



Economic Research Institute for ASEAN and East Asia

DISTRIBUTED ENERGY SYSTEM IN SOUTHEAST ASIA

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This report was prepared by the Working Group for Distributed Energy System (DES) in ASEAN under the Energy Project of the Economic Research Institute for ASEAN and East Asia (ERIA). Members of the Working Group, who were selected from ASEAN, discussed and agreed to certain key assumptions of DES as a basis for writing this report. This aimed to harmonise the forecasting techniques of the future growth of DES. Therefore, the projections presented here should not be viewed as official national projections of participating countries.

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Preface and Acknowledgement

The recent economic growth in East Asia Summit (EAS) participating countries, especially the emerging ones, has led to a rapid rise in energy demand. Although these countries have been introducing energy supply infrastructures such as power plants, some of them are still faced with instability and high cost of energy supply as well as high emissions of greenhouse gases (GHGs). DES can solve these challenges due to the increasing availability of small power generation and intelligent grid technologies. It is necessary to assess what role DESs can play so that ASEAN participating countries could utilise these systems. The energy ministers, during the 9th EAS Energy Ministers Meeting, welcomed the DES as they realised the role of DES in enhancing electricity access and providing solutions to energy problems for the well-being of both investors and consumers.

The ASEAN primary energy supply is projected to increase almost threefold from 592 Mtoe in 2013 to 1,697 Mtoe in 2040 (Han and Kimura, 2016). This pattern of increasing energy demand threatens energy security, especially the provision of energy access, affordable prices, and stable energy supply sources. The idea of transboundary grids is being promoted in the ASEAN Power Grid (APG). The APG is expected to contribute significantly to maximising ASEAN's benefits from avoiding power generation cost; however, transboundary grids are expensive and it may take years to realise the connectivity. DESs, however, can overcome cost constraints that typically inhibit the development of large capital projects and transmission and distribution lines. Thus, this study discusses the opportunities for DES in the ASEAN region to support and foster the convergence of the ASEAN Economic Community and sustainable economic growth by providing affordable, reliable, and better energy sources with less GHG emissions through DES application.

This study is a joint effort of Working Group members from selected ASEAN member states. It took a long time to agree on a definition and the assumptions of DES. The estimated future potential of DES for ASEAN as well as some selected ASEAN Member States is in line with the policy interests of ASEAN's energy security. We would like to acknowledge the support of everyone involved, and thank all those the authors of this study met and interviewed to obtain country data and information.

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The Authors

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