

Energy Transition in Asia

- Simultaneously Achieving Economic Growth and Net-Zero Emissions -

<Summary > ♦

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Pathways for net-zero emissions compatible with robust economic growth

1. As was reaffirmed at this year's G7 meetings, economic and energy situations vary significantly among the countries of the world, and while carbon neutrality is our common goal, there are various pathways for getting there. The desirable pathway varies greatly depending on a country's economic growth scenario and its estimated future demand for energy.
2. This is clearly indicated in Decarbonization Pathways for Southeast Asia, a report published by the International Energy Agency (IEA) with the full support of the IEEJ as a contribution to the G7 Ministers' Meeting on Climate, Energy and Environment in Sapporo in April this year.

Why ASEAN is so important

3. As the global divide widens due to the Ukraine crisis, the importance of the Global South is increasing. If we look at the future growth of global energy demand, the leading growth centers are expected to be India and ASEAN, not China. In particular, ASEAN has much in common with Japan in terms of the energy environment, such as relatively small renewable energy potential. Fifty years after the oil crisis, as Japan embarks on its next energy transition, it has a major role to play in using its technologies and know-how to support ASEAN countries on their paths to carbon neutrality in line with their respective situations. Such support is of great value not only for Japan and ASEAN but also for the entire world.

Comparison of the decarbonization scenarios for the ASEAN countries between the IEA and ERIA/IEEJ

4. The IEA report is a comparative analysis of the decarbonization pathway scenarios for ASEAN and Indonesia between the IEA and the ERIA (Economic Research Institute for ASEAN and East Asia)/IEEJ. The scenarios used for comparison were the Announced Pledges Scenario (APS) in the IEA's World Energy Outlook 2022, and Decarbonization of ASEAN Energy Systems: Optimum Technology Selection Model Analysis to 2060 (CN2050/2060), a scenario created by the IEEJ in cooperation with the ERIA.
5. The first noteworthy point in this comparative analysis is the different predictions for future economic growth that have a profound impact on final energy consumption. While both scenarios predict a similar population increase, the IEA expects the real GDP of the ASEAN economies to grow by 3.0 times (annual growth rate of 3.8% per annum) and that of Indonesia to grow by 3.3 times (4.1% p.a.) between 2020 and 2050, while the ERIA/IEEJ forecasts the ASEAN economies' real GDP to grow by 3.9 times (4.6% p.a.) and that of Indonesia by 4.4 times (5.0% p.a.). The cause of the difference is that while the IEA incorporated the trends observed in past macroeconomic analyses, in which the growth rate declines as income levels rise, the ERIA/IEEJ based their scenario on the economic growth forecasts of the ASEAN countries themselves. Indeed, the Indonesian government's economic growth forecast in their long-term

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strategy submitted to the UNFCCC coincides with the ERIA/IEEJ's forecast.

6. In addition, the IEA forecasts greater progress in energy efficiency improvement (reduction in final energy consumption per GDP) than the ERIA/IEEJ, resulting in a gap of 1.7 times for ASEAN and 1.9 times for Indonesia in the final energy demand forecast in 2050 between the IEA and the ERIA/IEEJ. It should be noted that the Indonesian government's final energy demand forecast in its long-term strategy is somewhat even larger than the ERIA/IEEJ's forecast. The absolute value of energy demand after reflecting on the progress in energy efficiency improvement will have a decisive impact on decarbonization.
7. Meanwhile, the scenarios of the IEA and the ERIA/IEEJ have some points in common: both anticipate that ASEAN and Indonesia will introduce renewable energies to the maximum extent, and their forecasts for renewable contribution in primary energy supply are similar. However, the ERIA/IEEJ scenario assumes that fossil fuels (especially gas) use will need to continue to grow for some time to meet the strong final energy demand, while also estimating increased use of carbon dioxide removal (CDR) through DACCS, BECCS, and forest sinks, as well as hydrogen/ammonia and CCS, to achieve decarbonization of fossil fuels and net zero, compared to the IEA scenario.

Necessity of a pathway that accounts for future uncertainties

8. While attention tends to focus on the percentage of renewable energy when discussing net-zero roadmaps, a key matter is how to estimate the energy needed by an economy and society, which is decisive in deciding the target energy mix. There are uncertainties about future economic growth in developing countries, but as the development of energy infrastructure takes a very long time, pathways to carbon neutrality should take these uncertainties into full account.

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