

Executive Summary

The Economic Research Institute for ASEAN and East Asia (ERIA) has updated the East Asia Summit (EAS) Energy Outlook in 2021–2022 by revising the macro assumptions such as economic and population growth, as well as the crude oil price. The outlook incorporates more recent information on the EAS17 (the East Asia Summit Region plus the United States) member countries' energy saving potentials and energy efficiency goals, action plans, and policies, including power development plans such as renewable electricity. Most importantly, the outlook considers adding a low-carbon energy transition (LCET) scenario to analyse how countries in EAS17 can achieve carbon neutrality under different economic and social circumstances.

Although the coronavirus disease (COVID-19) pandemic has had a large impact on the EAS17 and global economies throughout 2020 to late 2022, the ASEAN region and East Asia are expected to rebound after 2023. Sustained economic growth in ASEAN and EAS17 countries is crucial to improve well-being and is expected to be positive from 2023. The post-pandemic era is anticipated to be a period of growth and energy consumption is envisaged to increase. Decades of sustained economic growth, particularly in ASEAN and India, have led to higher per capita incomes, significantly reduced poverty, and improved living standards for hundreds of millions.

Two key drivers — population and economic growth — in the EAS region are responsible for the projected increase in primary energy supply from 2019 to 2050 in all three main scenarios: business as usual (BAU), alternative policy scenario (APS), and LCET. The total primary energy supply (TPES) was 8,036 million tonnes of oil equivalent (Mtoe) in 2019, and is predicted to increase towards 2050 to 10,457 Mtoe in BAU, to 8,497 Mtoe in APS, and to 4,795 Mtoe in LCET. The average annual growth rate of TPES is 0.9% in BAU, 0.2% in APS, and 0.1% in LCET from 2019 to 2050. Energy intensity is expected to drop from 168 tonnes of oil equivalent (toe)/US\$ million in 2017 to 66 toe/US\$ million in 2050 in APS, and to 79 toe/US\$ million in 2050 in LCET, representing 60% and 53% energy intensity reduction, respectively, in 2019–2050. Similarly, emission intensity is expected to drop from 0.70 tonnes of carbon (t-C)/toe in 2019 to 0.44 t-C/toe in APS, and to 0.16 in LCET in 2050, representing 37% and 77% emission-intensity reduction, respectively, in 2019–2050. The economy is expected to become more efficient and have a cleaner energy system, especially in LCET.

With economic growth will come increasing access to and demand for electricity and rising levels of vehicle ownership. Continued reliance on fossil fuels to meet the increase in energy demand may lead to increased greenhouse gas emissions and climate change challenges, unless low-emission technologies are used. Even if fossil fuel resources are sufficient, oil will likely be imported from other regions, and no assurance can be given that they will be secure or affordable. The region, especially ASEAN, must diversify fuel supply sources, strengthen strategic stockpiling, and enhance energy connectivity. As the EAS17 region considers energy supply security as a priority, it must implement energy efficiency and conservation measures and increase the use of domestic energy to reduce reliance on imported fossil fuels and promote the use of domestic energy sources. The ASEAN region should consider adopting regional energy networks, such as the Trans-ASEAN Gas Pipeline, with virtual pipelines of liquefied natural gas, and the ASEAN Power Grid to maintain energy supply security. Nuclear power generation is another option for securing energy supply. The region must prioritise introducing clean fuels and technologies to promote decarbonisation.