



Asia-Pacific  
Economic Cooperation



REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF ENERGY



ENERGY UTILIZATION MANAGEMENT BUREAU

# The 61st Meeting of APEC Expert Group on Energy Efficiency & Conservation and 59th Meeting of APEC Expert Group on New and Renewable Energy Technology

*“Reinforcing Relevant Laws for a Comprehensive Approach to Energy Efficiency and Conservation,  
Renewable Energy, Electric Vehicle, and Sustainability in the APEC Region”*

16 - 19 October 2023  
Makati City, Metro Manila, Philippines





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*"Reinforcing Relevant Laws for a Comprehensive Approach to Energy Efficiency and Conservation,  
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# Stakeholders Coordination under ASEAN Plan of Action for Energy Cooperation (APAEC) Phase II: 2021-2025 and its EE&C and RE Targets and Developments

16 October 2023

Makati City, Metro Manila, Philippines



# About ASEAN Centre for Energy (ACE)

- Established by the 10 ASEAN Member States on **1 January 1999**
- Hosted by the **Government of the Republic of Indonesia** through the Ministry of Mines and Energy (Hosting Agreement).
- ACE possesses **juridical personality** and has the **capacity** to:
  - a. conclude agreements with states, local or international organizations;
  - b. contract;
  - c. acquire and dispose of property; and
  - d. be a party to legal proceedings.

## Vision

The Centre as **catalyst for the economic growth and development** of the ASEAN region by **initiating, coordinating, and facilitating national as well as joint and collective activities on energy.**

## Mission

ACE will **accelerate the integration of energy strategies** within ASEAN by **providing relevant information, state-of-the-art technology and expertise** to ensure that over the long-term, the necessary energy development policies and programs are in harmony with the economic growth and the environmental sustainability of the region.

# Roles of ASEAN Centre for Energy (ACE)



## Catalyst

To unify and strengthen  
ASEAN Energy  
Cooperation

- *Platform for Sharing*
- *Policy Advisory*
- *Best Practices*
- *Capacity Building*



## Knowledge Hub

To provide a  
knowledge repository  
for AMS and services

- *Data Management*
- *Publication*
- *Dissemination*

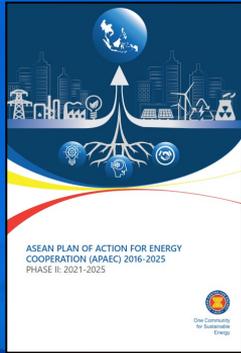


## Think tank

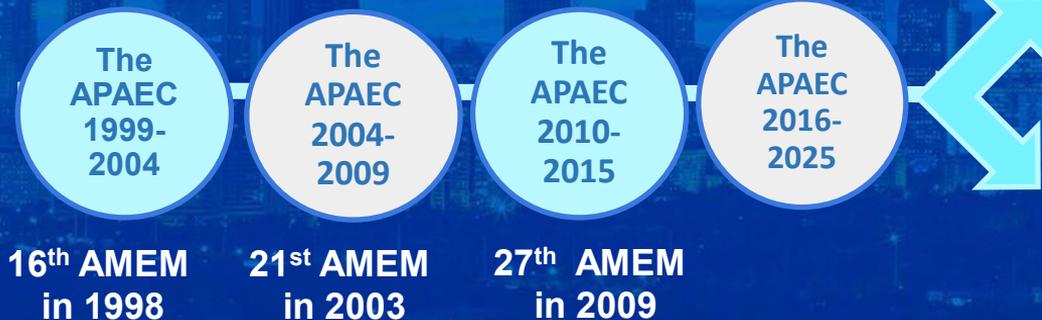
To assist AMS on  
research and identifying  
practical & specific  
solution

- *Policies*
- *Legal & Regulatory Frameworks*
- *Technologies*
- *Innovative Solutions*

# Introduction of ASEAN Plan of Action for Energy Cooperation (APAEC)



A series of guiding policy documents to support the implementation of ASEAN multilateral energy cooperation to advance regional integration and connectivity goals and serves as a blueprint for better energy cooperation under the framework of the ASEAN Economic Community (AEC) for the designated period.



The 33<sup>rd</sup> AMEM 2015 in Malaysia endorsed APAEC Phase I: 2016 - 2020

The 38<sup>th</sup> AMEM 2020 in Vietnam endorsed APAEC Phase II: 2021 - 2025

# ASEAN Plan of Action for Energy Cooperation (APAEC) Phase II: 2021-2025

APAEC Phase II: 2021-2025 was endorsed during the 38<sup>th</sup> AMEM in November 2020

Global perspectives that shape the energy landscape of ASEAN during the Phase II implementation of APAEC 2016-2025



Global Energy Trends



4<sup>th</sup>  
Industrial  
Revolution

Energy  
Transition

Economic  
Growth

COVID-19  
Pandemic

## APAEC Phase II Theme and Sub-theme

**Enhancing Energy Connectivity and Market Integration in ASEAN to Achieve Energy Security, Accessibility, Affordability and Sustainability for All**

**Accelerating Energy Transition and Strengthening Resilience Through Greater Innovation and Cooperation**

Region's Vulnerability from Natural Disasters which are related to **Energy Resilience.**



**New & Emerging Technologies and Digitalisation in Energy Sector** (Including Hydrogen Technology and Energy Storage)

**Energy Investment and Financing Projects and the Inclusion of Private Sectors** including Business Forum Activities



More cooperation in EE&C sector to achieve the target of **32% energy intensity reduction by 2025** including the development of ASEAN EE&C Outlook



Address **climate change issues and decarbonisation of energy system** including other **cross cutting issues**



**Direction and Priorities of APAEC Phase II: 2021-2025**

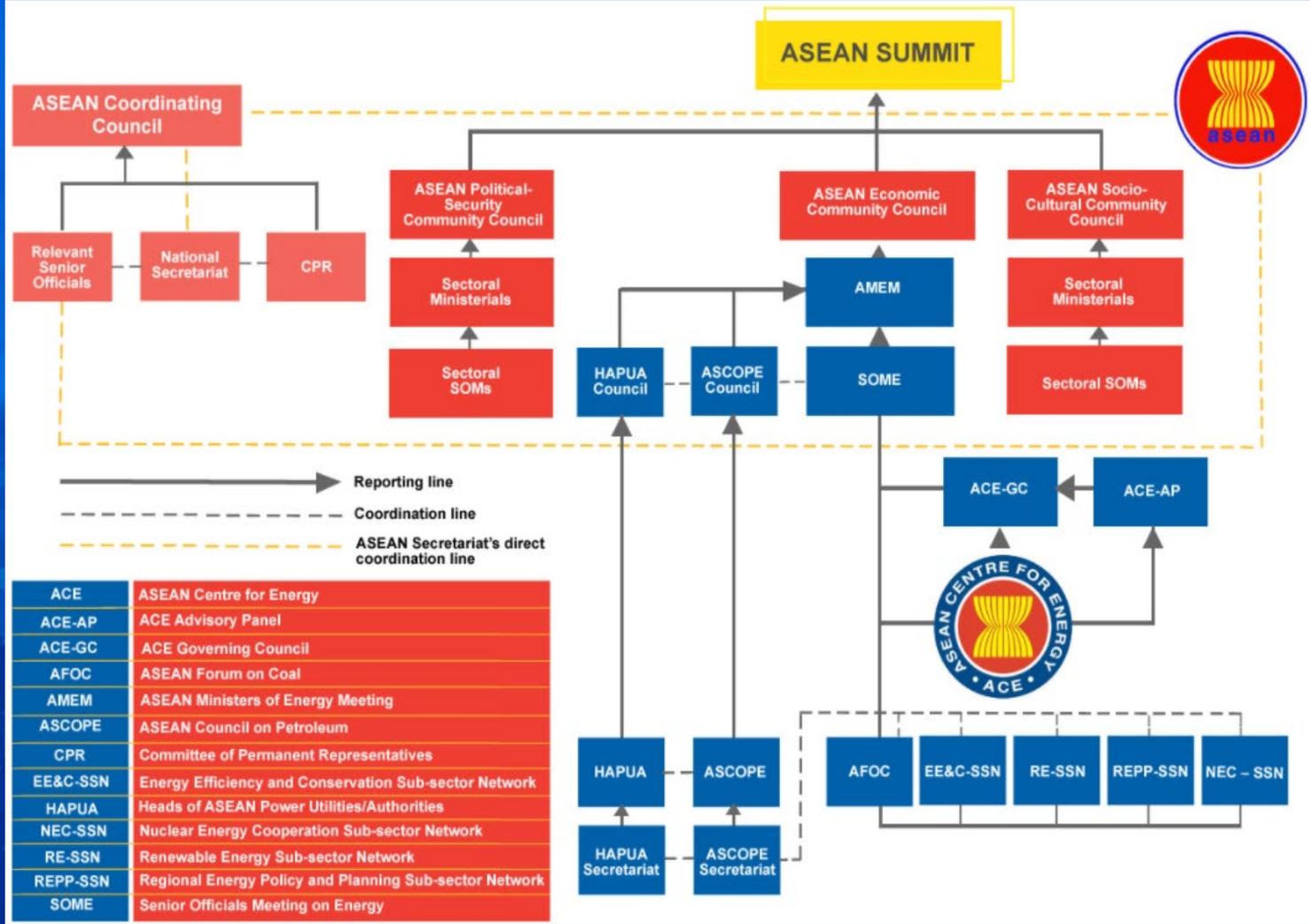


**RE Grid Integration & Smart Grid** activities to accelerate RE Deployment.

Improve **ASEAN Energy Database Management and System** (data management on energy sector)



# ASEAN Energy Cooperation Structure



ACE	ASEAN Centre for Energy
ACE-AP	ACE Advisory Panel
ACE-GC	ACE Governing Council
AFOC	ASEAN Forum on Coal
AMEM	ASEAN Ministers of Energy Meeting
ASCOPE	ASEAN Council on Petroleum
CPR	Committee of Permanent Representatives
EE&C-SSN	Energy Efficiency and Conservation Sub-sector Network
HAPUA	Heads of ASEAN Power Utilities/Authorities
NEC-SSN	Nuclear Energy Cooperation Sub-sector Network
RE-SSN	Renewable Energy Sub-sector Network
REPP-SSN	Regional Energy Policy and Planning Sub-sector Network
SOME	Senior Officials Meeting on Energy

# Roles of Energy Entities in APAEC (1)

## 1. ASEAN Ministers on Energy Meeting (AMEM) / Ministers

- Provides overall guidance and advice on the implementation of the APAEC.
- Provides directives to address key issues, challenges, and concerns of common interest and to set policy directions to achieve the goals of the energy cooperation under the framework of the AEC

## 2. Senior Officials Meeting on Energy (SOME) / SOE Leaders

- Collectively determines the implementation priorities and provides directions and advice on the APAEC (before AMEM)
- Ensure coordination, and integration of APAEC strategies and actions.
- Guides the formulation and implementation of the yearly Work Plan of each of the APAEC Programme Areas
- Provides the annual progress updates to AMEM.
- Provides guidance on deepening engagement with DPs, IOs, the private sector, and other relevant stakeholders.

# Roles of Energy Entities in APAEC (2)

## 3. Specialised Energy Bodies (SEBs) and Sub-sector Networks (SSNs)

- Serve as the SOME's implementing arms in their respective Programme Areas.
- Convene their respective meetings as necessary, to identify the priorities, further develop the work programmes, and prepare the necessary project proposals and documents to achieve the outcomes under APAEC
- Report the progress of each programme area, to SOME annually

HAPUA

ASCOPE

AFOC

EE&C-SSN

RE-SSN

REPP-SSN

NEC-SSN

Secretary-in-charge/  
Country Coordinator of  
SEB and SSN:



## 4. ACE

- Assist SOME, SEBs, and SSNs in carrying out the responsibilities, including to provide technical support and assistance in the supervision, coordination, and review of the cooperation programmes and activities including project planning and fund sourcing
- Provide policy analysis, statistics and recommendation to AMS.
- Engage with partners (DPs, IOs, Private Sectors, Academe, etc)

## 5. ASEAN Secretariat

- Responsible for policy coordination and other requirements with other ASEAN sectoral/coordinating bodies as well as with ASEAN's DPs and IOs.

# Programme Areas of APAEC Phase II: 2021-2025 and its Key Strategies



## 1. ASEAN Power Grid

To expand regional multilateral electricity trading, strengthen grid resilience and modernisation, and promote clean and renewable energy integration.



## 2. Trans-ASEAN Gas Pipeline

To pursue the development of a common gas market for ASEAN by enhancing gas and LNG connectivity and accessibility.



## 3. Clean Coal Technology

To optimise the role of CCT in facilitating the transition towards sustainable and lower emission development.



## 4. Energy Efficiency and Conservation

To reduce energy intensity by 32% by 2025 and encourage EE&C efforts, especially in transport and industry



## 5. Renewable Energy

To increase the share of RE to 23% in TPES and 35% in installed power capacity by 2025



## 6. Regional Energy Policy and Planning

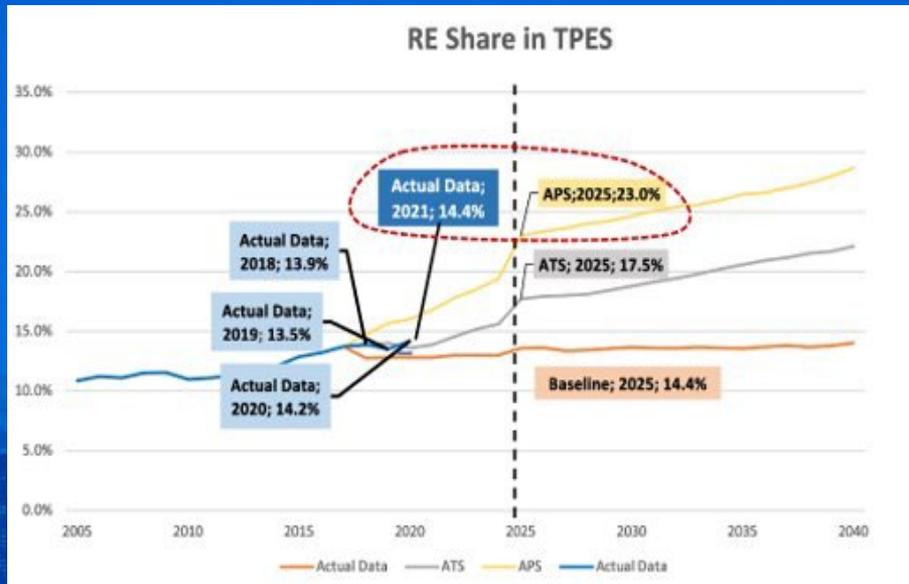
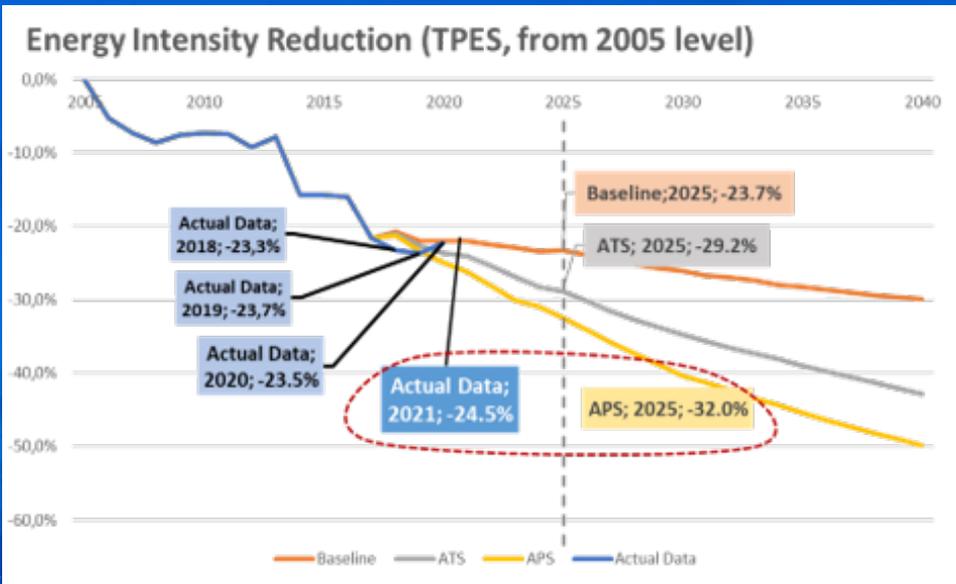
To advance energy policy and planning to accelerate the region's energy transition and resilience



## 7. Civilian Nuclear Energy

To build human resource capabilities on nuclear science and technology for power generation.

# Status of APAEC EE and RE Targets



Energy Intensity (EI) reduction based on TPES in 2021 is **24.5%** compared to 2005, increased 1% from 2020. Even so, AMS is projected to not reach the 2025 target, with a 2.8%-point gap

Renewable Energy (RE) share in TPES in 2021 increased 0.2 % from 2020, reaching a total of **14.4%**. RE Share in the Total Power Installed Capacity reached **32.8%**, decreased 0.5% from 2020.

# ASEAN Energy Outlook (AEO) – Towards AEO8 in Lao PDR 2024

AEO complements the **APAEC** and supports the creation of pathways for achieving the **regional targets**. Guided by **Programme Area No. 6: Regional Energy Policy and Planning; Action Plan 1.2**: Publish regular regional energy outlooks and strategic reports on the thematic issue.



- Expand Optimisation method**
- Exploring Carbon Neutrality as a new scenario**
- Using historical data 2005-2022, and covering 2023-2050 projection period
- More data disaggregation in demand sectors



# Programme Area No 4. Energy Efficiency and Conservation: Outcome-based Strategies and Action Plans



## OBS1

Expand, Harmonise,  
and Promote EE S&L

- ❑ Regional and National Policy Roadmaps
- ❑ Gradual Strengthening of MEPS
- ❑ MVE Initiatives, including product registration database
- ❑ Energy Efficiency Mutual Recognition Arrangement



## OBS2

Enhance Participation  
of Private Sector,  
Financial Institutions,  
and Clusters

- ❑ Business Forum & Matchmaking
- ❑ ASEAN Energy Awards
- ❑ EE&C Partnership Scheme
- ❑ Integrated ASEAN Energy Management Certification Scheme
- ❑ EE Financing Mechanism



## OBS3

Strengthen  
Energy Efficiency  
in Building

- ❑ Sustainable EE Building and Cooling Roadmap
- ❑ Information Sharing on Sustainable EE in Building



## OBS4

Pursue Energy  
Efficiency in Transport

- ❑ Capacity Building on EE Policy in Transport Sector
- ❑ Information Sharing on Best Practices of EE&C in Transport



## OBS5

Advance Energy  
Efficiency in Industry

- ❑ Capacity Building and Information Sharing on Best Practices of EE&C in Industry
- ❑ Energy Management in Industry

# Key Achievements in 2021 – 2023 and Plans until 2025 of Programme Area No 4. Energy Efficiency and Conservation

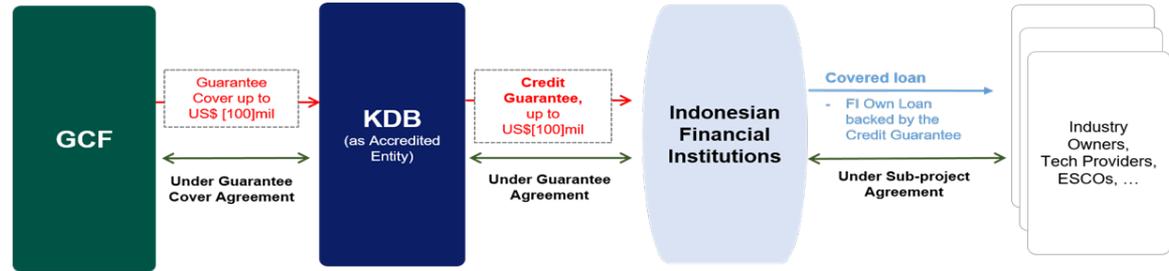
OBS	Key Achievements	Key Plans until 2025
<b>OBS 1</b>	<ul style="list-style-type: none"> <li>Proposed new mechanism for gradual strengthening of MEPS for AC and Harmonised Evaluation Method for Testing Standards of ISO16358-CSPF</li> <li>Completed the Round-Robin Testing (RRT) and Capacity Building for testing laboratories of AMS</li> <li>Launched product registration database for AC and adopted national lighting roadmaps</li> </ul>	<ul style="list-style-type: none"> <li>Conduct Market Study for Motor/Transformer</li> <li>Conduct study and propose new mechanism for Lighting</li> <li>Develop Regional Policy Roadmap of MEPS for motor/ Transformer</li> <li>Launch Regional Product Registration Database for other appliances</li> <li>Implement EE MRA for AC and further expansion to Lighting by developing guidelines</li> </ul>
<b>OBS 2</b>	<ul style="list-style-type: none"> <li>Promotion of ASEAN Energy Awards for EE&amp;C Best Practices (Received 191 submissions in 2021-2023 for the ASEAN EE&amp;C Awards, and awarded 74 entries in 2021 and 2022)</li> <li>Adopted the Cleaner Energy Future Initiative (CEFIA) Collaboration Roadmap (RENKEI, ZEB, Microgrids, SteelEcosol, and Finance</li> </ul>	<ul style="list-style-type: none"> <li>Conduct yearly Awards and business dialogue</li> <li>Develop a strategic partnerships for EE&amp;C projects with global clusters, incubation centres, and private sector</li> <li>Explore potential establishment of ASEAN ESCO Association</li> <li>Launch integrated ASEAN Energy Management Certification Scheme and EE financing platform</li> </ul>
<b>OBS 3</b>	Launched the “ <i>Roadmap for Energy Efficient Buildings and Construction in ASEAN</i> ” and the “ <b>Roadmap Towards Sustainable and Energy Efficient Space Cooling in ASEAN</b> ” with IEA.	Development of ASEAN Building Energy Labels and Certification
<b>OBS 4</b>	Finalised Study Report on “ <i>ASEAN Energy Efficiency and Conservation for the Transportation Sector: Policy Trends and Best Practices</i> ”	Capacity building on vehicle fuel economy and high-efficiency vehicles promotion
<b>OBS 5</b>	ACE and KDB MOU for the implementation of “ <i>Supporting Innovative Mechanisms for Industrial Energy Efficiency Financing in Indonesia with Lessons for Replication in the other ASEAN Member States</i> ” programme	<ul style="list-style-type: none"> <li>Conduct workshop/capacity building on policy portfolios to support the optimisation of energy efficiency and digitalization in industrial processes</li> <li>Develop Regional Industrial Energy Database</li> </ul>

# On going Activities on EE&C: Innovative Mechanisms for Industrial EE Financing with KDB and GCF

## Supporting Innovative Mechanisms for Industrial Energy Efficiency Financing in Indonesia with Lessons for Replication in other ASEAN Member States

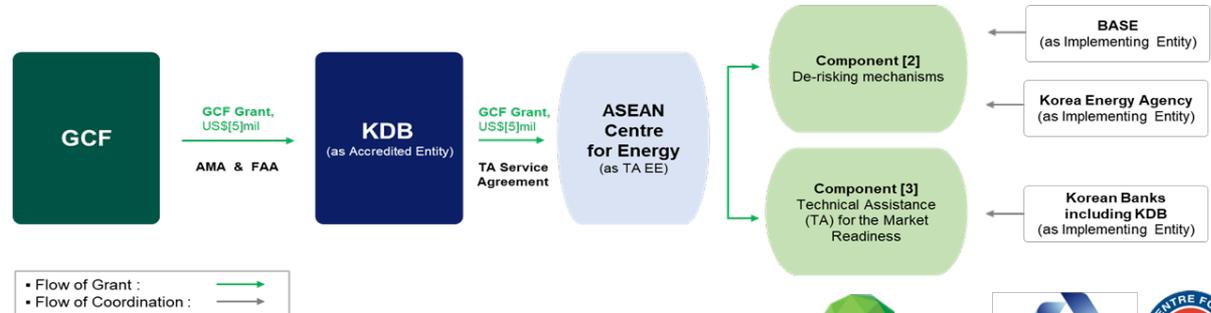
### FINANCING COMPONENT

- ✓ Backstopping credit risk of industry players with GCF credit guarantee provision (USD100M)



### TA (Technical Assistance) COMPONENT

- ✓ New De-risking Mechanisms Development
- ✓ Capacity Building Activities (USD5M)



- Flow of Grant :
- Flow of Coordination :



GREEN CLIMATE FUND



# Programme Area No 5. Renewable Energy: Outcome-based Strategies and Action Plans



## OBS1

**Advance RE policy and decarbonisation pathway**

- ❑ Renewable Energy Outlook
- ❑ Long-term ASEAN Renewable Energy Roadmap



## OBS2

**Conduct High Level Policy Dialogue on RE**

- ❑ In-depth planning and analysis
- ❑ High-level policy dialogue
- ❑ Specific RE initiatives



## OBS3

**Enhance RE Research and Development (R&D)**

- ❑ Nodal network with research institutions /universities/incubation centres
- ❑ Nodal network with regional or international institutions



## OBS4

**Promote RE Financing Schemes and Mechanisms**

- ❑ Nodal network with national/regional/international financial institutions
- ❑ RE Support Mechanism



## OBS5

**Support Biofuel and Bioenergy Development**

- ❑ Nodal network on Biofuel promotion
- ❑ Study on potential of biofuel and bioenergy
- ❑ information sharing on policy support and instrument



## OBS5

**Enhance RE Information and Training Centre**

- ❑ Enhance ACE capacity
- ❑ Thematic capacity building and training
- ❑ Monitor the development and utilisation of RE

# Key Achievements 2021 – 2023 and Plans of Programme Area No 5. Renewable Energy

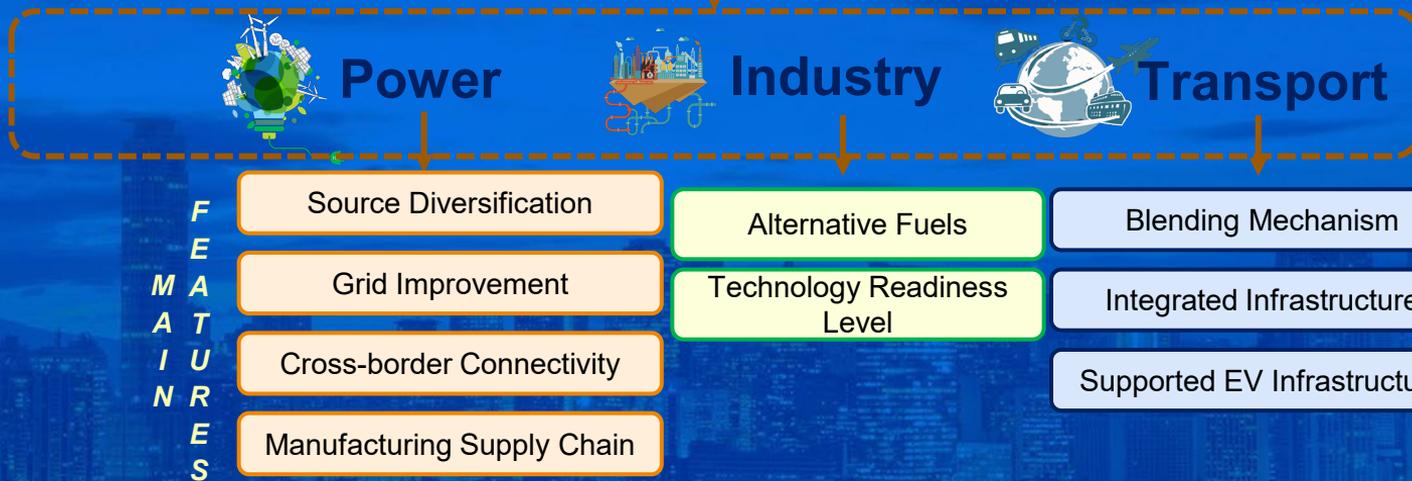
OBS	Key Achievements	Key Plans until 2025
OBS 1	Published the “2 <sup>nd</sup> RE Outlook” with IRENA and initiated the development of <i>ASEAN RE Long-term Roadmap</i>	Implementation of ASEAN RE Long-term Roadmap
OBS 2	<ul style="list-style-type: none"> <li>• Conducted HLPD on RE with DPs/IOs including <i>ASEAN-India HLPD on RE</i> and <i>ASEAN+3 Clean Energy Roundtable Dialogue</i></li> <li>• Published <i>ASEAN Offshore Wind Roadmap</i></li> <li>• Published Study on <i>Innovative Solar PV Utilisation to Support Green Economic Recovery in ASEAN</i></li> <li>• Published <i>ASEAN RE-Gender Roadmap</i></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct RE Projects Best Practices Awards Annually</li> <li>• Organise more thematic HLPD for various RE technologies such as Green Hydrogen, Waste-to-Energy, Large Scale PV system, Energy Storage, Digitalisation of RE system, Grid Flexibility Management for higher VRE penetration, and etc</li> </ul>
OBS 3	Signed MoU with notable universities in ASEAN such as Bandung Institute of Technology (Indonesia), University of Technology Malaysia (UTM) and Joint Graduate School of Energy and Environment, King Mongkut’s University of Technology (Thailand), to have joint activities related to RE	Collaborate with another strategic research institution and universities and develop RE related projects
OBS 4	Published <i>Report on Impact Analysis and Governance of RE Financing Schemes</i>	Explore potential MoU signing with Financial Institution
OBS 5	<ul style="list-style-type: none"> <li>• Published <i>ASEAN Biofuel R&amp;D Roadmap</i></li> <li>• Published study on <i>Biogas-to-Electricity Development in ASEAN: Challenges &amp; Opportunities</i></li> </ul>	Conduct Information sharing, projects/activities on biofuel/bioenergy (specific issues on bioenergy for power generation and transport)
OBS 6	Collaborated with DPs and IOs to conduct RE related (RE Financing, Solar PV, Hydropower, Biogas) training and capacity building	Conduct thematic capacity building or training on <i>Green Hydrogen Economy / Clean Energy Transition / RE Emerging Technologies and District Heating &amp; Cooling / etc</i>

# On going Activities on RE: ASEAN Long-term RE Roadmap

ASEAN attained the **14.4%** RE Share in TPES & **33.6%** RE Share in installed capacity by **2021**. While the installed capacity share is projected to be achieved beyond the 2025 target, the primary energy target is a challenge. Long-term strategies and accelerated actions are needed to balance energy security, emission reduction, and economic growth.

**GAP**

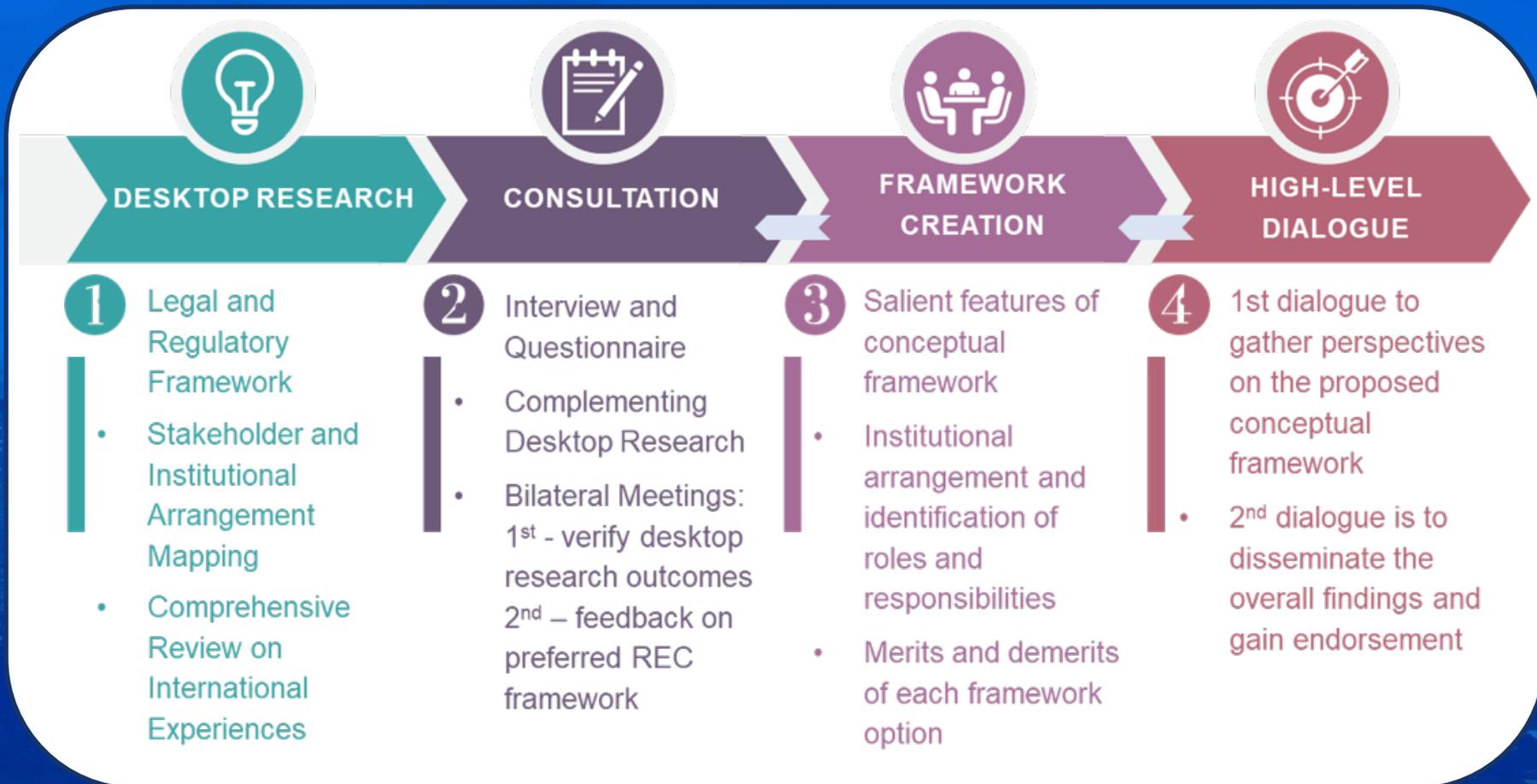
*Technology, Policy, Investment, Supply Chain, Cross-cutting issues (Job Creation, Gender)*



Preparation of the Roadmap is underway, for completion in 2024. Notable points to be covered:

1. Long-Term RE Targets beyond 2025
2. Investment strategies for RE Infrastructure development, Grid Enhancement, Cross-Border Connectivity
3. Demand Side Management (esp. Transport and Industry)
4. Regional Cooperation and Partnership

# On going Activities on RE: RE Certificate System in BIMP-EAGA (RECAP)



# Some of ACE's Partners

EE&C		RE	
Partner	Activity	Partner	Activity
	ASEAN Roadmap Towards Sustainable and Energy Efficient Buildings		ASEAN Biofuel R&D Roadmap and Study on EV Integration into Biofuel Roadmap
 	ASEAN Product Registration System and National Lighting Roadmaps		ASEAN Renewable Energy Regional Approach: Strategic Report
	ASEAN-JAPAN Energy Efficiency Partnership (AJEEP), Scheme 4, Scheme 5, and ECAP		2 <sup>nd</sup> ASEAN RE Outlook
 	Clean Energy Future Initiative ASEAN (CEFIA),		ASEAN—China Clean Energy Cooperation

# Thank You

