

REFLECTIONS FROM THE 2ND EAST ASIA ENERGY FORUM BANGKOK, THAILAND, 2 SEPTEMBER 2019

On 2 September 2019, the 2nd East Asia Energy Forum (EAEF 2) was held with the sponsorship of the Economic Research Institute for ASEAN and the East Asia (ERIA), Energy Research Institute Network (ERIN), and the Ministry of Energy, Thailand. The Forum with the theme of 'Towards Sustainable Energy Transition and the Role of Connectivity in ASEAN' starting with the opening speech by Mr Kulit Sombatsiri, Permanent Secretary, Ministry of Energy, Thailand on behalf of H.E. Mr Sontirat Sontijirawong, Minister of Energy, Thailand followed by keynote speeches by Hon. Dato Seri Setia Dr Awang Haji Mat Suny bin Haji Md Hussein, Minister of Energy, Manpower and Industry, Brunei Darussalam; H.E. Dr Khammany Inthirath, Minister of Energy and Mines, Lao PDR; H.E. Dr Ty Norin, Secretary of State, Ministry of Mines and Energy, Cambodia; and Mr Atsushi Taketani, President of JETRO Bangkok, Japan, marked a great success with insightful presentation and active discussion. The following are the key elements summarised under the responsibility of ERIA.

ASEAN Region's Energy Security and Climate Challenges

According to the most recent ERIA's Energy Outlook, ASEAN's total primary energy supply (TPES) is expected to grow by 143% from 2015 to 2040 under the business-as-usual (BAU) scenario, reflecting each country's current goals and action plans. Total power generation will achieve higher growth, at 184% under BAU. Regarding the energy mix of TPES, the share of fossil fuels will grow from 76% (coal 19%, oil 35%, gas 22%) to 86% (coal 31%, oil 36%, gas 19%) under BAU. In the power generation mix, the share of fossil fuels will grow from 83% (coal 33%, oil 3%, gas 47%) to 88% (coal 53%, oil 1%, gas 34%), Even under the alternative policy scenario (APS) assuming higher share of non-fossil fuels such as renewable and nuclear, the share of fossil fuel out of power generation will be still dominant at 73% (coal 39%, oil 1%, gas 33%).

This will pose multiple energy security and environment challenges due to growing fossil fuel import dependence and GHG emissions. ASEAN countries need to be better prepared for possible oil supply disruption; enhance energy efficiency; reduce oil demand, particularly in the transport sector; clean the use of coal; promote energy diversification

to such sources as natural gas and renewable energy; alleviate local air pollution; and minimise the growth of CO₂ emissions. Most fundamentally, as a basic input for economic and human activities, energy needs to be accessible to all at affordable prices. Simultaneous achievement of 3Es (Energy Security, Economic Efficiency, Environmental Protection and Safety) is not at all easy. ASEAN countries need to take pragmatic approach for energy transition, keeping all the options open reflecting their nationally specific circumstances.

Expanded Use of Natural Gas

As the world moves towards the aspirations of the Paris Agreement, natural gas is expected to play a more important role in the regional energy mix as the fossil fuel with the lowest carbon content.

ERIA projects that natural gas demand in the ASEAN could expand by 2.7–2.9 times by 2030 depending on the extent of substitution from coal power plants to gas power plants in the capacity additions. With a view to maximising natural gas penetration in the energy mix, it is crucial to ensure efficiency and stability of the LNG market and improve the competitiveness of LNG prices in the region. In power generation sector, fuel cost will increase though part of fuel cost increase could be offset by reduction of construction cost. CO₂ emissions reduction could be expected in almost all the scenarios. In other sectors, both fuel and CO₂ emissions can be reduced by substituting oil.

The liberalisation of natural gas markets, through shared third-party operated infrastructure, would encourage new players to enter the market. A rising number of gas-receiving terminals around the region would open opportunities for a more flexible LNG market. This would allow gas prices to be more market-driven and competitive and create more gas interconnectivity.

The establishment of gas hub(s) in Asia, as a focal point of active LNG spot trading, could help stabilise markets by enhancing supply flexibility, thus making gas more competitive in the region. An Asian LNG hub should have its own benchmark price representing the Asian LNG market, reflect the physical LNG market balance, and have various types of market participants. The LNG market in the ASEAN region should be designed as a win–

win situation for all players, assuring both the producer and consumer ends of the chain. At the same time, innovative use of natural gas should be promoted to achieve the maximum demand potential.

Role of Connectivity

ASEAN energy and environment challenges could be more efficiently and effectively addressed through regional collaboration. Among others, cross-country transmission grid connection could bring about multiple benefits. It could enhance stability, resilience and reliability of energy systems, optimize energy mix in the region and improve the efficiency of ASEAN Single Market (ASM). In particular, five countries engaged in the Ayeyawady-Chao Phraya Mekong Economic Cooperation Strategy (ACMECS) have diverse energy portfolio (e.g. strong potential for hydro in Lao PDR and Myanmar, natural gas in Myanmar, and coal in Viet Nam). East-West and North-South trunk transmission lines connecting Viet Nam, Lao PDR, Cambodia, Thailand, and Myanmar would optimise power generation mix in these countries. In addition, expansion of grid capacity by cross-border interconnection would also facilitate larger penetration of variable renewable energy (VRE) such as solar power. While technology development is likely to continuously reduce generation cost of VRE, intermittency problem of VRE still remains until storage technologies substantially declines as well. Hence, expansion of grid size by enhanced connectivity is one of the currently available solution for more penetration of VRE.

Enhanced connectivity in the region will make a substantial contribution to the on-going efforts towards full-fledged ASEAN Power Grid (APG) developed by the Heads of ASEAN Power Utilities/Authorities (HAPUA). Ongoing collaboration between the Lao PDR, Thailand, and Malaysia (LTM) symbolises the initiation of multilateral trading of power in the region. Several preconditions must be fulfilled to enable multilateral power trading in a level-playing field, including (i) the harmonisation of technical standards of grid operation; (ii) the harmonisation of relevant regulations and institutions, such as third-party access agreements; and (iii) the coordination of the estimation, allocation, and compensation of available interconnection capacity for trading purposes, ideally applying commonly accepted business/market models. Ongoing study on the ASEAN Power Grid Generation and Transmission System Planning Institution (AGTP) as well as the ASEAN Power Grid Transmission System Operators Institution (ATSO) should be further

enhanced. Ultimately, ASEAN Power Pool is the logical direction.

Enhanced connectivity will also call on participating countries to deepen dialogue on their respective vision on future energy mix and policies supporting it with a view to ensuring their energy security and sustainability as a group.

Mobilising Investment

Mobilising finance for timely energy related investment is crucial for tackling energy and environment challenges in the ASEAN region. According to ERIA's Outlook, in the power generation sector alone, ASEAN needs US\$432 billion under the BAU scenario and US\$440 billion under the APS between now and 2040. Fossil fuel accounts for 80% of the necessary investment under the BAU scenario and 42% even under the more ambitious APS. In addition, huge amount of investment would be needed for domestic and cross-border transmission and distribution network.

In the international arena, there is an active discussion on sustainable finance for enabling capital markets to identify and respond to investment opportunities that contribute to UN SDGs. It should be noted with concern that there is an argument discouraging fossil fuel related investment as unsustainable solely based on climate change agenda. If such financial norms are internationally adopted, it will have negative implications to financial flow to energy related investment in the ASEAN region, which will still depend on fossil fuels. This will also reduce the benefit of connectivity since ASEAN countries are aiming at nationally appropriate energy mix where coal and gas fired power plants will also play crucial role together with renewable energy. Financial flow in line with UN SDGs should be encouraged. Climate change is the important objective, but not the supreme one taking precedence to other 16 SDGs. Moreover, priority among 17 SDGs could be different reflecting national specific circumstances. Energy-related infrastructure should be evaluated based on not only carbon footprint but also its contribution to energy access, affordability as well as resilience against natural disaster. ASEAN energy policy makers should have close communication with financial policy makers to ensure that the debate on sustainable finance should be balanced and flexible capturing 17 SDGs in a holistic manner reflecting such diversity rather than 'one size fits all' approach.