations while safeguarding energy security. Recognising coal's continued role in the region's energy system, the programme emphasises reducing environmental impacts, improving efficiency, and enabling a gradual and well-managed transition. Key actions include building awareness and strengthening knowledge about emissions management for both coal mine methane and CO2 from combustion, thereby advancing policy development for emissions control, and supporting the development and financing of clean coal technologies for both power generation and industrial applications.

The programme will also outline strategies to guide ASEAN along coal transition pathways, ensuring that the pace of transition is aligned with each Member State's national energy transition goals. These strategies will cover the management and repurposing of coal-related assets, funding and resources during the shift towards carbon neutrality. Additionally, the programme area will also explore new opportunities such as coal beyond combustion and coal downstreaming initiatives as well as aligning policies and financing frameworks with broader decarbonisation objectives. To ensure the strategic approach, this programme area will complement efforts in other relevant areas including APG, OGCSS, RE, EE&C and REPP. For instance, it will address strategies for flexible coal operation to support higher RE utilisation, as well as topics such as job shifting and re-skilling within coal transition pathways. Through these coordinated efforts, ASEAN seeks to ensure that the coal sector's evolving role in the regional energy mix remains consistent with the region's carbon neutrality strategy and long-term sustainability objectives, while supporting a just, inclusive and orderly transition towards a low-carbon energy future.

Key Strategy	**Promote a responsible and cleaner coal value chain that aligns with carbon neutrality goals and development**

Outcome-based Strategies	Action Plans	
1. Advance a responsible coal value chain for a resilient and cleaner ASEAN energy system	1.1.	Build awareness and knowledge of emissions management across the coal value chain
	1.2.	Strengthen policy development for emissions management across the coal value chain
	1.3.	Support the advancement and financing of clean coal technologies for the power and industrial sectors
2. Pave the pathway for coal in ASEAN's carbon neutrality framework	2.1.	Develop strategies to manage coal-related assets, funding and resources during the transition to carbon neutrality
	2.2.	Strengthen the alignment of policies and financing frameworks in the coal sector with carbon neutrality goals

Energy Efficiency and Conservation

(EE&C)

Background

EE&C is being increasingly recognised in ASEAN as the "first fuel" in accelerating the energy transition. It serves as the most cost-effective, reliable and immediately actionable solutions that reduce energy demand, lower emissions and enhance energy security while supporting ASEAN's long-term sustainability goals. With ASEAN's energy demand projected to to more than double by 2050, scaling up efficiency measures across buildings, appliances, transport, and industry sectors will be indispensable to ensuring a just and sustainable energy transition.

In leading this programme area, the Energy Efficiency and Conservation Sub-Sector Network (EE&C-SSN) plays a strategic role in the alignment of energy efficiency efforts in the ASEAN region. Aiming to achieve the aspirational target to reduce EI (based on TPES) by 40% by 2030 through the APAEC, the EE&C-SSN supports the coordination and execution of energy efficiency and conservation programmes by creating networks, organising forums, conferences and seminars, and promoting new initiatives and knowledge-sharing with DPs and IOs, the private sector, and financial institutions, to achieve decarbonisation across end-use sectors.

Key Achievements in APAEC 2016-2025 Phase II: 2021-2025

Several key achievements have been made under the EE&C Programme, particularly in efforts to expand, harmonise and promote energy efficiency standards, and also to label energy-related products across ASEAN.

Notable progress includes the advancing a more stringent minimum energy performance standards (MEPS) for air conditioner, as well as the initiation of MEPS harmonisation effort for lighting and refrigerator. These are supported by strengthened monitoring, verification and enforcement (MVE) initiatives, including the establishment of product registration databases as well as round-robin testing for air conditioner and lighting infrastructures. To promote regional integration, the Energy Efficiency Mutual Recognition Agreement (EE MRA) Standards have been advanced to facilitate the movement of energy-efficient products across ASEAN markets. Another key initiatives include the annual ASEAN EE&C Awards, which comprise the ASEAN Best Practices for Energy Efficient Building (EEB) Awards, Green Building (GB) Awards and Energy Management for Building and Industry Awards. Between 2020 and 2025, the Awards received over 300 entries, with around 175 awardees recognised during this five-year period.

ASEAN has made significant strides in enhancing the participation of the private sector and financial institutions, particularly Energy Service Companies (ESCOs) and industry clusters in promoting EE&C. Participation of the private sector through business forums and matchmaking for EE&C projects occurs via platforms such as the Cleaner Energy Future Initiative for ASEAN (CEFIA) Forum, facilitating dialogue among policymakers, financiers and practitioners, fostering investment and business growth in clean energy projects. Additionally, the Sustainable ASEAN Energy Management Certification Scheme (SAEMAS) were implemented, supporting the formilation of sustainable energy management system in the region.

Strategies and Action Plans for 2026–2030

Under APAEC 2026–2030, the EE&C programme area focuses on accelerating the adoption of energy efficiency across key end-use sectors, strengthening policy and regulatory frameworks, promoting innovation, and enhancing regional cooperation to achieve sustainable and inclusive benefits.

The programme will promote the adoption of energy-efficient appliances and equipment by harmonising and strengthening MEPS, focusing on energy-intensive appliances, especially cooling, expanding product registration databases, integrating efficiency requirements into regional mutual recognition arrangements, and facilitating green procurement. It will also accelerate the uptake of Efficient Energy Building and Zero Energy Buildings (ZEB) through supportive policies, smart building technologies and the use of high-performance envelopes, while also addressing energy-intensive facilities such as the rapid growth of data centres. In the industrial sector, efforts will focus on scaling up advanced and sector-specific energy-efficient equipment, digital energy management systems, AI applications and automation, alongside improving management frameworks and regulatory measures.

In the transport sector, the programme will foster decarbonisation by strengthening fuel economy standards for light and heavy-duty vehicles, promoting fuel switching and advancing low-carbon mobility solutions, as well as encourage public transportation infrastructure that effectively addresses user needs concerning timeliness, affordability, connectivity, and accessibility. To sustain momentum, the programme will also promote innovative financing, business models and investment mechanisms for energy efficiency projects, while fostering greater engagement between the private sector, financing institutions, technology providers and policymakers. These efforts aim to ensure that energy efficiency continues to play a central role in ASEAN's decarbonisation pathway, supporting the region's long-term goals for energy security, sustainability and a just transition.

Eventually, while the programme area primarily targets the demand side, it will also strengthen cross-collaboration with the supply side, such as in the power sector, to ensure a more integrated approach towards achieving the overall APAEC target for EI reduction in TPES. This collaborative approach will also be pursued under APAEC 2026–2030 to enable synergies between demand- and supply-side measures, maximising efficiency gains and supporting system-wide decarbonisation.

Key Strategy	**Enhance the adoption of EE&C for decarbonising end-use sectors through emerging innovative solutions, enhanced regional cooperation, and policy and standards harmonisation**

Outcome-based Strategies	Action Plans	
1. Increase the adoption of energy efficient appliances and equipment	1.1.	Harmonise and advance MEPS and MVE systems for appliances to achieve high energy performance.
	1.2.	Operate the regional product registration database
	1.3.	Integrate energy efficiency requirements into the ASEAN Sectoral Mutual Recognition Arrangement for Electrical and Electronic Equipment (ASEAN EEE MRA)
	1.4.	Promote green public procurement for energy-efficient appliances
2. Accelerate the adoption of EE&C to encourage the realisation of ZEB	2.1.	Promote policies and regulations for the adoption of energy efficiency measures in buildings (including residential), including building energy codes, building certifications and energy management systems
	2.2.	Advance the adoption of energy efficient appliances/ equipment and smart-digital systems in buildings, including in data centres
	2.3.	Promote the utilisation of passive building designs, including high-performance envelopes and passive cooling strategies

3. Enhance EE&C to drive decarbonisation in the industry and agricultural sector	3.1.	Promote the adoption and scaling-up of advanced and sector-specific energy-efficient equipment, technologies, digital energy management systems and innovative processes
	3.2.	Advance energy efficiency, energy management policies and regulatory frameworks to promote EE measures in the industry and agriculture sector
4. Enhance fuel economies in the transport sector and promote electrification	4.1.	Strengthen the regional fuel economies of light and heavy-duty vehicles
	4.2.	Support fuel switching policies, incentives and initiatives to advance low-carbon vehicles, including electrification
	4.3.	Raise awareness of transport system efficiency policies in the public transport, aviation and maritime sectors
5. Promote innovative strategies to catalyse the accelerated adoption of EE&C technologies and measures	5.1.	Advance innovative financing, business models and investment mechanisms for EE&C projects
	5.2.	Leverage digital and emerging technologies and data analytics for optimising energy management and demand response
	5.3.	Enhance private sector and technology provider participation for EE&C projects
	5.4.	Develop and improve the ASEAN Energy Efficiency Database, including the EE&C Project Pipeline Database

Renewable Energy

(RE)

Background

Renewable energy has proven crucial in ensuring energy security by providing diversification in the region's energy supply, further supporting sustainable development goals and climate efforts under the Paris Agreement. To realise the region's diverse and abundant RE potential, clear policies are catalysing investments into it. The initiatives by the AMS encompass the region's vast renewable resources, highlighting their potential to attract foreign direct investment. Expanding the development of RE will not only accelerate ASEAN's economic and technological advancement, but also reinforce its sustainable development pathway.

Given the essential role of RE in advancing regional interconnectivity, it is key for the region to work towards reducing the high capital costs of RE technologies, enable bankable project development and create financing models that mobilise both public and private investment.

As ASEAN moves forward with its ambition to achieve a 30% share of RE in the TPES and a 45% share in installed power capacity by 2030, there is a pressing need to pursue large-scale RE projects capable of delivering significant capacity gains. These efforts must be accompanied by solutions to address system limitations arising from the variability of renewables, including the deployment of energy storage systems, enhancement of grid flexibility and expansion of regional interconnections. Success will also depend on the adoption of emerging advanced technologies, deeper private sector engagement, more accessible and innovative financial facilities, and improved regional RE data. Together, these measures will be critical in fostering robust regional cooperation and ensuring that ASEAN's RE expansion is both sustainable and resilient.

The Renewable Energy Sub Sector Network (RE-SSN) was created as a leading sub-sector network to realise this vision. Working to support the RE agenda in ASEAN, the RE-SSN anchors RE programmes under decarbonisation goals and safeguards the environment in the process. At its core, the RE-SSN aims to provide greater access to RE in the region for a just and inclusive energy future.

Key Achievements in APAEC 2016-2025 Phase II: 2021-2025

The ASEAN RE Long-term Roadmap was published in 2025 to advance RE policy and support, and to develop decarbonisation pathways for the AMS. It is an essential guiding framework for the region's clean energy transition, setting out comprehensive targets and detailing stakeholder engagement strategies, governance structures and implementation mechanisms that collectively form the backbone of the region's RE development efforts. By serving as both a strategic guide and coordination tool, the ASEAN RE Long-Term Roadmap is pivotal in enabling ASEAN to scale up RE deployment and meet its sustainability and decarbonisation goals.

Several initiatives have been implemented, including best practices and knowledge sharing sessions, high-level policy dialogue, strategic studies as well as the implementation of the ASEAN Renewable Energy Project Awards. Another high-level engagement in support of regional RE market mechanisms was the assessment the REC market potential in Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area (BIMP-EAGA). The Technical Notes accompanying the Conceptual Regional REC Framework outline strategies for developing an ASEAN-wide REC framework.

To strengthen RE research and development, collaboration with universities and research institutions has also been enhanced to study several key RE technologies such as offshore wind, advanced solar PV applications and biofuels. Efforts have also extended to supporting technologies, including battery and energy storage systems, as well as smart grids. Several studies have been undertaken to promote inclusivity in energy development and to identify critical steps to sustain progress.

Strategies and Action Plans for 2026–2030

The RE programme area under APAEC 2026–2030 aims to accelerate the scale-up of RE deployment to support ASEAN's transition towards a low-carbon and more diversified energy future. Diversifying the region's energy mix through greater utilisation of RE will not only enhance energy security but also reduce dependence on fossil fuels, strengthen resilience to supply disruptions and contribute to long-term sustainability. Efforts will focus on strengthening regional cooperation, enhancing the AMS' capacity and capability in line with the findings and recommendations of the ASEAN RE Long-Term Roadmap, and improving the regional RE data repository to support target-setting, progress tracking and informed decision-making.

To unlock the full potential of RE, accessible financing mechanisms, innovative business models and enabling markets will be advanced to attract greater investment, supported by stronger participation from the private sector and technology providers. One of the strategies is to explore cross-border market mechanisms, such as cross border RECs, to maximise the utilisation of high-potential RE resources across the region, promote market integration and stimulate private sector engagement. The RE programme area under APAEC 2026–2030 will also enhance the potential cross-sectoral collaboration with other APAEC programme areas and relevant sectors, including topics on RE supply chain, RE integration into the grid, advanced technologies to support power system security and affordability, storage technologies and expand RE applications in end-use sectors such as transport, industry and buildings. Together, these measures will contribute to a more secure, sustainable and interconnected ASEAN energy system.

Key Strategy	**Accelerate the scale-up of RE deployment on power system transition, energy supply and end-use sectors towards a low-carbon ASEAN vision and across the ASEAN countries**

Outcome-based Strategies	Action Plans	
1. Accelerate renewable energy deployment for a low-carbon energy future	1.1.	Enhance regional cooperation to achieve ASEAN RE goals through cohesive energy transition policy planning
	1.2.	Promote the mobilisation of financing for the deployment of renewable and low carbon energy
	1.3.	Accelerate RE technology innovation and advancement to enhance competitiveness and drive market-led expansion
2. Accelerate the rapid expansion and integration of RE across ASEAN's power sector	2.1.	Enhance the integration of larger amounts of RE sources into the grid, addressing the technical issues, policy framework and institutional dimension
	2.2.	Promote advanced decentralised power systems and community-based RE projects
3. Advance RE applications in decarbonising end-use sectors	3.1.	Promote RE to reduce oil dependency and decarbonise the transport sector, including sector coupling
	3.2.	Expand RE deployment potentials for the industrial sector in a cost-effective manner
	3.3.	Promote RE application in the building sector to promote sustainability

Regional Energy Policy Planning

(REPP)

Background

The REPP programme area is responsible for advancing the region's energy policy and planning and overseeing the implementation and monitoring of the APAEC across all seven programme areas. The REPP-SSN also promotes engagement with ASEAN's DPs and IOs to better profile ASEAN energy cooperation internationally.

Through promoting cross-sectoral collaboration across programme areas and within the ASEAN Economic Community and beyond, the REPP-SSN supports integration with broader economic and environmental priorities to advance sustainable growth and resilience in an inclusive and equitable manner reflective of the region's diverse needs and opportunities.

In addition, the REPP-SSN serves as a cornerstone for evidence-based policymaking in the region. Its functions include supervising a reliable energy data repository, developing comprehensive energy statistics and producing regional outlooks, all of which are critical to advancing regional energy cooperation. These capabilities not only enhance transparency and knowledge sharing but also provide a robust foundation for informed decision-making, strategic planning and monitoring of ASEAN's collective progress towards its energy goals.

Key Achievements in APAEC 2016-2025 Phase II: 2021-2025

To enhance ASEAN's energy profile and provide an in-depth assessment of the region's energy sector, the 7th and 8th ASEAN Energy Outlooks (AEO7 & AEO8) were launched in 2022 and 2024, respectively. The publications published under the REPP-SSN serve as strategic pathways in achieving regional energy goals. These flagship reports explore ASEAN's energy landscape, challenges, ambitions and the role of regional cooperation, while offering recommended practices for implementation. The Outlooks also present future scenarios and discuss the socio-economic impacts of the energy transition, underscoring the need for sustainable and inclusive strategies.

Collaboration with DPs and IOs has been strengthened through the establishment of several high-level energy dialogue platforms and partnerships with a broader range of stakeholders, including multilateral development banks and notable international organisations. These cooperation frameworks support not only ASEAN's regional objectives but also contribute to global sustainable development, positioning ASEAN as a strategic player on the world stage and enabling the region to help other nations advance their global commitments.

To further improve evidence-based policymaking, ASEAN continues to enhance the ASEAN Energy Database System (AEDS), the central platform for collecting, curating and disseminating official energy data from official AMS and international sources. AEDS also features ASEAN-related energy news and policy updates through news clipping and a weekly newsletter, offering a comprehensive view of the energy landscape at both regional and national levels.

Expanding its knowledge-sharing efforts and fostering triple helix collaboration among governments, industry and academia, ASEAN has conducted an annual ASEAN International Conference on Energy and Environment (AICEE) since 2021, in conjunction with the ASEAN Energy Business Forum. The conference also serves as a platform for cross-sectoral dialogue on energy, climate change and related sustainability issues.

The energy–climate nexus has become a strategic area of ASEAN cooperation, aligning regional energy policies with climate objectives. Through regional dialogues, joint studies, and capacity-building activities, ASEAN has strengthened coordination between the energy and climate sectors to advance a low-carbon and resilient energy future. These initiatives have informed post-2025 energy strategies and integrated just and inclusive transition principles into regional planning.

To attract greater investment and expand access to financing for ASEAN's energy infrastructure, the ASEAN Energy Investment Report, published in 2024 and 2025, provides a comprehensive overview of investment trends across the region's energy sectors. The report highlights reform efforts and emerging opportunities aimed at accelerating the energy transition.

Strategies and Action Plans for 2026–2030

APAEC 2026–2030 builds on the achievements and lessons learned from previous phases to chart a sustainable and resilient future for the region's energy landscape. The new phase places strong emphasis on promoting a just, inclusive and sustainable energy transition, while enhancing ASEAN's international energy profile through policy dialogue, joint studies, knowledge exchange and deeper engagement with DPs and IOs.

Within this framework, the REPP programme area plays a pivotal role in strengthening regional energy policy, planning and interconnectivity to accelerate a just and inclusive low-carbon energy transition. Recognising the importance of evidence-based and data-driven policymaking, the REPP will prioritise strategies to improve ASEAN's energy profile and policy recommendations, including enhancing the AEDS, collecting high-quality and reliable data, and producing improved regional energy outlooks and analysis. The programme will also address financing and investment gaps by fostering sustainable finance markets, strengthening institutional capacity and enhancing public–private collaboration.

A key strategic focus under the REPP in APAEC 2026–2030 is the enhancement of cross-sectoral collaboration, both within and beyond the energy sector. This will be pursued to integrate emerging technologies, align policies with net-zero targets, and mainstream gender equality, disability and social inclusion (GEDSI) into energy planning. Furthermore, the REPP will oversee the monitoring and evaluation of the overall implementation of the APAEC to ensure the energy sector remains agile and responsive to evolving global energy dynamics, while effectively identifying opportunities and mitigating challenges to guide the development of new regional energy strategies for ASEAN's long-term energy future.

Key Strategy	Strengthen regional energy policy, planning and interconnectivity to accelerate a just and inclusive low-carbon energy transition

Outcome-based Strategies	Action Plans	
1. Advance the profile of ASEAN's energy sector internationally	1.1.	Develop capacity in high-quality data collection and enhance statistical analysis and modelling skills to support policy analysis
	1.2.	Strengthen the AEDS as a reliable resource for regional policy and planning
	1.3.	Enhance ASEAN's energy profile by providing regular regional energy outlooks, statistics and analysis series
2. Bridge financial and investment gaps to accelerate ASEAN's low-carbon energy transition	2.1.	Enhance the investment environment and explore diverse sustainable and innovative financial instruments to strengthen regional energy connectivity and low-carbon energy transition, including in advancing the ASEAN Power Grid
	2.2.	Enhance institutional capacity and coordination between public and private sectors, as well as financial institutions, to facilitate effective green financing
3. Advance cross-sectoral and comprehensive energy planning to ensure a just and inclusive energy transition	3.1.	Align regional energy policies with national energy and climate targets to support holistic decarbonisation and net-zero goals
	3.2.	Enhance stakeholder coordination and collaboration on cross-sectoral issues and emerging technologies
	3.3.	Promote the integration of GEDSI into energy policy and planning to support an inclusive energy transition and improve the energy access
4. Effectively manage the implementation of APAEC and strengthen its outcomes by leveraging collaboration with DPs and IOs	4.1.	Monitor, evaluate and draw lessons from the implementation of APAEC programmes to inform adaptive planning and policy improvement
	4.2.	Strengthen the cooperation and institutional linkages with DPs and IOs through cooperation platforms
	4.3.	Develop new regional energy cooperation strategies for APAEC 2031 - 2035

Civilian Nuclear Energy

(CNE)

Background

As ASEAN advances towards a low-carbon energy future, nuclear energy is increasingly recognised as a viable alternative to offset the declining use of fossil fuels, offering a reliable, low-emission option that aligns with regional climate commitments.

The Nuclear Energy Cooperation Sub-Sector Network (NEC-SSN), as the specialised body for civilian nuclear energy, is tasked with promoting cooperation on the security and reliability of nuclear development in the region. Its work encompasses strengthening capacity building, establishing robust institutional, legal and regulatory frameworks, and promoting nuclear literacy to build public understanding and trust. These have been core priorities throughout the implementation of the CNE programme area. Moving forward, NEC-SSN will continue to facilitate knowledge sharing, provide technical assistance to the AMS and foster regional cooperation in support of ASEAN's long-term vision for a sustainable, inclusive and diversified energy mix.

Key Achievements in APAEC 2016-2025 Phase II: 2021-2025

Under APAEC Phase II: 2021–2025, activities in the Civilian Nuclear Energy (CNE) programme area focused on enhancing regional human resource capacities in nuclear science and technology, particularly for power generation applications. During this period, a total of 350 policymakers participated in seven (7) regional nuclear capacity-building programmes, reflecting significant progress in strengthening ASEAN's knowledge and technical expertise.

A major milestone was the initiation of the Nuclear Power Plant (NPP) Development Framework in 2025, marking the first step towards developing a strategic roadmap for potential NPP deployment in the region. Beyond capacity building, the CNE programme area has placed strong emphasis on advancing regional awareness and public acceptance of nuclear power generation. To improve nuclear energy literacy and engagement, ASEAN has produced several studies and communication tools, which serves as a reference to promote public understanding of nuclear energy's potential role as a strategic alternative in ASEAN's diversified energy mix.

Another notable achievement is the development of the ASEAN Nuclear Energy Portal, designed to disseminate credible, accessible information and foster informed public discourse on nuclear energy. The portal is regularly updated with the latest news, developments and information on national nuclear institutions in each AMS, helping sustain momentum in regional nuclear awareness efforts.

In anticipation of the potential role of nuclear energy in ASEAN's energy transition, strengthening legal and regulatory competencies remains a strategic priority. In this regard, a regional study on Nuclear Safety, Security, and Safeguards (3S) was conducted as a foundational step towards establishing a harmonised and robust regulatory framework for civilian nuclear energy across ASEAN.

Strategies and Action Plans for 2026–2030

The CNE programme area under APAEC 2026–2030 supports ASEAN in positioning nuclear energy as a viable low-carbon option to meet growing energy demand while upholding the highest standards of safety, security and sustainability. Efforts will focus on strengthening policies, regulatory frameworks and institutional capacity for nuclear deployment, responsible waste management and liability arrangements. Building on the initiation of the NPP Development Framework under APAEC Phase II, the next phase will advance the development of a fully structured and cooperative framework to guide the AMS in exploring nuclear energy. This framework will address critical areas such as safety standards, regulatory preparedness and technical capacity development, providing a common reference for the AMS in preparing for potential NPP deployment.

The programme will also promote the application of nuclear technologies for both power and non-power uses, assess economic and financing options, and enhance stakeholder engagement to build public trust. Collaboration with universities, research institutions and technology providers will be deepened to strengthen nuclear education, research and innovation. In addition, regional and international partnerships will be expanded to facilitate knowledge sharing, capacity building and coordinated nuclear energy development across ASEAN.

Key Strategy	Equip decision-makers with critical insights to position CNE as a low carbon fuel option for ASEAN's growing energy demand

Outcome-based Strategies	Action Plans	
1. Promote the role of nuclear energy to enhance energy security and accelerate a low-carbon energy future	1.1.	Strengthen human resource capabilities, policies and regulatory frameworks for the development of CNE safely, securely and with safeguards
	1.2.	Establish policies and capacity development for responsible nuclear waste management and nuclear liability
	1.3.	Explore nuclear technologies for utilisation in power and non-power applications
	1.4.	Explore economic feasibilities, financing and insurance mechanisms and other opportunities for nuclear energy programmes
2. Enhance effective communication strategies and public engagement on civilian nuclear energy	2.1.	Strengthen stakeholder engagement and effective communication for socially responsible use of nuclear power applications in the energy sector.
	2.2.	Enhance the ASEAN Nuclear Energy Knowledge/ information Portal
	2.3.	Engage universities, research institutions and technology providers to enhance integrated CNE education and nuclear R&D on technologies and safety aspects
3. Strengthen regional and international collaboration to facilitate the development and deployment of nuclear energy	3.1.	Enhance knowledge sharing between the AMS and experienced countries to advance nuclear energy programmes
	3.2.	Strengthen collaboration with DPs and IOs and/or other relevant bodies to support nuclear energy development

Implementation and Monitoring

- Implementation Arrangement
- Monitoring Mechanism

Implementation Arrangement

The AMEM provides overarching policy guidance on the implementation of the APAEC. AMEM sets strategic directions, issues high-level directives and addresses emerging challenges and shared concerns to advance the region's energy cooperation within the broader framework of the AEC.

The Senior Officials Meeting on Energy (SOME) determines implementation priorities and ensures alignment, coordination and integration across APAEC strategies and actions. It also oversees the formulation and execution of the annual work plans for each programme area, monitors progress and reports key developments to the AMEM. In strengthening ASEAN's position in global energy transition efforts, SOME also guides deeper engagement with DPs, IOs, the private sector and other relevant stakeholders to promote technology transfer, capacity building and investment facilitation.

The SSNs and SEBs serve as the implementing arms of SOME, responsible for translating strategic priorities into actionable programmes. They convene as needed to define regional priorities, develop initiatives, and prepare proposals and technical documents to support the achievement of APAEC outcomes.

ACE, in coordination with the SSNs, SEBs and ASEAN Secretariat, supports the implementation of the APAEC by providing technical and policy support, coordination services and knowledge-based inputs. ACE plays a key role in integrating regional initiatives, planning, resource mobilisation, data analysis and monitoring of progress, while the ASEAN Secretariat ensures policy coherence across related ASEAN sectoral bodies and coordination with DPs and IOs.

Engagements with DPs, IOs, academic institutions and industry stakeholders are guided by SEBs and SSNs to support the delivery of their respective outcome-based strategies. Building on the valuable contributions from these partners during previous APAEC, ASEAN continues to welcome collaboration on concrete initiatives that can accelerate the region's energy transition and strengthen long-term energy security and resilience under the AEC framework.

Monitoring Mechanism

The REPP-SSN and ACE will be responsible for the regular monitoring and evaluation of the progress on the APAEC for submission to the annual SOME and AMEM. To ensure the timely completion of the projects, the SEBs and SSNs will systematically track the annual progress of the activities, and summaries of the progress will be reported at the annual meetings of REPP-SSN, SOME and AMEM. . To better reflect the actual progress of each action plan, a scoring system, based on a scale of 0 to 5 will be utilised, as shown below:

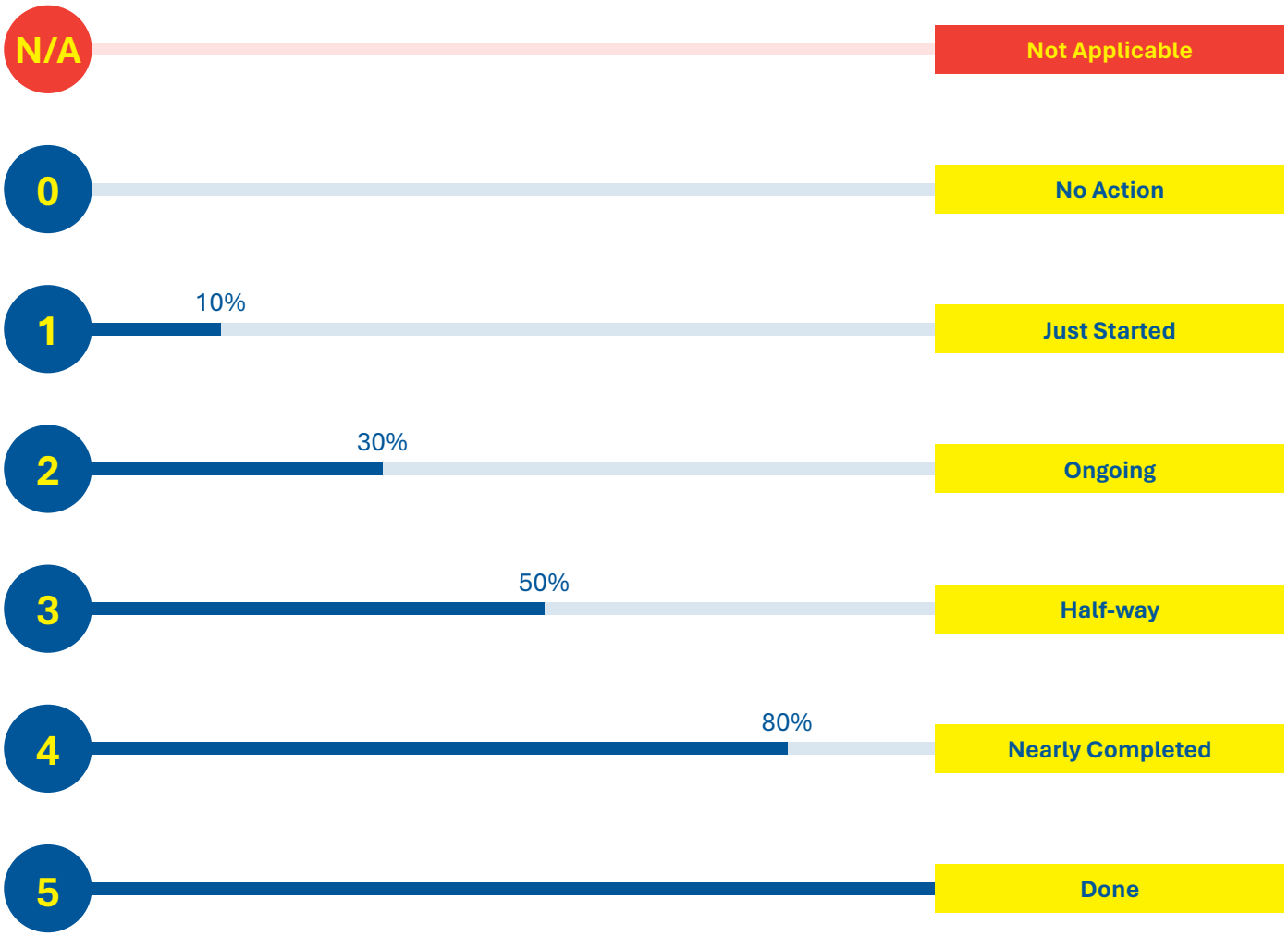


Figure 4. APAEC Scoring System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