#### ASEAN ENERGY MARKET INTEGRATION (AEMI)

## CONCLUSIONS FROM THE BRAINSTORMING SESSION May 10, 2013, Chulalongkorn University

1. This synopsis reports on the main conclusions and messages that have emerged from the Brainstorming session, focusing on those that were not addressed in the initial *AEMI Concept Paper*.

#### A. The AEMI Project

- 2. Participants to the AEMI *Brainstorming Session* agreed to constitute themselves into an *AEMI Group*, a coalition of academics across ASEAN committed to making the case for AEMI and to contributing to its design and delivery. This is a "Track II" initiative, conducted by academics across ASEAN, with the objective of proposing AEMI to the *ASEAN Secretariat* for consideration by the *ASEAN Ministers of Energy Meeting* before the end of the year.
- 3. Members of the *AEMI Group* have agreed to produce *Background Papers* that would provide the academic foundation for the creation of AEMI, its design and implementation. In the short term, these papers would serve as *briefing notes* to participants at the forthcoming *AEMI Forum* (August 27-28) and would be published (with authors names) by the *ASEAN Studies Center* as part of its *proceedings*. Participants agreed to review these papers within the *AEMI Group*, and authors would subsequently further develop them into full publishable papers, for possible submission to peer-reviewed journals.
- 4. Participants discussed each of the academic components underpinning the creation of AEMI (why, what, how), and agreed on the conclusions reported in the rest of this document. They also asked that the initial *AEMI Concept Note* be revised accordingly to reflect such conclusions.

#### **B.** The rationale for AEMI (Why)

- 5. Participants discussed at length the *definition of AEMI* and agreed that:
  - (a) A clear definition of AEMI be developed, including both the hardware (e.g. infrastructure, physical trading), as well as the software (e.g. policies, standards, regulations) dimensions.
  - (b) Key components of AEMI would thus include: (i) pricing for energy products and services, including free and open domestic markets (addressing the issue of subsidies); (ii) regional infrastructure needed to transport primary energy sources (pipelines for gas, oil and transportation for coal), and transmission for electricity;
  - (c) Design elements of AEMI should be consistent with terminology used by the *ASEAN Secretariat* in the discussions with policymakers (Track I), and should build on them.
- 6. Points were made regarding the need to get a better understanding of the *national conditions* currently prevailing across ASEAN. This would require in particular:
  - (a) Mapping out the energy gap (between demand and supply) in each ASEAN country;
  - (b) Understanding country-specific frameworks regarding economics, environment, and society;
  - (c) Identifying where the energy resources lie in different ASEAN countries;
  - (d) Understanding domestic energy market structures and distortions;
  - (e) Identifying current physical infrastructure for trading energy products and services.

- 7. Participants agreed that a core objective of AEMI is achieving open and competitive national energy markets, which are physically and institutionally integrated across ASEAN. To reach this objective, the following *challenges* would need to be addressed across ASEAN:
  - (a) Infrastructure integration for AEMI (physical technical problems, systems incompatibility);
  - (b) Software for AEMI bridging different energy governance and regulations across ASEAN;
  - (c) Getting political buy-in from ASEAN Ministers to share energy resources.
- 8. Participants agreed that a well-functioning ASEAN Economic Community (AEC) would need some amount of AEMI to function efficiently on a sustainable basis. The *interrelation between AEC* and AEMI would need to be established, including an analysis to the two following arguments:
  - (a) That AEC provides a prime framework for realizing AEMI, which makes AEMI a lot easier to achieve than in the case of the "East Asia Energy Market Integration" (EMI);
  - (b) That a well-functioning AEC needs AEMI at its foundation; analysis should identify the minimum set of requirements from AEMI that would be needed for a well-functioning AEC.
- 9. In the discussion on the benefit of AEMI, participants agreed to add an analysis of the impact of AEMI on the reduction *energy poverty* across ASEAN, so as to address the challenge of including those who lack access to electricity. The design of AEMI should contribute to reaching this objective.

#### C. The Key Building Blocks for AEMI (What)

- 10. Participants challenged the themes identified in the *AEMI Concept Note* and recommended the restructuring of this component, to reflect conclusions that emerged during the brainstorming session.
- 11. Participants felt that AEMI should establish a series of relevant energy *indicators*, *targets*, *and standards* to: (i) help achieve the policy objectives that would be set out across ASEAN; (ii) provide common directives for the specifications and design of energy products and services, and (iii) assist in monitoring the evolution of energy policy and markets both at the national and the ASEAN levels.
- 12. Participants recognized that establishment and harmonization of *standards* is necessary for the efficient functioning of AEMI. They recognized this could be difficult to achieve (e.g., biofuel standard) and that in some cases, applying energy efficiency standard/ indicator within the AEC could require "adjustment factors" to accommodate the various situations and allow a realistic compliance across AEMI. The most important standards to consider include, among others: (i) energy distribution system standards; (ii) standards for connecting to the energy grid; (iii) standards of pipeline gas (gas standard and gas transportation standard; (iv) energy product standards; and (v) standards for training of energy managers. It will be useful to examine approaches used in the ADB-financed project on power-sector standard harmonization in the Greater Mekong Sub-region (GMS).
- 13. Regarding *environmental standards*, participants agreed to look into the ADB environmental conditions for the provision of energy infrastructure funding; and the current ADB-financed project for developing a global index on investments in clean energy. Similar standards could be developed and adopted for AEMI, particularly in view of the fact that ASEAN has already agreed renewable energy as well as energy efficiency targets. Also ERIA is developing a "scorecard" to measure the degree of energy market integration, as well as an index for "energy business environment". Participants also noted that with technological changes operating, there will likely be a change in the energy mix from non-renewables to renewables. AEMI could include a regional policy target that

would encourage a move in this direction. In this regard, forecasting energy supply from non-fossil fuel energy sources will be a key area of research.

- 14. Participants recognized that the greatest *national constraints* to joining AEMI will lie in the different policies and structures of their energy markets, notably in terms of the pricing of energy products and services and the underlying subsidies at work. In order to lift some of the national constraints, action will be needed to: (i) harmonize national customs barriers; (ii) develop national energy infrastructure and encourage investment to fund it for the purpose of building ASEAN connectivity; (iii) enhance national access to technological advances in energy efficiency and generation, so as to serve the AEMI perspective; and (iv) identify territorial disputes between ASEAN (and ASEAN + 3) as an impediment to the creation and well-functioning of AEMI.
- 15. Participants recommended a review of national *energy subsidies* for products and services across ASEAN, along with a review of their efficiency in addressing energy poverty. A discussion occurred on the wisdom for advocating the abolishment of subsidies as a key building block for AEMI. Suggestions were made to research more imaginative approaches, aimed at designing an innovative approach for the "harmonization" of subsidies across ASEAN, rather than their outright abolition.
- 16. Participants noted that in studying price comparisons and distortions across ASEAN on the supply side, the analysis should find ways to integrate some of the social and environmental "externalities" at work, so as to reflect their costs within the pricing of energy products and services (notably in the case of environment).

#### C. Strategy for Emergence of AEMI (How)

- 17. Participants recognized that creating *political will* for AEMI will be crucial to its creation. Another challenge will be to get decisions implemented, even when they are agreed at the ASEAN level. An example, an ASEAN policy on emergency stocks of oil and gas has already been agreed upon, yet it has not been implemented to date, as decisions taken at the ASEAN level are non-binding.
- 18. Participants also agreed that *governance* and *regional institutions* will be instrumental in creating an ASEAN regional energy market and thereby realizing AEMI. A discussion of different possible approaches (including for regional enforcement) focused on the need to establish a "regional entity" in charge of such a challenge. Such a regional institution would also help bringing in the political willpower to create AEMI, but it could also be difficult to achieve in within the culture of ASEAN.
- 19. Some participants advised that we *clearly identify and communicate cost and benefits* in the creation of AEMI, and that we involve different stakeholders in order to gather political will for the project. In this regard, reviewing international experience (successes and failures) as well as ASEAN's own experience (notably GMS) would be essential to understanding the dynamics at work, and acting upon them. Some participants commented that the EU experience would be most relevant, and carries learning for ASEAN, particularly on the pitfalls that would need to be avoided.
- 20. Participants recognized the need to further specify the notion of *sequencing* or stepwise implementation of AEMI at the national and ASEAN levels. Some argued that this means to prioritize at the national level the steps that would need to be taken to join AEMI. Others saw this as a suggestion to identify low-hanging fruits (in terms of priorities) at the ASEAN level and reap those first toward the full creation of AEMI. But others pointed out the difficulty of identifying such first steps, coupled with the possible disconnect between such first steps at the national and the regional levels. Some other participants argued that ASEAN target could be "calibrated" or "adjusted" to each

member state, so as to reflect national conditions and constraints. Finally, the possibility of having ASEAN members joining into AEMI at different pace was also considered as an option. Participants agreed that different models should be investigated, and options spelled out in an ASEAN context.

21. Participants recognized that many of the *political economy* issues spelled out in the *AEMI Concept Note*, though very important to address, are vastly outside the scope of expertize within the *Group*, and are best left to political economists who could join the *AEMI Group* at a later stage.

#### D. Revisiting the Background Papers

- 22. *Background papers* should be academic papers that review the literature and present the authors' understanding of current knowledge. Though they would not include any original academic research, they would be designed to grow into full-fledged publishable papers at a later stage, beyond the August Forum. Participants agreed that each paper would essentially address three key components:
  - (a) What is the state of knowledge?
  - (b) What does the state of knowledge tell us about the policy question(s) to address for AEMI?
  - (c) What are the elements which have not been addressed by existing literature, and which would need to be researched to provide a complete and conclusive framework for the design of AEMI, both from the policy and operational perspectives?
- 23. As per members' request, *Annex 1* provides some general guidelines for writing these papers. *Annex 2* indicates the agreed *division of labor* across the *AEMI Group*, identifying responsible parties committed to working on inputs into each of the three components for the *Background Papers*. Participants pledged their commitment to reviewing *all Background Papers* throughout the next steps leading to the *AEMI Forum*. They also agreed to provide, in due course, suggested names of national stakeholders that could be invited to the *AEMI Forum* (academics, policymakers, civil society). Finally, participants working on the same *Background paper* are encouraged to coordinate their work.
- 24. A member of the *AEMI Group* has kindly volunteered to support other members in terms of information on publications and research work, data availability and sources, and timetable for other relevant activities. Another member pointed out that AIT had prepared a paper on indicators (2007) that could be updated for the purpose of the AEMI papers. A third member indicated a number of relevant papers, including a study by AIT of the energy required to meet ASEAN energy needs by 2030 (sponsored by ADB); a study on natural resources and the environment, including a discussion of ASEAN (2012); and an IMF report (March 2013) with detailed analysis of energy subsidies in a number of countries, including most ASEAN. Finally, another member pointed to papers written in the context of the GMS (sponsored by the ADB), several of which with direct relevance to AEMI.
- 25. Participants suggested the creation of an *AEMI DropBox* that would be accessible to members of the *AEMI Group*, enabling them to share documents, including relevant publications and references.

#### E. Timeline to the AEMI Forum

26. <u>Annex 3</u> provides the timeline for papers to be produced ahead of the *AEMI Forum*, including the *Background Papers*. Members of the *AEMI Group* have eight weeks to write these papers and circulate them for review within the group before they are finalized.

#### ANNEX 1

## ASEAN ENERGY MARKET INTEGRATION (AEMI) GENERAL GUIDELINES FOR BACKGROUND PAPERS

**Purpose**. Background papers (about 10-20 pages each)<sup>1</sup> will inform the discussions during the AEMI Forum (August 27-28, 2013, Chulalongkorn University) and help focus it. They would not attempt to proceed with any original research or new quantitative analysis at this stage, but rather build the current accumulated knowledge, various publications as well as on easily available data analysis.

Approach. Each paper would focus on a different aspect of the three components of the AEMI project agreed at the May 10 Brainstorming session and presented in the revised AEMI Concept Note. It would: (i) provide a brief synthesis of the current state of knowledge; (ii) assess the implications for AEMI; (iii) identify the major issues that would still need to be addressed to complete the design of AEMI; and (iv) propose elements of a way forward to address them, both from a policy and operational perspectives. As such, background papers would initially serve as "briefing notes" to participants of the AEMI Forum and published under authors' names in the proceedings of this forum. Authors are encouraged to further develop subsequently them into full-fledged publishable paper.

*Content.* Within each of the topics identified in the revised *Concept Note*, the *Background Papers* would be structured so as to address, among other things, the following points:

- (a) What are the main elements of the topic and why is the topic important to AEMI?
- (b) Basic information on what relevant studies on this topic in East Asia or Southeast Asia have been carried out (this could be summarized in tabular form if there are many relevant studies):
  - What were the main objectives of these studies?
  - o Who carried them out and when? Which geographic region was covered?
  - What was the scope of the studies in terms of policy issues or questions addressed?
  - What methodologies were used? If relevant, what databases were used?
- (c) What were the main conclusions and recommendations of these studies?
  - Which form did the outputs take?
  - o How consistent were these results between studies?
  - How relevant are these conclusions and recommendations to AEMI?
- (d) What are the main gaps and deficiencies in these studies in the context of the objectives of the project on AEMI?
  - Which major issues would still need to be addressed?
  - What is your proposed approach to cover these gaps?
  - O What methodology would be adopted in addressing them?
- (e) What needs to be done in order to improve on the available analysis and produce a study that can make a major contribution to the current AEMI project?
  - What would be the aims and scope of this new study?
  - What skills and data are needed to carry out the study?
  - o How would this proposed study help policy makers make progress with AEMI?

<sup>&</sup>lt;sup>1</sup> Regarding format: Page count should include tables and figures. Text should be single-spaced, Times Roman, 12 font. The Harvard reference system should be used (Author, date) with reference list at the end of the paper.

#### ANNEX 2

# ASEAN ENERGY MARKET INTEGRATION (AEMI) AEMI GROUP CONTRIBUTIONS

#### I. Rationale for AEMI (Why)

#### (1) Map out ASEAN Energy challenge

- Map out current national energy market conditions across ASEAN, indicating the extent and nature of "energy balances" (gas, oil, coal, electricity, renewable energy) and identify where energy resources lie across ASEAN and where energy gaps are expected to be by 2030;
- Map out current physical infrastructure, indicating potential energy flows from energy surplus to energy deficit countries within ASEAN, given the current state of connectivity;
- Provide an overview of ASEAN national energy market structures and policies.

#### **Defining AEMI**

- Review definitions of energy market integration in the context of the EU and East Asia (EMI) and provide a definition for AEMI, using terminology consistent with that of the ASEAN Secretariat;
- Establish the core objectives pursued by AEMI, notably to achieve open and competitive national energy markets across ASEAN, which are physically and institutionally integrated;
- Identify AEMI hardware components (e.g. infrastructure, physical energy trading), as well as software ones (e.g. policies, standards, regulations) needed for AEMI to deliver its promise.

Dr. Leong Yow Peng Director, Institute of Energy Policy and Research, Universiti Tenaga Nasional (UNITEN)

Dr. Xunpeng Shi (assisting) Chief Researcher & Director, Energy Efficiency and Conservation Division, Brunei National Energy Research Institute (BNERI), Brunei Darussalam

#### (2) Interrelation between AEMI and AEC

- Establish the interrelation between the AEC and AEMI, including an analysis of how the AEC would provide a prime framework for realizing AEMI, and conversely how a well-functioning AEC would require AEMI at its foundation;
- Establish whether the AEC could develop as an efficient economic community, and remain sustainable, in the absence of the energy markets integration through AEMI;
- Given that a well-functioning AEC needs some amount of AEMI, spell out the minimum conditions within AEMI for the AEC to be a sustainable, efficient economic community.

Dr. San Sampattavanija Lecturer, Faculty of Economics, Chulalongkorn University

Dr. Sineenat Sermcheep Director of Research Affairs ASEAN Studies Center, Chulalongkorn University

Dr. Xunpeng Shi (assisting) Chief Researcher & Director, Energy Efficiency and Conservation Division, Brunei National Energy Research Institute (BNERI), Brunei Darussalam

#### (3) AEMI Benefits

- Examine the case for the creation of AEMI, arguing from the economic, social and environmental perspectives relative to the current approach characterized by disparate projects and actions;
- Revisit the rationale and analysis of the benefits from the EMI (for East Asia Summit countries), with a view to focusing the analysis on the narrower scope of AEMI, and drawing relevant conclusions for ASEAN. This would build on the analyses and papers produced by ERIA as well as those produced in the context of the discussion of energy integration within the EU;
- Assess the benefits to ASEAN from full energy market integration under AEMI as part of the AEC agenda, from the economic, social and environmental perspectives, relative to the current approach characterized by disparate projects and actions. Outline potential benefits from the free flow of energy products and services across the AEC, notably in terms of efficiencies in leveraging synergies and in building on complementarities.

Dr. Phouphet Kyophilavong Associate Professor Director of Research Division, Fac. Economics and Business Management, National University of Laos

Dr. Youngho Chang Assistant Professor, Nanyang Technological University, Singapore

Dr. Nguyen Thi Mai Anh Lecturer, Hanoi University of Science and Technology, Vietnam

Dr. Maxensius Tri Widodo Head of Economics Department, Universitas Gadjah Mada

#### (4) AEMI and ASEAN Energy Poverty.

- Map out energy poverty across ASEAN;
- Analyze whether AEMI could provide a framework for eliminating energy poverty by 2030;
- Identify the policy components and infrastructure needs for AEMI to deliver such a promise; spell out the design elements needed within AEMI to allow the realization of such an objective.

Mr. Jessie L. Todoc Country Manager - Philippines Program Manager, SEA Energy Access and Alternative Energy, International Copper

Association Southeast Asia, the Philippines

Dr. Maxensius Tri Sambodo Researcher, Indonesian Institute of Sciences-Economic Research Center (LIPI), Indonesia

Dr. Sandar Oo (*interest to be determined*)
Pro-Rector, Yangon Institute of Economics,
Myanmar

#### II. Key Building Blocks for AEMI (What)

#### (5) Establishing AEMI targets and indicators

- Describe targets and indicators as a tool to enhance energy efficiency, promote new sources of energy, introduce environmentally friendly energy saving measures, and help monitor energy use;
- Make the case for AEMI to establish quantitative energy indicators and targets to help achieve its objectives and assist in monitoring their evolution both at the national and the ASEAN levels;
- Review quantitative targets and indicators used around the world (both at national and regional levels), and provide definitions of methodologies for AEMI targets and indicators; specify data needs and availability, as well as required institutional framework.

Dr. Sopitsuda Tongsopit Researcher, Energy Research Institute (ERI), Chulalongkorn University

Dr. Youngho Chang Assistant Professor, Nanyang Technological University, Singapore

Dr. Kanittha Tambunlertchai Lecturer, Faculty of Economics, Chulalongkorn University

#### (6) Establishing AEMI standards

- Discuss the role of standards as a tool for achieving energy policy objectives through specifications for energy products and services, including standards for energy distribution system, connections to the grid, gas pipeline, and training of energy managers.
- Review of standards used around the world (both at national and regional levels) to achieve energy efficiency, promote new sources of energy, and address environmental concerns; Review environmental standards already agreed within ASEAN (renewable energy, energy efficiency);
- Review international best practice, including work done by the ADB, and ERIA; and discuss feasibility of AEMI adopting standards and an institutional framework to enforce them.
- Propose an approach and methodology for forecasting the likely impact of such standards on energy supply from non-fossil fuels, and on improved energy efficiency across ASEAN.

#### (7) Addressing National Constraints in joining AEMI

- Describe national constraints and challenges for ASEAN members to join AEMI; these would cover institutional, structural and policy dimensions (including physical infrastructure and technical problems with incompatible systems, different energy governance and regulations).
- Discuss approaches and investigate a course of action for lifting some of these constraints;
- Identify relevant bilateral and regional territorial disputes between ASEAN and ASEAN+3(and beyond) as an impediment to the well-functioning of AEMI.

#### Addressing Energy pricing and subsidies

- Review national energy market structures and policies; describe different approaches to energy pricing across ASEAN, including direct and indirect subsidies;
- Outline options for AEMI to address this challenge, including elimination or better targeting of energy subsidies and full energy market liberalization, against a possible alternative of "harmonization" of such subsidies across ASEAN and how this might work;
- Investigate whether the creation of AEMI could allow for a better valuation of social and environmental "externalities" into energy pricing, and describe options to formulate methodologies that would reflect such externalities in pricing energy products and services.

Mr. Jessie L. Todoc Country Manager - Philippines Program Manager, SEA Energy Access and Alternative Energy, International Copper Association Southeast Asia, the Philippines

Dr. Kanittha Tambunlertchai Lecturer, Faculty of Economics, Chulalongkorn University.

Dr. Adoracion Navarro Senior Research Fellow, The Philippine Institute for Development Studies

Dr. Maxensius Tri Sambodo Researcher, Indonesian Institute of Sciences Economic Research Center (LIPI), Indonesia

(PIDS), the Philippines

Dr. San Sampattavanija Lecturer, Faculty of Economics, Chulalongkorn University. Dr. Tran Van Binh Lecturer and Chairman of the Board, Hanoi University of Science and Technology, Vietnam

#### III. Strategy for the Emergence of AEMI (How)

#### (8) Institutional and governance dimensions

- Review best practice around the world to identify (both at the national and AEC levels) some of the institutions and governance structures needed to establish an efficient well-functioning AEMI;
- Describe governance requirements for AEMI (structures and functions); investigate different possible options, including the establishment of a "regional entity" to deliver such functions;
- O Identify action to be enacted at the national and the regional levels to develop AEMI governance.

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#### (9) The pathway to AEMI

- Review lessons from around the world from efforts to create cohesive energy markets, both from national or regional perspectives; Include lessons learned from successes and failures in the EU, NAFTA, Mercosur, and initiatives conducted in Central Asia;
- Investigate different options for "sequencing" the deployment of AEMI through 2030, formulating a pathway to AEMI with steps along the way, identified on the grounds of their interdependency, the net benefits they can deliver, and the ease of their implementation;
- Investigate alternative approaches where ASEAN members would join AEMI at different pace depending on national constraints; prioritize steps at the national level for a country to join AEMI

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#### (10) Geo-political economy of AEMI

- O Review, from a political economy perspective, past efforts deployed to bring more cohesion within the ASEAN energy markets (e.g. GMS) and examine the dynamics that would explain the lag between the political discourse and the effective action; draw conclusions regarding to approach and strategy to shape AEMI agenda in moving ahead.
- Provide a better grasp of geo-political considerations for energy market integration and a better understanding of the political dynamics at work, both at the ASEAN level and beyond.
- Elaborate a strategy and a political pathway for the adoption AEMI and identify the sequencing of such steps from a political perspective; provide a political road map for the adoption of AEMI through national as well as ASEAN decision-making processes and structures.

Dr. Hezri Adnan Senior Fellow, Technology, Innovation, Environment, and Sustainability (TIES), Institute of Strategic and International Studies (ISIS), Malaysia

Dr. Tran Van Binh Lecturer and Chairman of the Board, Hanoi University of Science and Technology, Vietnam

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Dr. Adoracion Navarro Senior Research Fellow, The Philippine Institute for Development Studies (PIDS), the Philippines

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Political Economist (to be identified)

### ANNEX 3

## $ASEAN\ ENERGY\ MARKET\ INTEGRATION\ (AEMI)$

### TIMELINE TO THE AEMI FORUM

May	June	July	August
Friday May 10 <sup>th</sup> :  AEMI Brainstorming, Chulalongkorn University	AEMI Group to Work on Background Papers	AEMI Group to Work on Background Papers	Friday August 9 <sup>th</sup> :  Chulalongkorn to send 2 Summaries to AEMI Group for comments
Tuesday May 14th:  Chulalongkorn to send Revised "Concept Paper" to AEMI Group for comments		Friday July 12th:  AEMI Group to send Draft "Background Paper" to Chulalongkorn	Wednesday August 14 <sup>th</sup> : <b>AEMI Group to send to Chulalongkorn comments on the 2 Summaries</b>
Friday May 17 <sup>th</sup> :  AEMI Group to send Comments on revised "Concept Paper" to Chulalongkorn			
Monday May 20 <sup>th</sup> :  Chulalongkorn to send back Final "Concept Paper" to AEMI Group  Friday May 24 <sup>th</sup>		Friday July 19 <sup>th</sup> : Chulalongkorn to send comments on Draft "Background Papers" to AEMI Group	Monday August 19th:  Chulalongkorn to distribute papers (Summaries, Background papers) to participants to the "AEMI Forum"
AEMI Group to send Draft Outline of "Background Paper" to Chulalongkorn			ALMI Forum
Monday May 27 <sup>th</sup> Chulalongkorn to send comments on Draft Outline "Background Paper" to AEMI Group		Friday July 26 <sup>th</sup> :  AEMI Group to send back Final revised "Background Papers" to Chulalongkorn	August 26 <sup>th</sup> (evening), August 27 <sup>th</sup> - 28 <sup>th</sup> :  "AEMI Forum", Chulalongkorn University