

## 3-2. APEC Symposium on Bioenergy - 3rd sectoral symposium for energy transition

### APERC Workshop

The 69<sup>th</sup> Meeting of APEC Energy Working Group (EWG69)  
25 February 2025 – Gyeongju, Republic of Korea

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# Outline

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# Background

Date	Topic
August 2021	Symposium on "Holistic Approach of Decarbonization towards Carbon Neutrality"
October 2023	1st Sectoral Symposium on "Pursuing Decarbonization of Fossil Fuels"
January 2024	2nd Sectoral Symposium on "Promoting Energy Efficiency & Energy Management Systems"
May 2024	APEC Energy Transition Workshop in Nanjing, China
Dec 3-4, 2024	APEC Symposium on Bioenergy – 3rd sectoral symposium for energy transition

## Objectives

- Follow up on the recommendations of the APEC Symposium on the [Holistic Approach of Decarbonization towards Carbon Neutrality](#) held online in August 2021.
- Focus on [bioenergy](#) as the 3rd sectoral symposium on carbon neutrality, co-organized by MOE Thailand, following the symposium on "Pursuing decarbonization of fossil fuels" in October 2023 and "Promoting energy efficiency and energy management systems" in January 2024.

# Venue and participants

- Date & Venue: December 3-4, 2024 @ Pullman Khon Kaen Raja Orchid Hotel, Khon Kaen, Thailand
- 57 Participants from 13 economies (Female 49%)  
(AUS, PRC, HKC, INA, JPN, ROK, MAS, PNG, PHL, SGP, CT, THA, VN)





# Agenda

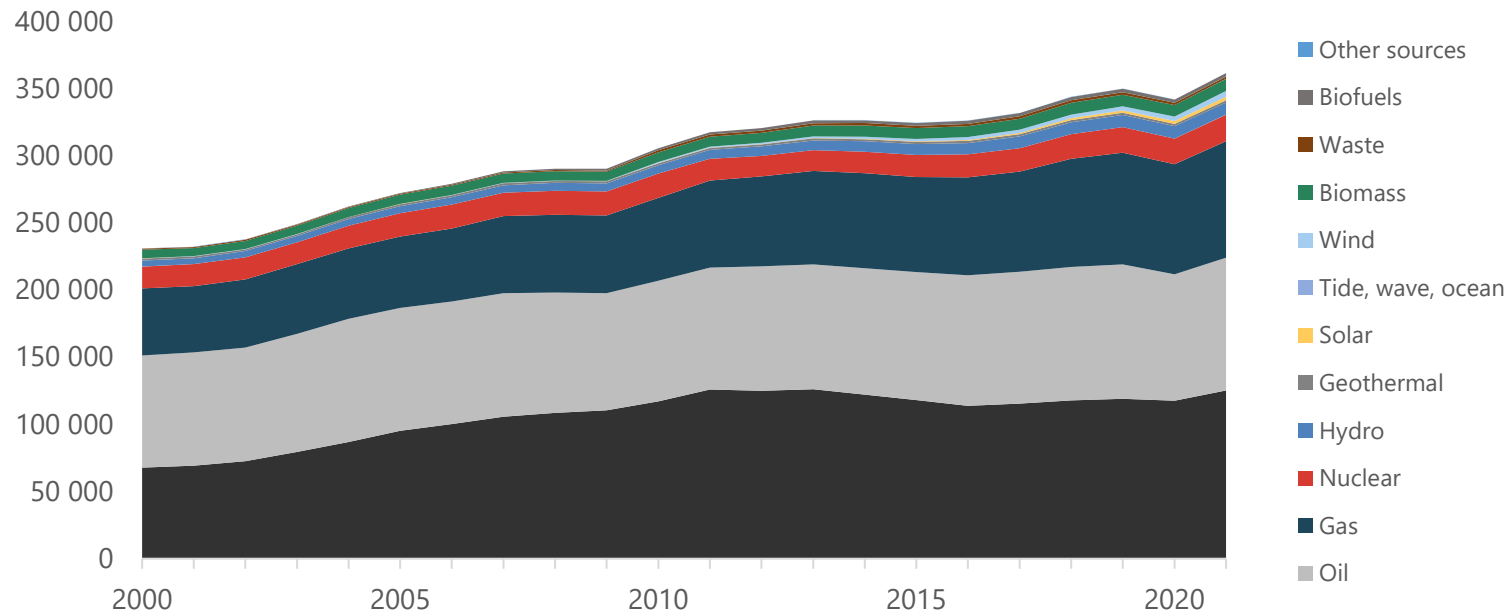
Date	Morning	Afternoon
December 3rd	<p><b>Welcome Speech:</b> Mr Waranon Chansiri, Director of International Affairs Division, Office of Permanent Secretary, Ministry of Energy, Thailand</p> <p><b>Opening Remarks:</b> Mr Siriwat Pinijpanich, Vice Governor of Khon Kaen Province, Thailand Dr Kazutomo Irie, President, Asia Pacific Energy Research Centre (APERC)</p> <p><b>Keynote Speech: (in video)</b> Mr Yoshiomi Yoshino, Director for International Policy on Carbon Neutrality, Ministry of Economy, Trade and Industry, Japan</p> <p><b>Scene Setting:</b> Mr Glen Sweetnam, Senior Vice President, APERC</p>	<p><b>Session 1. Biodiesel and bioethanol.</b></p> <p><b>Session 2. Synthetic biofuels.</b></p> <p><b>Session 3. Decarbonization in power sector by biomass and biohydrogen.</b></p>
December 4 <sup>th</sup>	Site visit to Mitr Phol Sugar and Mitr Phol Ethanol plants, Chaiyapoom province.	

# Highlights of keynote speech

- Emphasizing Japan's 3 energy transition priorities:
  - One Goal-Different Pathways
  - Energy innovations-GX
  - Solutions to the world
- Highlighting Japan's efforts on bioenergy:
  - 10% of aviation fuel to be replaced by SAF by 2030
  - Biofuels policies for marine bunkers
  - Supporting policies for synthetic fuels and e-methane

# Highlights of scene-setting

**Total primary energy supply, APEC, 2000 – 2021 (PJ)**



- Contribution of biomass and biofuels to the total fuel mix in APEC is small, currently 2.5% and 0.7% of APEC's primary energy supply in 2021, respectively.
- Crops and forests are efficient at removing CO<sub>2</sub> from the atmosphere, but utilizing bioenergy is currently expensive.
- Nevertheless, bioenergy can still play an important role in specific situations and sectors.
- Subsidies and regulatory requirements will be necessary to increase usage.
- Widespread adoption of bioenergy will remain limited until new technologies substantially lower the cost.

# Invited speakers and topics

- 11 speakers from 8 economies (3 government officials and state enterprises, 3 private companies, 4 government institutes and NGOs, 1 consulting firm).

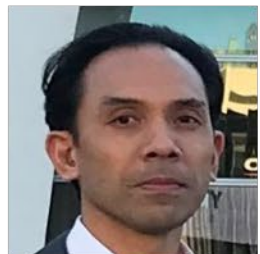
## Session 1: Biodiesel and bioethanol



Dr. Natikorn Prakobboon,  
Department of Alternative  
Energy Development and  
Efficiency (DEDE)  
Ministry of Energy, Thailand



Dr. Chia-Chi Chang  
Senior Research Fellow  
Taiwan Bio-energy Technology  
Development Association,  
Chinese Taipei



Dr. Norizal Mohamad Zamri  
Head of National Project &  
Technical Advisor  
Global Wildlife Program (GWP)  
Malaysia

## Session 2: Synthetic biofuels



Mr. Kittipong  
Limsuwannarot  
CEO and President, BBGI  
Plc., Thailand



Mr. Chua Wei Jun  
Biofuels Analyst S&P Global  
Commodity Insights,  
Singapore



Dr. Hyunyoung Oh  
Associate Research Fellow,  
Korea Energy Economics  
Institute (KEEI), Korea



Dr. Nuwong Chollacoop,  
Research Group Director,  
National Energy Technology  
Center, Thailand

## Session 3: Decarbonization in power sector by biomass and biohydrogen



Ms Ornnicha Phalino,  
Chief of Fuel Development  
Department, EGAT,  
Thailand



Mr Naotsugu Otani,  
Deputy General Manager,  
Environment & Biomass Coal  
and Energy Solution  
Department, Idemitsu Kosan  
Co., Ltd., Japan



Ms Alice Li, Senior Technical  
Consultant, DR Biomass  
Development (HK) Limited,  
Hong Kong, China



Ms Anna Mikko G. Real  
Officer-in-Charge, Biomass  
Energy Management Division,  
DOE,  
The Philippines



# Session topics

## **Session 1. “Biodiesel and Bioethanol: Opportunities & Challenges and Recent Developments”**

- Bioethanol and biodiesel: Opportunities & challenges and recent developments (MOE, Thailand)
- Development and current situation of bio-fuel in Chinese Taipei (TBDA, Chinese Taipei)
- Malaysia’s biofuel partnership program in transportation (UNDP, Malaysia)

## **Session 2. “Synthetic Biofuels: Opportunities & Challenges and Recent Developments”**

- SAF initiatives and potential: Thailand case (BBGI, Thailand)
- Global SAF and e-SAF development (S&P Global, Singapore)
- Biofuels and SAF in Korea (KEEI, Korea)
- SAF and e-fuels in Thailand (NSTDA, Thailand)

## **Session 3. “Decarbonization in Power Sector by Biomass and Biohydrogen”**

- Biofuel : Co-firing Application and Pathway to Sustainable Decarbonization in Mae Moh Smart City (EGAT, Thailand)
- Contribution to carbon neutral society by biomass use in coal-fired boiler from Idemitsu (Idemitsu, Japan)
- Exploration and Experience of Bioenergy (DR Biomass, Hong Kong, China)
- Decarbonization in power sector by biomass and biohydrogen in the Philippines (DOE, The Philippines)

# Key session summaries

## Session 1: Biodiesel and bioethanol

- Technology readiness for conventional biofuels.
- Support decarbonization of specific sectors such as diesel freight, marines, and aviation.
- Positive demand outlooks especially from Europe and Northeast Asia.
- Initiatives are underway such as low-carbon cities and public transportation in Malaysia.
- Feedstocks and government subsidies remain as key challenges.

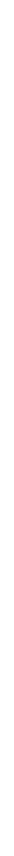
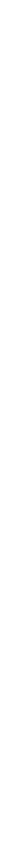
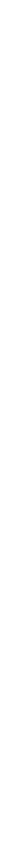
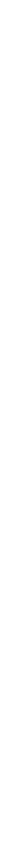
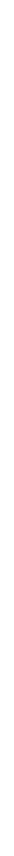
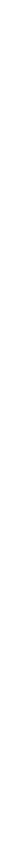
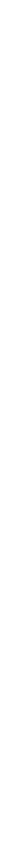
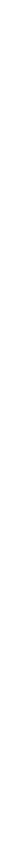
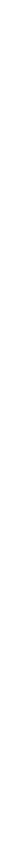
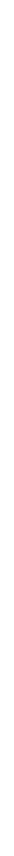
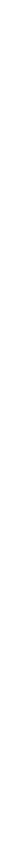
## Session 2: SAF and e-fuel

- Broad range of certified feedstocks of SAF is in place.
- Increasing SAF blending mandates but fragmented targets:
  - EU mandated 6% blend by 2030, UK mandated 22% by 2040.
  - US and Japan targeted 10% by 2030.
  - IATA targeted 5% global blend.

## Session 3: Decarbonization in power sector

- Modern wood pallets proved to be efficient and cost-effective in co-firing boiler.
- Sharing from EGAT's co-firing power plant in Thailand, Idemitsu's wood pallet plant in Viet Nam, and plans for biomass uses in the Philippines.
- Experiences from integrated biogas manufacturing in China.

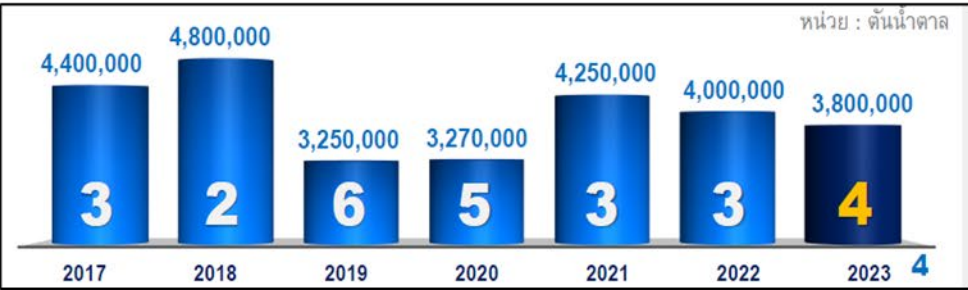
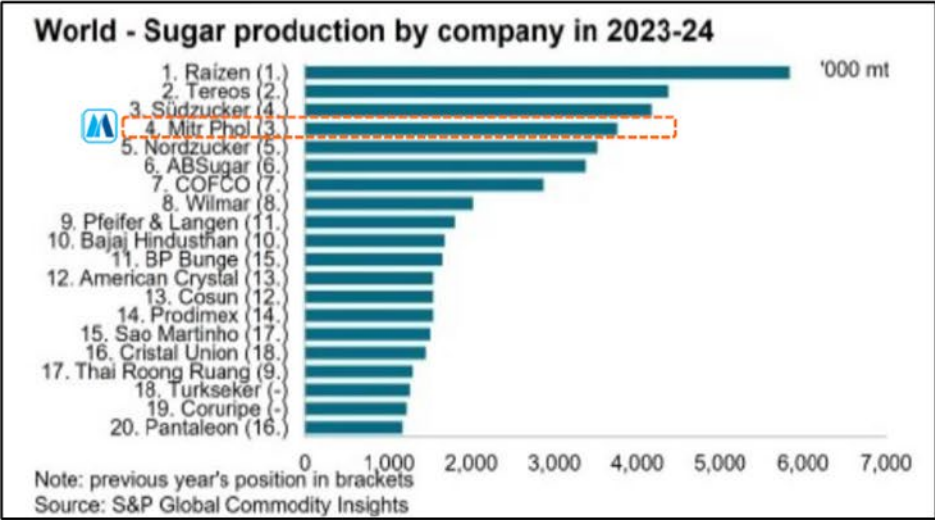
# Visit to Mitr Phol sugar and ethanol plants





# About Mitr Phol

- Ranked 4<sup>th</sup> largest sugar producer company in the world in 2023; ranked 2<sup>nd</sup> in 2018.
- Fully integrated with sugar plant, ethanol plant, biomass powerplant, and fertilizer plant.



# Thank you.

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