

# **Asia Zero Emission Community (AZEC)**

**Ministry of Economy, Trade and Economy (METI)**

**March 2023**

# The importance of the decarbonization of Asia

- Accelerating energy transition toward decarbonization through in the Asian region, where a substantial portion of global energy demand exists, is a key to achieve goals of the Paris Agreement.
- Energy transition in the Asian region requires various and practical pathways that are tailored to meet the energy market structure, industrial structure, and economic and social conditions of each country in Asia, especially because of the rapid increase in energy demand due to the economic growth and the wide diversity of the above circumstances.

## GDP and Population Growth Forecasts

	GDP Growth 2020→2050	Population Growth 2020→2050
<b>S.E Asia</b>	<b>3.8%</b>	<b>0.6%</b>
World	3.0%	0.8%
North America	2.1%	0.5%
EU	1.5%	▲0.2%

## NDCs and CN Commitments of SE Asian Countries

Country	NDC Submission	Emission Reduction Target	CN	Energy originated CO <sub>2</sub> (2018)
Thailand	April, 2021	<b>20% reduction compared to BAU by 2030</b> *25% reduction with international support	2065 2050 for CO <sub>2</sub>	240 Mt (0.7%)
Indonesia	July, 2021	<b>29% reduction compared to BAU by 2030</b> *41% reduction with international support	2060	540Mt (1.6%)
Malaysia	November, 2016	45% reduction of GHG economic intensity in 2030 compared to 2005 level	2050	230Mt (0.7%)
Brunei	December, 2020	<b>20% reduction compared to BAU by 2030</b>	-	7Mt (0.02%)
Singapore	March, 2020	<b>Peaking out GHG emission by 2030 with less than 65 million tons of CO<sub>2</sub>e emission</b> <b>36% reduction of GHG economic intensity in 2030 compared to 2005 level</b>	Later in this century	50Mt (0.1%)
Lao PDR	May, 2021	<b>60% reduction compared to BAU or reducing 62 million tons of CO<sub>2</sub> equivalent by 2030</b>	2050	20Mt (0.05%)
Cambodia	December, 2020	41.7% reduction compared to BAU by 2030	2050	10Mt (0.03%)
Vietnam	September, 2020	<b>9% reduction compared to BAU by 2030</b> *27% reduction with international support	2050	230Mt (0.7%)
The Philippines	April, 2021	<b>Peaking out GHG emission by 2030</b> <b>75% reduction compared to BAU</b>	-	130Mt (0.4%)
Myanmar	September, 2017	No nation wide target (specific actions are listed)	2050	30Mt (0.1%)

Source : IEA World Energy Outlook2021,

# Importance of approaching energy transition reflecting the actual situation of each country

- While the goal of CN is the same, the pathways should be various and realistic in accordance with the different situation of each country.
- Given the difference in various conditions, Asia should have different approaches from Europe. An approach to pursue a balance among the 3Es (environment, economy, and energy security), may well fit into the Asian context.
- It is important to aim for carbon neutrality while ensuring economic growth and energy security.

## Situation in Europe

- Declining energy demand
- Rich in renewables (especially wind)
- Wide and well-connected grid networks covering the continent
- Pipeline supplied gas has been sufficiently available

⇒ Promoting energy transition focusing on renewables such as wind/solar.

## Situation in Asia

- Rapidly growing energy demand
  - Uneven distribution of renewable potential (Wind potential is generally weak, flat areas are mostly populated.)
  - Small grid size in archipelagoes, even in continental areas. Weak in inter grid connections.
  - Limited availability in pipeline gas and shifting to LNG
- ⇒ Because no single source can secure 3Es, various approaches should be considered.

Asian countries should form “one team” to aim for carbon neutrality.

# Prime Minister Fumio Kishida's Speech on the Concept of Asia Zero Emissions Community

## Policy Speech by PM to the 208th Session of the Diet, Jan. 17, 2022 (Excerpt)

- One more important point is that Japan will make use of its technologies, systems and know-how in hydrogen and ammonia and other areas to contribute to the decarbonization of the world, especially Asia, and lead the world in technical standards and international infrastructure development, together with the countries of Asia.
- We aim to join forces with like-minded countries in Asia in creating something that can be called the "Asia Zero Emissions Community."

## Speech by PM at "Davos Agenda", Jan. 18, 2022 (Excerpt)

- I am also aware that many Asian countries have energy structures that are similar to Japan. Just as the European Union started as the European Coal and Steel Community during the Cold War, Japan envisions an "Asia Zero Emissions Community" in Asia where both geopolitical and geo-economic challenges are intensifying. This community would become a platform to advance efforts such as international joint investment on development of zero-emission technologies and hydrogen infrastructure, joint financing, standardization of related technologies, and establishment of an Asian emissions trading market.



# Asia Zero Emission Community (AZEC)

- "Asia Zero Emission Community (AZEC)" concept aims for energy transitions tailored to each country's circumstances, together with Asian countries that are actively trying toward carbon neutrality while having similar challenges to Japan in decarbonization.
- AZEC is a platform consisting of Asian countries that are promoting decarbonization. By making maximum use of Japan's resources and experience, by providing "generous support" in terms of technology, finance, and human resources through AETI, JCM, etc., and by policy coordination with partner countries, AZEC aims to expand new technologies and reduce costs through market.

## Examples of support

- **Financial support by JBIC, NEXI, JICA**, etc.
- **Assistance in developing roadmap** and long-term strategy for CN
- Establishment and dissemination of **Asia Transition Finance**
- **Development, demonstration, and deployment of decarbonization technologies** such as renewable energy, energy saving, hydrogen, ammonia, biomass, and CCUS

## Examples of policy coordination

- Sharing the policy of **maximum renewable energy introduction**
- **Establish standards** for energy conservation, energy management, and other decarbonization technologies
- **Share the direction** of utilization of bio-energy, hydrogen, ammonia, etc. in the field of thermal power generation.
- Consideration of **effective utilization of power grids**

# AZEC Ministerial Meeting

- On 4 March 2023, METI hosted **Asia Zero Emissions Community (AZEC) Ministerial Meeting**.
- Minister Nishimura, Minister of Economy, Trade and Industry of Japan, who chaired the meeting, made remarks on **the importance of decarbonization in Asia, AZEC concept, and Japan's specific efforts**.



**Participating countries** (in alphabetical order)

Australia, Brunei, Cambodia, Indonesia, Japan, Laos, Malaysia, Philippines, Singapore, Thailand, Viet Nam

**Participating international organizations** (in alphabetical order)

Economic Research Institute for ASEAN and East Asia (ERIA)

International Energy Agency (IEA)

# **(Reference) Participants for AZEC Ministerial Meeting**

**Australia** : Hon Jenny McAllister, Assistant Minister for Climate Change and Energy

**Brunei** : Mr. Haji Shahbudin Haji Musa, Ambassador Extraordinary and Plenipotentiary

**Cambodia** : H.E. Dr. Ty Norin, Secretary of State, Ministry of Mines and Energy

**Indonesia** : H.E. Mr. Arifin Tasrif, Minister of Energy and Mineral Resources

**Japan** : H.E. Mr. Yasutoshi Nishimura, Minister of Economy, Trade and Industry

H.E. Mr. Akihiro Nishimura, Minister of Environment

**Laos** : H.E. Mr. Sinava Souphanouvong, Vice Minister of Energy and Mines

**Malaysia** : Y.B. Tuan Mohd Rafizi bin Ramli, Minister of Economy

**Philippines** : H.E. Mr. Raphael Perpetuo M. Lotilla, Secretary, Department of Energy

**Singapore** : H.E. Mr. Gan Kim Yong, Minister for Trade and Industry

**Thailand** : H.E. Mr. Supattanapong Punmeechaow,

Deputy Prime Minister and Minister of Energy

**Viet Nam** : H.E. Dr. Tran Hong Ha,

Deputy Prime Minister and Minister of Natural Resources and Environment

**ERIA** : Professor Hidetoshi Nishimura, The President of ERIA

**IEA** : Ms. Mary WARLICK, the Deputy Executive Director

# AZEC Ministerial Meeting (Joint Statement and Chair's Summary)

- The participants launched AZEC as a platform and agreed to AZEC joint statement including the three following common views:
  - 1) **Advancing cooperation towards carbon neutrality/net-zero emissions while ensuring energy security**
  - 2) **Promoting energy transition while achieving economic growth**
  - 3) **Recognizing there are various and practical pathways toward carbon neutrality/net-zero emissions depending on the circumstances of each country**
- After the ministerial meeting, Minister Nishimura issued "Chair's Summary" that reflects the comments and opinions expressed in the ministerial meeting under his responsibility, as for following areas.
  - 1) **Energy efficiency and demand-side energy conversion**
  - 2) **Renewable Energy/Energy Management**
  - 3) **Natural gas and LNG**
  - 4) **CCUS/Carbon Recycling**
  - 5) **Hydrogen and Ammonia**
  - 6) **Critical Minerals**



# AZEC Public-Private Investment Forum

- On 3 March 2023, the **Asian Zero Emissions Community (AZEC) Public-Private Investment Forum** was co-hosted with KEIDANREN (Japan Business Federation). Approximately 700 participants, both local and online, attended.
- Special presentations about **respective efforts toward decarbonization** and **expectations for cooperation with Japan** were made by ministers and CEOs of SOEs in Asia and others.
- In addition, **Japanese companies** introduced **the strengths of their various decarbonization technologies**, including renewable energy, biomass, hydrogen, ammonia, and CCS, and **their initiatives to accelerate energy transitions in Asia**.
- Japanese government related organizations explained that **they are ready to provide all kinds of support measures**, including financial support and knowledge sharing, for realistic energy transitions.



Philippines,  
Secretary,  
Department of  
Energy, H.E. Lotilla



Pertamina, President  
Director and CEO,  
Ms. Nicke Widyawati



Australia, Assistant  
Minister for Climate  
Change and Energy,  
Hon. Jenny McAllister



MOU between NEXI and PLN on cooperation to decarbonize the power sector  
(From left: Minister of Economy, Trade and Industry Nishimura, NEXI President Kuroda, PLN President Daruwaman, and Minister of Energy and Mines Arifin)

# (Reference) The Program of AZEC Public Private Investment Forum

Program	Speaker
Opening Remarks	Vice Chair, KEIDANREN(Japan Business Federation), and Chairman & Representative Director, Asahi Kasei Corp., Mr. KOBORI Hideki
Speeches/Presentations on -Envisioned pathways for decarbonization -Technology needs to enable smooth energy transition	Indonesia, Minister of Energy and Mineral Resources, H.E. Arifin Tasrif Philippines, Secretary, Department of Energy, H.E. Raphael Perpetuo M. Lotilla Australia, Assistant Minister for Climate Change and Energy, Hon. Jenny McAllister ERIA, The President of ERIA, Professor NISHIMURA Hidetoshi PLN, President Director and CEO, Mr. Darmawan Prasodjo Pertamina, President Director and CEO, Ms. Nicke Widyawati Petronas, President and Group Chief Executive Officer, YM Datuk Tengku Muhammad Taufik PVN, Vice President, Mr. Le Ngoc Son
Presentations on technologies and projects for decarbonization	JERA, Mr. ONODA Satoshi, Erex, Mr. HONNA Hitoshi IHI, Mr. IDE Hiroshi Shizen Energy, Mr. ISONO Ken Sumitomo Corporation, Mr. HYODO Masayuki Kawasaki Heavy Industries, Mr. HARADA Eiichi Mitsubishi Heavy Industries, Mr. HASHI Toshiyuki MUFG Bank, Mr. NAKAHAMA Fumitaka Tokyo Gas, Mr. KASUTANI Toshihide
Presentations on support measures	Ministry of the Environment, Mr. ONO Hiroshi JBIC (Japan Bank for International Cooperation), Mr. HAYASHI Nobumitsu JOGMEC (Japan Organization for Metals and Energy Security), Mr. HOSONO Tetsuhiro NEDO (New Energy and Industrial Technology Development Organization), Mr. ISHIZUKA Hiroaki NEXI (Nippon Export and Investment Insurance), Mr. KURODA Atsuo JETRO (Japan External Trade Organization), Mr. NOBUTANI Kazushige JICA(Japan International Cooperation Agency), Mr. NAKAZAWA Keiichiro The Institute of Energy Economics, Japan, Mr. TERAZAWA Tatsuya
Closing remarks	Minister of Economy, Trade and Industry, Mr. NISHIMURA Yasutoshi

# AZEC Public-Private Investment Forum

- In conjunction with the Forum, a total of 28 new MOUs were announced for cooperation in a wide range of decarbonization areas, including renewable energy, biomass, hydrogen, ammonia, CCUS and LNG.

## <Examples of MOU>

### The Development of Clean Hydrogen/Ammonia Value Chain

- **Project Overview** : Development of project focusing on producing clean hydrogen/clean ammonia from renewable energy in southern provinces of Thailand in order to trade it to domestic and/or international industries for the utilization throughout the value chain.
- **Purpose of MOU** : Toward the realization of decarbonization target in Thailand, Chiyoda Corporation, Mitsui O.S.K. Lines, and Mitsubishi Company (Thailand) Limited aims to study and provide expertise to Electricity Generating Authority of Thailand (EGAT), the Thailand's leading state-owned enterprise, to cooperate and exchange the ideas relating the supply chain of clean hydrogen/ clean ammonia in southern provinces of Thailand, including the production, storage, transportation and utilization.



### MoU for Cooperation on Decarbonization Projects with EGAT

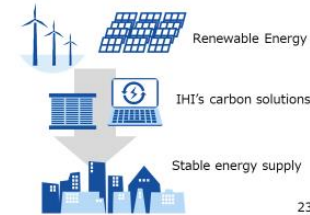


- **Outline**: Thailand is promoting decarbonization efforts to achieve GHG emission reduction targets of 40% by 2030, and Net ZERO by 2065. EGAT plays an important role in this process, and this MOU establishes a framework for discussion and business matching platform to promote the study and realization of measures to achieve these goals.
- **Purpose/Aims**: To kickstart discussions and information exchange regarding several applicable decarbonization and energy storage solutions. Ultimately, the aim is to reach a common understanding on a comprehensive decarbonization and energy transition roadmap for Thailand and EGAT.

Sirindhorn Dam Hydro & Floating PV by EGAT



<https://www.egat.co.th/home/en/20211103-pre/>



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## News Release

### Japanese

<https://www.meti.go.jp/press/2022/03/20230306005/20230306005.html>

### English

[https://www.meti.go.jp/english/press/2023/0306\\_002.html](https://www.meti.go.jp/english/press/2023/0306_002.html)

## MOU List

### Japanese

<https://www.meti.go.jp/press/2022/03/20230306005/20230306005-31.pdf>

### English

[https://www.meti.go.jp/english/press/2023/pdf/0306\\_002a.pdf](https://www.meti.go.jp/english/press/2023/pdf/0306_002a.pdf)

# Schedule

Member Countries: Australia, Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

March 2023@Tokyo

Ministerial Meeting

Public-Private Investment Forum

April 2023@Sapporo

G7 Energy and Climate Ministerial Meeting

May 2023

G7 Summit in Hiroshima

September 2023

ASEAN-Japan Summit in Indonesia

December 2023

ASEAN-Japan Special Summit in Japan

# Bilateral Cooperation between Japan and Thailand

- On 12 and 13 January 2023, the Ministry of Economy, Trade and Industry (METI) and the Ministry of Energy (MOE) of the Kingdom of Thailand held **the 5th Japan-Thailand Energy Policy Dialogue**.
- At the policy dialogue, they exchanged opinions on energy policies of both countries and held **a joint signing ceremony for 4 MOUs** on specific collaborations toward carbon neutrality between companies from Japan and Thailand.

<4MOUs signed in this occasion>

(1) EGCO / JERA Asia **“EGCO/JERA Decarbonization for Thailand”**

(2) EGCO / Banpu Power / BLCP / JERA / Mitsubishi Corp. / MHI

**“MEMORANDUM OF UNDERSTANDING for Collaboration to Materialize the Feasibility Study for Ammonia Co-Firing at the existing BLCP Power Plants”**

(3) BLCP / Chiyoda Corp. / Mitsubishi Corp.

**“The MOU for CCUS at Coal-Fired Power Plant among BLCP·Mitsubishi·Chiyoda”**

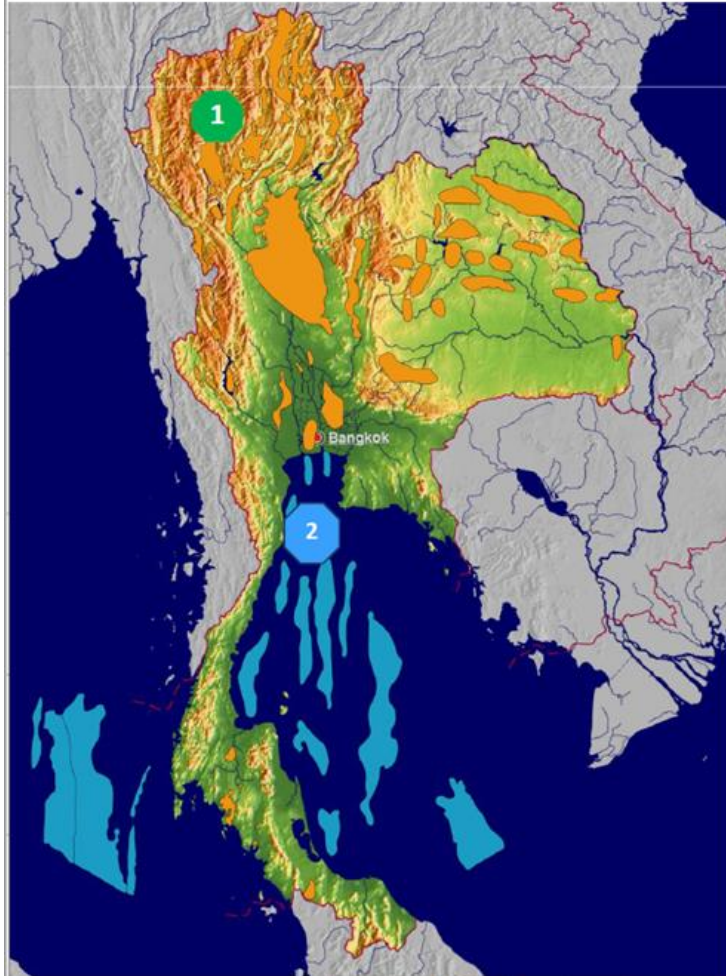
(4) SCG Cement Co., Ltd. /The Siam Cement (Kaeng Khoi) Co., Ltd. /Nippon Steel Engineering Co., Ltd./Thai Nippon Steel Engineering & Construction Co., Ltd.

**“Feasibility Study of Social Implementation of Carbon Capture and Utilization from Flue Gas of Cement Production Plant in Thailand and Neighboring Countries in Southeast Asia”**

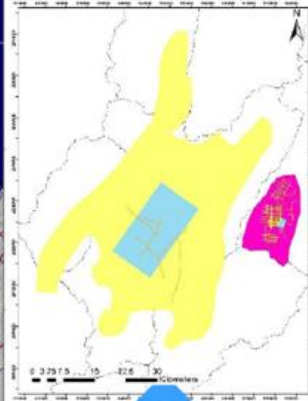


# MOE is strongly interested in CCUS cooperation.

## 3 Project Highlights proposing to White Paper for METI

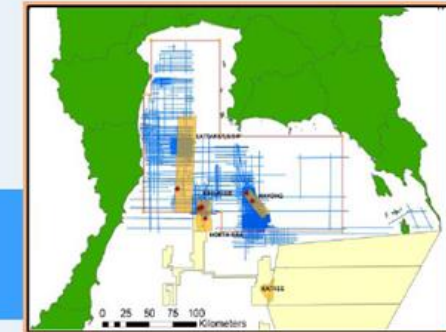


Site Screening for CO<sub>2</sub> storage for on-shore and off-shore



1  
**Mae Moh and Lampang CCS**

2  
**North Gulf of Thailand Project**  
Storage capacity in Saline aquifer  
833 – 7,000 MtCO<sub>2</sub>



	2022	2023	2024	Current Status	Expected outcome
Mae Moh & Lampang Projects	↔			Data review	Site Screening
North Gulf Of Thailand	↔			Preliminary study for site screening	CO <sub>2</sub> Hub for storing CO <sub>2</sub> from Map Ta Phut
CCS Regulations		#1 <sup>st</sup>	#2 <sup>nd</sup>	Drafting process	Specific CCS regulations

# **METI and MOE signed MOC on CCUS cooperation.**

## **MEMORANDUM OF COOPERATION**

**on**

### **THE CARBON CAPTURE, UTILIZATION AND STORAGE TECHNOLOGY PARTNERSHIP**

**Between**

### **THE MINISTRY OF ENERGY OF THE KINGDOM OF THAILAND**

**and**

### **THE MINISTRY OF ECONOMY, TRADE AND INDUSTRY OF JAPAN**

#### **Paragraph II**

#### **AREAS OF COOPERATION**

Cooperation activities determined as potential collaboration projects between the Participants under this MOC may be performed in the following forms:

- (1) Bilateral consultation;
- (2) Exchange of information and statistical data available in open sources on a regular basis;
- (3) Training, skill development and transfer of expertise;
- (4) Promoting joint investment between the two countries and/or in a third country;
- (5) Operating and disseminating the joint projects; and
- (6) Any other forms of cooperation to be determined by the Participants.

#### **Paragraph III**

#### **IMPLEMENTATION**

To coordinate the cooperation under this MOC, the Participants will discuss and cooperate under the Japan – Thailand Energy Policy Dialogue (hereinafter referred to as “JTEPD”) in order to identify the CCS (Carbon Capture and Storage) and CCUS (Carbon Capture, Utilization and Storage) joint projects for implementation.

Participants may establish a Working Group which may explore CCS, CCUS and related cooperation with the participation of key partners including Japanese companies which can be supported by the Japan Organization for Metals and Energy Security (JOGMEC) and Thai companies and/or organizations which are affirmed by the Department of Mineral and Fuels (DMF) and report its progress to JTEPD as necessary.

**Thank you for listening**