

V. Institutional and governance dimensions of ASEAN Energy Market Integration

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Abstract

Effective governance is a key requirement for multi-lateral energy cooperation and for AEMI. This is because the objectives of AEMI are not only to deliver direct economic efficiency gains but also a range of external benefits that have the character of regional public goods. While some measures such as bilateral energy transmission connections can be undertaken on an *ad hoc* basis, sustained moves towards a regional energy market require the delegation of authority or pooling of sovereignty to an agency charged with implementation in order to overcome the national obstacles. The obstacles to implementing AEMI are numerous. First is the long-standing importance of sovereignty and nationalism to the ASEAN members, which easily translates into protectionism. Second, some member States have relatively weak capacity to govern a sector as technically and economically complex as energy. Third, the degree of variability across ASEAN is very high. In the short term, efforts should be directed towards making progress incrementally, either by focusing on a limited number of activities that cover most or all of the ASEAN members or by building closer energy market integration among a sub-set of ASEAN members that are able and willing to participate. In the longer term, it is essential to enhance the authority and capacity of ASEAN's energy leadership and administration (e.g., the ASEAN Secretariat, AMEM, SOME and ACE) if progress towards energy market integration is to be sustained. This will necessarily involve the progressive delegation of authority or pooling of sovereignty. Without this step being taken, progress towards AEMI will be seriously constrained.

A. Introduction

All energy markets require to be governed and this governance is provided by a range of public and private actors and by institutions (e.g., treaties, laws, regulations and contracts). The governance of energy markets at the national level provides many Governments with severe challenges, but the promotion and governance of multi-national regional energy market integration such as the ASEAN energy market integration (AEMI) is an even greater challenge.

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The aim of this chapter is to evaluate the current institutions of energy governance in ASEAN for their suitability to promote and govern energy market integration, and to identify steps that need to be taken to address any deficiencies.

Section B provides a general survey of the challenges of energy governance as well as a selection of theoretical approaches that have been employed to understand transnational energy governance. Section C applies a public goods approach to regional energy market integration in order to elaborate on why certain activities are more difficult than others and why they require more rigorous governance. Section D draws lessons from three international case studies. Sections E and F draw on the earlier observations in order to evaluate the governance of energy market integration in ASEAN, and to recommend actions that could be taken to enhance ASEAN's ability to pursue energy market integration.

B. Energy governance

The aims of this section are to demonstrate and explain the complexity of transnational energy governance and the inadequacy of current governance institutions, and to introduce the main theoretical ideas. Subsection 1 highlights the distinctiveness of energy and subsection 2 presents a selection of theoretical understandings of transnational energy governance today.

1. The distinctiveness of energy

The energy industry is distinct from any other sector of the economy. It is a key input to all economic activity, especially in a modern economy, and is a key determinant of standards of living in all societies. Its distinctiveness as a commercial activity arises from the large capital costs, long-lead times, economies of scale, technical sophistication and the relatively high degree of risk involved. The energy sector may play a very important role in the economy of a nation with regard to: (a) gross domestic product; (b) balance of trade; (c) availability of foreign exchange; (d) whether that country is a net importer or a net exporter of energy; and (e) the alleviation of poverty.

As a consequence of the distinctiveness and importance of the energy sector, a responsible Government cannot avoid becoming involved in the governance of the energy sector, regardless of the nature of the economy and the system of national governance. Markets alone cannot satisfactorily address a number of key challenges. It is difficult to promote competition due to the natural monopoly characteristics of energy networks, the role of potential monopolists and cartels, and the high barriers to entry. The production and use of energy can, and does cause harm both to wider society and to the environment ("negative externalities"). Finally, Governments have the obligation to manage finite national natural resources, and to gather and provide market information. It is also necessary to manage those elements of energy that have aspects of a "public good", such as security of supply, access to basic energy services and energy efficiency.

2. Transnational energy governance

Although the effective governance of energy at the national level continues to be of crucial importance, it is no longer sufficient because the energy industry, the energy markets, and the impacts of energy production and use have become transnational, regional and even global in scale. Energy companies are internationalizing, oil markets are global, gas markets are regional and growing in scale, energy supply networks span great distances, and environmental damage affects whole regions and even the entire globe. Therefore the governance of energy must also take place above the national level, on regional, trans-regional and global scales.

The transnational governance of energy at the regional or global level has to address a wide range of issues, such as investment, trade, technology transfer, the construction and regulation of transboundary infrastructure, the management of transboundary resources, safety, environmental protection and access to energy. Three types of functions of transnational institutions can be identified (Goldthau and Witte, 2010): correcting market failures; lowering transactions costs; and setting standards and rules for market transactions.

Transnational governance can take a number of forms (Kahler and Lake, 2009):

- Ad hoc cooperation between States that are acting in a mainly unilateral manner;
- Supranational governance by pooling or sharing sovereignty in a collective agency that can make authoritative and binding decisions (e.g., the European Community);
- Supranational governance by delegating authority for certain tasks to an agency (e.g., the International Energy Agency and the World Trade Organization);
- Governance through a hierarchy whereby a dominant State sets standards or rules that are followed by others (e.g., dollarization of currency);
- Networks of public and/or private sector actors that lack formal authority.

The nature of the governance institution chosen by a group of nations will, to a great extent, depend on the nature of the national governance institutions in that group of countries as well as on the power of veto actors to prevent the pooling of sovereignty or the delegation of authority (Kahler and Lake, 2009).

The idiosyncratic nature of the creation and evolution of transnational institutions has led to a complex and fragmented system of global energy governance. This complexity has been exacerbated by the proliferation of numbers and types of actors in international energy markets. As a consequence, the framework of global energy governance is characterised by gaps, overlaps, tensions and conflicts that impede effective governance and raise the risks of governance failure (Florini and Sovacool, 2011; Dubash and Florini, 2011; Meyer 2013a and 2013b). Tensions are particularly prominent between the institutions governing energy, environment and trade (Gosh, 2011).

Of particular concern is the need to span different levels of energy governance (global, regional, national, sub-national and local) and to allow the effective participation of the growing range of actors (state, firms and civil society). Such “polycentric governance” is intended to draw on the advantages of global or regional governance and those of national and subnational governance. Of particular importance is the need to match innovation and flexibility at the local level with consistency and equity at the global level (Brown and Sovacool, 2011).

The challenges facing international energy governance are not unique to the sector, and can be found in the wider resources and environment arena as well as in many other areas of activity. In many sectors, the proliferation of the number and types of actors (Abbott and Snidal, 2009) and of international institutions (international regimes and international organizations) has led an increasing degree of “institutional interplay” (Stokke and Oberthur, 2011). Such interactions may be “vertical” between institutions at different levels in a hierarchy, or “horizontal” between institutions at the same level. Both types provide challenges to ensure that the interplay does not create tensions or contradictions, and does not leave important governance gaps (Oberthur and Gehring, 2011).

As the systems of international governance become more diverse and complex, the management of the interactions between institutions is becoming progressively decentralized, while less formal groups, such as expert networks and civil society organisations, are playing an increasingly important role (Jungcurt, 2011; Oberthur and Stokke, 2011). Theories relating to “complexity” and to “complex adaptive systems” have been invoked in order to improve understanding of global governance in general (Jervis, 1997; Hartzog, 2004; Duit and Galaz, 2008) and the governance of natural resources and the environment in particular (Stark, 2009; Hoffmann, 2011). The key implications of these analyses are that: (a) the links between actors in a system are just as important as the actors themselves; (b) governance systems are always potentially unstable and open to change; and (c) the consequences of institutional change are unpredictable.

One theoretical approach that encapsulates elements of all these concepts relating to transnational energy governance is that of regional public goods theory. This theory not only provides a method of identifying the benefits to be derived from regional cooperation, but also gives insights into the obstacles to cooperation as well as the options for overcoming these constraints. In this way, regional public goods theory forms a useful framework for developing strategies for promoting and developing AEMI. This chapter not only applies a public goods approach as the principal theoretical concept to the analysis of regional energy market integration, in general, and to AEMI in particular, but also draws on the other theoretical approaches.

C. Regional public goods and application to regional energy market integration

The aim of this section is to show how regional public goods theory can provide insights into regional energy governance and regional energy market integration. This account draws heavily on Andrews-Speed (2011). This section begins by explaining the terms “public good” and “regional public good”, before examining issues related to the design and delivery of public goods, and the nature of regional organisations.

1. Public goods

A public good is a service or a resource that provides benefits which are non-excludable and non-rival. Non-excludability arises from the impossibility or impracticability of excluding users. This results in over-use, especially by “free-riders” who have not contributed to the production of the public good. Non-rivalry arises from the marginal cost of supplying another user being zero. Additional users do not reduce the quantity of the good available to other users, and thus it is not worth spending the money to exclude these users. The combination of non-excludability and non-rivalry generally results in over-use and under-supply of a public good. In contrast, a private good is fully excludable and fully rival, and supply will, in theory, be efficient.

A range of goods exist that are intermediate between purely public and purely private. Common goods are rival and non-excludable, and these are greatly prone to over-use. Impure public goods may be partially rival or partially excludable. They can take different forms and, like pure public goods, are liable to suffer from under-supply and over-use. Club goods are fully excludable, with a membership fee, and are often supplied efficiently. Although they are usually intended to be non-rival, they can easily become partially rival if the fee is not set sufficiently high or if too many parties are allowed to participate. A joint product is an activity that produces more than one benefit, of which at least one is a public good (Sandler, 2006).

2. Regional public goods

A regional public good is one that can be provided and shared by the countries of a region, and which provides benefits to individual countries and to the region as a whole (Ferroni, 2002; Hettne and Soderbaum, 2006). In principle, collective action by Governments in the region should create positive spill-over effects across the region that are greater than those that could be generated by individual Governments acting alone (Ferroni, 2002; Sandler, 2007).

Most regional public goods fall under one or more of six headings – knowledge, infrastructure, environment, health, security and governance – although a degree of overlap exists between them. Infrastructure is not in itself a public good, but rather it provides services that have elements of a public good (Rufin, 2004). Governance is an intermediate public good that is essential in order to generate the desired final public goods, and will include: (a) establishing and implementing shared standards; (b) best practices and policy regimes; (c) setting up regimes to address cross-border problems; and (d) creating networks of regulatory agencies. Examples of how elements of regional energy market integration can be classified under these different headings (excluding governance) are shown in table 1.

Table 1. Selected services that have features of regional public goods for a regional integrated energy market, grouped by field of activity

Category	Service	Type of good	Aggregator
Knowledge	Dissemination of research results	Pure PG	Weighted sum
	Joint public pronouncements	Pure PG	Weaker link
	Best practice laws, procedures and rules	Pure PG	Better shot
	Early warning systems	Pure PG	Best shot
	Market and reserves data	Impure PG	Weaker link
	Analysis of data	Impure PG	Better shot
	Technological research and development	Impure PG	Better shot
	Benchmarking data	Impure PG	Threshold
	Capacity-building and training	Club G	Better shot
	Events and meetings	Club G	Weighted sum
Infrastructure	Network construction	Club good	Weighted sum
	Construction of shared infrastructure	Club good	Weighted sum
	Maintaining network integrity, security and access	Pure PG	Weakest link
Environment, natural resources, and health	Providing clean energy to cities and households	Pure PG	Weighted sum
	Effective husbanding of natural resources	Pure PG	Weaker link
	Reducing acid rain	Impure PG	Weighted sum
	Cleaning up after polluting event	Impure PG	Better shot
Peace and security	Construction of emergency stocks	Pure PG	Better shot
	Emergency stock sharing system	Club G	Weighted sum
	Sea-lane security	Pure PG	Better shot

Network security Emergency response team	Pure PG Club G	Weakest link Threshold
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3. Aggregation technology

For any public good, the key to designing effective delivery of the good is to understand the “aggregation technology”. The aggregation technology encapsulates the general nature of the institutions and instruments that must be created in order to deliver the public good, and the nature of the aggregator depends on the nature of the good to be delivered. The purpose of the aggregation technology is to provide the incentives for collective action to ensure sufficient supply of the public good. The challenge for policymakers is to design the institutions and instruments so as to address the weaknesses of the aggregation technology or to manipulate the technology (Barrett, 2006; Sandler, 2006 and 2007; United Nations Industrial Development Organization, 2008).

Seven types of aggregation technology may be identified for regional public goods (table 1). The most basic one is “summation”, by which the total supply of the good is the sum of the contributions, regardless of how much each party contributes. All contributions are perfectly substitutable. “Weighted summation” resembles summation, except that in this case the relative importance or weighting of the different contributions is variable. For such types of public good, it is very difficult to ensure that all parties contribute. The likelihood of under-provision is high, not least because marginal costs tend to rise as the amount provided by a particular party grows. Examples in the energy sector include the construction of networks and shared infrastructure, some environmental actions and the dissemination of research results.

The supply of a good with “weakest link” aggregation technology depends on the supply of the smallest contributor, just like the weakest link in a chain. Every contribution is important, but the failure by just one country to supply an adequate quantity of the good undermines the collective effort and renders the efforts of others wasted. “Weaker link” technology is similar but implies that there is a gradation of “weakness” among contributors. The risk exists that every country contributes only as much as the weakest country or countries, and that greater effort is expended on addressing the anticipated failure to provide the public good than on providing the good. This outcome can be avoided if the parties share common interests and goals, and if the wealthier or more competent countries help the weaker States through the provision of money, skills or other resources. Examples of weakest and weaker link goods include the maintenance of the security and integrity of infrastructure networks such as pipelines and power grids, and the provision of market and reserves data.

At the other extreme is “best shot” technology, through which the total supply of the public good is determined by the success or actions of just one country. “Better shot” technology is similar to “best shot”, except that the impact of each contribution is proportional to the size of that contribution. In principle, such aggregators avoid many of the challenges facing other technologies, but require coordination among the countries in the region to ensure that resources are not wasted by those countries that are unlikely to make the “best shot” contribution. Problems may arise if no country is willing or able to deliver the good, if a country fails to deliver on a promise to deliver to good, or if two or more countries are vying to be the provider. “Best shot” and “better shot” goods in the energy sector include fundamental research, early warning systems, the construction of strategic oil stocks and capacity-building.

The final type of aggregation technology is “threshold”, which requires a certain level of contribution to be made from the parties collectively before any benefit is realized. If the total contribution falls below this threshold, no benefit accrues to any party, only costs. Free-riding can only occur once the threshold has been reached. Examples include many forms of emergency response teams and facilities.

4. Incentives for supply

The nature of the incentives that will be required to provide the public goods will depend on the nature of the service and of the aggregator. Coordination and cooperation between nation States is a prerequisite for the provision of all regional public goods. What will vary is the extent to which rights, obligations and sanctions must be embodied in a formal treaty. Certain goods with summation or weighted sum aggregators are likely to require treaties, for example the construction of networks, a sharing system for emergency stocks and the reduction of acid rain. In the case of club goods, those parties who do not wish to participate can easily be excluded, and the agreement can be concluded without excessive difficulty. The provision of “best shot” or “better shot” goods such as early warning systems, research and development, pollution clean-up and the construction of emergency stocks only needs key parties to be willing to provide the service and to cooperate in its provision.

Weakest and weaker link goods are constrained by the inability or unwillingness of parties to collaborate in supplying the good. Inability can be addressed through financial or technical support, for example, in maintaining network integrity. However, unwillingness to provide may be rooted in the political culture or in national attitudes towards sovereignty. The provision of data on national energy markets and energy reserves, and the management of primary energy resources are likely to be liable to such a constraint. Of more fundamental importance will be the inability or unwillingness of certain Governments to open their energy sectors to foreign investment, reform their systems for energy pricing, remove the monopoly rights of the national energy champions and provide third-party access to energy infrastructure. These constraints to AEMI are illustrated in the case of the European Union in section D.

Of particular relevance to regional energy market integration is the need for leadership from one or more nations, and for a common world view relating to economics and politics. This arises from the profound relationship between energy, on the one hand, and national sovereignty and national security, on the other. The full integration of energy markets requires Governments to cede ownership over their state-owned energy enterprises, promote inward investment in the exploitation of primary energy resources, and relax their control over domestic energy markets. Even less ambitious forms of collaboration will require changes to national laws, structures and systems related to energy. Rivalry between those nations that should be providing regional leadership and the need for cross-subsidies between nations may also prove important barriers to progress.

5. Regional organizations for delivering public goods

No regional organization will have the authority of a national Government because sovereignty lies with individual nations (Matthews, 2003). A supra-national approach to regional governance in which the regional body has real authority over member States is only possible if the individual States are willing to cede a significant amount of sovereignty to this body, as is the case with the European Union, or to delegate authority to the body, as is the case with the International Energy Agency. Such an approach to regional cooperation is often not acceptable. Rather, most regional cooperation is relatively ad hoc, with each State retaining veto power, a secretariat and subordinate

committees that coordinate but have no authority, and a range of formal and informal networks that help to share information and build trust.

The approach taken in building regional collaboration also depends on the extent of integration envisaged. At one end of the spectrum lies full market integration, which will require a sophisticated system of rules and incentives in order to break down trade barriers, and ensure the free flow of goods and services. At the other extreme, States can agree to cooperate in certain sectors to deliver specific regional public goods. In between these two extreme lies policy coordination, or even policy harmonization, which may accompany either market integration or sectoral cooperation (Matthews, 2003).

As mentioned above, transnational cooperation organizations are designed to fulfil one or more types of function – correcting market failures, lowering transactions costs, and setting standards and rules for market transactions. They may be formal organizations or informal networks, and both types may be either uni-dimensional, focusing on a single function or sector, or multi-dimensional (Hettne and Soderbaum, 2006).

Whatever combination of organizations is developed to promote the supply of public goods across a region, a number of general principles should be kept in mind. First, policy research and operational management should not be considered as separate activities, but should be integrated in the same organizations. Second, the long-term aim of the regional organizations and institutions should be to encourage the emergence of new behavioural norms that support the delivery of regional public goods, not just to enforce them through rules. Finally, all regional organizations should be linked effectively both horizontally to other regional organizations in the same geographical area, and vertically to global and national organizations providing public goods (“polycentric governance”). It may also be desirable to build links to regional organizations in adjacent regions in order to deliver trans-regional public goods (Hettne and Soderbaum, 2006; Sandler, 2007; United Nations Industrial Development Organization, 2008).

6. Applying regional public goods theory to ASEAN and AEMI

ASEAN was created to deliver two fundamental regional public goods: regional security and regional economic development. Regional economic development is also the prime objective of the forthcoming ASEAN Economic Community (AEC); thus, AEMI should be a component of AEC. However, energy market integration is not just about promoting the free movement of energy products, services and capital, but should also deliver a range of other benefits that support and complement the free movement of these factors. These benefits have the character of regional public goods.

This account of how regional public goods theory can be applied to regional energy cooperation and market integration provides insights into the benefits to be derived from AEMI, the approaches to building AEMI, and the governance institutions required. Before going on to apply these insights to AEMI, it is useful to examine two international examples of energy market integration.

D. Lessons from international experience

The aim of this section is to draw some lessons from the international experience of energy cooperation and market integration in the light of regional public goods theory and other theories. Pineau and others (2004) conceptualized three types of integrative development required to move to regional electricity market integration: (a) infrastructure inter-connection; (b) progression towards

regional regulation; and (c) commercial integration (table 2). Although their analysis focused on electricity, it is also relevant to other components of energy market integration. In this analysis of the international experience, two examples have been selected that illustrate different degrees of energy market integration:

- (a) The European Union, which displays a high degree of energy market integration, lying somewhere between the third and fourth stages; and
- (b) MERCOSUR, where energy market integration lies between the first and second stages.

Table 2. Integration continuum for regional electricity markets along infrastructural, regulatory and commercial integration

		No regional integration →		Full regional integration
	First Stage	Second Stage	Third Stage	Fourth Stage
Infrastructural integration	Isolated national power systems	Cross-border transmission capabilities	Coordinated effort in transmission investment	Fully integrated regional system operation
Regulatory integration	Independent national regulation	Compatible regulation	Coordination of Regulatory agencies	Regional regulatory agency
Commercial integration	National markets with local ownership	Cross-border trade and ownership	Regional spot market	Regional secondary/futures market

Source: Pineau and others, 2004.

These two cases illustrate different approaches to regional energy market integration covering large populations, which were started at different times; both have made more progress than ASEAN.

1. European Union

Formal collaboration between European countries in the field of energy began in the early 1950s with the establishment of the European Coal and Steel Community and the European Atomic Energy Community. The first of these was created with the express ambition of building a common market for coal, then the most important source of energy. The next significant step taken was progressive development, from 1968 onwards, of emergency response mechanisms to react to disruptions to oil supplies, including the construction of oil stocks (Matlary, 1997).

A key feature of the European Union is that the member States cede partial sovereignty to the institutions of the European Union: (a) to the Council of Europe, which comprises the heads of government of each member State; (b) to the European Commission, which is a large and powerful civil service; and (c) to the European Parliament, which has members directly elected from the member States. Of these three bodies, it has been the Commission that has been the most active in promoting the single European energy market.

It was in 1986 that the Council of Europe first agreed on the need for greater integration of national energy markets, and in 1988 it was resolved to introduce a single internal energy market. A decade of proposals, drafting and negotiating then took place, including the Directive on Hydrocarbons Licensing, which was issued in 1994 (Cross and others, 2001). Legally-binding directives related to price transparency as well as electricity and gas transit were issued, and Common Rules were

drafted covering the removal of monopoly rights, the unbundling of vertically-integrated utilities and third-party access to transmission infrastructure (Lyons, 1996; Cameron, 2002).

Despite all these formal measures, little was achieved towards building a single energy market until 1996 and 1998, when the Electricity and Gas Directives, respectively, were adopted. This breakthrough was assisted by the progressive emergence of competitive energy markets at the national level, for example, in the United Kingdom, Germany, the Nordic countries, the Netherlands and Spain (Egenhofer, 1997).

In 2007, the Council of Europe issued an “Energy Policy for Europe” that showed renewed political commitment at the highest level to the single European energy market. A so-called “Third Energy Package” of proposed measures was published in 2009 and took effect from March 2011. The overall aim was to complete the single European energy market by 2014 with particular emphasis on the need to improve economic competitiveness. The main components were (Stanic, 2011): (a) unbundling of transmission from production and supply activities; (b) allocating stronger powers and independence to national regulators; (c) issuing new rules to harmonize market and network operations across Europe; (d) setting higher standards of public service obligations and consumer protection; and (e) establishing new institutions to promote cooperation between regulators and between transmission system operators. Now, four years after the package was published, progress is still behind schedule through a combination of delays in passing national legislation, a continuing focus on national policy priorities and a shortfall of investment cross-border infrastructure connections, among other factors (European Commission, 2012 and 2013).

Despite numerous obstacles to achieving a true single European energy market, nearly 60 years of effort have succeeded in building the world’s largest integrated electricity and energy markets, and national markets have been liberalized and cross-border connections have been developed (Vasconcelos, 2013). The gradual development of smaller regional energy markets within the European Union has been supported by the European Commission and by the regulators since 2004. These markets take advantage of the proximity between nations and of existing network links. These sub-regional networks have allowed local economic benefit to be realized by the participating States and can provide the building blocks for later integration to form a Europe-wide market once the necessary infrastructure has been built (de Jong, 2008). In addition, a wide range of regional public goods have been provided through shared policy formulation and implementation. Such benefits include information, energy security, energy efficiency, technological development and environmental protection.

A key component of energy market integration is the harmonization and eventual removal of energy subsidies. While energy subsidies in the European Union are low by international standards (International Energy Agency, 2010), they have persisted to the present day. These subsidies take many forms, including direct payments to energy producers and consumers, low-interest loans to producers, research and development subsidies, tax breaks and export credits (European Environmental Agency, 2004; van Gelder and others., 2009). The aims of these subsidies range from the promotion of renewable energy and supporting poor households, to protecting national industries, notably the coal and nuclear power industries. Despite years of rhetoric concerning the need to reduce and abolish energy subsidies, the European Union does not even have a coherent approach to measuring and reporting these subsidies, except in the case of state aid to the coal industry (World Bank, 2010).

However, this brief history shows that much remains to be achieved 25 years after the first formal declaration of the need in 1988 to develop a single energy market. National interests related to the support of national champions and the management of domestic energy markets still act to constrain

progress on key issues, as do differing energy policy priorities such as the relative importance given to energy security and emissions reduction. A small number of powerful interests have colluded to block progress for many years, and great determination and persistence have been required on the part of the European Commission to sustain forward movement. In the field of energy, national interests appear to over-ride the collective interest (Eikeland, 2004), despite the relatively high degree of commonality in customs, norms and values across the member States with regard to culture, politics and economics.

2. MERCOSUR

Created in 1991 by the Treaty of Asuncion, MERCOSUR (*Mercado Comun del Sur* or Common Market of the South) is currently the world's fourth-largest trading bloc after the European Union, the North American Free Trade Agreement (NAFTA) area and ASEAN. This regional bloc was initially conceived to be a customs union before evolving into a common market comprising Argentina, Brazil, Uruguay and Paraguay. Venezuela joined as a full member in 2012, and Bolivia, Chile, Colombia, Ecuador and Peru are associate members (Klonsky and others, 2012). In its original conception, MERCOSUR involved a number of defined stages involving elimination of import duties and trade barriers together with the growth of regional trade (Baer and others, 2002). Without the European Union's supra-national role and authority, MERCOSUR has no permanent institutional organization that represents the bloc in external affairs, nor does it have a long-range plan for political integration like the European Union.

An important precedent of energy cooperation among countries in the Southern Cone emerged in 1966 with the signing of the Iguaçu Act by the Governments of Brazil and Paraguay to build the Itaipú dam. Other bilateral (or bi-national) electricity integration projects followed suit in the 1970s with the construction of hydroelectric dams such as Salto Grande connecting Argentina with Uruguay, and Yacyretá linking up Argentina and Paraguay (Lara, 2006). Governed by stable bilateral treaties, these bi-national dams contribute to almost all of the region's electricity trade (Pineau and others, 2004). As a consequence, MERCOSUR is characterized by a high degree of physical electricity interconnection, although market integration has been constrained by national policies and regulations (Burgos, 2007). A number of gas pipelines have also been built (Bailey, 2013).

Concomitant with the spread of free market reforms in MERCOSUR member States was the privatization and deregulation of their electricity, oil and gas markets. The bloc members' varying speed and form of energy reforms, in combination with their different energy resource endowments, have created a complementarity matrix of surplus and deficit countries. This, in turn, creates a natural incentive for energy market integration among MERCOSUR members. Argentina, for example, liberalized its electricity sector to cater to the Chilean energy challenge by setting up a wholesale spot market operator CAMMESA (Hira and Amaya, 2003). Bolivia now is a major exporter of natural gas to Brazil after completing a pipeline more than 2,000 km long.

Nevertheless, these forms of market integration are mainly bi-national and are not truly regional. Institutionally, at the regional level, the MERCOSUR executive body, the GMC (*El Grupo Mercado Común*), established the *Subgrupo de Trabajo No. 9 de Energía*, a working group that consist of national-level government officials who meet occasionally to deal with energy issues. In October 1999, this group drafted a memorandum on gas integration that was signed by Argentina, Brazil, Paraguay and Uruguay. The memorandum promoted non-interference in the gas markets by States, called for protection against monopolistic practices, and advocated the harmonization of

standards and anti-trust measures (Hira and Amaya, 2003). Progress so far in implementing these market-driven solutions has been haphazard at best, due to regional regulatory and infrastructure gaps (Pineau and others, 2004; Hira and Amaya, 2003). For example, in electricity trading, each MERCOSUR country still operates different regulatory mechanisms, which translate in dissimilar ways how transmission is set up, and different systems for establishing contracts and how the wholesale market functions. These are serious impediments to market integration, as are wider political differences within the group and increasingly protectionist policies (Klonsky and others, 2012).

MERCOSUR may also be progressively overshadowed by the continent-wide Union of South-American Nations (UNASUR). Although UNASUR was formally established by treaty in 2008, the member nations had already set up the Initiative for the Integration of Regional Infrastructure in South America (IIRSA) in 2000. In 2010, UNASUR replaced IIRSA with the South American Council on Infrastructure and Planning (COSIPLAN), a ministerial-level body to promote and coordinate continent-wide infrastructure development in energy, transport and communications. COSIPLAN's Strategic Action Plan for 2012-2022 sets out criteria for the selection of projects and methodologies for implementation. It also recognizes the need to harmonize laws and regulations (Editorial Committee, 2012). Despite these initiatives, fiscal, legal, pricing and regulatory differences remain key obstacles to energy market integration in Latin America (de Oliveira, 2010; Bailey, 2013).

3. Lessons from these experiences

This examination of energy market integration in the European Union and MERCOSUR reveal a number of lessons that are relevant to AEMI. While a wide range of benefits from energy market integration are clearly recognized, obstacles to full integration can persist for decades. These obstacles arise principally from national differences in energy mix, energy balance, economic wealth, openness to investment, pricing and fiscal policies, and energy policy priorities. Corporate or political actors may also seek to undermine integration if they see their interests threatened. These factors weaken the political will of national leaders to pursue energy market integration beyond rhetoric, except in cases where short-term economic gains are obvious.

While some measures such bilateral energy transmission connections can be undertaken on an ad hoc basis, sustained moves towards a regional energy market require delegation of authority or pooling of sovereignty to an agency charged with implementation in order to overcome the national obstacles. Such a supra-national body with the capacity and authority to enforce collective policy agreements can greatly accelerate the process of regional energy market integration. Nevertheless, individual countries can still greatly constrain the pace of integration, and the process of full energy market integration can take several decades. The period of gradual integration is marked by the progressive build-up of trust, liberalization of domestic energy markets, and harmonization of policies, regulations and standards.

The case of the European Union shows that energy subsidies can be one of the last issues to be fully addressed. That is not to say that all ASEAN should not continue to reduce the level of energy subsidies, but rather that the existence of subsidies should not form an insurmountable obstacles to pursuing AEMI.

In a region with a large number of countries, especially where there are significant economic disparities as in ASEAN, progress towards energy market integration may best be pursued on a sub-

regional basis. In that way, countries with shared interests and policy approaches as well as geographic proximity move ahead with energy market integration without waiting for others.

While bilateral arrangements are relatively easy to implement, in the case of transboundary infrastructure, for example, they form only small steps towards regional market integration. Such interconnections often do not require any regulatory harmonization, but if the energy is sold under long-term contracts then these contracts may actually inhibit the later development of an integrated energy market as the pricing mechanism will have been fixed by the contracts.

While integration with energy markets outside the region is clearly desirable, given the nature of international energy markets, the case of Canada (not described here) illustrates a potential danger. The North American Free Trade Agreement (NAFTA) contains a “proportionality clause” specifying that Canada (the clause only applies to Canada) must maintain the share of exports in energy goods as a proportion of total energy supply (Laxer and Dillon, 2008). In other words, Canada cannot reduce its exports of oil or gas to the United States of America unless its total production also declines.

In the case of oil, this prevents the Government from reversing the flow of oil in its pipeline system in order to transport oil from the oil-rich west to the oil-poor east. Instead, it must maintain exports of oil from western Canada to the United States and continue to import oil to eastern Canada. The proportionality clause also constrains the federal Government from pursuing certain policy courses such as retaining more gas in Canada in order to build up a petrochemical industry, or from reducing production and exports in order to conserve resources for the future (Laxer and Dillon, 2008). In these ways NAFTA, a treaty with external parties, is preventing deeper energy market integration between Canada’s provinces, and is constraining the available policy choices for resource management and industrialisation.

E. ASEAN energy governance

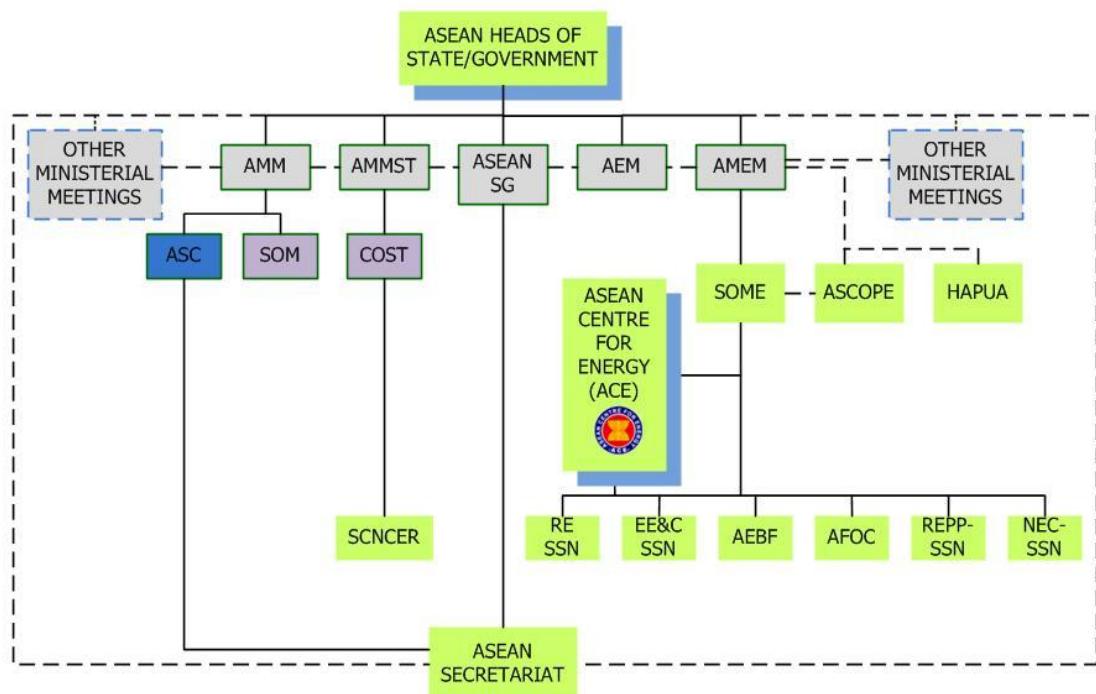
The aim of this section is to assess the adequacy of ASEAN’s institutions of governance for energy market integration.

1. General features of governance in ASEAN

The central axis of ASEAN governance is formed by the Heads of State or Government, the ASEAN Secretary-General and the ASEAN Secretariat (figure 1). The ASEAN Chairmanship is rotated on an annual basis among the Heads of State/Government, following the alphabetical order of the English names of member States. The member State assuming the Chairmanship “will chair the ASEAN Summit and related summits, the ASEAN Coordinating Council, the three ASEAN Community Councils, relevant ASEAN Sectoral Ministerial Bodies and senior officials, and the Committee of Permanent Representatives.”³ The arrangement of a rotating Chair sometimes results in a lack of continuity and momentum of policies, when initiatives introduced by the previous Chair are not accorded the same priority by the in-coming Chair.

³ See “ASEAN Chair”, available at www.asean.org/asean/asean-chair (accessed 3 July 2013).

Figure 1. ASEAN organizational structure for energy



Energy structures highlighted in light shadow and acronyms:

ASEAN Heads of State/Government

ASEAN Secretariat

ACE	ASEAN Centre for Energy
AEBF	: ASEAN Energy Business Forum
AEM	: ASEAN Economy Ministers
AFOC	: ASEAN Forum on Coal
AMEM	: ASEAN Ministers of Energy Meeting
AMM	: ASEAN Ministerial Meeting
AMMST	: ASEAN Ministerial Meeting on Science & Technology
ASC	: ASEAN Standing Committee
ASCOPE	: ASEAN Council on Petroleum
COST	: Committee on Science and Technology
EE&C SSN	: Energy Efficiency and Conservation Subsector Network
HAPUA	: Heads of ASEAN Power Utilities/ Authorities
NRSE SSN	: New and Renewable Energy Sources of Energy Subsector Network
SG	: Secretary-General
SOM	: Senior officials Meeting
SOME	: Senior Officials Meeting on Energy

The actual leadership of ASEAN tends to move around the different members, often depending on the issue. Indonesia can be seen as one country that has been at, or near the forefront of initiatives many times, as have Malaysia and Thailand. Singapore has been a strong player in the push for economic integration (Severino, 2006). Decision-making is by consensus. This does not necessarily mean that all decisions are unanimous, but rather that no one seeks to block the decision. The “ASEAN Minus X” principle (also referred to as “Two Plus X”), developed in 1992, allows sub-groups of two or more ASEAN members to move ahead with agreed implementation measures on economic integration ahead of others (Severino, 2006).

As a consequence of the principles of non-interference and respect for sovereignty, ASEAN lacks a supra-national administrative organization. It has been argued that the ASEAN Secretariat has been intentionally kept weak as member States have been reluctant to cede any authority to the regional organization (Kurlantzick, 2012). The Secretariat continues to lack the capacity and authority to carry out sophisticated policy analyses and to drive through policy initiatives. The activities of the Secretariat are also constrained by its limited operational budget, which stood at US\$ 15.76 million in 2012. This is equally funded by each the 10 ASEAN members (Termsak, 2012). At present, there are about 260 staff members, of whom 70 are professionals openly recruited from member States to work at the ASEAN Secretariat. The limited budget has restricted ASEAN’s capacity to employ additional staff and, in turn, has affected its capability to drive the regional integration process.

The Secretary-General is appointed by the Governments of the member States, on an alphabetical rotation. The two Deputy Secretary-Generals are also political appointments. The work of the Secretariat and of ASEAN is overseen by the ASEAN Standing Committee. Proposals to create a Supreme Council of ASEAN, comprising the Heads of Government of the member States, were never followed up (Severino, 2006). The High-Level Task Force on ASEAN Economic Integration recommended that economic integration required the setting up of bodies and procedures to oversee implementation and compliance, and to resolve disputes (Severino, 2006).

2. Energy governance in ASEAN

In the formal hierarchy of governance, the meetings of ministers and official representatives serve as the central forum for ASEAN cooperation. The ASEAN Ministers on Energy Meeting (AMEM) provides the issues and concerns of common interest, and sets policy and programme directions for energy cooperation (figure 1). The Senior Officials Meeting on Energy (SOME) has the overall responsibility for the supervision, coordination and implementation of ASEAN cooperation programmes, projects and activities. The next tier in the hierarchy comprises the Sub-Sector Networks, sub-committees and working groups, and two forums (on coal and energy business). The Sub-Sector Networks cover:

- (a) Energy efficiency and conservation;
- (b) New and renewable sources of energy;
- (c) Nuclear energy cooperation;
- (d) Regional energy policy and planning.

These networks and forums provide valuable opportunities for sharing information, policy ideas and plans, and they provide support to SOME. Two other important organizations are the ASEAN

Council on Petroleum (ASCOPE) and Heads of ASEAN Power Utilities/Authorities Council (HAPUA). ASEAN and its member States are also active participants in energy dialogues at a supra-regional level, for example, the APEC Energy Working Group, the ASEAN+3 Natural Gas Forum, and the East Asian Summit-Energy Ministers Meeting.

At the heart of this web of organizations lies the ASEAN Centre for Energy (ACE), which provides administrative, coordinating and technical support to all the various energy-related bodies within ASEAN, and which plays a central role in drawing up the ASEAN Plans of Action for Energy Cooperation. Its operation is supported by generous funding from ASEAN as well as donor agencies from Japan, the European Union, Germany, Switzerland and Australia. ACE also oversees an ASEAN Energy Endowment created through contributions from member countries, which is now worth more than US\$ 5 million.

The energy sector is governed by a number of general economic instruments in addition to the sector-specific institutions described above. Of these, the most important are those associated with the ASEAN Economic Community, notably the ASEAN Trade in Goods Agreement (ATIGA) and the ASEAN Comprehensive Investment Agreement (ACIA).

Both of these Agreements cover energy to certain extent, but the effectiveness of ATIGA is constrained by persistent non-tariff barriers, and ACIA by numerous exceptions and reservations and by a scope of application that excludes utilities (see Andrews-Speed and Len, 2013).

Since its inception, ASEAN's energy cooperation has followed the "ASEAN Way", a mode of governance characterized by a largely informal institutional cooperation, decision-making founded on interpersonal consultations and consensus among the member States, and agreements that are largely informal and non-binding in their effects.

3. Key ASEAN energy initiatives

As has been described in the case of global energy governance, ASEAN's institutions of energy governance have multiplied in a largely uncoordinated manner. ASEAN's first policy move in the field of energy was the creation, in 1976, of the ASEAN Council on Petroleum (ASCOPE) with a specific focus on oil. This led to the ASEAN Petroleum Security Agreement (APSA) in 1986, which set up a petroleum sharing scheme for periods of shortage or oversupply in member States. This mechanism has never been implemented as supply problems have been solved bilaterally between ASEAN members, with non-ASEAN producers or through oil traders (Nicolas, 2009). A revised ASEAN Petroleum Security Agreement was signed in 2009 and ratified by all member States in March 2013. This revised agreement addresses both oil and gas. It provides for voluntary (not obligatory) measures in times of supply crisis, including emergency energy-saving measures and the sharing of oil or gas. It allows for, but does not oblige member States to construct joint oil stockpiles.⁴

The signing of the ASEAN Energy Cooperation Agreement in 1986 marked the start of efforts to develop a more comprehensive approach to energy cooperation and policy coordination. The ASEAN Plan of Action on Energy Cooperation (APAEC), 1995-1999, established coordinating bodies for electricity, gas, coal, new and renewable sources of energy, and energy efficiency and conservation, as described above. The "ASEAN Vision 2020", published in 1997, placed emphasis

⁴ See www.aseansec.org/22326.pdf.

on the need to construct transboundary energy networks, and this priority was embodied in the ASEAN Plans of Action for Energy Cooperation for 1999-2004 and 2004-2009, and reiterated in the Plan of Action for 2010-2015.⁵ At any one time, the prevailing APAEC is the key point of reference and handbook for ASEAN energy cooperation (ACE, 2013).

The strategy for transboundary energy networks had two main components: the Trans-ASEAN Gas Pipeline (TAGP) and the ASEAN Power Grid (APG). The TAGP aims to provide gas supplies across region, to raise the share of natural gas in the fuel mix as it is cleaner than coal, and to encourage investment in gas exploration. Responsibility for implementation lies with Trans-ASEAN Gas Pipeline Task Group of ASCOPE. As of the end of 2012, about 3,000 km of bilateral pipelines were in place (ACE, 2013). These are mainly bilateral connections driven by local private and State interests with assistance from the World Bank and the Asian Development Bank (Carroll and Sovacool, 2008). ASEAN itself does not appear to have been a major driving force, on account of diverging interests and goals (Sovacool, 2009 and 2010).

A further 4,500 km of gas pipeline are planned. The key connections that remain to be constructed are those from the East Natuna gas field in Indonesia to Thailand, Malaysia, Viet Nam, Brunei Darussalam and the Philippines. These links will not only add an additional 2,000 km to the network; the central position of the East Natuna field makes them essential to the realization of a truly regional grid. However, the development of this field continues to be delayed by commercial viability concerns (Nicolas, 2009; Doshi, 2013).

The Trans-ASEAN Power Grid aims to link the member states in a single network in order to provide access to modern energy to populations throughout the region, and to maximize the efficiency and flexibility of electricity supply. Responsibility for implementation lies with the Power Interconnection Working Group of the Heads of ASEAN Power Utilities/Authorities Council (HAPUA) which was established in 1981. Several bilateral connections exist, and a number of other projects are to be completed by 2020 (ACE, 2013).

Although considerable progress has been made towards the physical construction both TAGP and APG, the apparent absence of ASEAN as an active player in the planning process will place constraints on the potential for these networks to deliver truly integrated energy supply systems. A number of important technical and regulatory challenges have to be addressed before a truly regional grid can be realized. These include: (a) rules concerning access to the grids by suppliers and buyers; (b) rules governing transit through third States; (c) systems for trading energy; (d) technical standards; and (e) procedures for maintaining system stability in the case of electricity (Nicolas, 2009; ACE, 2013). To expedite the harmonization of regulatory practices and technical standards, AMEM recently established the ASEAN Energy Regulators' Network (AERN), focusing on regulatory issues related to regional power and gas trade. Its first meeting was held in Kuala Lumpur in March 2012 to establish the basis for effective energy regulation that promotes energy sustainability and facilitates the economic development of the region.

The other main priority set down by successive versions of APAEC has been the promotion of renewable energy and energy efficiency. The APAEC for 2010-2015 set targets for 2015 of an 8 per cent reduction of energy intensity compared with 2005 and an aggregate of 15 per cent of renewable energy in power generation. These collective targets are non-binding and it has been left to individual member States to set their own targets. The Sub-Sector Networks for renewable energy and energy efficiency, with the assistance of ACE, are responsible for assessing progress, but no formal agreement is in place to promote these initiatives (ACE, 2013). It is anticipated that the

⁵ See <http://aseanenergy.org/index.php/about/apaec>.

collective share of renewable energy will be reach 19 per cent of installed capacity by 2015, well exceeding the target. ASEAN is also on track to reduce energy intensity by more than 12 per cent compared to 2005 (ACE, 2013). However, a closer look at the data provided by ACE (2013) reveals that the targets set for 2015 had already almost been reached in 2010, showing that the targets were set at far too low a level.

4. Assessment of ASEAN energy governance

ASEAN has proved to be strong on visions and plans, but weak on delivery. The most important components of the ASEAN Plans of Work on Energy Cooperation have been TAGP and APG. Although progress has been made on these networks, this has been driven mainly by bilateral action by member States and their enterprises (state-owned and private), with external assistance from development banks. The role of ASEAN itself has been limited. As a consequence, critical policy and regulatory tasks to ensure that these networks can indeed benefit the whole region have not been undertaken (ACE, 2013).

ACE itself has identified a number of challenges that need to be addressed in order to more effectively pursue the objectives defined in APAEC, under the following headings (ACE, 2013):

- (a) Policy, institutional and regulatory framework;
- (b) Technical standards, labelling, codes and harmonization;
- (c) Financing instruments and schemes;
- (d) Cross-border: tariffs and taxation; access and transit rights for infrastructure; health, safety and environmental protection; and information sharing;
- (e) Capacity-building.

The obstacles to implementing ASEAN's energy ambitions are numerous. First is the long-standing importance to the member States of sovereignty and nationalism, which easily translate into protectionism. Second, some member States have relatively weak capacity to govern a sector as technically and economically complex as energy. Third, the degree of variability across ASEAN is much greater than across the European Union, even after the recent enlargement of the latter. Political, economic and social cultures vary greatly, as does the physical state of the energy sector, the manner in which it is managed and the way in which energy is priced. Finally, the ASEAN region does not occupy a single, clearly bounded continental region; instead, it is archipelagic in nature, spread over a wide area of peninsulas and islands.

A further deficiency related to AEMI lies in the absence within successive versions of APAEC to address trade and investment. These matters are covered instead by the ASEAN Trade in Goods Agreement (ATGA) and the ASEAN Comprehensive Investment Agreement (ACIA), respectively. These two Agreements form vital components of the forthcoming ASEAN Economic Community (AEC). ATGA appears to successfully seek to remove trade tariffs for energy products by 2015, yet many non-tariff barriers remain. Likewise, ACIA contains many exceptions and exemptions related to energy (Andrews-Speed and Len, 2013).

In the context of regional public goods theory (see section C), these obstacles are typical of constraints to the provision of regional public goods. As a consequence, individual States only undertake activities that have a low cost, such as attending meetings and agreeing plans, or which bring direct short-term benefits, such as promoting renewable energy and energy efficiency in the domestic market. Undertakings that involve substantial short-term costs, or sophisticated harmonization or agreements with partners, are left to the wealthy and willing States. Institutions to

implement collective policy decisions are weak, and national priorities nearly always trump aspirations for collective action.

ASEAN's limited success with "hard integration" (such as TAGP and APG infrastructures), is compensated by its accomplishment with "soft integration" vis-à-vis consultative meetings, databases and information sharing. Although many are dismayed by ASEAN's slow pace of energy integration, its approach has allowed the framing of incremental policies that build on past strengths without compromising the "ASEAN Way". The nascent bi-national energy trade, whether for electricity or gas, is a precursor to the considerably more ambitious aspiration to create a regional infrastructure, one of the stated ASEAN Vision 2020 priorities.

F. The way forward to AEMI

1. Options for future governance structures for AEMI

Currently, AEC is ASEAN's key collective economic objective, and energy should play a more central role in this strategy. While certain forms of energy cooperation and integration can be undertaken within an informal framework, full integration that is intended to lead to a single regional energy market with free movement of commodities, capital and services would require a sophisticated system of rules and incentives, on account of the public good nature of energy. This may, in turn, require a formal supra-national organization with powers of enforcement as is exemplified by the European Union, or at least a formal and wide-ranging treaty such as the Energy Charter Treaty. However, even with such structures, the path to full energy market integration is long and tortuous.

While formal supranational governance structures may be desirable in principle, arrangements that are less formal, and which lack binding commitments and enforceable sanctions, are more consistent with the nature of regionalism which prevails in South-East Asia today (Dent, 2008). In these circumstances, it will prove difficult to move ahead with certain initiatives that involve substantial political and economic commitments from a large numbers of countries in the region.

Instead, efforts may be best directed at making progress incrementally, either by focusing on a limited number of activities that cover most or all ASEAN countries or by building closer energy market integration among a sub-set of ASEAN countries that are able and willing to participate.

ASEAN already has networks and forums that cover many of the key activities related to energy, but they appear to lack the capacity and authority to effectively pursue the implementation of policy decisions. In addition, issues related to the liberalization of trade and investment in the energy sector appear to lie outside the purview of ASEAN energy bodies. If this is the case, then the ability of ASEAN's energy leadership to pursue energy market integration will be severely constrained.

In the longer term, it is essential to enhance the authority and capacity of ASEAN's energy leadership and administration (e.g., the ASEAN Secretariat, AMEM, SOME and ACE) if progress towards energy market integration is to be sustained. This will necessarily involve progressive delegation of authority or pooling of sovereignty. Without this step being taken, progress towards AEMI will be seriously constrained. The exact nature of the organizations and agencies to be enhanced or created will depend, in part, on which integration activities are to be pursued.

Two other requirements should be taken into account. First, the activity of policy research should be placed very close to where policy-making takes place, and the development of Track 2 academic networks in the field of energy should be encouraged. Second, the various organizations within

ASEAN responsible for different aspects of energy market integration should continue to develop and maintain close links with the relevant supra-regional (e.g., EAS and APEC) and international organizations. However, it is important to ensure that the ASEAN agenda does not get captured or distorted by external actors in a way that promotes external energy market integration at the expense of ASEAN energy market integration.

2. Actions to be taken at the regional and national levels

While APAEC provides a strong foundation for certain forms of energy cooperation, its scope is insufficient to provide a framework for AEMI. In particular, critical issues are addressed by separate agreements, notably AGTA and ACIA. For AEMI to be pursued in any meaningful way, the energy elements of AGTA and ACIA need to lie at the heart of ASEAN's energy strategy and be brought under the purview of the body (ACE) responsible for coordination energy strategy.

Legally-binding agreements will almost certainly be required for most of major, transboundary infrastructure projects to proceed, on account of the costs and risks involved. In the early years of energy market integration, it is likely that most legally binding agreements will be concluded at sub-regional, bilateral or trilateral levels, rather than across the entire region.

While the costs and risks related to the construction of transnational infrastructure projects are relatively easily managed, the real challenges emerge once they are commissioned, even if formal agreements are in place. On the one hand, they are open to deficient behaviour on the part of weakest link actors with regard to the operational integrity and security of the network. On the other hand, they are vulnerable to unilateral actions by one or more parties seeking to protect corporate or national interests, for example, by denying access to the network. These difficulties can only be alleviated by the progressive convergence over time between the participating nations with regard to their improved competence in national governance and the openness of their national energy markets.

Indeed, openness and governance at the national level (as well as at the supra-national level) are key pre-requisites for energy market integration to proceed and deliver significant regional benefits. States need to be open in their provision of information on energy resources and energy markets, and in their provision of investment opportunities in their energy sectors. In addition, they need to remove non-tariff barriers to energy trade.

Effective and appropriate governance is needed in two ways. First, the domestic energy resources and industries should be regulated so that the available resources are used in as efficient and clean a manner as possible. Second, the structure and nature of the national energy industries and energy markets should be amenable to effective and efficient energy market integration. In many of the ASEAN members, these attributes will require substantial domestic reforms. Most difficult will be the progressive reduction of energy subsidies. Without such reforms, the progress of energy market integration will be severely constrained.

Other initiatives that should be pursued provided appropriate nations emerge to take the lead (i.e., “best shot” and “better shot” public goods), include sea-lane security, emergency response teams and pollution clean-up capacity.

A number of less tangible actions are already being taken in the ASEAN region, and these will provide long-term support to the progressive energy market integration. They include: (a) technological research and development; (b) the establishment and harmonization of technical standards; (c) the development and dissemination of best practices, for example, in energy efficiency or in nuclear energy safety; (d) data analysis and dissemination, for example, on issues

such oil stocks and biofuels; and (e) capacity-building and training in a range of fields including technology, management, policy and governance fields. The relative degree of success of such programmes arises from the fact that much of the cost can be borne by a limited number of nations, whereas the benefits are widespread. Efforts should be made to enhance these programmes.

3. Future research directions

Future research could focus on:

- (a) Building on ASEAN's experience as well as on international examples and theoretical considerations in order to draw up more detailed recommendations for enhancing the capability of institutions to promote and govern energy market integration in ASEAN; and
- (b) Developing new policy solutions to address seemingly intractable problems such as the different approaches to, and needs for energy subsidies.

G. Summary and conclusion

Effective governance is a key requirement for multi-lateral energy cooperation and for AEMI. This is because the objective of AEMI is to deliver not only direct economic efficiency gains but also a range of external benefits that have the character of regional public goods.

Energy market integration in the European Union and MERCOSUR reveals a number of lessons that are relevant to AEMI. These obstacles to integration arise principally from national differences in energy mix, energy balance, economic wealth, openness to investment, pricing and fiscal policies, and energy policy priorities, which can persist for decades. Corporate or political actors may also seek to undermine integration if they see their interests threatened. These factors weaken the political will of national leaders to pursue energy market integration beyond rhetoric, except in cases where short-term economic gains are obvious.

While some measures such bilateral energy transmission connections can be undertaken on an *ad hoc* basis, sustained moves towards a regional energy market require the delegation of authority or pooling of sovereignty to an agency charged with implementation in order to overcome the national obstacles. The period of gradual integration is marked by the progressive build-up of trust, liberalization of domestic energy markets and harmonization of policies, regulations and standards.

The obstacles to implementing AEMI are numerous. First is the long-standing importance to the member States of sovereignty and nationalism, which easily translates into protectionism. Second, some member States have relatively weak capacity to govern a sector as technically and economically complex as energy. Third, the degree of variability across ASEAN is much greater than across the European Union, even after the recent enlargement of the latter.

While formal supranational governance structures may be desirable in principle, arrangements that are less formal, and which lack binding commitments and enforceable sanctions, are more consistent with the nature of regionalism which prevails in South-East Asia today. In these circumstances, it will prove difficult to move ahead with certain initiatives that involve substantial political and economic commitments from a large number of countries in the region. Instead, efforts may be best directed at making progress incrementally, either by focusing on a limited number of activities that cover most or all ASEAN countries or by building closer energy market integration among a sub-set of ASEAN countries that are able and willing to participate.

In the longer term, it is essential to enhance the authority and capacity of ASEAN's energy leadership and administration (e.g., the ASEAN Secretariat, AMEM, SOME and ACE) if progress towards energy market integration is to be sustained. This will necessarily involve the progressive delegation of authority or pooling of sovereignty. Without this step being taken, progress towards AEMI will be seriously constrained.

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