EXECUTIVE SUMMARY

1. Background and Objectives

Since the formation of the East Asian Summit (EAS) in 2005, Energy Market Integration (EMI) in East Asia has become one of the initiatives endorsed and actively promoted by EAS governments. Electricity market integration in East Asia is an important component of EMI. It is argued that an integrated East Asian electricity market would benefit all EAS members in several ways. These include potential access to competing suppliers within and beyond the borders, and hence better provision for peak electricity demand and supply security. Some progress has been made in this direction. These include the cross-border power trading within the Greater Sub-Mekong Region (GMS) and the scheduled construction of the ASEAN Power Grid (APG). However, electricity market integration within the EAS area remains a challenging task.

To gain a better understanding of the issues involved and follow two previous ERIA projects, this EMI project focuses on the electricity sector. It has several objectives. First, we want to explore some general issues associated with EMI particularly electricity market integration and hence contribute to the ongoing debates about regional market integration. Second, we select three countries for case studies, namely, Cambodia, China and New Zealand. These countries represent EAS members at different stages of development in their electricity sectors. The third objective of this project is to deal with the removal of subsidies in the energy sectors. We focus on three EAS members, namely Indonesia, Malaysia and Vietnam for detailed investigations. Specifically we consider various scenarios of reducing or removing subsidies and hence the possible consequences.

2. Key Findings

In total, nine reports are included in this volume. They can be broadly divided into three categories with three reports in each, namely: the general EMI issues, case

studies, and energy sector subsidies. In terms of the general debate on EMI, it is shown in this report that industrialization may lead to an increase in energy consumption per capita as well as the income (expenditure) elasticity of energy. This tends to generate a surge in the overall demand for energy. In contrast, energy market integration may help reduce the pressure on energy demand as it smooths demand shock. The findings in this report also demonstrate that a more open power trade regime encourages the development of renewable sources such as hydro and wind for power generation and hence the total cost of meeting region-wide electricity demand will be reduced. Specifically under the scenarios of partial trade (20% and 50% capacity) the present value of cost savings would be USD 20.9 and USD 29.0 billion, respectively. Thus even with partial integration (cross-border power trading) substantial cost reduction could be realized. Finally our review of the trends of integration in the world's major electricity markets shows that the main initiatives in electricity market integration so far share some commonalities. First, interconnections mainly occur among neighbouring countries which have well-developed national markets. Second, bilateral electricity exchanges are often initiated first and then expanded to become sub-regional markets. Finally, market integration is accompanied with domestic reforms and international harmonization of regulation standards.

Our three case studies cover Cambodia, China and New Zealand. With a rate of electrification of about 25%, Cambodia is expected to expand electricity capacity and coverage. The country will need a large amount of capital for investment in the future. This demand is well beyond the capacity and resources of Cambodian economy. There are however major barriers to investment such as insufficient legal and institutional framework and high administrative costs. Thus the country's business environment must be enhanced in order to attract both foreign and local investment. Though China's electricity sector has been reformed, barriers to foreign participation in this sector still exist. Our case study shows that the electricity sector reform alone cannot deliver the expected benefits associated with the participation of the private sector. Changes in the broader institutional arrangement in the economy are needed in order to cope with issues such as regulatory system fragmentation, uncertain pricing mechanism, limited access to the transmission, disadvantage of

accessing fuel and finance for private sector, and rampant expansion of state-owned sector. In New Zealand, market development and restructuring in the electricity sector seem to be very successful initially but produce problems later. Therefore, the Electricity Industry Act enacted in 2010 effectively allows the bundling of distribution and retailing and also raises the threshold for ownership separation among distribution, retail and generation. This new policy may also create vertically integrated electricity utilities, encompassing generation, distribution, and retailing. This practice is against the theoretical preference of competition and unbundling. Its impacts are yet to be assessed.

The last three reports deal with subsidies in the energy sector in Indonesia, Malaysia and Vietnam, respectively. In the Indonesian case it is found that the removal of fuel subsidies affects production output, employment and income in the country. In particular, the impact on labour income is higher than that on capital returns and the lowest income group will be affected the most. The latter is also observed in Vietnam where the average electricity tariff rate is far below the international rate. Our report shows that a one short increase in electricity tariffs (to match the international price) would lead to a substantial increase in the CPI (Customer Price Index) and hence would be socially unacceptable. Our findings support a gradual approach towards subsidy removal and separate implementation in each sector. Our last report investigates the effects of subsidy removal on the Malaysian economy. It is found that phasing out oil subsidy would initially increase the general prices but eventually bring about an increase in output due to the improvement in efficiency and a decrease in the cost of production. There are however significant variations across industries. In general, the less energy intensive industries and domestic resources-based industries are least affected by the removal of subsidies.

3. Implications and Policy Suggestions

The findings from these reports have important policy implications. Specifically, this project's findings imply i) Less developed countries should be prepared for

faster growing energy demand when their industrialization process commences; ii) Countries can gain from sub-regional cooperation and electricity trading on the one hand and will benefit from a resilient, competitive and effective energy market on the other hand; iii) Full-scale power trade tends to lead to full utilization of hydro power, which produces the lowest cost option ; iv) Deregulation and unbundling may have unintended consequences; v) Market integration is often accompanied with domestic reforms and international harmonization of regulatory standards; and vi) The lower income group and the energy intensive industries will be disadvantaged by the removal of energy subsidies.

Finally, we make the following policy recommendations (R1-R6) for governments within the EAS member countries.

R1: To promote continuously a closely integrated energy market, which can lead to a less volatile, more flexible and resilient market through regional cooperation such as infrastructure connectivity, trade and investment arrangement, and the harmonization of regulatory and technological framework.

R2: To encourage free trade of electricity and more coordinated development of energy projects. This requires a fundamental review of energy security policies.

R3: To build continuously an open, competitive and effective domestic energy market. Equal access to energy infrastructure and finance for private investors is also important. In addition, it is necessary to enact necessary regulations, such as competition law, to protect both consumers and investors.

R4: To adopt a gradual and incremental approach of subsidy removal so as to minimize the interruptions in member economies concerned. While low income people should be compensated, reallocating the saved budget to targeted sectors, the so-called “sectoral approach”, should be carefully designed.

R5: To boost electricity infrastructure. For EAS members with low electrification, the focus should be infrastructure development. For others, the policy priority is to achieve regional and nationwide interconnectivity.

R6: To harmonise regulations and technical standards gradually in the electricity and gas sector. Members could initially identify the best practice or whatever most suits the conditions within the region. Subsequently members can act together to catch up with the global best practice.