



Advancing Sustainable Coal Innovation and Technology in ASEAN

"Future Coal" Leaders Forum – World Coal Association (WCA)
Singapore, 16 May 2023

Dr Nuki Agya Utama
Executive Director



**One Community
for Sustainable
Energy**



Introduction

Established on 1 January 1999, the ASEAN Centre for Energy (ACE) is an intergovernmental organisation within the Association of Southeast Asian Nations' (ASEAN) structure that represents the 10 ASEAN Member States' (AMS) interests in the energy sector.



ACE shall accelerate the integration of **energy strategies** within ASEAN by providing relevant information and expertise to ensure the necessary energy policies and programmes are in **harmony** with the **economic growth** and the **environmental sustainability** for the region.



Catalyst

To unify and strengthen ASEAN Energy Cooperation by providing:

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



Knowledge Hub

To provide a knowledge repository for ASEAN Member States (AMS) and services through:

- Data Management
- Publication
- Dissemination



Think tank

To assist AMS on research and identifying practical & specific solution on:

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

Regional blueprint for the energy cooperation in the ASEAN








ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025 Phase 2: 2021-2025

- Theme: “Enhancing Energy Connectivity and Market Integration in ASEAN to Achieve Energy Security, Accessibility, Affordability and Sustainability for All”.
- Sub-theme: “Accelerating Energy Transition and Strengthening Energy Resilience through Greater Innovation and Cooperation.”

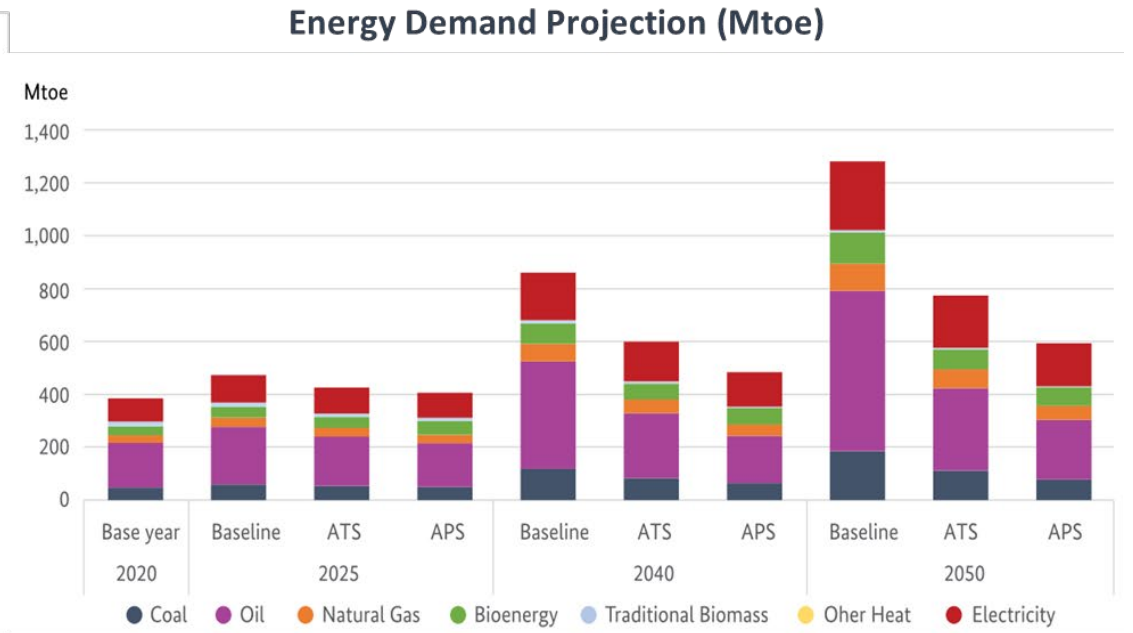
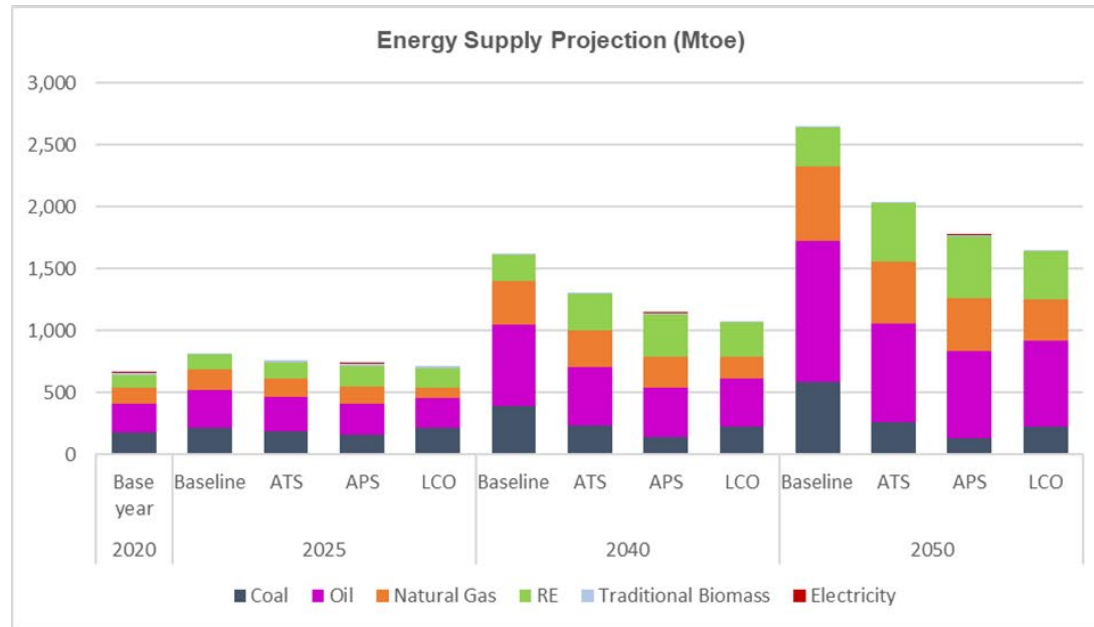


ASEAN PLAN OF ACTION FOR ENERGY COOPERATION (APAEC) 2016-2025 PHASE II: 2021-2025



| | | | |
|---|---|--|---|
|  ASEAN Power Grid | <p>To expand regional multilateral electricity trading, strengthen grid resilience and modernisation, and promote clean and renewable energy integration.</p> |  Energy Efficiency and Conservation | <p>To reduce energy intensity by 32% in 2025 based on 2005 levels and encourage further energy efficiency and conservation efforts, especially in transport and industry sectors.</p> |
|  Trans-ASEAN Gas Pipeline | <p>To pursue the development of a common gas market for ASEAN by enhancing gas and LNG connectivity and accessibility.</p> |  Renewable Energy | <p>To achieve aspirational target for increasing the component of renewable energy to 23% by 2025 in the ASEAN energy mix, including through increasing the share of RE in installed power capacity to 35% by 2025.</p> |
|  Coal and Clean Coal Technology | <p>To optimise the role of clean coal technology in facilitating the transition towards sustainable and lower emission development.</p> |  Regional Energy Policy and Planning | <p>To advance energy policy and planning to accelerate the region’s energy transition and resilience.</p> |
| | |  Civilian Nuclear Energy | <p>To build human resource capabilities on nuclear science and technology for power generation.</p> |

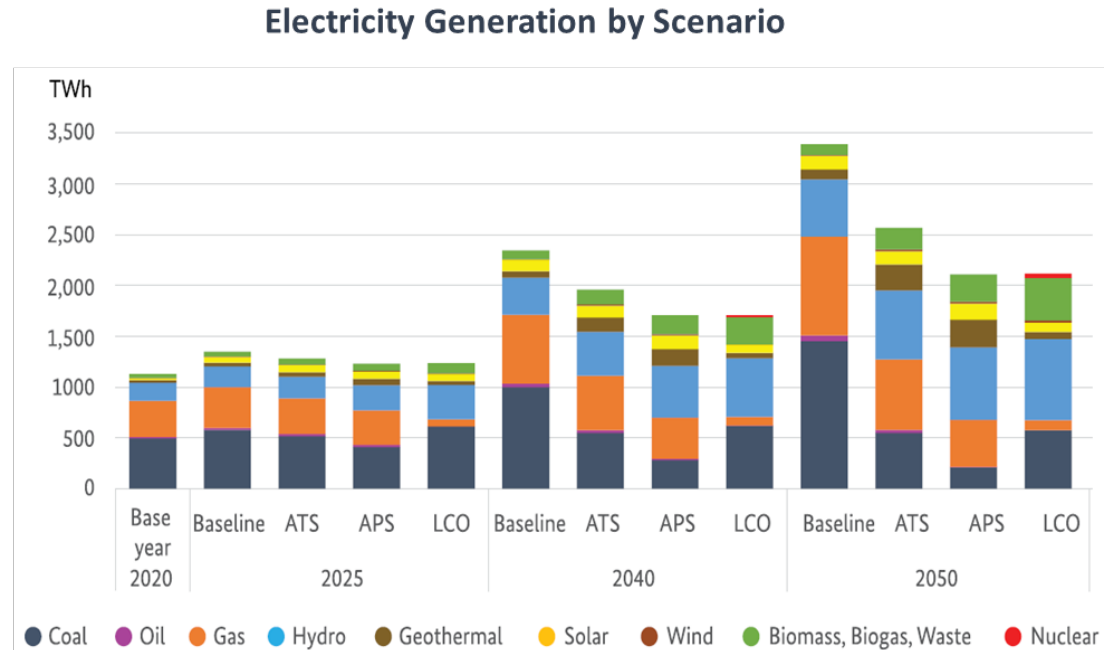
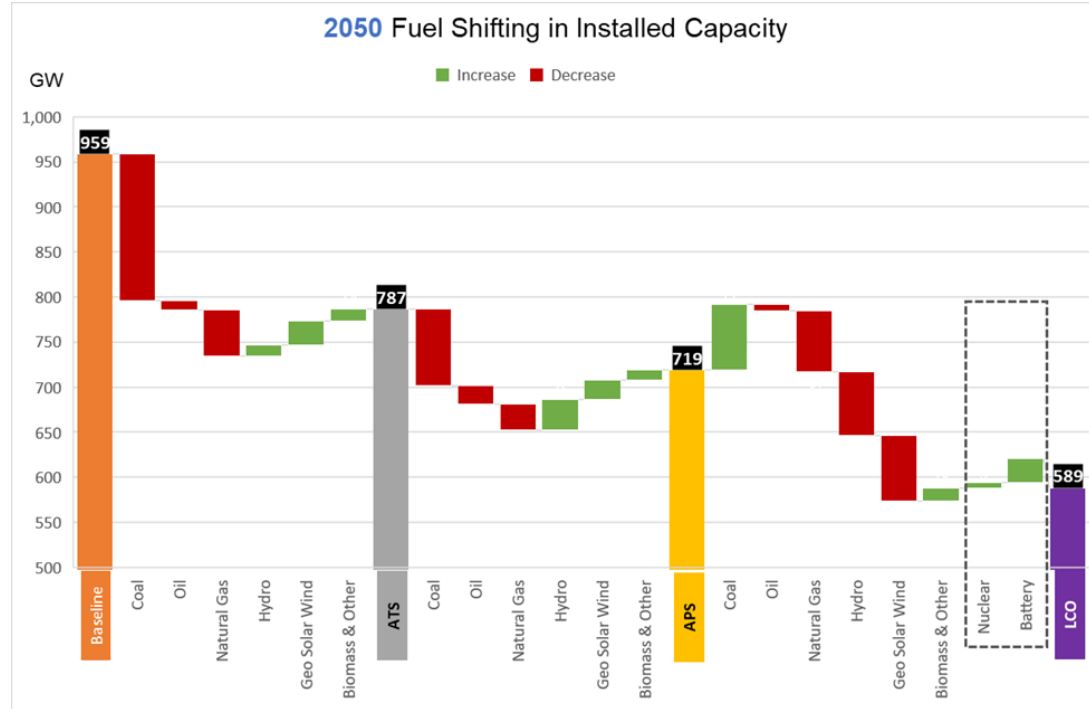
Coal Pathways in ASEAN energy system – findings from AEO7



In all scenarios, fossil fuel dominates the energy system. Coal, mainly used in power and industry sector, comprises of 22.1% in Baseline Scenario and 18.3% in APS (2050). The 2020 share is 28%.

In end use, coal is used almost exclusively in the industry sector, for both energy use and non-energy use. Its share decreases from 14.5% in Baseline Scenario to 13.2% in TPES (2050).

Critical Role in the ASEAN Power System – findings from AEO7



Between Scenarios, the utilization of coal (2050) diminishes, from 33.8% (Baseline) to 10.5% (TPES). Exception is in LCO Scenario, which observes increase of Coal installation capacity to 23.9%.

In term of electricity generation, the share of coal in 2050 is 42.8% (Baseline), 21.4% (ATS), 9.8% (APS), and 27.1% (LCO). In 2020, the share is 43.9%

Importance of advancing sustainable coal innovation and technology

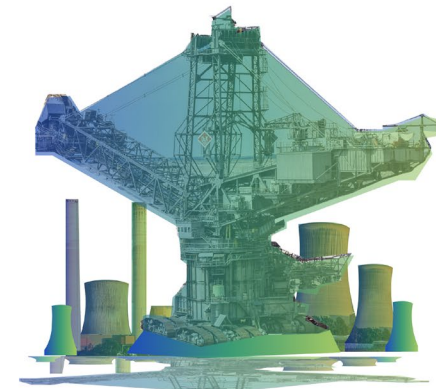
- Recent trends toward low-carbon development requiring energy sector to cut down emission
 - One impact is energy financing move away from fossil fuels, especially coal.
 - Most AMS have put forward the intention and plan of net zero emissions, which require peaking and phase down of coal
 - ASEAN should address this to keep the economic growth and energy security, amidst the energy transition
- Despite the challenges, coal would still play a role in ASEAN
 - Many of the coal fleets in ASEAN are young (around 10 years of age)
 - Coal can play a role as baseline generation to provide stability, also supporting vRE.
 - Need to ensure that the energy transition, including coal phase-down, to be just and sustainable
 - Need to address the comprehensiveness of coal issues, including supply chain and job shift
- Evolving roles of coal require technology development and financing
 - Emerging technologies in co-firing (biomass, ammonia), Carbon Capture Utilisation / Storage (CCU/S) and other High-Efficiency Low Emission (HELE) technology would play a huge role.
 - Also important is the re-utilization of coal infrastructure
 - Transition financing on these sustainable coal innovation require proper attention and highlight

Regional Approaches for Promoting CCT

1. Policy support and intermediation from the Government towards energy transition and low-carbon economy.
2. Promote Innovation and financing as a key to energy security through CCT.
3. Developing a broader framework for deepening international and regional cooperation.




Regional Approaches for the Promotion of Clean Coal Technology (CCT) in ASEAN






ASEAN Centre for Energy

Soemantri Brodjonegoro II Building, 6th fl.,
Directorate General of Electricity,
Jl. HR. Rasuna Said Blok X-2, Kav. 07-08,
Jakarta 12950, Indonesia

 Tel: (62-21) 527 9332 | Fax: (62-21) 527 9350

 www.aseanenergy.org

