Chapter 3

Existing Initiative and its Challenges

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CHAPTER 3

Existing Initiatives

This chapter will summarize existing initiatives by the Asian Development Bank (ADB) and HAPUA (the Heads of ASEAN Power Utilities/Authorities) for the stabilization of electricity supply in the East Asia region.

1. Initiatives in the GMS (Greater Mekong Sub-region)

1-1 GMS program

The GMS program is an international development plan with the ADB as its secretariat. It was launched in October 1992 through a ministerial meeting of six countries of the Mekong River basin, Thailand, Laos, Cambodia, Myanmar, Vietnam, and China, at the ADB's Manila headquarters. Rather than seeking political and security cooperation, it specializes in economic ties. As its secretariat, the ADB facilitates dialog among the members and, when necessary, provides technical and financial assistance.

In the program's operation, there are summit meetings held every three years, annual ministerial meetings, annual meetings of senior officials, and annual working group meetings. Institutions in each country coordinate development plans based on the GMS program, with development items carried out individually by the countries.

A comprehensive framework for the program, the 10-Year Strategic Framework, was formulated at the first GMS Summit Meeting, held in Phnom Penh in November 2002.[41] With a vision of greater economic integration, prosperity, and fairness in the Mekong region, the framework lays out four goals. They are 1) achieving accelerated and sustained economic growth, 2) eradicating poverty and correcting income disparities, 3) improving quality of life, and 4) protecting and conserving natural resources and the environment. More concretely, it sets direction for intra-regional

[41] ADB, Midterm Review of the Greater Mekong Sub-region Strategic Framework 2002 – 2012 http://beta.adb.org/sites/default/files/gms-sf-midterm-review.pdf

cooperation on development in terms of infrastructure improvement, enhancement and promotion of border trade, investment, and tourism, promotion of private sector participation and enhancement of its competitiveness, human resources development and improvement of technical levels, and environmental conservation and sustainable utilization of natural resources. Nine priority areas are listed: 1) the transport sector, 2) the telecommunications sector, 3) the energy sector (see Chapter 7 below), 4) the environmental sector, 5) tourism, 6) trade systems, 7) the investment environment, 8) human resources development, and 9) the agricultural sector.

Of the above nine sectors, the one that has seen the most active advancement has been improvement of transport infrastructure. Development of transport infrastructure, especially road improvement, is utilized not only to promote and improve the movement of goods, but also for routes for the movement of people and the flow of information and energy. Along with energizing economic activity, it is expected to raise the incomes of regional residents, improve living environments, and promote technology exchanges. A master plan was therefore created in 1995. At the GMS program ministerial-level meeting in 1998, a priority program was set for three "corridors," the North-South Economic Corridor, the East-West Economic Corridor, and the Southern Economic Corridor.

The North-South Economic Corridor comprises a route from Bangkok, Thailand, through Laos and Myanmar to Kunming in China's Yunnan Province, a route from Kunming to Hanoi, Vietnam, and a route from Hanoi to Nanning in China's Guangxi Zhuang Autonomous Region. The Hanoi-Nanning route in particular is expected to form an important connection between the South China region including Hong Kong, Shenzhen, Guangzhou, and the Pearl River and the industrial zone of northern Vietnam. For the route from Bangkok through Laos to Kunming, the ADB and the Chinese and Thai governments each provided one-third of the funding. With the implementation of road improvement in Laos, the entire route was opened in March 2008. The Kunming-Hanoi-Nanning route is planned to be developed with funding from the Chinese and Vietnamese governments.

The East-West Economic Corridor crosses Indochina from west to east, from Myanmar through northeastern Thailand and southern Laos to Da Nang, Vietnam. With the December 2006 completion through yen loans from Japan of the Second

Mekong International Bridge, spanning the Mekong River on the Thailand-Laos border, the corridor was fully opened. It is expected to contribute to establishment of international division of labor between Thailand and Vietnam, which produce auto parts and electrical and mechanical products.

Development of the Southern Economic Corridor, the route linking Bangkok, Phnom Penh, and Ho Chi Minh City, is lagging behind that of the other two economic corridors described above. However, it is expected to establish optimal international specialization as a major shipping base for the apparel manufacturing industry, with textiles and fibers being manufactured in Thailand, sewing taking place in Cambodia, and exporting from Hanoi.

Initiatives in the electric power sector within the GMS program have helped to promote opportunities for each country's economic cooperation in the sector, facilitate the implementation of major electric power projects, and clarify technical, economic, financial, and institutional issues regarding the development of electric power in the region. However, these have mainly been generalized unofficial efforts focusing on principles and systems. Although they are just getting underway in multiple concerned nations (China-Vietnam, Laos-Cambodia, Laos-Thailand, Thailand-Cambodia, Vietnam-Cambodia, Vietnam-Laos), these power flows at present are almost all one-way. Because they mainly comprise the buying and selling of electricity from fixed power plants, they are considered power lines from specific projects rather than interconnected grids. In the future, some goals of the GMS countries are to establish international power trading in order to increase mutual economic and technical benefits, and to have well-balanced power plants through regional energy sources that enable power transport spanning countries throughout the region. There are various initiatives and international agreements towards those ends. The GMS Electric Power Forum (EPF) was established in 1995, and the Experts' Group on Power Interconnection and Trade (EGP) in 1998.

Major developments in power trade in the GMS are as follows.

Figure 3-1: Economic Corridor of GMS Program

Source: ADB website

1-2 Policy Statement on Regional Power Trade in the GMS (Jan 2000)

In light of the above developments in the GMS program, at the ninth ministerial meeting in Manila in January 2000, representatives from Cambodia, China, Laos, Myanmar, Thailand, and Vietnam signed a policy statement on regional power trade in the Greater Mekong Sub-region. Its objectives were the following categories.

(a) Promotion of economic growth and efficient development of the electricity sector in the GMS

(b) Promotion of opportunities to expand each country's economic cooperation in the energy sector

(c) Promotion of prioritized implementation of power projects

(d) Clarification of technical, economic, financial, and institutional issues in the development of electric power in the region

(e) Promotion of economic transactions in electricity

(f) Protection and improvement of the environment through the adoption of appropriate technology and plans

1-3 Inter-governmental Agreement on Regional Power Trade in the GMS (3 Nov 2002)

The intergovernmental agreement on regional power trade in the Greater Mekong Sub-region is an agreement to implement the above-mentioned "policy statement on regional power trade in the Greater Mekong Sub-region." It was signed by national representatives in November 2002 at the first GMS summit meeting, in Phnom Penh, Cambodia. The intergovernmental agreement covers the establishment of the Regional Power Trade Coordination Committee (RPTCC), which is an institution that coordinates each country's power trade and each country's initiatives in response.

As its first step, the RPTCC is required to complete the final draft of the Regional Power Trade Operating Agreement (RPTOA) and determine the first stage of its implementation.

1-4 MOU on the Guidelines for the Implementation of the Regional Power Trade Operating Sgreement Stage 1 (MOU-1) (5 Jul 2005)

MOU-1 is a memorandum of understanding intended to set out guidelines for power trade during Stage 1 (when only bilateral power trade is possible). It covers the institutional arrangements that each country and the RPTCC should follow in relation to power trade during Stage 1.

1-5 MOU on the Road Map for Implementing the GMS Cross Border Power Trading (MOU-2) (31 Mar 2008)

MOU-1 set forth institutional and other arrangements for Stage 1 power trade, including the perspectives of transactions and operations related to international interconnection and flow. This was linked to the establishment of i) the RPTCC Focal Group (FG) to take charge of coordinating most RPTCC activities in each country and ii) the Planning Working Group (PWG) to take charge of planning and system research in order for the GMS countries to shift to everyday power trade guidelines. However, the fact that the GMS countries had no clear schedule for evaluating "promotion of power development programs," "coordination in power trade development related to the goals of intergovernmental agreements," and so on became an issue. Therefore, a schedule that would serve as benchmarks for the completion of Stage 1 of regional international power trade during 2008–2012 and a roadmap of methods of preparing for Stage 2 while Stage 1 was being implemented were established.

Table 3-1: Regional Power Trade Roadmap 2008-2012 (to accomplish stage 1)

Milestone	Activity	Schedule
Completion of a power interconnection master plan with benchmarks, setting of priorities for new interconnection projects related to feasibility studies already underway	Completion of GMS master plan with benchmarks for power development	2008
	Setting of priorities for interconnection projects shown in the master plan	2009–2010
	Advancement of feasibility studies on projects selected as high priority	From 2009
	Review of the master plan benchmarks	Every 2 or 3 years
Completion of research on GMS standard practices	Completion of research on GMS standard practices, adoption of GMS standard practices for proposed new regional interconnections, and study of synchronized operation of interconnection grid	2010
	Consideration of the adoption of procedures for moving to achievement of proposed GMS standard practices	2010
Completion of research on regulations for interconnection lines	Completion of research on regulations for interconnection lines and consideration of the adoption of research findings on synchronous operation of interconnection grids and coordinating flow control	2010
Completion of research on regional measurement methods in grid interconnection and on rules for power trade	Completion of research on regional measurement methods in grid interconnection for implementation during Stage 1 and on telecommunications system standards, and consideration of the adoption of research findings	2010
	Completion of research on rules for power trade for implementation during Stage 1, including methods for resolving disputes between parties other than existing PPAs, and consideration of the adoption of research findings.	2010

Table 3-2: Regional Power Trade Roadmap 2008-2012 (to prepare for stage 2)

Milestone	Activity	Schedule
Begin research on confirming regulatory barriers against power trade and moving to the next stage	Completion of research on identifying regulatory barriers to the development of power trade and consideration of adoption of institutional arrangements and methods to deal with regulatory barriers	2012
Completion of research on the GMS Grid Code (operational procedures)	Completion of research on the GMS Grid Code and consideration of adoption of the following research findings • GMS standard practices • Procedures for grid operators to coordinate management of deviations from plans and control of interconnection flow • Measurement and communications • Sharing of reserve power and support during emergencies	2010-2012
Completion of research on Stage 2 rules on transmission lines, which allow third-party access to interconnection, including Stage 2 power trade rules that give preference to contracts and PPAs, and dispute resolution procedures	Completion of research on Stage 2 rules on transmission lines and consideration of the adoption of findings to compensate the flows of sponsoring countries related to third-party transactions, including development of payment agreements and duties for third-party use,	From 2012
	Development of power trade rules for short-term international transactions and consideration of their adoption	Through 2012
	Development of power trade rules for paying for deviations from power trade plans on the interconnection grid and consideration of their adoption	Through 2012

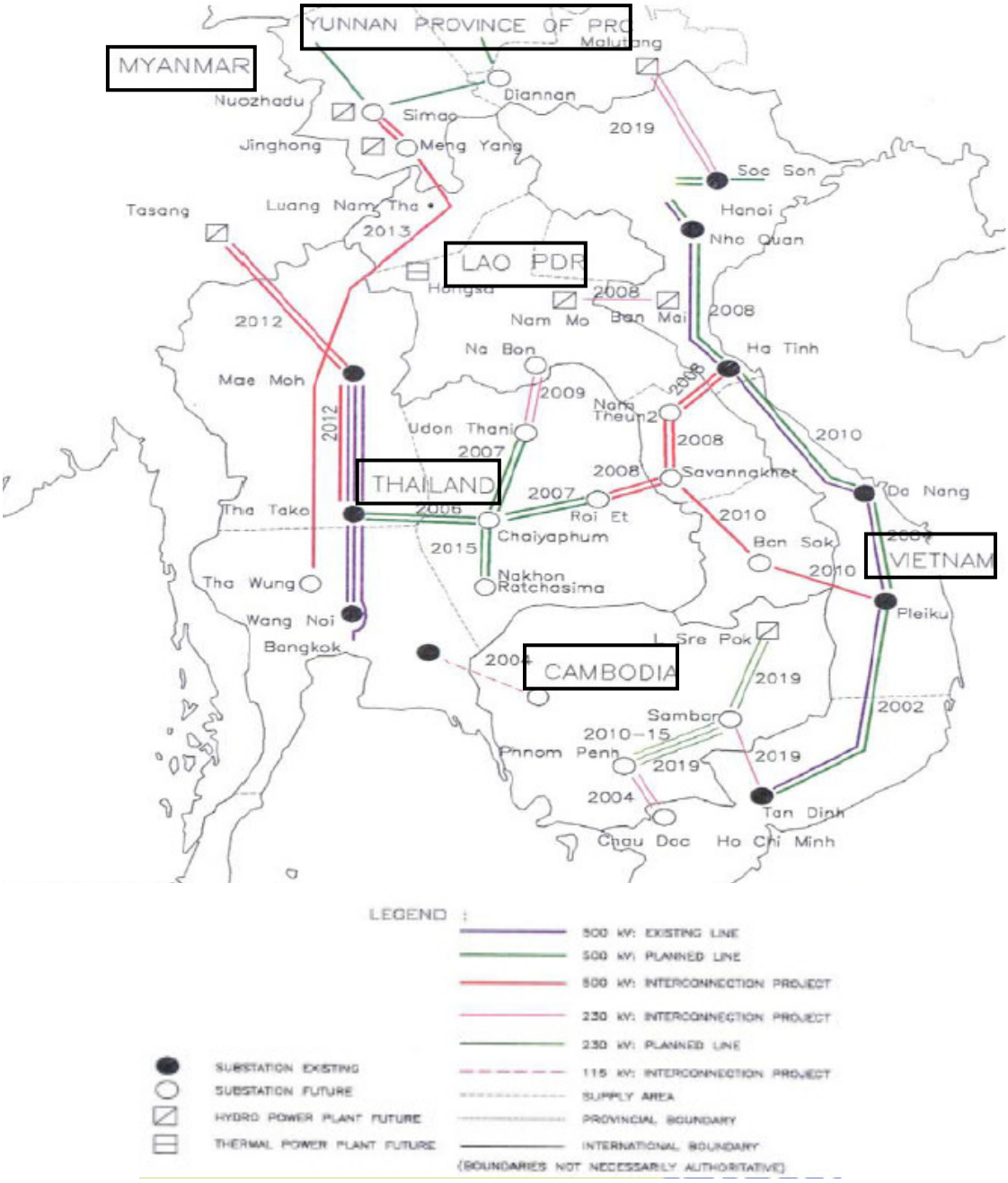
1-6 Subsequent Movement

Through support from the ADB, a master plan was created in 2008. It is summarized in Figure 7.1. (The plan was reportedly revised in 2010.)

Additionally, an RPTCC meeting was held in Ho Chi Minh City on November 2011. Two working groups (WG1: Examination of technical standards for power distribution [System performance standards], WG2: Examination of how to eliminate institutional issues [Registration barriers]) were started to facilitate power import-

export/grid interconnection. They are to complete their examination of issues by the end of 2012.

Figure 3-2: Master Plan for Grid Interconnection



Source: "The GMS Road Map and Work Plan for Expanded Energy cooperation" (from materials presented at the second Subregional Forum).

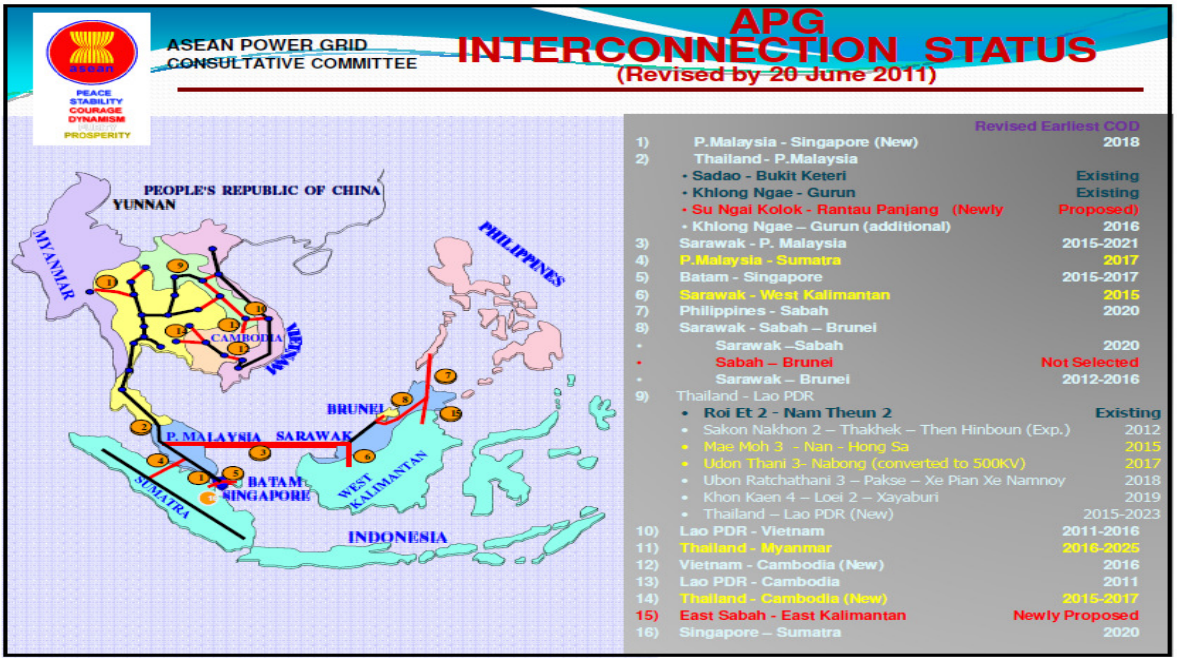
2. ASEAN Power Grid Concept

In ASEAN, the ASEAN Free Trade Area (AFTA), which has been in preparation since the 1990s, aims not only to liberalize regional trade, but also to establish the ASEAN Economic Community (AEC) in 2015. The goal of the AEC is high-quality economic integration with the facilitation of trade, liberalization and facilitation of trade in services, upgrading of infrastructure on a broad scale, movement to common rules and standards, mutual recognition, and reduction of disparities. Against this background, a variety of initiatives regarding improvement of energy infrastructure have also been undertaken with the aim of stimulation and optimization within the ASEAN region.

2-1 ASEAN Vision 2020

At the ASEAN summit held in Kuala Lumpur, Malaysia, in December 1997, "ASEAN Vision 2020" was adopted in order to promote political, economic, security, and cultural cooperation and exchanges in the nations of ASEAN. Against this background, two plans were adopted to mutually connect each country's energy infrastructure: the ASEAN Power Grid concept in the electric power sector and the Trans-ASEAN Gas Pipeline concept in the natural gas sector. It was confirmed that member countries can build and facilitate win-win relationships through international energy deals. The secretariat of the ASEAN Power Grid is the Heads of ASEAN Power Utilities/Authorities (HAPUA). It was confirmed that regional power interconnection can be promoted through information exchange and technology introduction for the planning, construction, and operation of power grids and through basic research on power interchange.

Figure 3-3: Overview of ASEAN Power Grid



Source: The 27th Meeting of HAPUA Council.

2-2 ASEAN Ministers on Energy Meeting process

The ASEAN Ministers on Energy Meeting (AMEM) is hosted annually by member countries on a rotating basis. It is the venue that authorized the ASEAN Plan of Action on Energy Cooperation (APAEC) and checks on the state of its progress. The ASEAN Center for Energy (ACE), which is operated by ASEAN energy ministers and the ASEAN secretariat, handles the setting of the APAEC.

The APAEC for 1999 through 2004 was adopted at the 17th Ministers on Energy Meeting, held in Bangkok in July 1999. The policy framework and means of adoption of interconnection plans were set, and the aim of earlier realization of the ASEAN Power Grid was confirmed. In conjunction with the adoption of the APAEC, the ASEAN Center for Energy (ACE) was established as an intergovernmental organization to focus on energy cooperation and coordinate with the individual countries.

The APAEC for 2004 through 2009 was set at the 22nd Ministers on Energy Meeting, held in Manila in 2004.

In 2007, at the 25th Ministers on Energy Meeting (in Singapore), a memorandum on the ASEAN Power Grid was signed. Member countries agreed to

cooperate on research towards the end of a unified grid concept and to facilitate public-private cooperation and capital investment. It was also decided to begin research on harmonization of the differing technical standards, duties on power import/export, contractual frameworks, etc., in the member countries.

At the 27th ASEAN Ministers on Energy Meeting, in Mandalay, Myanmar, on July 29, 2009, APAEC 2010–2015, the latest version, was approved. The plan lays out the following seven categories for regional energy strategy.

1) Development of the ASEAN Power Grid

- Promotion of the development of a unified power grid in ASEAN
- Optimization of power source mixes in accordance with each country's power situation
- Promotion of the utilization of ASEAN's human and economic resources in terms of financing for power generation, transmission, and distribution and of expert advice

2) Development of a Trans-ASEAN Gas Pipeline

- Signing of a memorandum on a Trans-ASEAN gas pipeline network by member countries
- Cooperation on the performance of a feasibility study on the development of the East Natuna gas field by Pertamina and a PSC partner

3) Promotion of clean coal technology

- Design of systems and political frameworks for coal utilization
- Promotion of coal utilization and the adoption of clean coal technology
- Facilitation of coal import/export and development investment in ASEAN
- Enhancement of environmental standards and assessments for coal development and use

4) Promotion of energy conservation and more efficient energy use

- Setting of policies on more efficient use of energy
- Improved dissemination of knowledge and information concerning energy conservation
- Better and more thorough energy management in the industrial and business sectors
- Enhanced financial support for investment in improving energy efficiency

5) Promotion of the adoption of renewable energy

- Set a goal of having 15 percent of the region's generated power come from renewable energy
- Facilitation of and enhanced cooperation on use of renewable resources and services among member countries
- Set up of schemes for financial support
- Promotion of biofuel development and commercial utilization
- etc.

6) Support and information sharing concerning the setting of energy policies and development plans in each country

- Enhancement of Information sharing on energy policy and stable supply
- Support for the development of human resources related to energy and environmental policy
- Implementation in each country of monitoring and assessment of progress on the APAEC
- etc.

7) Development of an environment for the adoption of nuclear power

- Capacity building among ASEAN member countries for the adoption of nuclear power
- Enhancement of information disclosure and education concerning nuclear power
- Development of system designs and legal systems for the adoption of nuclear power, and capacity building among regulatory authorities

Against this background, concrete initiatives on items related to the ASEAN Power Grid concept are the following.

- Improvement of APG advisory committee initiatives on realization of interconnection projects
- Research on issues such as international interconnection grid projects, international power trade, and grid investment, on which study has advanced in HAPUA working groups (on generation, transmission, distribution, power quality, policy, private-sector business development, and human resources development)
- Review and renewal of the ASEAN Interconnection Master Plan (AIMS)