



ASEAN ENERGY MARKET INTEGRATION (AEMI) FORUM

ENERGY POVERTY AND SMALL SCALE RENEWABLE ENERGY

Jakarta, 3 - 4 June 2015

AEMI PROJECT OVERVIEW

A. MOTIVATION

Context¹

1. ASEAN is facing an energy challenge. Primary demand for energy is set to grow steadily at 4.4% per year up to 2030, in the face of increased economic activity, population growth, rising electrification rates, and expansion of the transport sector. The implication is that energy demand will double by 2030, after having already expanded 2.5 times since 1990. Demand for all hydrocarbons is set to expand: oil by 50%; natural gas by 80%; and coal by 300%, as it replaces gas and oil, notably for electricity generation. According to the Asian Development Bank, even in a best-case scenario for energy efficiency and renewable energy, ASEAN energy production cannot meet such rapidly increasing demand.
2. This soaring energy demand is combined with declining energy production within ASEAN. ASEAN oil production is expected to fall by almost one third by 2030, after having declined by 10% per year in the last decade. Also ASEAN's surplus of natural gas and coal available for export will continue to decline, as ASEAN production is outpaced by its domestic demand. Currently, renewables represent only 3% of primary energy mix in ASEAN-5 (Indonesia, Malaysia, the Philippines, Singapore and Thailand) and this ratio is set to fall, as gains from the use of renewable energy will only displace current use of biomass.
3. Moreover, ASEAN's environmental sustainability is set to decline. ASEAN energy-related greenhouse gas emissions are expected to double by 2030, after having increased by 57% during the last decade. This is due in part to the expected 8% annual increase in coal consumption for electricity generation. Moreover, ASEAN energy intensity is lagging world averages. It improved only by 12%, compared to 26% worldwide. Moreover, ASEAN

¹Sources: AEMI Group (2013), *ASEAN Energy Market Integration (AEMI): From Coordination to Integration*; Asia Development Bank (ADB) (2013), *Asian Development Outlook 2013: ASEAN's Energy Challenge*; International Energy Agency (IEA) (2012), *World Energy Outlook*; International Monetary Fund (IMF) (2013), *Energy Subsidy Reform: Lessons and Implications*; International Institute for Sustainable Development (IISD) (2013), *A Guidebook to Fossil-Fuel Subsidy Reform for Policy-Makers in Southeast Asia*; The World Bank (2010), *Subsidies in the Energy Sector: An Overview*.

industrial energy intensity² has been worsening steadily in the last three decades (decreasing on average by 0.2% per year in 1980-2011). As a result, ASEAN currently consumes more than twice the amount of energy per unit of GDP than the average industrial countries (OECD). End-users appliances (e.g., incandescent light, bulbs, air conditioners; industrial motors) are highly inefficient compared to best available technologies.

4. Finally, ASEAN energy poverty is higher than the world average. More than one fifth of ASEAN population (some 130 million people) is without access to electricity, and nearly half (45%) relies on traditional use of biomass for cooking (about 230 million people). Lack of access to modern energy services is a serious hindrance to economic and social development, and must be overcome if sustainable and equitable growth is to prevail within the ASEAN Economic Community.

Challenges

5. International organizations (ADB, IEA) propose ASEAN energy market integration as the most efficient way for ASEAN to address its energy challenges. They also recognize that the creation of an efficient ASEAN-level regional energy market is a major challenge, as it requires harmonization of energy pricing and subsidies for energy product and services; rationalization of tariffs and non-tariff barriers; expansion of market connectivity through gas pipelines and power grid; and formulation of a common strategy for energy security. Moreover, for the integrated ASEAN energy market to be socially equitable and environmentally sustainable, member states need to agree common policies to deploy renewable energy; enhance energy efficiency; and secure access to clean energy sources. ASEAN energy market integration therefore involves all of these elements.
6. A group of concerned ASEAN academics held a session at Chulalongkorn University (May 2013, Bangkok) and constituted themselves into the AEMI Group, agreeing to work together to make the case for ASEAN Energy Market Integration (AEMI) within the forthcoming ASEAN Economic Community (AEC). The vision is to allow for the free flow of energy products, services, investment and skilled labor in the framework of the AEC. The approach is consistent with the purpose of the AEC, to transform ASEAN into a single production market with a free flow of goods, services, investment and skilled labor. AEMI is a logical extension of such provisions to the energy sector.
7. The AEMI Group committed to working together to develop the AEMI concept, analyze its rationale, assess its potential benefits, and propose an approach for its deployment within the AEC through 2030. Through their studies, the AEMI Group demonstrated that the development of AEMI is an imperative requirement for the success of the AEC, given the vital role that energy plays in sustaining economic growth and in securing the wellbeing of people. Moreover, if designed properly and implemented efficiently, AEMI has the potential to deliver economic, social and environmental benefits to all ASEAN member states. It

² It means output per unit energy use at constant price. Thus, when the intensity decreasing means that to produce same unit of output, industries need more energy.

could improve energy efficiency, help creation and deployment of renewable energy and address energy poverty across ASEAN.

8. The AEMI Group published a Book: *“AEMI: From Cooperation to Integration”* (2013) distributed to ASEAN Senior Officials, policymakers and academics (in Bangkok, Jakarta, Manila, Kuala Lumpur, Singapore, and Tokyo). The work of the AEMI Group was supported since its inception by Chulalongkorn University (Bangkok, Thailand).

Policy-making

9. The AEMI Group was successful in opening a dialogue with ASEAN policymakers on energy market integration. It made the case for the successor of the current ASEAN Plan of Action for Energy Cooperation (APAEC, 2010-2015), to move from regional energy “cooperation” into energy “integration”, to take the energy dialogue beyond the current piecemeal bilateral trading arrangements, into fully integrated energy policies within the framework of the AEC.
10. The AEMI Group worked closely with the ASEAN Secretariat and relied on the data and publications from the ASEAN Center for Energy (ACE). It was invited to address the 31st Senior Officials Meeting on Energy (SOME) in Bali (June 2013). The SOME endorsed the AEMI initiative and encouraged the AEMI Group to report back their results on the subsequent SOME.
11. More recently, the SOME adopted “ASEAN connectivity and energy market integration” as the main theme for the upcoming APAEC 2016-2020 and instructed the drafting committee to prepare the document accordingly. This agreement is to be concluded by the ASEAN Energy Ministers by December 2015. As a result of this development, the AEMI Group currently focuses its analytical work on defining an AEMI Blue Print. It has already identified the set of issues that needs to be addressed in the design of the next APAEC, with a view to formulating policy recommendations directly relevant to its drafting in 2015 and to its deployment to 2020.

B. STRUCTURE

Focus

12. The adoption of “connectivity and energy market integration” as the main theme of the new APAEC represents a major shift in ASEAN perspective, and a challenge to its policymakers. The proper formulation of AEMI Blue Print would provide ASEAN greater energy security, enhanced economic efficiency, and improved opportunities to fight energy poverty and to address environmental problems.
13. The purpose of the AEMI Project is to bring together energy experts from ASEAN member states and beyond, to further develop the concept of AEMI and design its Blue Print

components. Building on the work accomplished by the AEMI Group, it would undertake policy analysis and formulate recommendations for the next APAEC (2016-2020) from the drafting stage in 2015 through the period of implementation to 2020.

14. The AEMI Project is geared towards enhancing ASEAN energy policy dialogue, and engaging policymakers (including the ASEAN Center for Energy, the ASEAN Secretariat and all ASEAN energy bodies), non-government organizations, as well as energy and environment experts from the region and beyond.

Approach

15. The AEMI project will convene a series of thematic Forums to assess ASEAN energy challenges, identify opportunities and challenges in implementing AEMI, and formulate policy recommendations for the new APAEC. These Forums will be designed to engage an interaction policy dialogue between academics, energy practitioners, civil society organizations, ASEAN policymakers as well as international organizations.
16. Each thematic Forum corresponds to one of the components identified for the AEMI Blueprint. These themes include: expanding renewable energy; improving energy efficiency; securing clean energy access to isolated remote areas; tackling energy subsidies while enhancing affordability of energy to the poor; improving market connectivity; fostering clean energy technology; and advancing energy security. Table 1 provides a preliminary list of such thematic Forums.
17. Special attention will be given to convening a Forum to assess the impact of small-and-medium-scale renewable energy projects in remote and isolated areas across ASEAN, and to investigate ways to help forge a role for ASEAN in global renewable energy development. In particular, the Forum would assist in developing a survey to be conducted in at least 20 local communities that have recently installed renewable energy sources across a minimum of four ASEAN member states.

Outputs

18. A *Forum Report* will summarize the conclusions from each Forum, highlight the emerging policy recommendations, and outline next steps to further develop them (including surveys at the national levels, interactions with ASEAN policy makers, and investigations with national energy entities). Moreover, a survey of renewable energy will be produced.
19. An *AEMI Policy Paper* will be drafted on each of the Forum themes, focused on analyzing policy options and making policy recommendations for the APAEC (2016-2020).
20. The *AEMI Website* will be created to e-Publish *AEMI Policy Papers*, post information related to the ASEAN energy, distribute Forum outputs, and receive comments and suggestions.

Support

21. The project is funded by the Norwegian Ministry of Foreign Affairs, building on the AEMI work initiated and supported by Chulalongkorn University, Thailand. It is housed at the ASEAN Studies Center (ASC), Chulalongkorn University, where the AEMI Secretariat will also be located.
22. The project is jointly coordinated by Dr. Nawal Kamel (ASC) and Dr. Indra Øverland, the Norwegian Institute of International Affairs. An AEMI Advisory Committee will review progress, provide advice and supervise the budget. Furthermore, an AEMI Review Committee will provide guidance on the technical aspects of the AEMI project, and include prominent energy experts and practitioners from ASEAN and beyond.

Partnerships

23. The AEMI project will seek to expand the current AEMI Group, which currently includes academics from most ASEAN countries. The project will seek to include active participation of ASEAN academic institutions and research institutes currently present within the AEMI Group, and to expand this network further. [Table 2](#) provides the list of AEMI Group members as of January 2015.
24. The AEMI project will also strive to broaden the AEMI network to gradually include relevant civil society organizations, multilateral organizations, foundations, as well as (neutral) bilateral and multilateral donors. It will also build linkages with ongoing related international initiatives on green energy and technology, and on access to renewable energy.

Table 1: Potential Forums Themes

(1) ADDRESSING ENERGY POVERTY

- (a) How would AEMI help access to energy and eradicate energy poverty across ASEAN?
- (b) What is the investment need to improve access to electricity and clean energy fuel across ASEAN?
- (c) Which policy incentives would encourage private sector investments in energy infrastructure projects?
- (d) How to quantify the implications of eradicating energy poverty on narrowing the development gap across ASEAN (an objective of the AEC), and on improving GDP prospects across ASEAN?
- (e) What policy recommendations for APAEC (2016-2020)?

(2) TACKLING ENERGY PRICING AND SUBSIDIES

- (a) What are the options to “decouple” energy pricing from welfare objectives to assist the poor in most vulnerable ASEAN communities (e.g., tax breaks, social security mechanisms, and rebates on energy bills).
- (b) Can AEMI help implement ASEAN-wide subsidy instruments to protect the poor while allowing the energy market function efficiently?
- (c) What are the policy recommendations for the APAEC (2016-2020)?

(3) EXPANDING RENEWABLE ENERGY

- (a) What are the options for establishing ASEAN-level targets?
- (b) How to quantify the impact of such targets on key environmental and economic indicators?
- (c) What are the policy incentives to encourage the use of Renewable Energy in the context of AEMI?
- (d) What are the policy recommendations for the APAEC (2016-2020)?

(4) SMALL-SCALE RENEWABLE ENERGY AND ENERGY POVERTY

- (a) The Forum will discuss a project implemented by surveying at least 20 local communities in at least four ASEAN countries that have recently installed renewable energy sources. The design of this survey will be presented for review and input at a workshop before the survey is carried out.
- (b) The survey would address the following questions:
 - (i) Are previously energy-poor communities within ASEAN in fact “leapfrogging” directly from biomass energy to clean energy?
 - (ii) What developmental benefits has the deployment of renewable energy actually delivered in these local communities?
 - (iii) How could ASEAN use its remote, energy-poor communities to play a constructive and pro-active role in global climate policy by creating a market niche and setting precedents?

(5) IMPROVING ENERGY EFFICIENCY

- (a) What are the options for establishing ASEAN-level targets?

- (b) How to quantify the impact of such targets on key environmental and economic indicators?
- (c) What are the policy incentives to encourage Energy Efficiency in the context of AEMI?
- (d) What are the policy recommendations for the APAEC (2016-2020)?

(6) ENERGY TARIFFS AND NON-TARIFFS BARRIERS

- (a) What are the tariffs and non-tariffs barriers to the free flow of energy goods, services and investments across national borders in the framework of AEMI?
- (b) What are the policy recommendations for the APAEC (2016-2020)?

(7) INFRASTRUCTURE NEEDS FOR CONNECTIVITY

- (a) What are the investments needed to build the physical, financial and legal/regulatory connectivity through the ASEAN Power Grid and the Trans-ASEAN Gas Pipeline?
- (b) What are the investments needed for the ASEAN Power Grid to be able to absorb the full potential from Renewable Energy sources, so that renewables can compete on an equal footing with traditional sources?
- (c) What are the policy recommendations for APAEC (2016-2020) for investments in energy infrastructure and smart grids?

(8) FORMULATING ENERGY TECHNOLOGY STRATEGY

- (a) What are the ASEAN-level policy incentives to develop and deploy clean energy technology?
- (b) What incentives for the private sector in creation and deployment of clean energy technology in ASEAN?
- (c) Could AEMI facilitate the creation of an *ASEAN Clean Energy Technology Fund*?
- (d) What policy recommendations for the APAEC (2016-2020)?

(9) ADVANCING ASEAN ENERGY SECURITY

- (a) What are the core components of an ASEAN energy security strategy?
- (b) Would the ASEAN energy strategy address oil and gas physical reserves and deployment conditions?
- (c) Would the ASEAN energy strategy include reserve margins for power generation, to maintain electricity provision through national and local grids?
- (d) What are the strategic policy recommendations for the APAEC (2016-2020)?

(10) DEVELOPING ANALYTICAL TOOLS FOR ASEAN ENERGY POLICY

- (a) Which econometric tools and methodologies could best quantify AEMI economic, welfare and environmental benefits across ASEAN (e.g., impact on energy prices, economic growth, energy savings, reduction in greenhouse gas emissions and energy security)?
- (b) Which tools could best assess the impact of adopting ASEAN targets on Renewable Energy and Energy Efficiency?
- (c) What are the policy recommendations for the APAEC (2016-2020)?

Table 2: AEMI Group Members*(As of January 2015)*

BRUNEI	Dr. Lim Chee Ming	Associate Professor, Institution of Engineering and Technology, Universiti Brunei Darussalam (UBD), Bandar Seri Begawan.
CAMBODIA	Dr. Srinivasa Madhur	Director of Research, Cambodia Development Resource Institute (CDRI), Phnom Penh.
INDONESIA	Dr. Maxensius Tri Sambodo	Researcher, Indonesian Institute of Sciences (LIPI)-Economic Research Center, Jakarta. Visiting Fellow, Institute of Southeast Asian Studies (ISEAS), Singapore.
	Dr. Tri Widodo	Professor and Head of Economics Department, Faculty of Economics and Business, Universitas Gadjah Mada (UGM), Yogyakarta.
LAO PDR	Dr. Phouphet Kyophilavon	Associate Professor and Vice Dean, Faculty of Economics and Business Management, National University of Laos (NUOL), Vientiane.
MALAYSIA	Dr. Aishah Bte. Mohd Isa	Research Fellow, Energy Policy and Research (IEPRE), Universiti Tenaga Nasional (UNITEN), Kuala Lumpur.
	Ir. G. Lalchand	Associate, Akademi Sains Malaysia (ASM), Kuala Lumpur.
	Dr. Leong Yow Peng	General Manager (Corporate Planning & Innovation), National Power Utility, Kuala Lumpur.
	Ir. Tuan Ab. Rashid Bin Tuan Abdullah	Director, Institute of Energy Policy and Research (IEPRE), Universiti Tenaga Nasional (UNITEN), Kuala Lumpur.
MYANMAR	To be determined	To be determined
PHILIPPINES	Dr. Adoracion M. Navarro	Senior Research Fellow, The Philippine Institute for Development Studies (PIDS), Manila.
	Dr. Ma. Joy V. Abrenica	Associate Professor, School of Economics, University of the Philippines (UP)-Diliman, Manila.
	Mr. Jessie L. Todoc	Consultant, Sustainable Energy, Manila.
SINGAPORE	Dr. Philip Andrews-Speed	Principal Fellow, Energy Studies Institute (ESI), National University of Singapore (NUS), Singapore.

	Dr. Xunpeng Shi	Senior Research Fellow, Energy Studies Institute (ESI), National University of Singapore (NUS), Singapore.
	Dr. Youngho Chang	Assistant Professor, Division of Economics, Nanyang Technological University (NTU), Singapore.
THAILAND	Dr. Bundit Fungtammasan	Associate Professor and Vice President for Research, Joint Graduate School of Energy and Environment (JGSEE), King Mongkut's University of Technology Thonburi (KMUTT), Bangkok.
	Dr. Chaiwat Muncharoen	Director, Asian Greenhouse Gas Management Center (AGMC), Asian Institute of Technology (AIT), Bangkok.
	Dr. Kitti Limskul	Associate Professor, Faculty of Economics, Chulalongkorn University (CU), Bangkok.
	Dr. San Sampattavanija	Lecturer, Faculty of Economics, Chulalongkorn University (CU), Bangkok.
	Dr. Watcharapong Ratisukpimol	Lecturer, Faculty of Economics, Chulalongkorn University (CU), Bangkok.
VIETNAM	Mr. Nguyen Duc Song	Researcher, Demand Forecast and DSM Department, Institute of Energy, Hanoi.
	Dr. Nguyen Thi Mai Anh	Lecturer, Department of Industrial Economics, School of Economics and Management, Hanoi University of Science and Technology (HUST), Hanoi.
	Dr. Tran Van Binh	Lecturer, Department of Industrial Economics, School of Economics and Management, Hanoi University of Science and Technology (HUST), Hanoi.