



# **Collaborative Effort to Achieve an Affordable and Just Energy Transition in Southeast Asia**

Clean Coal Day International Symposium, 2025

**Dr Nuki Agya Utama**

Director for Energy Policy | Head of Asia Zero Emission Center

# Asia Zero Emission Center



**Empowering Asia's Sustainable Future: Collaborate, Innovate, and Lead the Pathways to Zero Emissions**

The Center will serve as a **platform** to share information, conduct studies on policies, facilitate stakeholders' engagement and help AZEC partner countries develop visions, roadmaps, or policies towards decarbonization to promote energy transitions.

## Strategic research programs in the Center

### Decarbonisation Roadmap

Serve as objective and practical reference points for setting targets, timelines, and identifying key drivers towards carbon neutrality, to support each country to develop strategies and plans for promoting energy transitions.

### Sector Specific

Provide detailed insights into the key sectors and technologies essential for achieving decarbonization, focusing on Power, Mobility, and Industry sectors, as well as cross-sectoral themes such as fuels, CCUS, and critical minerals.

### Market Enablers

Focus on coordinating market structures so that necessary technologies can be evaluated properly and attract sufficient investments in a sustainable way.

### AZEC Principle

Achieving a **“Triple Breakthrough”**, namely addressing climate change, promoting inclusive economic growth, and achieving energy security simultaneously, while adapting the concept of **“One Goal, Various Pathways”**, recognizing diverse, practical paths to carbon neutrality/net-zero emissions, considering each country's unique circumstances, targets, policies, and developmental challenges, including geographic, economic, technological, institutional, social, and equity factors.



Launch Ceremony of the Asia Zero Emission Center (21<sup>st</sup> August 2024)



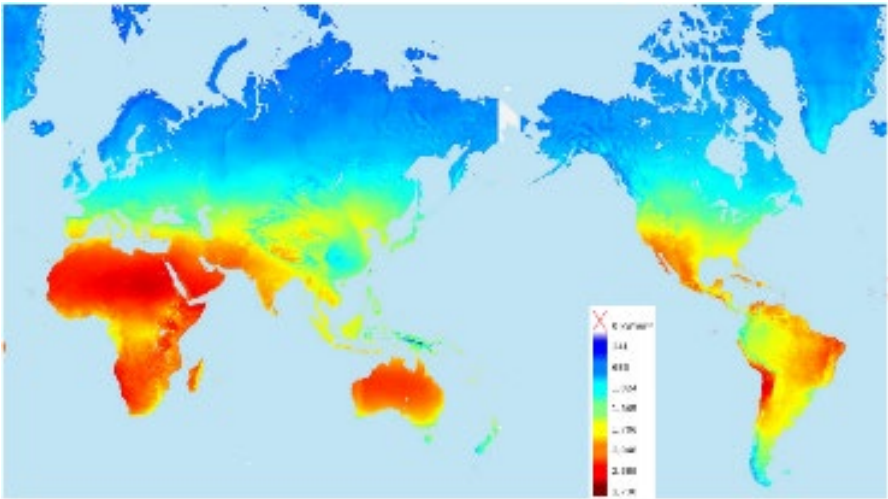
AZEC Advocacy Group Round Table (20<sup>th</sup> August 2024)

# Energy Reality in Asia

- Southeast Asia’s energy demand is projected to rise by 30% by 2030 and 170% by 2050, driven by economic growth.
- While renewables are expanding, it may not be sufficient to meet the region’s rapid and large-scale energy needs.
- Coal demand remains significant, over short and medium term.

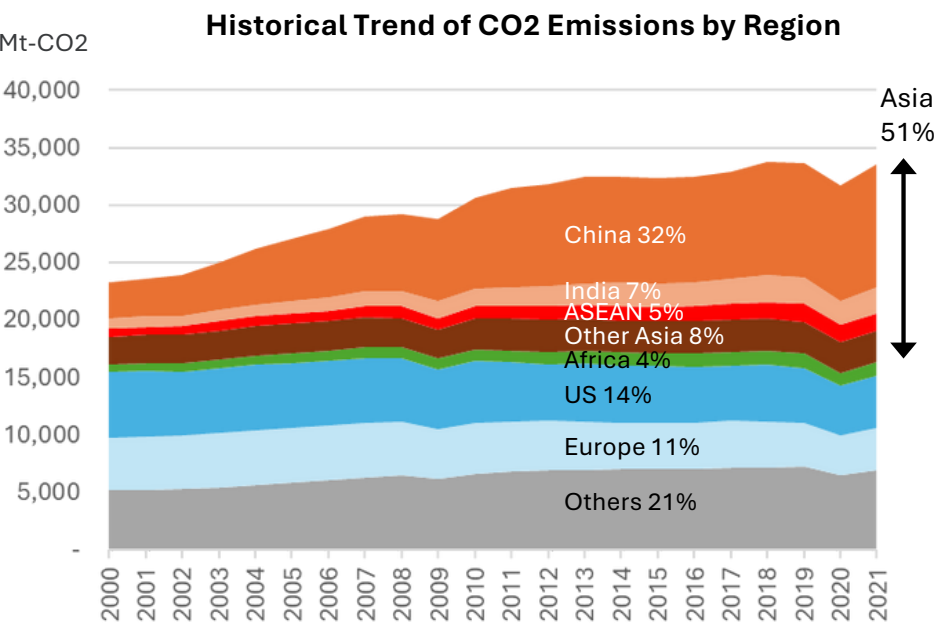
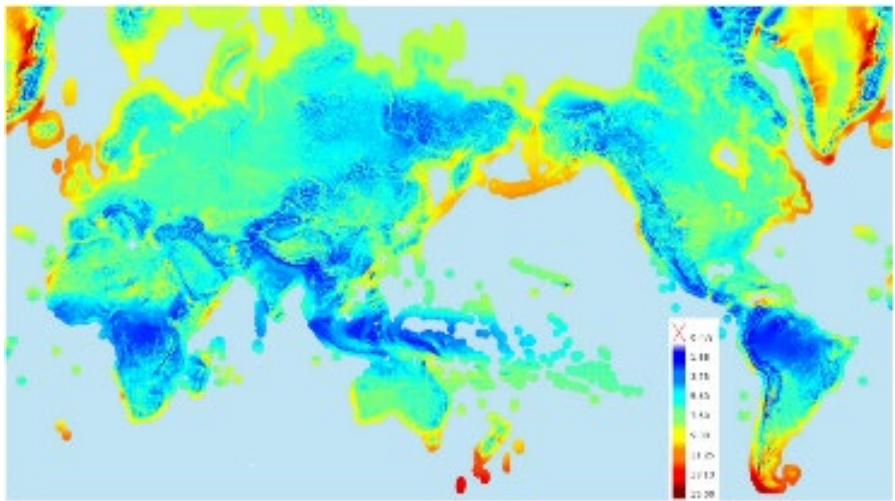
## Potential of Solar Energy

(Global Annual Average Global Horizontal Irradiation)

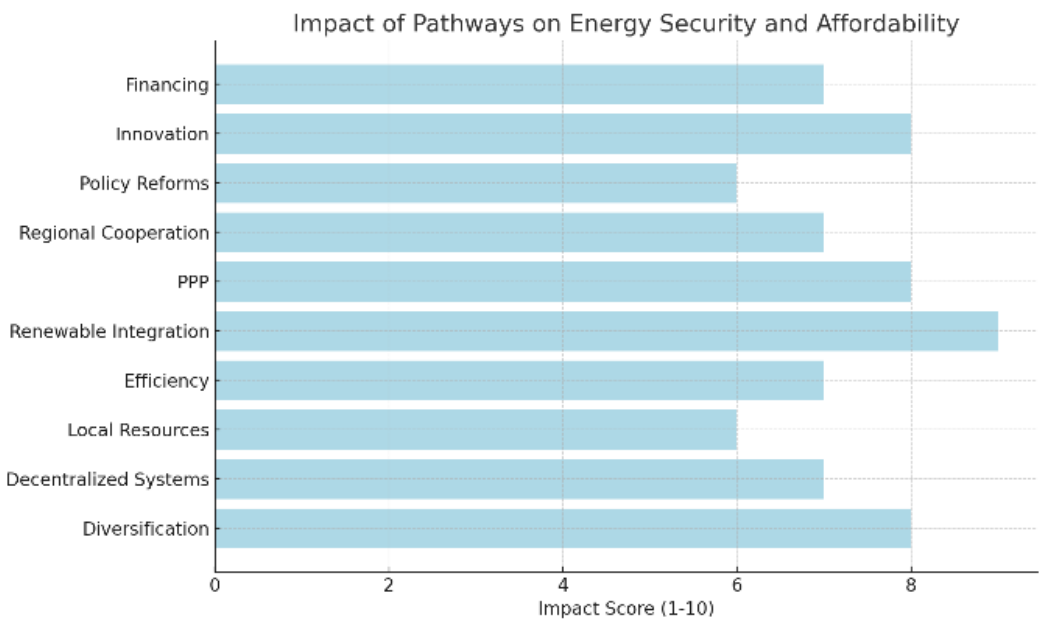


## Potential of Wind Energy

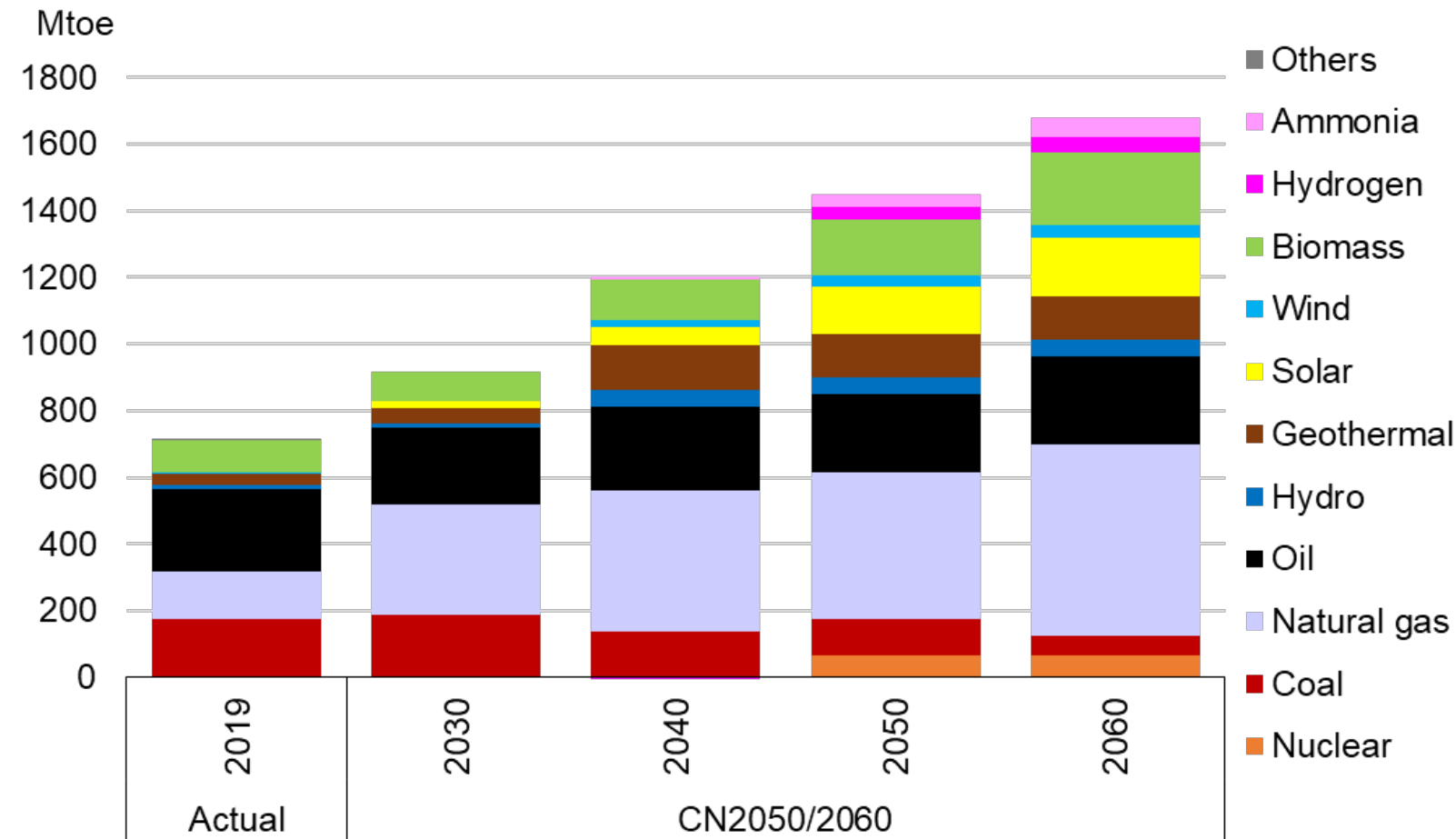
(Global Annual Average Wind Speed at 100m Height)



Source: IEA Energy Statistics



# Bridging Coal and Decarbonization in Southeast Asia

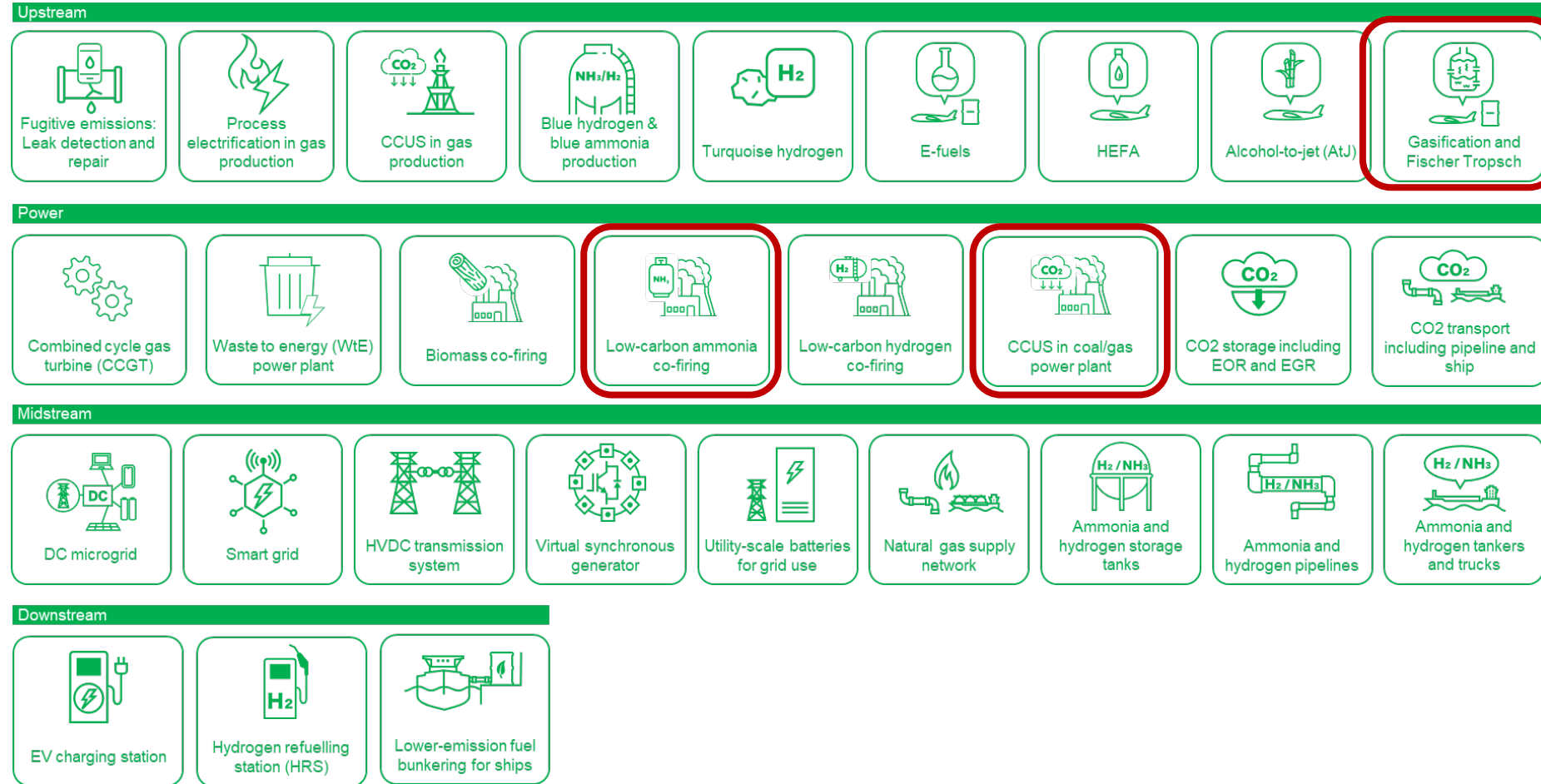


(ERIA, forthcoming)

- ASEAN's energy supply will more than double by 2060; coal remains key at 189 MTOE by 2030.
- Ammonia/biomass co-firing, CCUS, and coal-to-hydrogen are gaining traction post-2030.
- Most coal plants are still inefficient; tech transformation is urgent.
- CCS and co-firing face early-stage challenges; strong policy support is essential.
- Financing and carbon markets are vital;



# Coal Related Technologies in The Technology List and Perspective for Transition Finance



Several coal-related technologies are recognized as key transitional enablers for de-carbonization in ASEAN. These include:

- Carbon Capture, Utilization, and Storage (CCUS) in coal-fired power plants (CFPP)
- Biomass and low-carbon ammonia co-firing as retrofittable solutions to reduce emissions in existing plants
- Coal gasification, which opens pathways for hydrogen and ammonia production, enabling cleaner fuel use in power and industry

# Regional Collaboration and the Just Transition

## Asia Zero Emission Center

- Asia Transition Finance Study Group
- Technology List and Perspective
- The ASEAN CCUS Network (ACN)
- Development of Carbon Market



Since 2020, ERIA has been tasked with administering the Asia CCUS Network, a platform for policymakers, financial institutions, industry players, and academia to work together to ensure the successful development and deployment of CCUS in the Asia region.

## Vision

- Through collaboration and cooperation on development and deployment of CCUS in the Asia region, the Network will contribute to the decarbonization of the region
- "**Asia CCUS Network**" aims at **(1) knowledge and experiences sharing** regarding CCUS, conducting potential surveys, **(2) creating common rules** and developing projects, and **(3) realizing storage network** throughout Asia.

## Mission

Facilitate deployment of CCUS in the EAS region through the following activities:

- a. Promote knowledge sharing through holding an annual forum, conferences, workshops, and meetings.
- b. Conduct research studies on technical, economic, and legal standards of CCUS in the EAS region.
- c. Hold capacity-building training workshops.





Economic Research Institute  
for ASEAN and East Asia

**Headquarters:**

The ASEAN Secretariat, Heritage Building, 4<sup>th</sup> Floor  
Jl Sisingamangaraja, 70A, Jakarta Selatan 12110,  
Indonesia

**Annex Office:**

Sentral Senayan II, 5<sup>th</sup>, 6<sup>th</sup>, and 15<sup>th</sup> Floor  
Jl Asia Afrika No. 8, Gelora Bung Karno  
Senayan, Jakarta Pusat 10270, Indonesia



Scan here to  
access the report