

Chapter 9

Summary of the ASEAN Power Pool Implementation Plan and Roadmap

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Chapter 9

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The implementation plan constitutes one of the main deliverables in the project ‘Study on the Formation of the ASEAN Power Grid Transmission System Operator Institution (ATSO)’. It will provide a suggested plan and roadmap for the proposed ASEAN Power Pool (APP) guideline document. The implementation plan takes into account multiple factors affecting the APP’s establishment. As a starting point, the implementation considers the progress and current plans developed for the GMS region, the current situation in the AMS, and in other initiated projects aiming for increased cooperation in the power sector. The different activities defined in the APP guideline will also be listed and prioritized. From this, a ranked number of activities is identified and later presented in the final parts of the implementation plan of the APP roadmap.

The implementation plan is split into five chapters. Chapter 1 discusses the scope of the implementation plan and its alignment with the Greater Mekong Subregion (GMS) and previously conducted ASEAN Power Grid (APG) studies. Chapter 2 moves further to discuss the potential barriers of implementation, confidentiality aspects, and the approach taken to implement the milestones and specific activities. Chapter 3 describes a suitable capacity-building plan to be applied during the implementation. Chapter 4 goes into further details of the different stages of the APP establishment and development and identifies key activities for each stage and the responsible parties for these. Finally, Chapter 5 concludes by summarizing all the above into an APP roadmap.

It should be noted that this summary does not go into details in any of the aspects listed above since the details are comprehensively discussed in the implementation plan. Thus, this chapter simply summarizes the key points laid out in plan, as follows:

- ▶ Identified key milestones and activities
- ▶ Capacity-building plan
- ▶ ASEAN Power Pool roadmap

1. Identified Key Milestones and Activities

Based on the approach explained in the APP Guideline report, four high-level milestones and respective stages are identified and summarized in Table 16. However, it should be noted that these stages are not set in stone. Flexible sharing, moving, and identification of the

activities between the different stages should be allowed. These stages aim to lay out a general overview of what should be prioritized and chronologically finalized within the APP development progress and what can be left for future enhancement to gain maximum efficiency and penetration of APP's development and functions.

Table 16. Milestones for ASEAN Power Pool Development

Milestone	Stage description and main activity to be finalized for the milestone
Milestone 1	Enabling agreements
Milestone 2	Organizational establishment
Milestone 3	Initial stage of ASEAN Power Pool operation
Milestone 4	Advanced stage of ASEAN Power Pool operation

The implementation plan goes into more detail of the key activities in these stages. Tables 17, 18, 19, and 20 summarize these findings.

Source: Nord Pool Consulting

Table 17. Enabling Agreements for Establishing the ASEAN Power Pool

Task No	Key Activities during the Establishment Process	Responsible Entity
1.1	ASEAN Inter-Governmental agreement on regional power trading (Parties: Governments)	APGCC/HAPUA
1.2	ASEAN Cooperation agreement for the establishment of the ASEAN Power Pool organization (Parties: ASEAN TSOs)	APGCC/HAPUA
1.3	ASEAN Power Pool Articles of incorporation, business model and business plan including the following: <ul style="list-style-type: none"> • Objectives of establishment • Scope of the APP business • Name of the organization • Office location • Related stakeholders • Executive committee composition • Organizational structure with departments and working groups • Funding, financial affairs, and accounting • Procedure of articles of incorporation revision 	APGCC/HAPUA
1.4	Confidentiality agreement of APG system operational and planning data	APGCC/HAPUA
1.5	Other activities that might arise during the implementation phase	As applicable

APG = ASEAN Power Grid, APGCC = ASEAN Power Grid Consultative Committee, APP = ASEAN Power Pool, HAPUA = Heads of ASEAN Power Utilities/Authorities, TSOs = transmission system operators.

Source: Nord Pool Consulting

Table 18. The Process of Establishing the ASEAN Power Pool Organization

Task No	Key Activities	Responsible Entity
2.1	APP organizational formation and establishment of the APP Executive Committee	APGCC/HAPUA
2.2	Hiring the APP chief executive officer (CEO)	APP Executive Committee
2.3	Hiring of department managers and establishing the General Affairs and Legal departments	APP CEO
2.4	APP working groups formation using resources from AMS TSOs and other related functions. Defining the scope and focus area for each working group.	APP CEO
2.5	Other activities that might arise during the implementation phase	As applicable

AMS = ASEAN member states, APGCC = ASEAN Power Grid Consultative Committee, APP = ASEAN Power Pool, HAPUA = Heads of ASEAN Power Utilities/Authorities, TSOs = transmission system operators.

Source: Nord Pool Consulting

Table 19. Activities and Responsible Organizational Units – Initial Stage

Task No	Key Activities Needed in the Initial Stage	Responsible Body/Entity
3.1	Coordination among GMS regional market integration activities and the ASEAN Power Pool's future activities.	ASEAN Power Pool's chief executive office and department heads, GMS counterparties
3.2	Establish the agreed APG technical standards and performance grid code	Technical standard working group
3.3	Develop the data requirement, procedures, and criteria for APG system planning	System planning working group
3.4	Develop APG third-party access (TPA) agreement	Common transmission capacity mechanism design working group
3.5	Develop APG wheeling and losses methodology	Common transmission capacity mechanism design working group
3.6	Develop APG IT policies and communication standards	IT expert working group
3.7	Develop APG market design	Market design working group
3.8	Other activities that might arise during the implementation phase	As applicable

APG = ASEAN Power Grid, GMS = Greater Mekong Subregion, IT = information technology.

Source: Nord Pool Consulting

Table 20. Activities and Responsible Organizational Units – Advanced Stage

Task No	Key Activities Needed in the Advanced Stage	Responsible Body/Entity
4.1	Establish subunits: <ul style="list-style-type: none"> • System planning for interconnections • Aggregation of supply plan • Monitoring and metering of APG • System operation centre 	System planning department manager System operation and coordination department manager
4.2	Control centre technology specifications for the APP (including computer system, energy management system (EMS) software, SCADA and communication system, and other relevant softwares)	IT and SCADA department
4.3	APP operational guideline The operational relationship between the APP and the various control centres in the AMS, including but not limited to communication, jurisdiction, and operational boundaries	Legal and regulatory group department APG Codes, Guidelines, and Research System operation centre
4.4	Establish IT operations <ul style="list-style-type: none"> • System operation centre IT tools (in the future) • Market operation centre IT tools (in the future, if applicable) 	IT and SCADA department
4.5	Establish system operation	System operation centre
4.6	Establish market operation (if applicable)	Market operation centre
4.7	Other activities that might arise during the implementation phase.	As applicable

AMS = ASEAN member states, APG = ASEAN Power Grid, APP = ASEAN Power Pool, IT = information technology, SCADA = supervisory control and data acquisition.

Source: Nord Pool Consulting

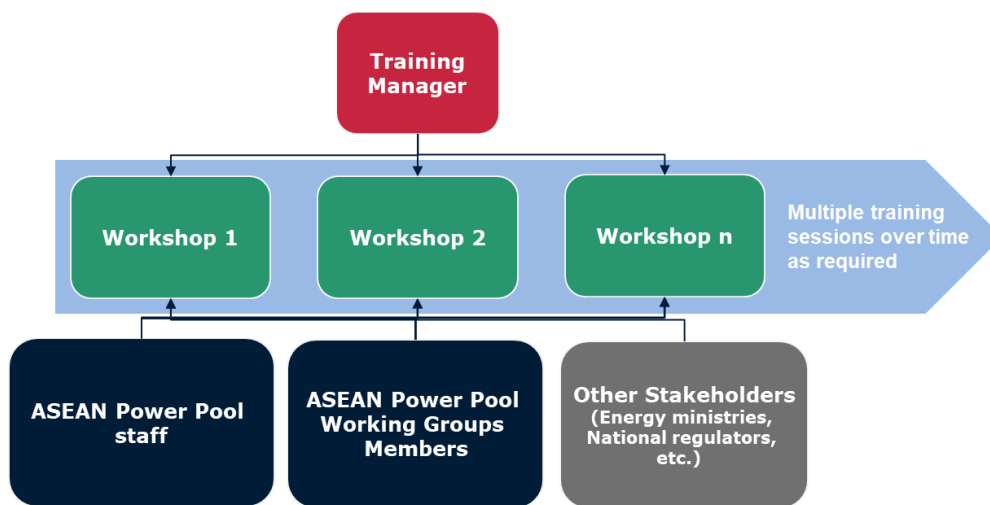
2. Capacity-Building Plan

The introduction of the APP organization will create a need for training and capacity building, both internally for the APP organization and for relevant shareholders in the AMS. Similar international experiences in the energy sector during the establishment and organizational development show that personnel/staff of new organizations need trainings and capacity building. Since APP personnel/staff and other stakeholders who potentially need such trainings are occupied with other tasks, a capacity-building plan needs to be efficient and flexible enough to cover all persons involved. The training must aim for a sufficient number of persons and to a degree that makes them skilled enough to carry out the expected APP functions. Similarly, AMS stakeholders need to have a sufficient number of key personal trained to be able to actively support the APP functions. The training of AMS TSO controllers is key to ensuring operational security and reliability of the interconnection. Europe and US interconnections have a list of courses that are required to be completed to ensure that controllers have sufficient competencies. It should also be noted that the capacity building is most likely needed throughout the whole APP establishment and organizational building

phase – from initial stage to advanced stage. The capacity building should be applied whenever and wherever a new function or field of work is added to the APP, where the employees require additional knowledge and know-how to run the new tasks and operation duties.

Before the APP is established, the responsibility of coordinating the capacity building is suggested to be given to an ASEAN-related unit or an organization with the capacity to take on the task. Later, when the APP is established, it is proposed that the capacity-building function be placed within the APP as a capacity-building department. The training for both internal and external purposes could at times be significant and it would, therefore, be wise to have a dedicated person for this task.

Figure 15. ASEAN Power Pool Capacity-Building Methodology

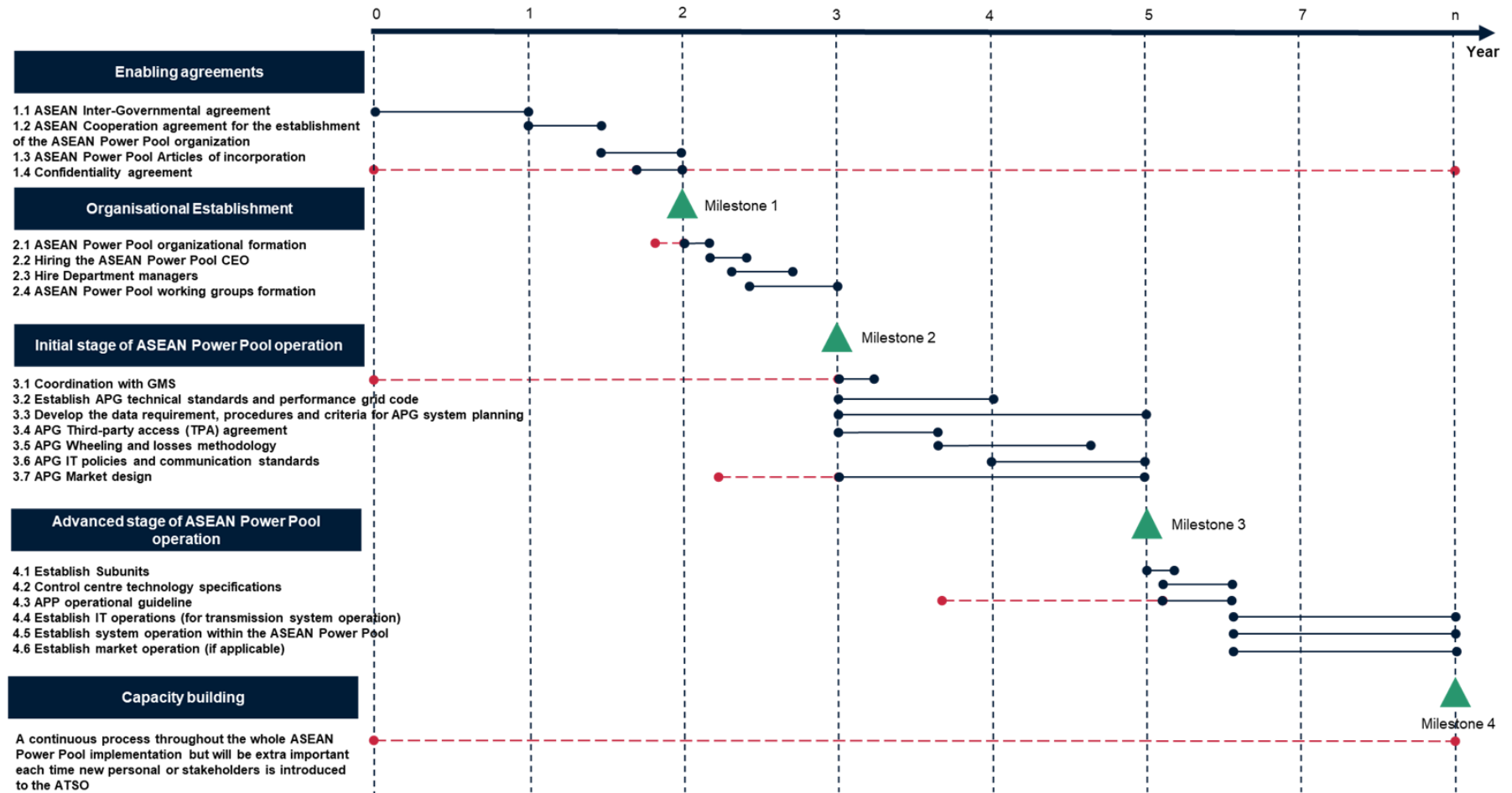


ASEAN = Association of Southeast Asian Nations.
Source: Author.

3. High-Level Roadmap for the ASEAN Power Pool

The implementation plan is summarized in the high-level roadmap for the APP (Figure 16). More detailed information can be found in the implementation plan.

Figure 16. ASEAN Power Pool High-Level Roadmap



APG = ASEAN Power Grid, ASEAN = Association of Southeast Asian Nations, CEO = chief executive officer.

Source: Nord Pool Consulting

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