EXECUTIVE SUMMARY

Given growing population, rising income level, and expanding urbanization, Asia's demand for oil is expected to keep increasing rapidly. However, with limited resource reserves, most of the countries in this region are heavily dependent on import for their oil supply, which is a major, if not the most critical, concern in the countries energy policies. Though it has been debated intensively, biofuel is perceived as one of the possible options to address the oil security issue since expanding the use of biofuel will not only result to oil demand reduction but also contribute to diversification of liquid fuels' import sources. Moreover, biofuel production also provides an additional way to increase farmer's income.

This study is on the Asian potential in the biofuels market. The study is endorsed and supported by the Economic Research Institute for Association of Southeast Asian Nations (ASEAN) and East Asia (ERIA). Under this ERIA's study, a Working Group was established. The WG is comprised with biofuel policy makers from Indonesia, Malaysia, the Philippines, and Thailand, and researchers from The Institute of Energy Economics, Japan (IEEJ), with IEEJ also working as the coordinator. The 1st phase of the study was carried out from August 2011 to June 2012. In the 1st phase, the study was focused on biofuel development status and future biofuel demand and supply potentials in the 4 ASEAN countries including Indonesia, Malaysia, the Philippines, and Thailand. From June 2012 the 2nd phase of the study was started. In the 2nd phase, though the WG members remained unchanged, the scope of the study was expanded to 16 countries including all the ASEAN countries, as well as Australia, China, India, Japan, New Zealand, and South Korea.

In both the 1st and the 2nd phases, the studies were focused on conventional (or 1st generation) biofuels (bioethnol and biodiesel), though advanced biofuel technologies were discussed during the WG meetings.

In the 2nd phase, biofuel related policies were surveyed for the 16 countries. Based on current policies, future biofuel demands and supply potentials in the 16 countries were estimated and projected. Total bioethanol demand of the 16 countries in 2035 was projected to be 49 million toe and biodiesel 37 million toe, while the supply potential of bioethanol and biodiesel was estimated to be 70 million toe and 57 million toe respectively. The results indicate that the region as a whole would hold enough supply potential to cover biofuel demand driven by the countries biofuel policies to promote use of biofuels. In the demand projection, the constraint of supply was not considered, assuming that the demand was supposed to be met either by domestic production or import (which also means free trade across country). However, mismatches of supply potentials and market sizes (demand) were also found. Countries with large biofuel supply potential may have a small domestic biofuel market, and vise versa. Because of the constraints of supply potential in some countries, if the countries were to fulfill their domestic biofuel consumption (that were supposed to be driven by biofuel policies) solely by domestic production, bioethanol and biodiesel consumptions in the region in 2035 would significantly shrink, both down to about half of the market integration case—26.3 million toe and 16.7 million toe respectively. The differences suggest that a regional integrated market for biofuel trade across countries could help to maximize the region's biofuel use.

However, market integration will be a very complex process. A common market will require common standards for biofuels. Moreover, in Asian countries because of

the higher cost of biofuels compared with oil products, national biofuel market is currently totally policy driven, which makes it extremely challenging to further open domestic biofuel market. However, previous studies suggest that if the price of biofuels goes below that of oil products, barriers in cross country biofuel trade will be reduced.