

Towards ASEAN's Energy Transition: Key Findings and Learnings from the 6th ASEAN Energy Outlook (AEO6)

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IEEJ Think Tank Roundtable at SIEW 2021

"Driving the Clean Energy Transition in ASEAN and Japan"

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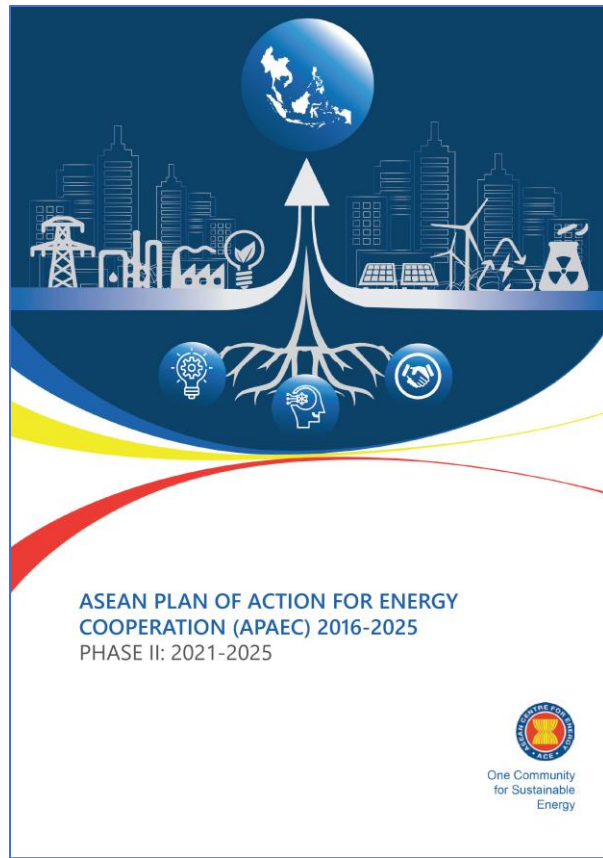
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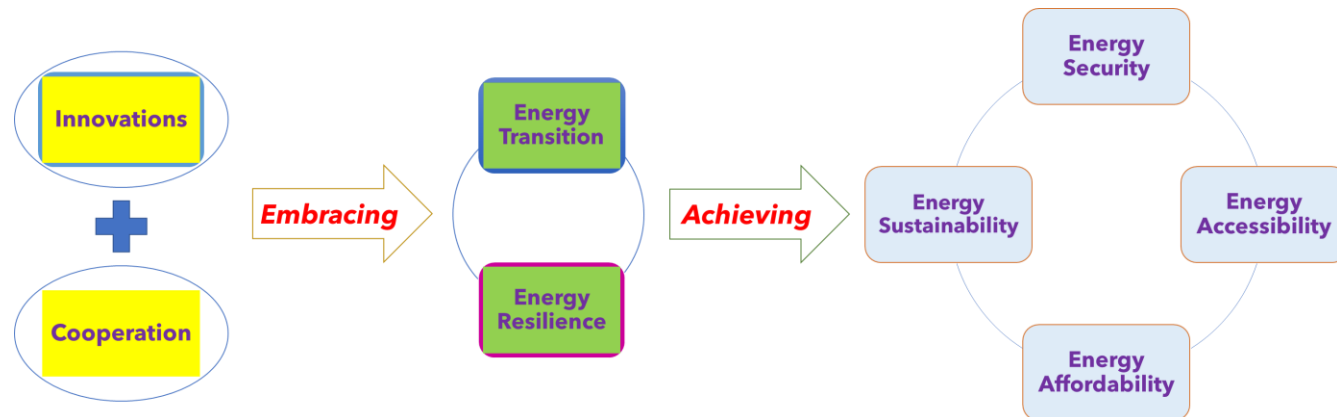
The APAEC Phase II: 2021-2025

Regional blueprint for the energy cooperation in the ASEAN that builds on the success of APAEC Phase I: 2016-2020, sets out ambitious targets and initiatives to enhance energy security and sustainability and supports the UN SDG7.



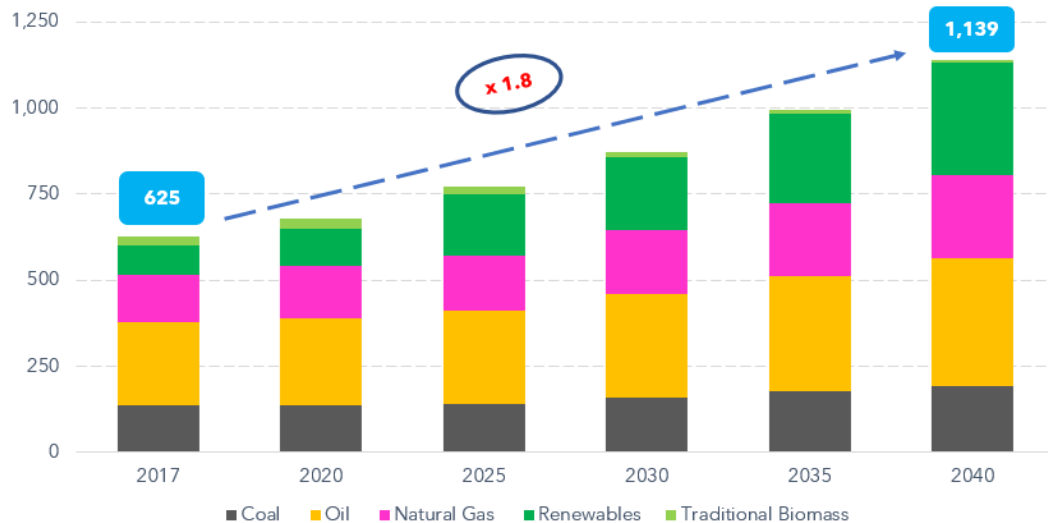
ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025 Phase 2: 2021-2025

- **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."



Future Energy Landscape in ASEAN

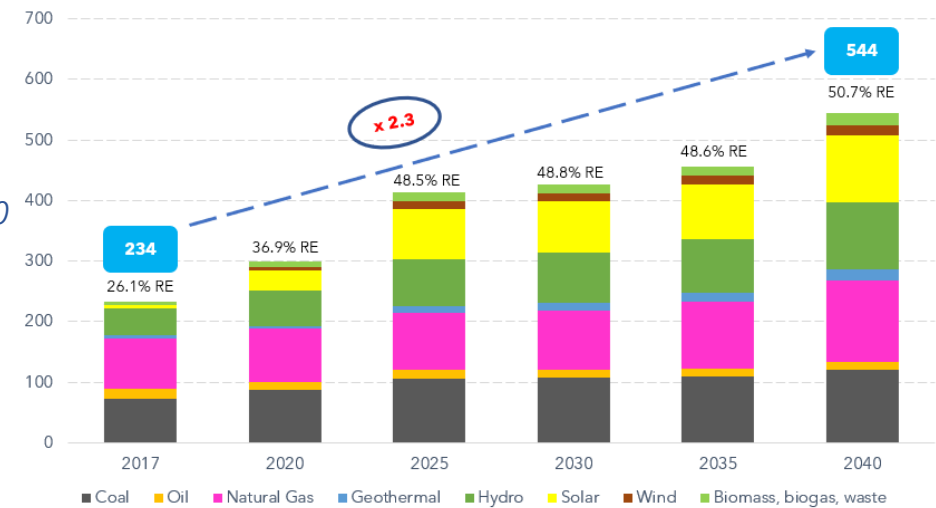
Higher penetration of solar and wind energy, the **role of coal and natural gas will be essential** to maintain grid stability and to secure energy supply.



ASEAN Total Primary Energy Supply under the APS (MTOE)

Source: ACE, 2020

- ASEAN countries acknowledges the need for transitioning into low-carbon economy
- Existing policies implemented by AMS has driven large uptake of renewables in past years, and is expected to drive increase in RE installed capacity in the long-term
- However, fossil-based generation is still expected to dominate the energy mix in the region to secure its energy supply

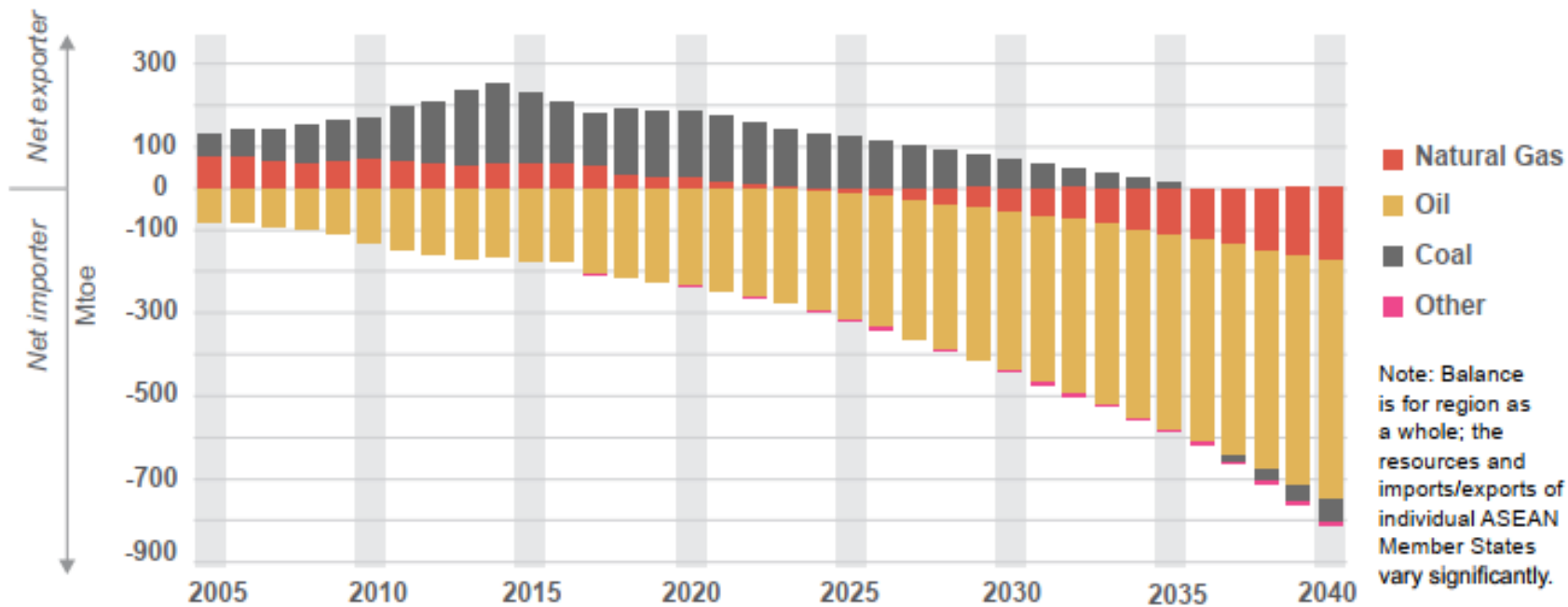


ASEAN Total Installed Capacity under the APS (GW)

- The economic growth of ASEAN has been one of the most dynamic and the fastest in the world.
- Fueling this growth, is the increase of energy demand.
- Demand in primary energy in 2040 is expected to be 1.8 times higher than the 2017 level

ASEAN Energy Import-Export Balance and Projections

Without significant discoveries and exploitation of domestic resources, ASEAN will become net-importer of gas starting 2025 and coal starting 2035.



Source: ACE, 2020

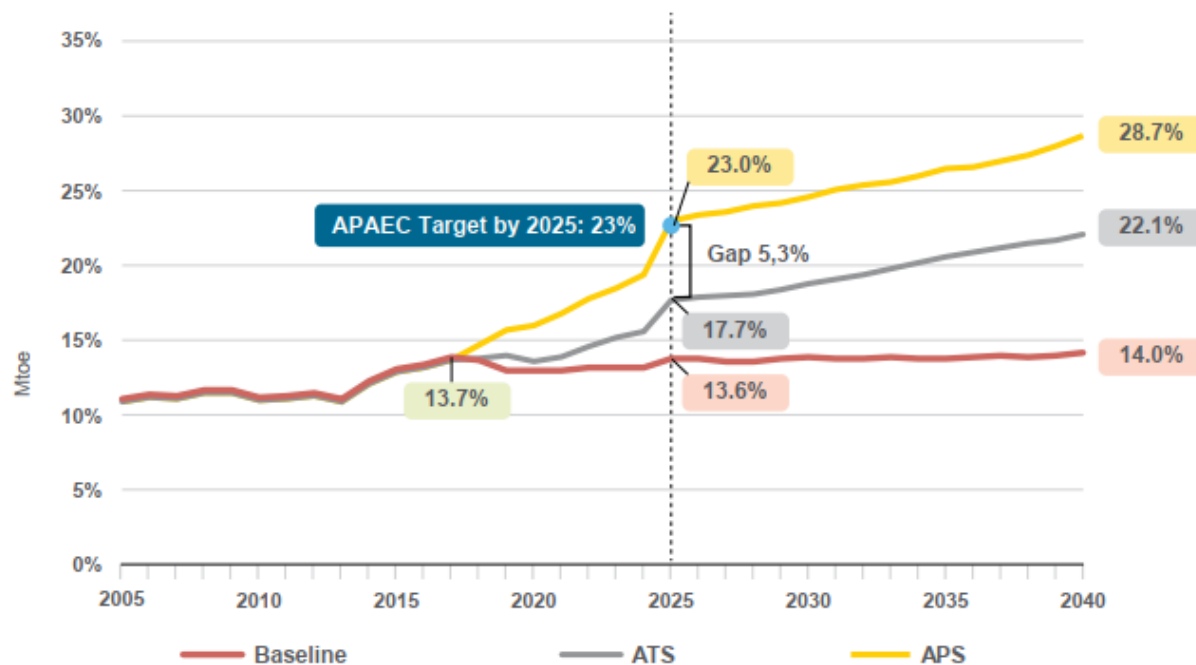
- With a growing reliance on fossil fuel imports, by 2040, ASEAN could face serious energy security challenges in the Baseline Scenario.
- Fossil fuel markets are volatile, and fluctuating prices could affect the affordability of fuels needed by the ASEAN economies.

ASEAN Renewable Energy (RE) Projections

It needs more efforts is to meet the regional renewable energy target of 23% by 2025, while the differences of 9.4%-point gap from the baseline scenario and closes 5.3%-point gap from ATS.



Figure 44. Meeting the APAEC Renewable Energy Target



Source: ACE, 2020

- Regional collaboration could play an important role in closing the RE gap, as individual ASEAN Member States may find it challenging to undertake the required efforts on their own and to help countries achieve economies of scale and address some of the potential challenges that could arise.
- One of the biggest tasks for ASEAN in achieving the APAEC regional targets is to increase the share of renewable energy in the power supply. A key aspect of this is to increase the penetration of variable renewables, with a doubling of solar PV and wind capacity.

Five Things to be Considered by ASEAN Policy-makers

We explored the key paths to address energy issues and policy challenges in ASEAN region which are aligned with the themes of APAEC Phase II: energy transition, resilience and sustainability.



Continuation of Fossil Fuels

Along with stepped-up efforts to reduce fossil fuel demand **through fuel-switching by applying LNG-to-Power and energy efficiency measures**, AMS can work to reduce GHG emissions and other externalities by deploying technologies such as **coal upgrading; HELE coal power; co-firing systems; and CCUS**.



ASEAN Power Grid

By enabling more cross-border trade, a **more interconnected** ASEAN could make large-scale **RE investments more profitable**. Power connectivity through the APG can enable **more efficient** use of resources, **enhance grid stability and service** in remote areas, and **improve** the region's **energy security**.



Efficient Air Conditioners

Energy demand for cooling in ASEAN has been rising rapidly over the past three decades. Policy-makers will need to find ways to ensure that the expected **increase in cooling demand and AC ownership is sustainable** as well as consider **consumer incentives and education**.



Greener Transport

In 2017, the transport sector was responsible for 26% of TFC and 23% of GHG emissions in ASEAN. Two key approaches, **adoption of electric vehicles** and substitution of oil products with **biofuels**, can help Member States to **reduce oil import dependency and improve energy security**.



Clean Cookstoves

There are still many ASEAN people that still cooked with **traditional biomass**, exposing themselves to **dangerous levels of indoor air pollution**. The **use of electric cookstoves** may be promising for the future, particularly in urban and peri-urban areas where electricity access is expanding.

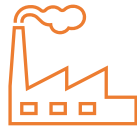
Policy Implications and Recommendations

The 6th ASEAN Energy Outlook (AEO6) identified the recommendations for some key energy-consuming sectors to accelerate the transition to cleaner, more sustainable energy through targeted policies.



Transport

Adopt stronger demand- and supply-side policies for both biofuels and electric vehicles; keep pursuing the **vehicle efficiency target** in the ASEAN Fuel Economy Roadmap; **strengthen vehicle emission and fuel quality standards**; and **invest in public transit and non-motorised transport** to reduce the need for driving.



Industry

Given that industry is the sector with the highest energy demand in the region, it is crucial to **adopt ambitious energy efficiency measures and emission standards**. Manufacturers should also be strongly encouraged to **adopt renewable energy - biomass** may hold the greatest promise.



Residential and Commercial

Stronger energy efficiency requirements for buildings, enhanced building codes and **stricter efficiency standards** for appliances can all help slow energy demand growth driven by rising incomes.



Power

Invest in grid improvements and technologies such as demand-side management and energy storage systems to facilitate the integration of renewable energy into the power grid; **strengthen emission standards** for power plants to reduce GHG emissions and protect public health.

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