



## ASEAN ENERGY MARKET INTEGRATION (AEMI):

### ENERGY SECURITY AND CONNECTIVITY THE NORDIC AND EUROPEAN UNION APPROACHES

#### AEMI Forum Conclusions

24-26 November 2015, Hotel Jen Tanglin, Singapore  
*held under the Chatham House rule*

1. The AEMI Initiative is aimed at formulating policy recommendations for the creation of an integrated energy market within the ASEAN Economic Community (AEC). It focuses on supporting the implementation of the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025, geared towards energy market integration and connectivity. The Initiative is delivered by a network of academics and experts from across ASEAN, and is hosted by the ASEAN Studies Centre, Chulalongkorn University. It is conducted in cooperation with the Norwegian Institute of International Affairs (NUPI), with funding from the Norwegian Ministry of Foreign Affairs.
2. As part of the AEMI Initiative, the Energy Studies Institute (ESI), National University of Singapore, hosted a two-day AEMI Forum on 24-26 November 2015 to develop approaches to governing energy security and connectivity. The objective was to examine the Nordic approach to energy market integration, to contrast it with that of the EU and North America; and to formulate recommendations for the ASEAN Power Grid (APG), particularly relating to the LTMS PIP.
3. The Forum was held under the Chatham House rule, whereby participants are free to use the information received, but neither the identity nor the affiliation of the speakers, nor that of any other participant, may be revealed. It was attended by 35 participants, including senior ASEAN energy officials from the ASEAN Secretariat, ASEAN Center for Energy, ASEAN Power Grid Consultative Committee, HAPUA, and AERN. Also present were experts from international organizations and research institutes (IEA, ERIA, UNESCAP), as well as academics from the EU, Norway, Finland and Denmark. A representative from NordPool Consulting (Oslo) also participated, along with participants from the Embassies of Norway, the UK, US and EU.

4. Participants agreed that there is no single model or recipe for achieving energy market integration. Each region has unique socio-economic characteristics, different energy sources, and specific energy needs. Nevertheless, participants identified elements relevant to ASEAN, and recurring in a number of models as key factors of success:

- (a) senior level and ministerial decision-making are based on evidence, and supported by appropriate research and reliable statistics;
- (b) prominence of research and technology activities, including cooperation between academic institutions across the region, importance of research centers dedicated to regional perspectives, and capacity building for energy planning and policy formulation;
- (c) consensus at high levels is used for adoption of core objectives, while allowing flexibility and majority rule for decisions about implementation; as a result, actions are based on agreed principles, rather than stringent rules;
- (d) trust among leaders, and strong people-to-people connections and interactions;
- (e) decisions based on cost-benefits analysis from a regional perspective, taking into account welfare implications and agreed objectives.

5. In terms of energy market liberalization, experience indicates that:

- (a) utilities could continue to remain vertically integrated, as unbundling is not a prerequisite for regional connectivity and cross border trading on a commercial basis;
- (b) utilities need not be privatized either, so long as their mode of operation transitions into an efficient commercial basis;
- (c) energy subsidies can be maintained, but must be decoupled from market prices, so as to avoid distorting energy markets; alternative instruments could target support to the poor.

6. In terms of deployment of energy market integration, experience shows that:

- (a) a step wise approach is necessary, rather than a big bang where everything is attempted at the same time;
- (b) bilateral arrangements can continue to be developed, and if successful, they will expand as other members become ready to join; however, these should be concluded within the framework of the regional perspective, and also part of a market concept that includes short term trading.

7. A flagship of the success of the Nordic model has been the creation of a commodity exchange for electricity trading and price discovery. The Nord Pool Spot commodity exchange carries out the task of setting out the price that balances supply and demand in the power market. Its spot market is an auction-based exchange, which receives bids and offers from producers and consumers, and calculates an hourly equilibrium price that balances these two sides. The key benefit is that this system enhances competition, and therefore delivers electricity at the lowest

price, effectively benefiting both producers and consumers. Nord Pool Spot publishes a spot price for each hour of the coming day, and is currently the central electricity market for Nordic and Baltic electricity.

8. The Nord Pool Spot model has been adapted and implemented successfully to create an integrated regional energy market in the 12 countries in Southern Africa, though in a simplified model where state-owned, vertically-integrated utilities sell their net excess capacity. The model has also been successfully adapted and implemented in less than a year in the 29 states throughout India.

9. Participants examined the potential and challenges of the *LTMS PIP*, as a pathfinder to complement existing efforts towards realizing the APG and the AEC. They agreed that, building on the work already accomplished on technical feasibility, a market study needs to be conducted to analyze the rationale for commercial cross border power trading among the parties involved, taking into account cost competitiveness of hydro-electricity trading in competitive markets, sustainable solutions for management of wheeling and transmission losses, and efficient deployment of renewable energy sources across ASEAN in the framework of the APAEC (2016-2025) agreed targets.

10. To move forward with power trading across ASEAN, participants recommended that ACE, APGCC, HAPUA and AERN, prepare a strategic plan along with a road map and step wise approach to deliver it. The strategic plan would include the following components, for presentation at the Special SOME 25-26 January for their endorsement:

- (a) Regulations, standards and legal frameworks related to multilateral commercial agreements: develop these based on market needs and modalities for its efficient functioning. (AERN, HAPUA, APGCC)
- (b) Utilities: utilities to develop their approach to transitioning into a commercial mode of regional operation, and agree a path to get there. (HAPUA)
- (c) Subsidies: conduct a study of options to de-couple energy subsidies from electricity prices, while continuing to assist the poor (welfare neutral action), and analyze the impact on subsidy removal on electricity prices for consumers, and GDP growth. (ACE, AERN)
- (d) Market analysis: conduct a feasibility study for the creation of an ASEAN power exchange, inspired by the Norwegian commodity exchange, and estimate expected electricity spot prices in ASEAN markets, and their competitiveness relative to current bilateral trading prices. (ACE, HAPUA).
- (e) Field visits: send a delegation of ASEAN officials to visit electricity exchanges, to investigate their operational model, examine their pricing algorithms, and learn from their success and failures. These exchanges would include: Nord Pool Spot (Oslo); Southern Africa; and India. (ACE, HAPUA, APGCC, AERN).

11. IEA, UNESCAP, NordPool Consulting and ERIA have agreed to assist in preparing for delivering this action plan as follows:

- (a) IEA: could focus on security of supply across borders as a key element of regional integration. IEA could also undertake projects to identify the barriers to electricity market integration and recommendations, as well as a study to further develop hydropower in the Mekong region. For the SOME in January, IEA can present insights from its analyses of regional power trading in other parts of the world relevant to ASEAN.
- (b) UNESCAP: through convening inter-governmental forums and workshops, UNESCAP would include in its agenda some of the issues related to LTMS, the AEC, access to energy, sustainable development and other AEMI challenges, with a view to share experience with other sub-regions and identify common sets of regional solutions.
- (c) ERIA: will undertake the following studies:
  - (i) qualitative study on political and institutional frameworks, as well as business model and market design of ASEAN power grid connections. To be completed by June 2016 through Energy Research Institutes Network;
  - (ii) Institutional dimension for regional TSOS, with HAPUA;
  - (iii) Institutional dimension for regional system planners, with HAPUA.
- (d) NordPool Consulting: support for the development of the strategic plan to move forward with the APG:
  - (i) support for capacity building;
  - (ii) pre-feasibility and detailed design of ASEAN power exchange;
  - (iii) organizational setup;
  - (iv) implementation of a potential ASEAN power exchange.

*Approved unanimously by AEMI Forum participants,  
Singapore, 26 November 2015*