

**Studies on Energy Security and International Relations:
The Case of Regional Cooperation in Southeast Asia**

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Energy security, as a contested concept itself, has become the topic of interest and widely referred term among scholars and policy makers since the risen era of the modern energy system and the energy crises in the 1970s. Due to the complexity of the relationship between energy and security, academic research on energy security could be considered one of the most interdisciplinary field ranging from technical security of energy systems to perceived security regarding ‘energy,’ which results in numerous and different approaches to the understanding of energy security. Despite an agreement that there is no consensus on energy security concept, energy security, whose importance to the wellbeing and well functioning of the political entity and its economy is undeniable, has directed and influenced energy policy and international energy cooperation in almost all countries. The concern is, by pursuing the so-called energy security without adequate consideration to its high context-dependence, it could lead to impractical energy policy and pointless multilateral energy cooperation.

This dissertation contributes to bridging the gap between the understanding of actual energy security and the interpretation of perceived security with a focus on international energy relations and cooperation. Southeast Asia (minus Laos) was selected as the case study because 1) it represents a cluster with rich diversity in terms of country-specific energy contexts, e.g., economic growths, energy resources and reserves, the style of energy consumption, the variation in energy development status, and political structures, and 2) there are several ongoing regional energy cooperation frameworks and plans for future regional energy integration. The overall objective of this dissertation was to answer whether and how international energy cooperation would affect or contribute energy security both as an individual country and as a regional body. The level of analysis was thus divided into two main levels: at the national level and the international level (including bilateral).

The concept of energy security, objective and subjective complexity, was first discussed in order to understand why energy security is highly context-dependent and how its perception and interpretation would influence energy policy directions. Energy security issues were categorized into physical security issues and structural security issues in accordance with three referent objects of security—energy system, state, and human. Then, the dissertation examined twofold of Southeast Asian energy security conceptualization: country-specific (context-based) and policy-based using bottom-up approach. Due to distinct energy contexts, each country has pursued different energy policy approaches, yet, to a certain extent, the similarity in the perception towards energy security was a focus on the security of supply, energy efficiency, and affordability. Most countries considered energy dependence as an energy security issue. Once perceived energy security was explored, the assessment of energy security performance at the national level was undertaken to identify actual energy security issues and illustrate the interrelation between energy context and energy security. Using indicator-based analysis, 48 individual energy security indicators, which can be separated into six components: overall energy balance, socio-economic aspect, domestic energy resources, overseas energy demands and resources, diversification of energy supply,

and environmental sustainability, were included. Reflected from the assessment, at the national level, different energy contexts affected the connotation of energy security and the interpretation of energy security indicators. Actual energy security issues, which were driven by national energy contexts, specifically uneven economic and energy infrastructure developments, were also diverse at the international level. Due to the diversity, the interconnection of intra-regional energy markets could contribute to energy self-reliance of the region, but the concern was the difference could hinder the prospect of cooperation due to the lack of shared security issues. The dissertation further explored the international dimension of energy security. Energy dependence framework and three aspects of dependent relations (external supply dependence, external demand dependence, and economic interdependence) were proposed to better the understanding of the reciprocal dependent nature of international energy interactions. An assessment method based on proposed conceptual framework was also developed and used to determine whether the dependence should be considered positive, negative or mutual. The established Energy Dependency Index (EDI) was applied to selected bilateral energy interactions to delineate the variations of dependency status based on different aspects of energy dependence. Several energy policy recommendations regarding energy dependence were discussed with an emphasis on the inclusion of an objective third party into the dependent dynamics. The dissertation then referred to the Regional Security Complex Theory (RSCT) as a framing concept for the analysis on regional energy security cooperation within ASEAN. The regional energy security complex was identified, which highlighted the role of each Southeast Asian country in the complex. Extra-regional players particularly Japan, China, and Australia were also included in the analysis of the regional energy security complex. In reference to the objective of the dissertation, the dissertation provided a quantitative and qualitative answer that, to a certain extent, international energy cooperation contributed to energy security of a country. However, as a regional body, the question is not on whether and how international energy cooperation would enhance regional energy security, but the concern was actually on the fact that, for Southeast Asian countries, energy security would always be perceived as national security and national interest. The clash between national energy security (actual or perceived) and collective goal of regional energy cooperation was the main obstacle to practical ASEAN energy integration. Although the diversity in energy contexts could contribute to energy self-reliance of the region, the lack of shared values (regional energy security—actual or perceived) and common energy threat resulting from the difference in the perception towards energy security was a major concern. The dissertation discussed the high possibility of market-driven integration among some members of ASEAN, but questioned the complete regional energy security integration because, for many of the Southeast Asian countries, energy security has been and will always been the center of national interest and national security. Nevertheless, by adopting the ladder of development approach and applying it to regional energy cooperation, the Southeast Asian (as well as ASEAN) would be able to benefit from the diversity and leverage the difference caused by economic and development gaps.

Keywords: international energy relations; energy security; energy dependence; energy cooperation; Southeast Asia