

Cleaner Energy Future Initiative for ASEAN (CEFIA)

**Global Environmental Affairs Office
Ministry of Economy, Trade and Industry, Japan**

Key components of CEFIA

CEFIA (Cleaner Energy Future Initiative for ASEAN) is an initiative to facilitate collaboration between the public and private sectors for accelerating the deployment of cleaner energy and decarbonization technology in the ASEAN region.

Finance

Linking projects with the Sustainable Development Goals, and attracting ESG investments



Decarbonization Technology

Utilizing cleaner energy technology and decarbonization technology

Institutions

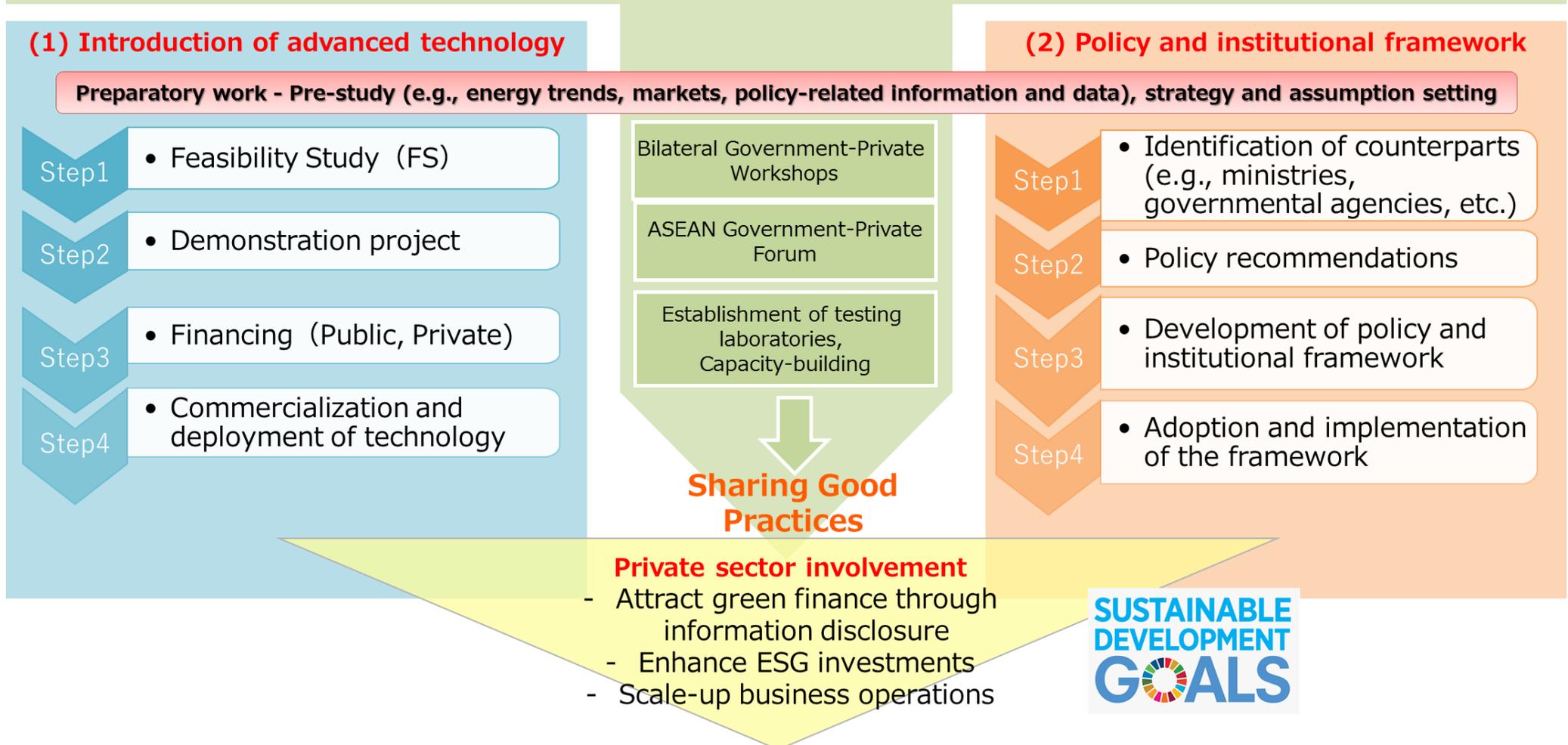
Developing and improving policy and institutional framework required for introduction and deployment of cleaner energy technology and decarbonization technology



CEFIA: Promotion of business-driven deployment of decarbonization technology

Promotion of business-driven deployment of decarbonization technology requires both introduction of technology and policy/institutional framework. The public and private sectors will provide data and testing facilities to the partner country through F/S and demonstration projects, as well as conducting workshops, equipment installation, and capacity buildings.

(3) Bridge to connect technology and policy/institutional framework



Flagship projects

Showcase good practices of cooperation in introducing technology in parallel with developing appropriate policy and institutional framework, as well as mobilizing public and private finance (governments, private sectors, and academia)

Title	Purpose	Activities
ZEB	Promoting and developing the Net-Zero Energy Building (ZEB) to contribute to the acceleration of energy efficiency in the demand side in ASEAN.	<ul style="list-style-type: none"> ➤ International Standardization ➤ Seminar and workshop
RENKEI	Disseminating control optimization (RENKEI) to reduce energy consumption throughout utility plants and manufacturing plants through IoT.	<ul style="list-style-type: none"> ➤ Feasibility Study for Thailand Industry ➤ Workshop
Microgrid	Introducing Microgrid system combining Magnus wind turbines, solar power, and energy storage functions into remote islands, to realize decarbonized energy and improving resilience.	<ul style="list-style-type: none"> ➤ Feasibility Study ➤ Demonstration project
SteelEcosol	Diagnosing and introducing the best available energy-saving technologies (BAT) to the steel industries.	<ul style="list-style-type: none"> ➤ Capacity Building ➤ Public-Private Dialogue ➤ Steel plant diagnosis
Biochar	Introducing the technology of storing CO2 as bio-charcoal while biomass gasification and promoting the biochar in the ASEAN region.	<ul style="list-style-type: none"> ➤ Capacity building ➤ Seminar and workshop
AC-ECP	Disseminating Air Conditioning System with Excessive Cooling Protection (currently being introduced on a trial basis in Thailand and Vietnam), which provides the same level of comfort even at high temperature settings.	<ul style="list-style-type: none"> ➤ Capacity building ➤ Seminar and workshop
Finance	Activities for mobilizing finance to facilitate energy transition and decarbonization in ASEA.	<ul style="list-style-type: none"> ➤ Advisory for local financial institutions ➤ Capacity Building

CEFIA flagship project (ZEB)

Contribute to accelerating the decarbonization in the building sector in ASEAN by promoting the step-by-step approach to achieving Zero Energy Building (ZEB).

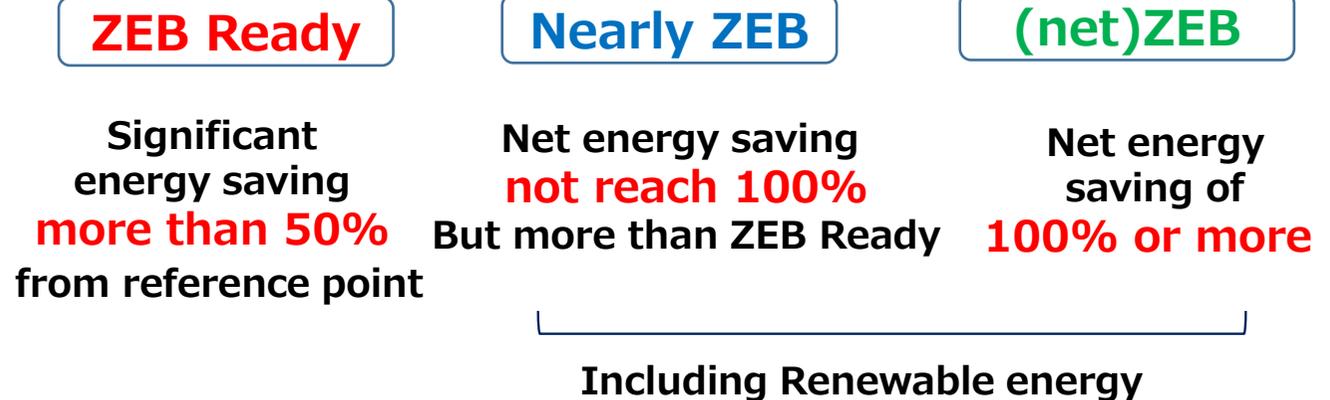
◆ Implementation System

CEFIA supports the activities of the "ZEB Solution WG" at the Japanese Business Alliance for Smart Energy Worldwide (JASE-World).

◆ Expected Effect

Contributing to accelerate decarbonization in the building sector

Step-by-step approach to achieving ZEB



◆ Major Activities

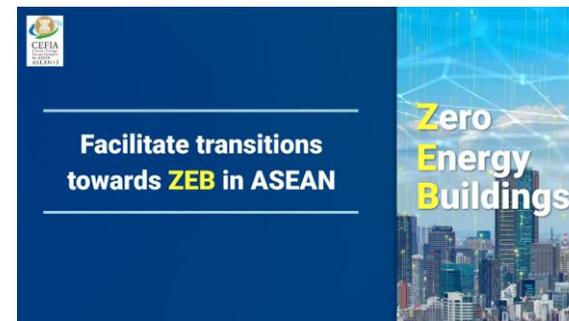
For the diffusion of ZEB in ASEAN, awareness activities of **ISO Technical Specification TS23764**, support for access to technologies and products for achieving ZEB and support in formulating demonstration project.

Examples of Activities

- Introduction of activities to promote awareness of the ZEB concept.
- Creation of an introductory video on public-private partnership efforts to accelerate the spread of ZEB in ASEAN.

※ISO/TS23764

- "Methodology for achieving non-residential zero-energy buildings (ZEBs)." A technical specification proposed to ISO by JASE-W, approved and issued by ISO.
- TS 23764 advocates a step-by-step approach to implementing ZEB.



Video footage of "Introduction of CEFIA Flagship Project: ZEB"

CEFIA flagship project (RENKEI)

RENKEI aims to reduce energy consumption in power plants and entire business sites through IoT.

◆ Implementation System

Based on Working group of Japan Electronics and Information Technology Industries Association (JEITA). Collaborates with Japanese and Thai universities.

◆ Expected Effect

Compared to energy-saving projects involving the introduction of hardware equipment, RENKEI can be an add-on to existing facilities, resulting in a shorter project implementation period and better cost-effectiveness as a measure to reduce greenhouse gas emissions.

◆ Major Activities

Activities with a view to developing knowledgeable human resources, making policy recommendations, and implementing projects in actual factories in order to promote the spread of control optimization (RENKEI).

Examples of Activities

- Conducting research on GHG reduction potential in industry under RENKEI control (Estimation of CO2 reduction potential by the introduction of RENKEI control in the Philippines, Thailand, Malaysia, Singapore, Indonesia, and Vietnam)
- Conducting feasibility studies (estimating energy-saving effects through RENKEI control, etc.)
- Holding seminars for companies in Thailand to promote RENKEI control
- Dissemination of information (Introduction of activities at the Energy Week International Conference organized by the ASEAN Centre for Energy)

Important milestone

Potential survey of RENKEI Control Application in Thailand

Video Message
on RENKEI



RENKEI Control
Dr. David Banjerdpongchai
Professor,
Chulalongkorn University

Dr. David Banjerdpongchai (Professor at Chulalongkorn University) presented results of Potential survey of RENKEI control at CEFIA Japan Seminar 2021

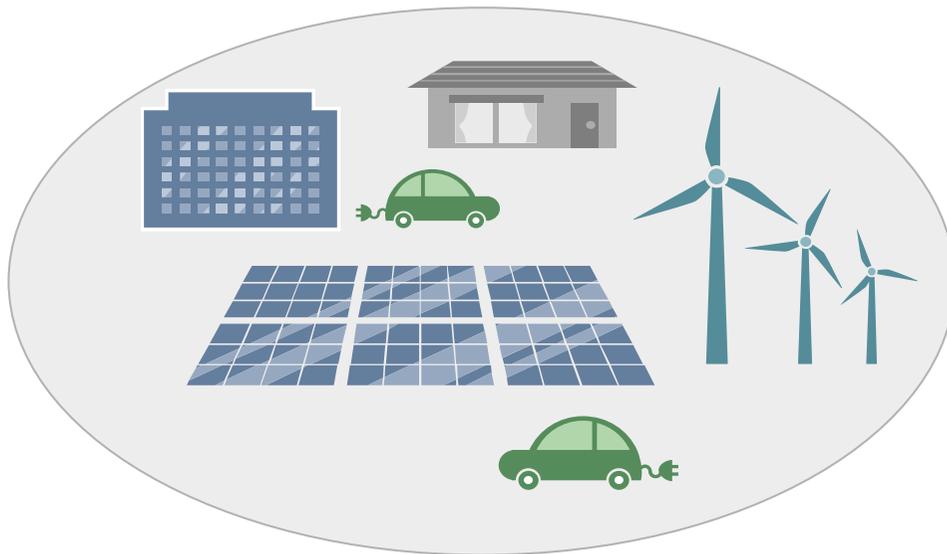
CEFIA flagship project (Microgrid)

Promote deployment of Microgrid system combining various renewable sources, such as wind and solar power, as well as energy storage functions.

Enable power supply even in times of disaster, thereby realize decarbonized energy and improve resilience by disseminating in vulnerable areas such as remote island regions.

Sharing good practices

Sharing feasibility study and demonstration outcomes



Visualization of Climate Change Impact

Discussion towards technology deployment

Example of Activities:

Microgrid technology using Magnus vertical-axis wind turbine was introduced by Challenergy Inc. in the 3rd CEFIA Government-Private Forum.

Micro-grid Vision

Challenergy



Monitoring
Measuring wind and solar potential by cloud-connected and stand-alone monitoring

Simulation
Calculating micro-grid operation, financial model and CO2 reduction.

Planning
Negotiating with local institutions, permits, financial arrangement and contract

EPC
Construction of RE equipment, energy management system and network

Operation
Operation of micro-grid with stable CF and improve overall profitability

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Presentation slide by Challenergy Inc.

CEFIA flagship project (SteelEcosol)

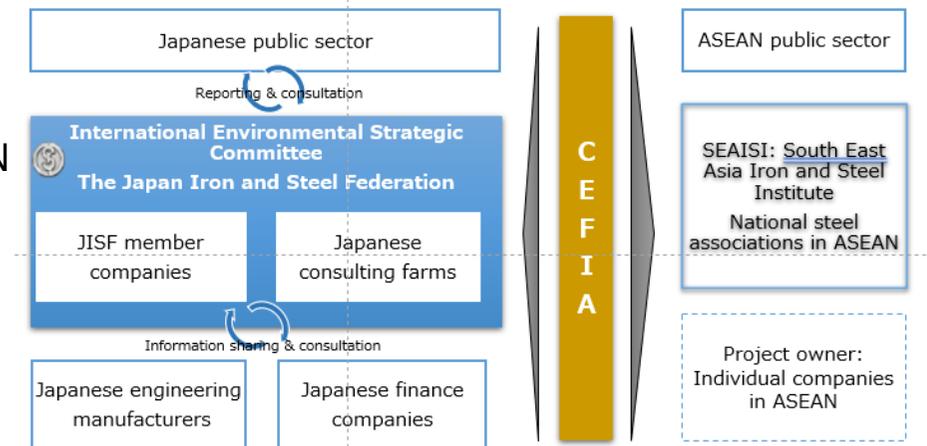
Under CEFIA, conducting public-private dialogues and energy diagnosis of steel plants to promote the adoption of **Best Available Technology (BAT)** in the ASEAN steel industry.

◆ Implementation System

Through the CEFIA platform, the International Environmental Strategy Committee of the Japan Iron and Steel Federation lead communication and information sharing activities with steel associations, member companies and the public sector in ASEAN countries.

◆ Expected Effect

- ❑ Showing benefits of technology implementation, CO2 reductions, and payback period
- ❑ Facilitating policy dialogues to introduce best practices that promote energy conservation and CO2 reductions
- ❑ Promoting understanding of methods to reduce energy consumption and CO2 emissions in steel plants



◆ Major Activities

Proposed a decarbonization project in the steel sector as a candidate for a new flagship project at the 3rd CEFIA Public-Private Forum.



Capacity Building

0. Activity foundation formation

- **BAT list (technology customized list)**
- ISO 14404 (Energy/CO2 intensity assessment)
- Dialogue Channels between Japan Steel Industry and ASEAN Steel Industry

1. Public-private dialogue

Sharing Japan's policies related to BAT dissemination and climate change with a wide range of ASEAN stakeholders

2. Steel plant diagnosis

Visiting individual steel plants to conduct energy diagnosis and recommend BAT implementation

CEFIA flagship project (Biochar)

Introducing the technology of **storing CO₂ as bio-charcoal while biomass gasification** and promoting the biochar in the ASEAN region.

◆ Implementation System

Sharing expertise and experiences of Japanese biochar companies which are aiming for the business development in ASEAN countries.

◆ Expected Effect

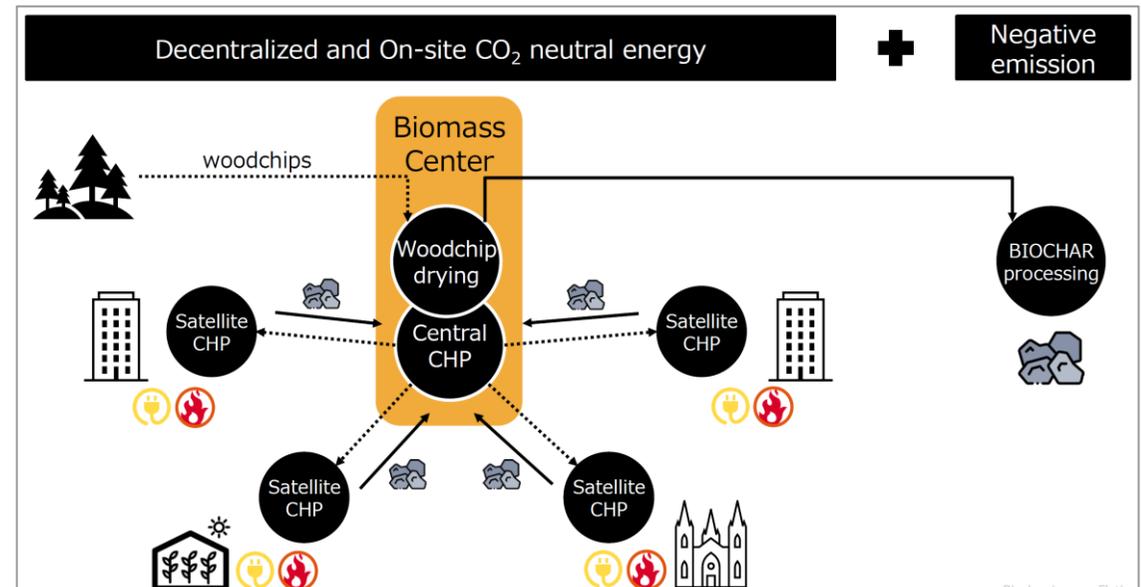
- ❑ As "Carbon negative" power plant, it contributes to decarbonization of the energy sector.
- ❑ Decentralized power plant contributes to energy supply in the developing regions of ASEAN countries.

◆ Major Activities

Biochar company operating biomass power plants in Japan with distinctive features by use of gasification technology, conducts webinars to promote the biochar

Examples of Activities

- Presentation of the contribution of biochar to the decarbonization at the CEFIA Forum
- Conducting webinars to promote the awareness of biochar products



CEFIA Flagship Project (AC-ECP)

Disseminating Air Conditioning System with Excessive Cooling Protection (currently being introduced on a trial basis in Thailand and Vietnam), which provides the same level of comfort even at high temperature settings.

◆ Implementation System

Sharing expertise and products of AC-ECP by Japanese companies which are aiming for the business development in ASEAN countries.

◆ Expected Effect

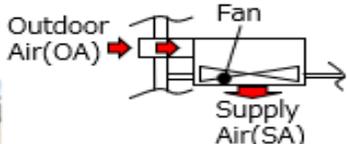
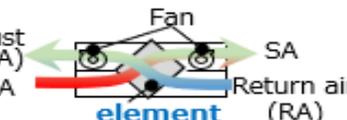
- ❑ AC-ECP prevents energy waste caused by the "overcooling" culture and contributes to energy saving in ASEAN countries

◆ Major Activities

Demonstrating the AC-ECP (Air conditioning system with excessive cooling protect), an energy-saving air conditioning system, and promote awareness of the technology.

Examples of Activities

- Presentation of the contribution of AC-ECP to the decarbonization at the CEFIA Forum
- Trial launch to the building in Bangkok, and in Vietnam as well in next years based on the results in Bangkok.
- The results will be shared through webinars etc.

	System	Description	Energy Spent	Hard Cost
Present	A.  18HP AC 23°C + Normal Ventilation 	X SA temp: Same as outdoor	100 %	100 %
	C.  12HP AC 26°C + ERV 	△ SA temp: Higher than indoor temp	66 %	75 %
Newly proposed "AC-ECP"	D.  12HP AC 26°C + ERV with Refrigerant Coil 	○ Sa temp: Same as indoor temp	66 %	99 %
	E.  12HP AC 26°C + ERV with Ref coil + Positive pressure control + CO2 demand control + AC interlock control 		53 %	101 %

Comparison of cost and energy consumption between Present AC and AC-ECP

CEFIA Flagship Project (Finance)

Activities for mobilizing finance to facilitate energy transition and decarbonization in ASEAN; conducting analysis of challenges in implementing decarbonization technology in ASEAN, identifying the needs of local financial institutions, and organizing seminars.

◆ Implementation System

Association of Development Financing Institutions in Asia and the Pacific (ADFIAP), which has a network of development banks in ASEAN, take the lead in the implementation of the project. It also collaborates with experts in the financial sector in ASEAN.

◆ Expected Effect

- ❑ Accelerating the mobilization of funds in the flagship sectors
- ❑ Expanding the efforts of financial institutions in the energy transition sector

◆ Major Activities

Conducting analysis of challenges in implementing decarbonization technology in ASEAN, identifying the needs of local financial institutions, and organizing seminars to mobilize finance.

Examples of Activities

- Interviews and surveys of ASEAN local bank members to identify issues and needs
- Analysis of examples of "visualization" initiatives at financial institutions
- Exchange of views with financial institution officials (discuss measures to strengthen cooperation using the CEFIA forums)

In addition, activities to accelerate project formulation originating from the flagship projects (technical themes) will be implemented.

Status of Webinars and Other Events

- Webinar "Fostering mutual understanding of bottleneck and opportunities for accelerating cleaner energy finance": March 2021
- Workshop "Visualization of carbon footprint reductions by financial institutions" : March 2021
- Webinar "Financing Energy Transition Pathways under the CEFIA": March 2022



Scene from the webinar

The 1st CEFIA Government-Private Forum

Overview

Date : 27 November 2019

Place : Makati City, Philippines

Host : DOE Philippines

Sessions

Session I . CEFIA and Future Potentials

Session II . Flagship Project Ideas

Session III . Panel Discussions

Opening Statements

1. Mr. Alfonso G. Cusi, Secretary, Department of Energy, Philippines;
2. Mr. Shuji Miyamoto, Parliamentary Vice-Minister, Ministry of Economy, Trade and Industry, Japan;
3. Mr. Christopher G. Zamora, Manager of APAEC, ASEAN Centre for Energy
4. Mr. Doo Youl Kim, Ministry of Trade, Industry and Energy(MOTIE), Korea
5. Mr. Yongping Zhai, Chief of Energy Sector Group, Asian Development Bank



Participants

Registered participants (government officials, private sectors, international organizations) approximately → 200 participants including speakers

17 Speakers and Panelists

METI, ACE, ADB, Challenergy, DREAM, IRES, KEA, Power China, Global Mobility Services, SEDA – ECCJ, Baundung Institute of Technology, Indonesia, Association of Development Financing Institutions in Asia and the Pacific

The 2nd CEFIA Government-Private Forum

- The CEFIA Government-Private Forum is established under the ASEAN+3 New and Renewable Energy (NRE) and Energy Efficiency and Conservation (EE&C) Forum.
- The 2nd CEFIA Government-Private Forum was held on February 2, 2021. The forum held briefings on the current situations of CEFIA's activities and discussions on contributions to the ASEAN Plan of Action for Energy Cooperation (APAEC) and on approaches to activating financing for low-carbon technologies in the ASEAN region.
- Moreover, taking the opportunity of the forum, the Asian Development Bank (ADB) and METI signed a memorandum of cooperation (MOC) in CEFIA.

Date : 2 February 2021

Host : DEDE, Thailand

Participants : government officials, private sectors,
international organization

Audience : 227 attended in GoToWebinar,
221 views on YouTube

Opening Remarks

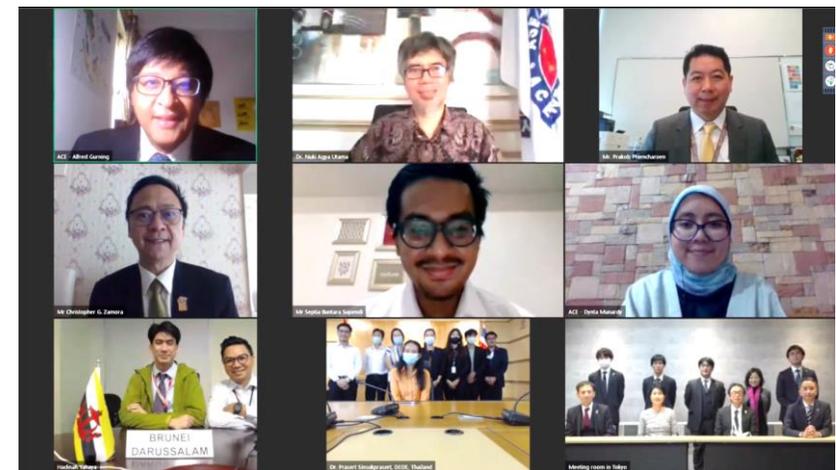
Dr. Prasert Sinsukprasert, Director-General, DEDE,
Thailand

Special Remarks

Mr. Munekiyo Kouichi, Parliamentary Vice-Minister of
Economy, Trade and Industry, METI, Japan

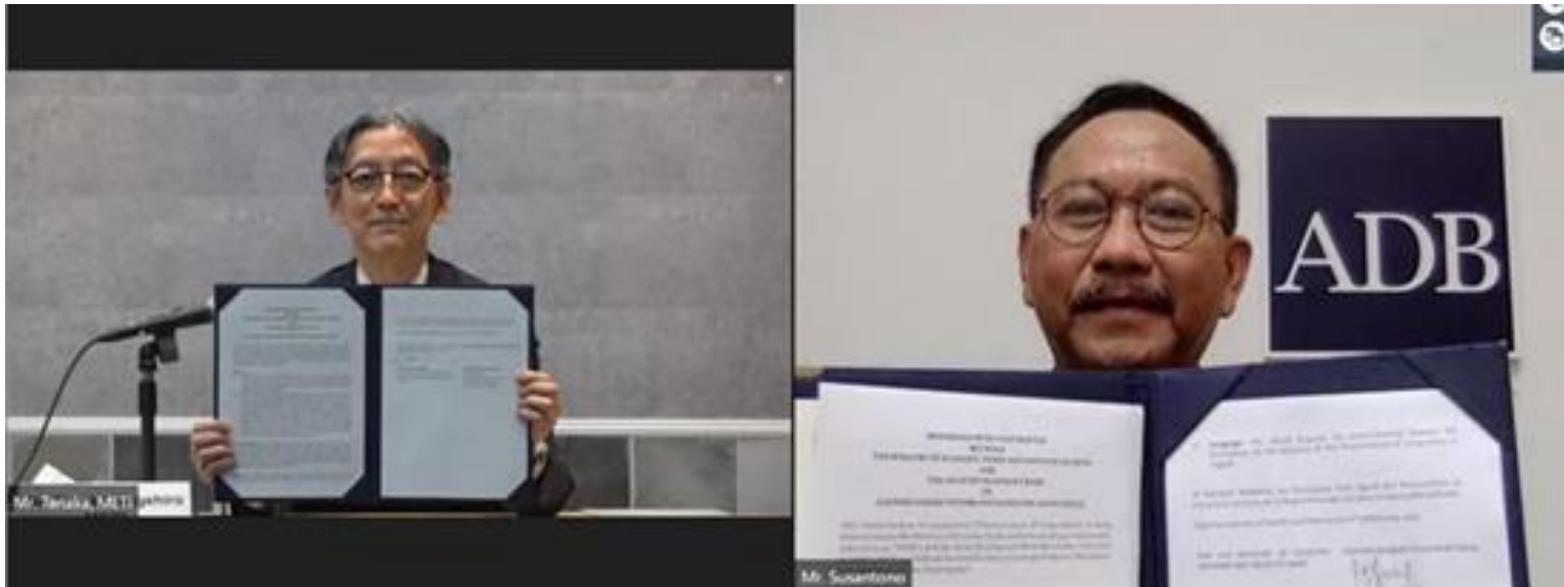
3 Session

- Session I: Flagship Projects
- Session II: APAEC Phase II and CEFIA Activities
- Session III: Mobilization of Finance



MOC in CEFIA concluded between METI and ADB

- Taking the opportunity of the 2nd CEFIA Government-Private Forum, the Asian Development Bank (ADB) and METI signed a memorandum of cooperation (MOC) in CEFIA.
- Signees were Mr. Tanaka Shigehiro, Vice-Minister for International Affairs, METI, and Mr. Bambang Susantono, Vice-President, ADB.



Mr. Tanaka Shigehiro, Vice-Minister
for International Affairs, METI

Mr. Bambang Susantono,
Vice-President, ADB

The fields for cooperation:

- [i] Energy efficiency/conservation and renewable energy
- [ii] Other technologies that contribute to transition to low carbonization
- [iii] Utilization of private funds for supporting these efforts

The 3rd CEFIA Government-Private Forum

- The CEFIA Government-Private Forum is established under the ASEAN+3 New and Renewable Energy (NRE) and Energy Efficiency and Conservation (EE&C) Forum.
- The 3rd CEFIA Government-Private Forum was held on February 21, 2022. The forum included an introduction of CEFIA's current activities, along with discussions on topics such as how decarbonization projects will realistically move ahead and how funding for decarbonization technologies will be mobilized.

Summary

Date : 21 February 2022

Host : Energy Commission of the government of Malaysia

Participants : government officials, private sectors,
international organization

Audience : 151 attended in Zoom, 168 views on YouTube

Opening Remarks

H.E Datuk Zurinah Pawanteh, Secretary General of Minister of Energy and Natural Resources, Malaysia

Dr. Nuki Agya Utama, Executive Director of ASEAN Centre for Energy (ACE)

Special Remarks

Mr. ISHII Masahiro, State Minister of Economy, Trade and Industry, Japan

3 Session

- Session I: Flagship Projects
- Session II: CEFIA Collaboration Roadmap
- Session III: Mobilization of Finance for Decarbonization Pathways



The 4th CEFIA Government-Private Forum

- CEFIA (Cleaner Energy Future Initiative for ASEAN) is a public-private initiative aimed at achieving energy transition and decarbonization in the ASEAN region. Proposed by the Government of Japan (METI), its establishment was welcomed at the 16th ASEAN+3 Energy Ministerial Meeting held in Bangkok, Thailand in September 2019.
- Under CEFIA, a public-private partnership project (flagship project) in the areas of energy conservation and renewable energy is being implemented in the ASEAN region to introduce and disseminate decarbonization technologies and build policies and institutions. To date, three government-private forums have been held to report the progress of projects (2019 in the Philippines, 2021 in Thailand•online, and 2022 in Malaysia•online).
- The 4th CEFIA Public-Private Forum was held in Cebu, Philippines on February 16, 2023. Government and business officials from Japan and ASEAN, as well as financial institutions such as the Asian Development Bank participated. In addition to the introduction of the activities of flagship projects being undertaken under CEFIA, the forum also discussed cross-project initiatives such as fund introduction for decarbonization technologies, visualizing GHG emission reductions, and fostering entrepreneurship, as well as the future direction of CEFIA.

1. Outline

- Date : Thursday, February 16, 2023, 10:00 - 18:30 (JST)
- Location: Cebu, Philippines (face-to-face) + online *Hybrid
- Host: Department of Energy (DOE), Philippines; Secretariat: ACE
Cooperation: Ministry of Economy, Trade and Industry (METI)

2. Programs

- Session 1: Flagship Projects
- Session 2: Information from ASEAN Governments and Companies
- Session 3: Panel Discussion on Cross-cutting Areas
- Session 4: Panel Discussion on the Future of CEFIA

3. Opening Attendees

- Opening Remarks: Undersecretary Fentebella, Department of Energy, Philippines
- Opening Remarks: Mr. Nakatani, Vice Minister of Economy, Trade and Industry

4. Participants

- 26 speakers/panelists
- Number of participants at the venue: 76
- Streaming views: 35 (at maximum)



On the day of the event

CEFIA Project Management Unit (PMU)

- Launching of the CEFIA Project Management Unit (PMU) at the 3rd CEFAI Public-Private Forum.
- ACE and METI are jointly implementing CEFIA facilitation activities through PMU activities.

Composition of PMU

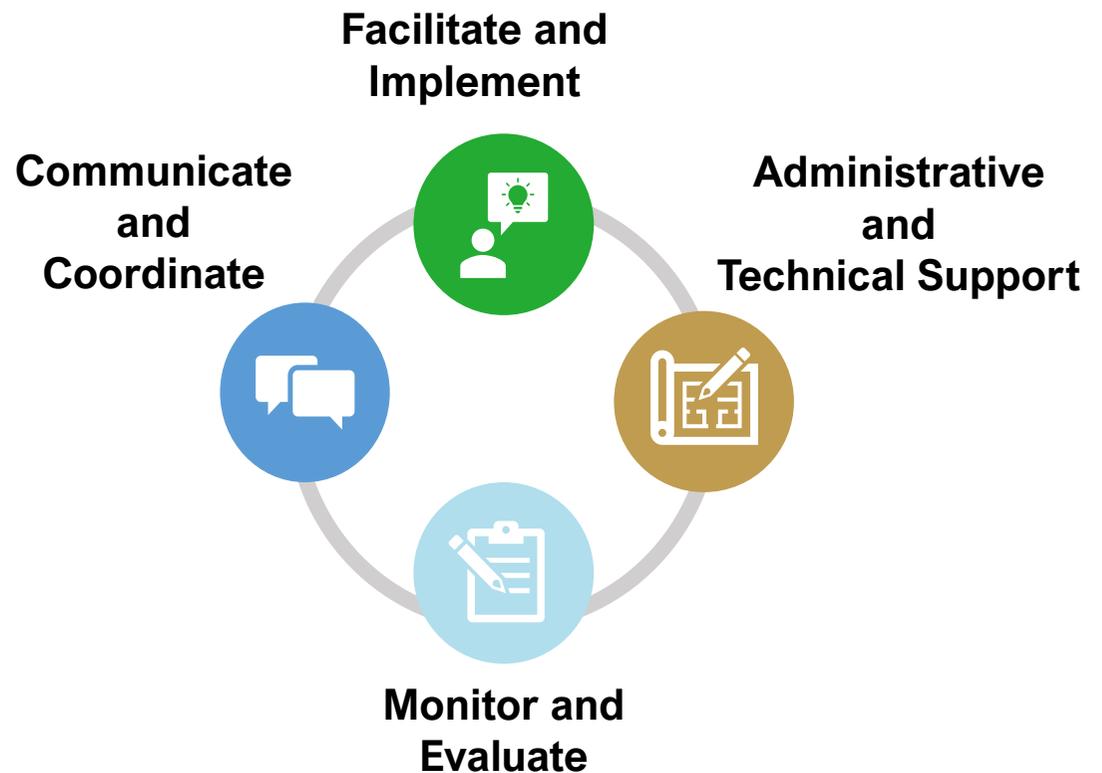
- ASEAN Centre for Energy (ACE)



- Ministry of Economy, Trade and Industry (METI), Japan.



Tasks of PMU



Activities

- Development of CEFIA Collaboration Roadmap
- Administrative support to the host countries in organizing CEFIA Forum

The 5th CEFIA Government-Private Forum

- The 5th CEFIA Public-Private Forum was held in Bali, Indonesia on August 25, 2023. This year's forum was held back to back with the ASEAN+3 Energy Ministerial Meeting and the ASEAN Energy Business Forum (AEBF), with participation of Japanese and ASEAN governments, companies, financial institutions, and other stakeholders. Lively discussions were held on flagship projects, finance, CO2 reduction contribution, entrepreneurship development, and energy management using digital technology.
- JETRO Jakarta Office held a mini business matching event during the forum with engagement of Japanese companies working on decarbonization business. CEFIA and JETRO Jakarta Office co-hosted the opening and the mini business matching event.

1. Outline

- Date : Friday, August 25, 2023, 8:00 - 18:00 (GMT+8 Bali Time)
- Location: Bali Nusa Dua Convention Centre, Bali, Indonesia (face-to-face)
- Host: the Ministry of Energy and Mineral Resources of Indonesia; Secretariat: ACE
Cooperation: Ministry of Economy, Trade and Industry (METI)

2. Programs

- Joint Opening Plenary with JETRO
- Session 1: Introduction to CEFIA
- Session 2: Exploring Existing and Future Decarbonisation Technologies in ASEAN
- Session 3: Finance, Framework and Mechanism which support Decarbonisation Technologies
- Session 4: Panel Discussion on ASEAN Best Practices and Initiatives on Smart and Integrated Digital Energy Management in the Industrial, Commercial, and Building Sectors
- Closing
- Mini Business Matching Event (Co-organized with JETRO)

3. Opening Attendees

- Opening Remarks: Mr. Nakatani, Vice Minister of Economy, Trade and Industry
- Opening Remarks: Mr. Triharyo Indrawan Soesilo (Hengki), Special Advisor to the Minister of Energy & Mineral Resources for Acceleration of Infrastructure & Investment

4. Participants

- 23 speakers and panelists, around 80 participants at the venue



Opening Group Photo



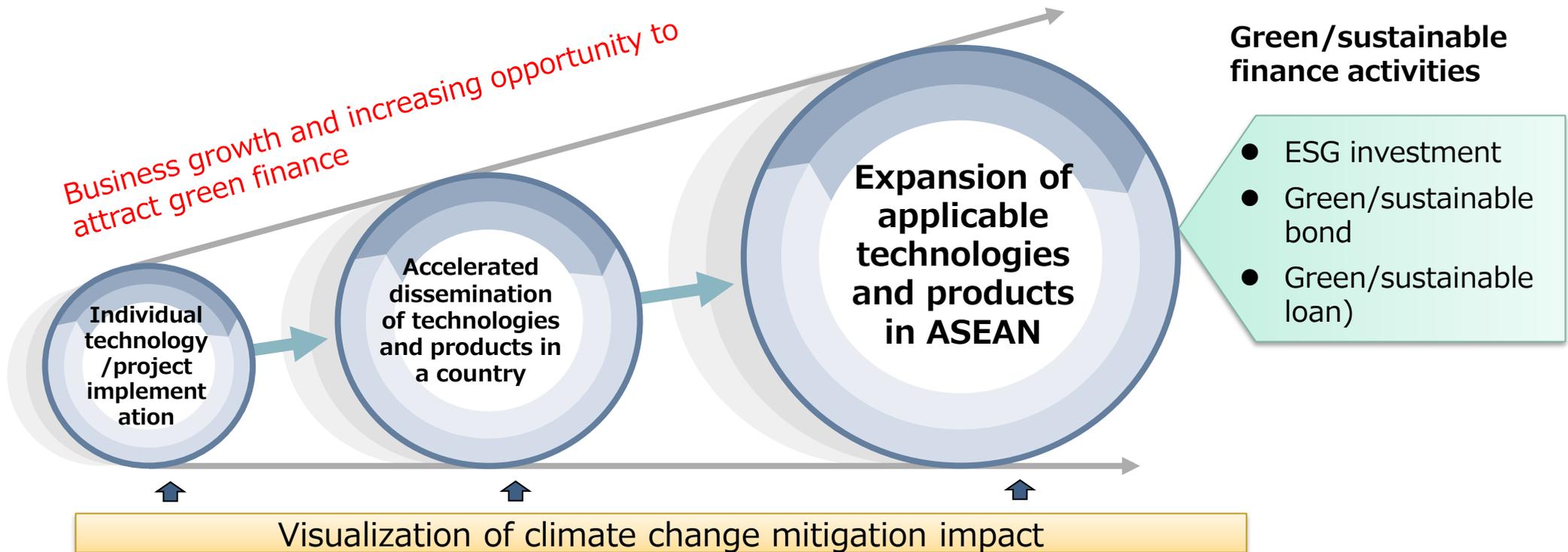
Closing Group Photo

CEFIA Visualization -Basic Concept-

Expected Objective of Visualization

- Contribute to securing of climate finance as disclosure of climate mitigation impact is increasingly important.
- Visualization of climate mitigation impact contributes to and enhance activities planned in APAEC II.

APAEC Phase II: Programme Area	APAEC Phase II: Outcome Based Strategy
PA 6. Reginal Energy Policy and Planning	OBS 2. Promote information sharing on energy-climate nexus OBS 5. Attract Investment and Financing to Accelerate ASEAN's Energy Infrastructure Growth



CEFIA Collaboration Roadmap

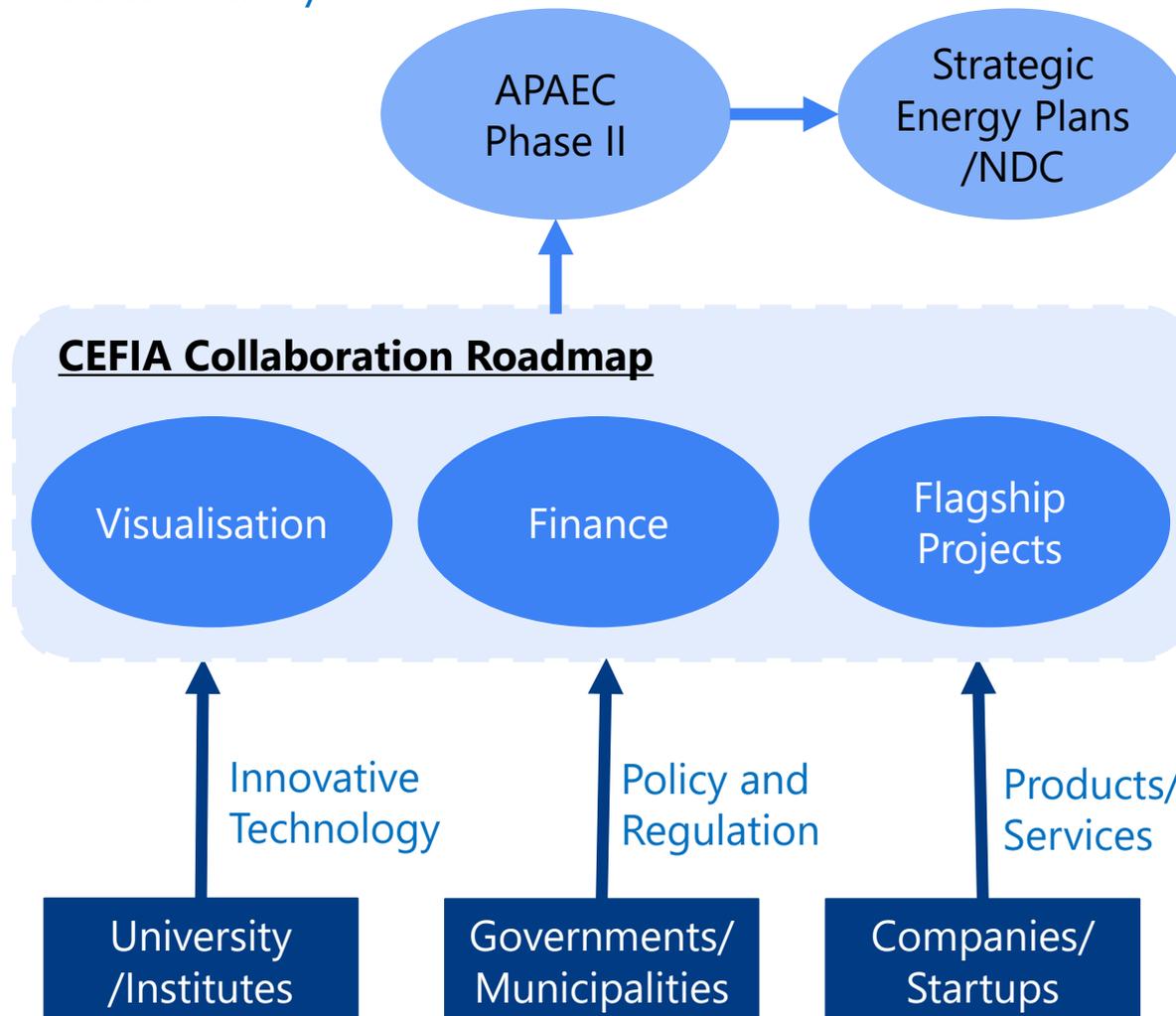
- Development the roadmap in consultation with related Sub-sector Networks and stakeholder (e.g. Business organizations, partner organizations in flagship projects).

- CEFIA aims to contribute to APAEC Phase II.
- CEFIA believes that this will lead to contributions to the energy policy of each country.

Impacts

Sharing Common Agenda

Collective Actions



Objectives of the roadmaps

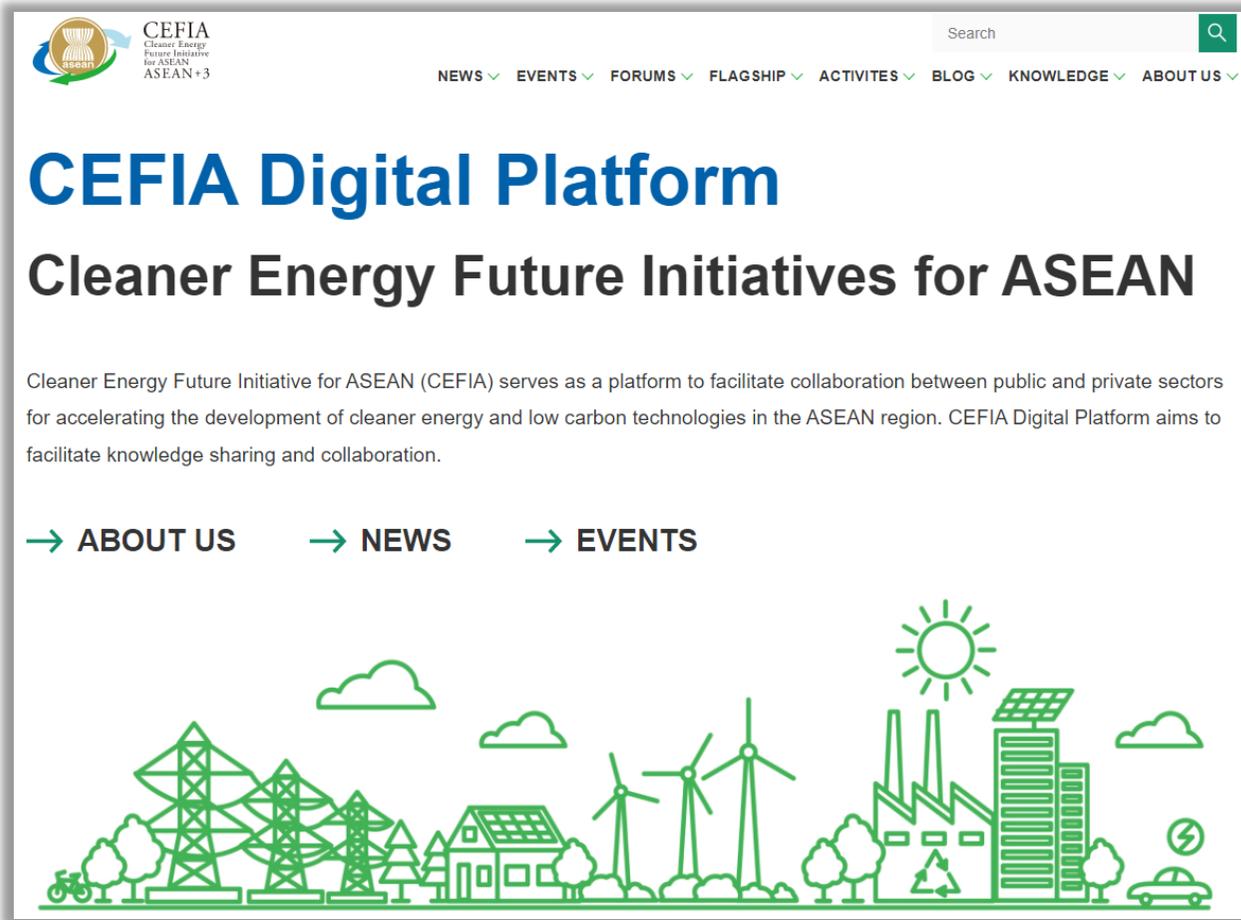
- Serves as a platform for **collaborations** between public, private and academic sectors.
- Clarifies **collaboration** between CEFIA and APAEC II.
- Promotes **collaboration** among finance, frameworks, and low-carbon solutions..

Action areas comprising the roadmaps

- Info sharing.
- Capacity building.
- Pilot Projects/ support on project formulation.
- Support on introduction of policy, framework, and finance.
- Evaluation.

CEFIA Digital Platform

- CEFIA Digital Platform aims to facilitate knowledge sharing and collaboration.



The screenshot shows the homepage of the CEFIA Digital Platform. At the top left is the CEFIA logo, which includes the ASEAN emblem and the text 'CEFIA Cleaner Energy Future Initiative for ASEAN+3'. To the right of the logo is a search bar with a magnifying glass icon. Below the logo and search bar is a navigation menu with the following items: NEWS, EVENTS, FORUMS, FLAGSHIP, ACTIVITES, BLOG, KNOWLEDGE, and ABOUT US, each with a downward arrow. The main heading is 'CEFIA Digital Platform' in large blue font, followed by 'Cleaner Energy Future Initiatives for ASEAN' in bold black font. Below this is a paragraph of text: 'Cleaner Energy Future Initiative for ASEAN (CEFIA) serves as a platform to facilitate collaboration between public and private sectors for accelerating the development of cleaner energy and low carbon technologies in the ASEAN region. CEFIA Digital Platform aims to facilitate knowledge sharing and collaboration.' Underneath the text are three navigation links: '→ ABOUT US', '→ NEWS', and '→ EVENTS'. At the bottom of the page is a green line-art illustration depicting various clean energy and sustainable development elements, including a bicycle, power lines, a house with solar panels, wind turbines, a factory with a recycling symbol, a modern building with solar panels, and an electric car.

Objective

- To enhance roles (Showcase, Workspace, Databank, and Catalyst) through Digital Collaboration
- To provide various information of CEFIA activities to facilitate knowledge sharing and various collaborations

<https://www.cefia-dp.go.jp/>

Thank You!!



CEFIA
Cleaner Energy
Future Initiative
for ASEAN
ASEAN+3