

GREATER MEKONG SUBREGION

3rd ENERGY TRANSITION TASK FORCE MEETING AND WORKSHOP

5–7 June 2024, Manila, Philippines

SUMMARY OF PROCEEDINGS

I. Introduction

1. The 3rd Meeting of the Greater Mekong Subregion (GMS) Energy Transition Task Force (ETTF-3) took place in Manila on 5–6 June 2024 in a hybrid format. Following ETTF-3, a workshop on electricity market principles was held on 7 June, co-organized by the Asian Development Bank (ADB) and the ADB Institute (ADBI) in collaboration with Stanford University. The two events coincided with the Asia Clean Energy Forum (ACEF) 2024 to enhance learning opportunities.

2. The ETTF-3 discussions covered the following topics: ADB's experience in regional interconnections in Central Asia and South Asia, regional and country developments in the energy sector, related programs of development partners including ADB's new technical assistance (TA), ETTF work streams, and updates on the GMS program, including the draft energy sector strategy (**Attachment 1: Agenda**).

3. The Ministry of Mines and Energy of the Kingdom of Cambodia, in collaboration with ADB, organized the ETTF-3. The meeting brought together 43 participants, 16 of whom are women, from ETTF, ASEAN Centre for Energy (ACE), Heads of ASEAN Power Utilities/Authority (HAPUA), and various development partners—Australian Department of Foreign Affairs and Trade (DFAT), United National Economic and Social Commission for Asia and the Pacific ESCAP (ESCAP), Global Energy Alliance for People and Planet (GEAPP), and the United States Agency for International Development (USAID). Additionally, representatives from the ADB Institute, Stanford University, and ADB were also present (**Attachment 2: List of Participants**).

Day 1

II. Opening Session

4. **Mr. Keiju Mitsuhashi**, Director of the Southeast Asia and the Pacific Team at the Energy Sector Office, Sectors Group, ADB, extended a warm welcome to all participants. He conveyed ADB's enthusiasm for the GMS program's cooperation with ASEAN and development partners, reflecting the increased presence of non-ETTF members in the meeting. With ADB serving as advisor and secretariat to the GMS program, and as a longstanding partner of ASEAN, Mr. Mitsuhashi reaffirmed ADB's commitment to supporting the region in expediting its energy transition and realizing its decades-long goal of regional power interconnection and trade.

5. **H.E. Victor Jona**, the current chair of the ETTF and Under Secretary of State of the Ministry of Mines and Energy, Kingdom of Cambodia, inaugurated the meeting. He revisited the discussions from the December 2023 ETTF meeting, connecting them to the agenda of ETTF-3. For the sake of the newcomers to ETTF meetings, H.E. Jona revisited the establishment of ETTF in 2022, which was tasked with leading the energy cooperation program of the GMS countries. The ETTF aims to (i) accelerate the subregion's energy transition, (ii) optimize the

utilization of clean energy sources, (iii) assess the role of clean technologies, and (iv) promote a just, equitable, and affordable transition.

6. **Mr. Len George**, Principal Energy Specialist at the Energy Sector Office, Sectors Group, ADB, provided context for ADB's new technical assistance. He highlighted ADB-funded studies, including transmission planning and interconnectors in other subregions. Noteworthy projects supported by ADB under the South Asia Subregional Economic Program (SASEC) include the first grid-to-grid connection between Bangladesh and India and the gigawatt-scale solar park in Rajasthan, India. Additionally, ADB has financed the Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipelines (**Attachment 3**).

7. Cambodia inquired about the constraints and benefits of using high-voltage direct current (HVDC) for grid-to-grid connection. ADB explained that HVDC facilitates efficient and controlled power exchange between different grid systems, allowing smaller systems to manage their own power needs. However, a constraint is the potential loss of control, as seen in exchanges between Bangladesh and India. Cambodia also asked how country investments are defined in the TAPI. ADB explained that the share of country investments in TAPI is based on market demand for gas in each country.

8. **Ms. Hyunjung Lee**, Senior Energy Economist, Southeast Asia and the Pacific Team at the Energy Sector Office, Sectors Group, ADB, presented ADB's new TA on advancing energy transition and regional power trade. Ms. Lee explained how the ETTF evolved from the Regional Power Trade Coordinating Committee. The TA was designed to support a holistic approach to ASEAN Power Grid (APG) development, which requires synergy between GMS and ASEAN interconnection development and the need to test short-term power trade through shadow trading. The TA will assess which interconnectors can optimize regional benefits, including the 18 APG interconnectors, the Lao People's Democratic Republic (PDR)-Thailand-Cambodia (LTC project) proposed by Lao PDR, potential subsea cable connections between Lao PDR/Cambodia and Singapore/Malaysia, and other projects that the People's Republic of China (PRC) and other countries may propose (**Attachment 4**).

9. Thailand inquired about the plan for clean technologies such as electric vehicle (EV) charging load forecasting, EV load management, vehicle to grid (V2G), and EV infrastructure under the ETTF capacity building works stream. ADB offers international good practices and welcomes proposals from member states. Thailand suggested a power system study to assess the feasibility of the proposed LTC project since the south and central parts of Électricité du Laos are not yet connected, and the existing line does not belong to Électricité du Laos. ADB confirmed that a study on the potential connection of two substations (Lak 25 and Ban Hat) would be needed and requested the concerned countries to review the terms of reference (TOR). PRC expressed its willingness to cooperate on the potential interconnection project involving the PRC-Lao PDR and Viet Nam. Other suggestions for the TA include: (i) easier interconnection from Malaysia or Indonesia to Singapore than from Cambodia to Singapore via submarine cables, (ii) a technical roadmap showing small smart grids and large grids, (iii) technical research for the Philippines and Indonesia, and (iv) investigation of technical and financial issues involving Lao PDR.

III. Regional and Country Updates

10. The meeting discussed several developments that have implications for the GMS countries and the region. These included the establishment of Energy Exchange Malaysia and the Future Energy Fund of Singapore, country updates, as well as updates on the Lao PDR-

Thailand-Malaysia-Singapore Power Interconnection Project (LTMS PIP), APG framework agreement, and development partners' programs.

11. **GMS country updates.** Country delegations highlighted the following developments (**Attachment 5**):

- (ii) Cambodia is currently developing a roadmap for energy transition to achieve a carbon-neutral society. It also signed four MOUs with Lao PDR for the purchase of green energy and participated in a ministerial meeting on APG with Singapore, Lao PDR, and Malaysia (observer) in May 2024.
- (iii) PRC's clean energy accounts for over 50% of total generation capacity in 2023. The China Southern Grid (CSG) interconnection with Lao PDR, Myanmar, and Viet Nam involves over 90% of green energy. The CSG will enhance green low-carbon investment and actively explore the development of green finance.
- (iv) Lao PDR has several hydropower plants that are under construction, and there is an ongoing study on wind power that looks for a potential market. In 2023, its largest annual energy export was to Cambodia, followed by Thailand. The largest energy import came from Thailand, followed by the PRC.
- (v) Myanmar planned and signed MOUs for interconnection projects with the PRC, Lao PDR, Thailand (from Mae Sot, Thailand to Myawaddy, Myanmar), and India. Myanmar mainly exports energy to the PRC and imports from the PRC, Lao PDR, and Thailand."
- (vi) Thailand's National Energy Plan is committed to achieving carbon neutrality by 2050. Green finance is on the rise, with ESG bond issuance accounting for up to 17.7% of total annual bond issuance. The taxonomy for energy and transport was issued in 2023, and those of manufacturing, agriculture, waste management, and construction, and real estate sectors are planned to follow in 2024.
- (vii) Viet Nam's wholesale electricity market was established in 2019 while the retail electricity market is under development. Over the past 11 years, the number of power plants participating in the market has increased from 32 to 110. Its imported power plants accounted for just 1% of trade in 2023.

12. **LTMS PIP.** Ms. Titiporn Sangpetch, Chief, Power System Connection and Cooperation Planning Department at EGAT, informed the meeting that ongoing discussions suggest the next phase of the LTMS could involve multi-directional trade of up to 200 MW. The same trading platform will be used between Lao PDR and Thailand, while Malaysia will use the Single Buyer platform.¹ Ms. Sangpetch added that under the Japan-US Mekong Power Partnership (JUMPP), Lao PDR, Thailand, and Cambodia will explore multidirectional cross-border electricity trade using a different platform. The interconnection from Thailand to Lao PDR will be the Sirindhorn 2–Bang Yo 115 kV, and from Lao PDR to Cambodia, the Ban Hat–Stung Treng 500 kV. Deloitte will submit the final report by the end of 2024 (**Attachment 6**).

13. **ASEAN Power Grid.** Ms. Nadhilah Shani, Senior Research Analyst at ACE, shared updates on the APG framework agreement renewal process. The agreement is expected to be approved around September 2025, before the current APG MOU expires in December 2025. Current recommendations include keeping the agreement general to allow for flexibility,

¹ More information about the Single Buyer here: <https://www.singlebuyer.com.my/>

developing protocols to implement the agreement, adopting a phased approach to actions and implementation, and establishing a permanent secretariat (**Attachment 7**).

14. **Development partners.** Representatives of DFAT, ESCAP, GEAPP, and USAID presented updates on their support for energy transition and energy sector development in the GMS and ASEAN.

- (ii) **DFAT.** Mr. Dwight Ronan, Senior Program Manager at DFAT, discussed the second phase of the Mekong-Australia Partnership (MAP) and Australia's Southeast Asia Economic Strategy to 2040. He invited GMS countries to reach out to DFAT if they have investment ideas that can be supported under the MAP portfolio. Mr. Ronan emphasized the program's emphasis on climate change and gender equality, disability equity, and social inclusion (**Attachment 8**).
- (iii) **ESCAP.** Ms. Yejin Ha, Economics Affairs Officer at ESCAP, presented the APG Advancement Program which is developing a roadmap that features the GMS work on regional power market development. The program will reference the drafted GMS regional grid code and proposed regulatory and pricing measures and will conduct consultations from August to December 2024 to identify the location of pilot multilateral power trade project. Ms. Ha also discussed the capacity building plan for ASEAN Energy Regulators' Network (AERN) and potential cooperation with ADB (**Attachment 9**).
- (iv) **GEAPP.** Ms. Sunita Dubey, GEAPP's country representative in Viet Nam and lead of battery energy storage systems (BESS) program in Southeast Asia, reported that GEAPP provides TA, concessional and catalytic finance, and works with the private sector to address energy access and transition challenges. Its flagship program—the BESS Consortium—supports countries and utilities to adopt the technology. In Viet Nam, GEAPP is partnering with ADB by providing grant funding to a pilot BESS project in the north (**Attachment 10**).
- (v) **USAID.** Mr. Grayson Heffner, Project Delivery Lead of the USAID Southeast Asia Smart Power Program (SPP), highlighted several key activities including a proposed power exchange data sharing platform to be presented to ASEAN Senior Officials Meeting on Energy (SOME) in June, a feasibility study playbook to standardize approach for transmission interconnectors, a workshop in October on subsea interconnectors, and a regional renewable energy certificate market (**Attachment 11**).

15. The day concluded with Ms. Lee from ADB encouraging the country delegations to try to connect the dots and find synergies among the various programs and platforms offered by development partners. She suggested identifying pilot regional interconnection projects that the GMS and ASEAN countries can implement.

Day 2

IV. ETTF Workstreams

16. **Regional power trade workstream.** Mr. Litthanoulok Laspho, Director, Department of Energy Policy and Planning at the Ministry of Energy and Mines, Lao PDR, presented two proposed power exchange projects: (i) a study on 500 kV line for LTC interconnection and (ii) a study on HVDC for PRC-Lao PDR-Viet Nam (PLV) interconnection (**Attachment 12**).

17. For the **LTC** project, the PRC and Thailand emphasized the need to ensure the security and stability of the grid especially on the Thailand side, by facilitating existing medium voltage level (115 kV) interconnections between Thailand and Lao PDR. Cambodia and Thailand proposed comparing the technical and financial viability of AC and DC options, rather than focusing solely on the 500 kV at the outset. Cambodia suggested changing the location within their country. For the **PLV** project. Viet Nam had no comments. The PRC recommended considering new technologies because HVDC and battery systems are expensive. ADB remarked that they will update the TOR for LTC based on the comments received and do another round of bilateral discussions on the PLV. In addition, ADB presented various financial products and services that can address technical and financial constraints.

18. **Plan for shadow trading.** Ms. Lee from ADB presented the key building blocks of shadow and pilot power market development and informed the meeting that ADB would share the TOR for shadow trading and power market operations in the next few months to ensure it aligns with the APG roadmap currently being developed under the guidance of ACE. Despite the concept paper being approved earlier, consultations and the project preparation process have continued to cover Malaysia and Singapore. The ADB TA will procure a cloud-based trading platform, and governance will be defined as part of the TA activity. This platform will use modern technology and tools to determine trade volume and pricing signals and to identify opportunities before proceeding to the pilot phase (**Attachment 13**).

19. Cambodia is supportive of the phased approach to regional power trade and power market development. PRC highlighted the importance of ADB's advisory role and suggested that ADB provide technical advice to the Philippines to ensure proper planning of energy projects. Lao PDR is supportive of the phased approach but suggested completing the TA activities in 2024 (red box) during the Lao PDR's ASEAN chairmanship. Myanmar expressed interest in joining the TA activities. Thailand inquired about the GMS regional grid code and wheeling charge that need to be revised and updated Thailand likewise agreed with the cloud-based shadow trading, but suggested establishing a physical center for shadow trading too. ADB noted that the TA would begin with small activities, such as cloud-based shadow trading, to facilitate cooperation among countries and determine the future direction. Viet Nam had no comments.

20. **Energy efficiency workstream.** Ms. Architrandi Priambodo, Senior Energy Specialist, Southeast Asia and the Pacific Team at the Energy Sector Office, Sectors Group, ADB, outlined the proposed activities under the EE workstream as follows: two virtual training sessions in July and August on demand side management (DSM) covering load reduction and management techniques including demand response, followed by an in-person workshop (session 3) in September or Q4, 2024 to develop a 2-year work plan. The events are intended for utilities and regulators (**Attachment 14**). ADB will share an updated plan in the coming weeks.

21. **ETTF Chair:** The proposed activities are crucial for energy transition of GMS countries. Cambodia is supportive of the plan but sought clarification on the agencies involved and the knowledge transfer process from session 1 to session 3. ADB explained that the sessions are for utilities and regulators, with the same participants expected to attend all sessions. However, sessions 1 and 2 can accept more participants since they are virtual. PRC will submit the proposal to the PRC ETTF focal for review. Lao PDR is supportive of the plan but suggested including project implementation in the activities, such as improvements in distribution systems or utility efficiency. ADB responded that this can be addressed in the actionable work plan preparation after the virtual training. Myanmar had no comment. Thailand suggested making

session 3 a hybrid event because Thailand has separate utilities for transmission and distribution, and DSM involves different divisions, plants, etc. Thailand has some EE initiatives tackling DSM, including a building code for zero energy and upgrading to the factory code for energy efficiency. Viet Nam suggested providing technical and financial support to promote investment in EE, noting that Viet Nam lacks an EE fund. The delegation expressed interest in learning from Thailand's experience and requested that the sessions cover EE benchmarking and labeling. DFAT requested ADB to inform DFAT if experts are needed for any of the three sessions.

22. **Technology capacity building workstream.** Mr. Joao Aleluia, Energy Specialist, Southeast Asia and the Pacific Team at the Energy Sector Office, Sectors Group, ADB, presented the proposed capacity building (CB) plan for 2024–2026. Previous CB activities focused on tools to support energy transition. This year (2024) and next (2025) will focus on building core knowledge of regional power trade, including the following topics: integration of variable renewable energy, accelerated renewable energy development through regional trade, and minimum technical and regulatory requirements of regional power market. Mr. Dwight from DFAT shared updates on the study tour on green energy transition in Australia scheduled for July, highlighting how Canberra has achieved 100% renewable energy (**Attachment 15**).

V. GMS Program

23. **GMS Program.** Ms. Pinsuda Alexander, Economist at the Regional Cooperation and Integration Unit, Southeast Asia Department, ADB, gave a virtual presentation about the GMS program. Among others, she highlighted these two key points: (i) the energy sector strategy is one of the deliverables for the 8th GMS Summit of Leaders in November 2024 and (ii) the GMS Regional Investment Framework 2025-2027 (RIF 2027) timeline has been updated to allow the National Secretariats to submit country RIF inputs to the GMS Secretariat by 12 June. The GMS Secretariat will incorporate the feedback and allow the GMS countries to submit final inputs by 3 July (**Attachment 16**).

24. **GMS energy sector strategy.** Ms. Hyunjung Lee from ADB, and Ms. Amelia Hernandez Esteban, ADB consultant, presented the key features of the draft GMS Energy Sector Strategy 2024–2030, which aligns with the GMS Strategy 2030 endorsed by the Seventh GMS Summit of Leaders in 2021. The draft strategy was circulated for review by the countries in May, ahead of the ETTF meeting. The meeting agreed that the draft would be considered endorsed for submission to the energy ministers if no substantive comments were received by 14 June. The target is to seek ministerial endorsement in July in time for the GMS Senior Officials Meeting in August and launch the strategy in November at the GMS Summit of Leaders (**Attachment 17**).

VI. Closing

25. The Chair summarized the next steps for each ETTF workstream, which includes the following: confirmation of potential regional interconnection projects that the ETTF will pursue, an updated EE training and workshop plan, and the deadline for country inputs on the GMS RIF and GMS draft energy strategy. Lao PDR will inform the ETTF Chair and ADB if the country could host the next ETTF meeting (**Attachment 18**).

Day 3

VII. Workshop on Electricity Market Principles

26. **Professor Mark Thurber**, Associate Director at Stanford University's Program on Energy and Sustainable Development, delivered a workshop on 7 June about electricity market principles using game-based simulations. The workshop followed a self-directed e-learning course that commenced in May. It covered uniform-price auctions and unilateral market power, pay-as-bid auctions, transmission constraints, forward contracts in electricity markets, and the impact of variable energy resources on electricity markets (**Attachment 19**).