

## GREATER MEKONG SUBREGION

### 1<sup>st</sup> GMS ENERGY TRANSITION TASK FORCE MEETING

13-14 June 2023, Manila, Philippines

#### SUMMARY OF PROCEEDINGS

##### I. Introduction

1. The Greater Mekong Subregion (GMS) countries convened the first Meeting of the GMS Energy Transition Task Force (ETTF) in a hybrid format (with in-person attendance in Manila, Philippines and via web-based conferencing) on 13-14 June 2023. This ETTF meeting was organized for the first time following the dissolution of the Regional Power Trade Coordination Committee (RPTCC) and its integration into the GMS ETTF. The last RPTCC meeting was held in July 2022.

2. The first ETTF meeting discussed (i) updates on the terms of reference and future activities of the ETTF, including its workstreams and working groups (ii) regional capacity building and training needs for GMS countries on green financing, renewable energy, energy efficiency, electric vehicles, and other emerging technologies to be provided under the ETTF; (iii) regional cooperation priorities and opportunities in support of the energy transition; (iv) the final GMS energy sector assessment and strategy; and (v) other development partners' activities and collaboration opportunities. **Attachment 1** displays the detailed agenda for the meeting.

3. The meeting was hosted by the Asian Development Bank (ADB), attended by 67 participants. The forty-nine (49) participants attended in person from Cambodia, PRC, Lao PDR, Thailand, Viet Nam, United States Agency for International Development (USAID), Department of Foreign Affairs and Trade (DFAT) Australia, and United National Economic and Social Commission for Asia and the Pacific (UNESCAP). The eighteen (18) participants joined virtually through Zoom from Myanmar, some participants from Cambodia and Lao PDR, Agence Française de Développement (AFD), and other development partners. **Attachment 2** provides the list of participants.

##### Day 1

##### II. Opening Session

4. Mr. Keiju Mitsuhashi, Pacific and Southeast Asia Region Energy Director, ADB, gave the opening address focusing on GMS ETTF in Facilitating Decarbonization. He welcomed participants to the ETTF meeting, marking the first meeting of ETTF alongside the 2023 Asia Clean Energy Forum in Manila to provide ETTF delegates an opportunity to engage in a broader regional discussion in accelerating clean energy development, decarbonization and energy transition. As stated by GMS members, he stressed that energy transition is the critical pathway to achieving a sustainable future. In line with this vision, GMS countries agreed in July 2022 to transform the RPTCC into the ETTF and this was endorsed at the GMS ministerial conference in December 2022. ETTF will enable the GMS countries to collectively address the common challenges associated with energy transition and maximize the utilization of region's abundant clean energy resources. He highlighted the significant progress in energy transition within the GMS countries and he suggested to consider the following: (i) developing regional power grids

and establishing a regional power market; (ii) harmonizing rules and regulations including technical standards to facilitate power trade; (iii) encouraging private sector investments in both power generation and transmission lines; (iv) developing renewable energy resources and implementing energy efficiency; (v) having open access, i.e., allowing power generators to connect to the grid and directly sell electricity to consumers in various locations; (vi) developing specific rules and regulations to enable open access to transmission lines. Furthermore, Mr. Mitsuhashi shared that the ETTF serves as the platform to enhance the capacity of GMS countries to facilitate decision-making process. Countries should continue making significant efforts to advance physical interconnections, accompanied by the development and implementation of appropriate rules and standards towards a fully integrated regional power market.

5. Ms. Hyunjung Lee, Senior Economist, ADB gave a brief overview of the ETTF agenda in the next two days and enjoined participants to provide comments and suggestions on the ETTF work.

### **III. Plenary Session**

#### **A. Regional Opportunities in Energy Transition – Drawing on International Experience**

6. Mr. Philip Napier-Moore, Energy Sector Leader, ASEAN and East Asia, Mott MacDonald provided an overview of the company and shared regional opportunities in energy transition. The presentation highlighted key global developments where renewables were playing an important role in energy transition. This was through battery energy storage systems (BESS) and green fuels, coupled with models for energy transition, and unlocking renewable power through power interconnections. Mr. Napier-Moore cited Keppel Energy of Singapore having received the first conditional award from the Energy Market Authority's request for proposal to import 1GW of renewable electricity to Singapore. He further presented on (i) pooling energy storage resources, (ii) synergies in hybrid generation, including energy storage, and (iii) regional sourcing of green fuels, including hydrogen potential. Mr. Napier-Moore concluded by emphasizing that all the technologies discussed are increasingly available and can be deployed within the Mekong region as demands on both power interconnectors and energy storage evolve, raising the questions: the where, when, and how the adoption of BESS will increase, as costs of BESS reduce over the coming years, in addressing grid congestion. See **Attachment 3** for the presentation.

7. Key points discussed are as follows:

- On the hydrogen economy potential, clarifications were raised: (i) whether wind energy can be used as a source in an electrolyzer to produce green hydrogen, and (ii) the cost of electricity using hydrogen in Australia and other countries. It was shared that most of the plants producing hydrogen seen in Australia rely more on solar but some rely on onshore wind and offshore wind. Hydrogen produced in Australia is both for domestic use and to Europe, Korea, also from the US to Japan, and that there are on-going studies to produce hydrogen in the Middle East for export.
- Given the low cryogenic temperature required (-423C) for hydrogen for transport, hydrogen is converted to ammonia (-33.34 C) that can be transported as LNG, and reconverted back to hydrogen. Hydrogen is used in power generation as well as in cement and steel plants. The blending of hydrogen (20%) with natural gas in gas power plants and in coal power plants is currently possible. As technology develops,

it is envisaged that 50% blending will be possible by 2030 and 100% blending by 2050 or earlier. In Europe, hydrogen is blended with natural gas into the gas pipeline network. In Japan, synthetic methane is blended into natural gas network. Hydrogen can play an important role in reducing carbon emission in the transport sector such as trucking and shipping.

- The use of hydrogen power generation is currently under pilot activity in Japan, Korea, United Kingdom and in the United States. It will take time for the technology to be fully mature to enable 100% use of hydrogen in power generation. As the need to decarbonize is urgent, countries could then use green fuels in power generation such as solar, wind, hydropower, geothermal and biomass to decarbonize their economies. It is recognized that there is a limit to using renewables for power generation as not all countries have these resources and will have to participate in cross-border power trade to decarbonize their respective economies.

## **B. GMS Energy Sector Assessment and Strategy**

8. ADB has engaged The Lantau Group (TLG) to prepare a detailed sector report that identified opportunities and challenges to enabling the energy transition within the Greater Mekong Subregion (GMS) power sector. Mr. Chris Starling, TLG, ADB Consultant presented the Assessment, Strategy and Roadmap report (ASR), which proposed areas for ADB to provide future assistance to the respective governments of the GMS countries to address key challenges and recommendations for the ETTF workstreams moving forward. The work on the ASR includes (i) an overall energy sector analysis and trends, (ii) a regional power trade overview, (iii) the decarbonization context with a focus on the key enablers for renewable power adoption across the GMS, (iv) discussion of key challenges in the GMS, (v) exploration of potential areas for ADB assistance, and (vi) the provision of recommendations for the ETTF mandate and provided clarifications on strategic linkages. The presentation also identified areas for potential development partners (DP) support in energy efficiency and regional power trade working groups as well as DP assistance with clean technologies and green financing in the medium-term. The presentation is in **Attachment 4**.

9. Countries provided the following comments:

- Viet Nam mentioned Lao PDR, Cambodia, Myanmar, and Viet Nam work with ASEAN involving a study on how to harmonize in the ASEAN region and to develop a road map for Viet Nam to harmonize with member states of the ASEAN region. In this regard, Viet Nam raised concern in deciding which roadmap is suitable for the country and shared the need to consult stakeholders of countries and other ministries, especially the manufacturers.
- Viet Nam further requested ADB's assistance on developing a financing mechanism for energy efficiency as well as support in learning the experiences, especially from Thailand and China on energy service companies (ESCO) and green financing.
- Cambodia clarified on their support to the ETTF working group membership, and the need for implementation of green finance. On implementation of green finance, they sought help in developing green technology workstream as well as green financing.

10. Following the discussion, ADB reiterated the following points:

- The level of energy transition development within ASEAN is keenly being considered.

- For energy transition, the end goal is the same but implementation will depend on the individual country's situation of available renewable energy resources and coupled with demand side and supply side options to be considered to achieve carbon neutrality.
- Energy efficiency (EE) is an important pillar for ETTF. With energy demand going up very fast within the region, the demand side options are not yet reflected in power development plans (PDP) and programs defined for implementation. Under EE work, the focus will be on high energy consuming appliances.
- ESCO financing/demand response mechanism is an important topic, but it is still a proposal of ADB team for GMS delegates' consideration and not finalized yet but this can be further discussed and define prior to the next ETTF meeting.
- On data collection for planning purpose, this has been a priority the past 20 years in RPTCC but there is difficulty in obtaining these data in a timely manner. Countries were requested to provide the required data which is solely for the use of ETTF work.
- All the comments will be reflected in the document.

### **C. Country Presentations**

11. GMS countries provided updates on: (i) the latest country's latest power sector development plans (e.g., new policies, plans, tariff regulations) energy transition strategy, and roadmaps that are prepared or under preparation; (ii) latest development of high-voltage cross-border power interconnections, i.e., new MOUs, new agreement, new projects; (iii) actual data of cross-border power trade, future projections of demand and supply; (iv) existing low voltage interconnections; (v) plans for the development of renewable energy, energy storage systems, smart grids, electric vehicle, demand response, energy efficiency (EE); (vi) level of EE standards and labelling development and harmonization, and (vii) investment requirements and financing challenges for energy transition, and (viii) identified specific areas where capacity building is needed for energy transition. Country updates showed that GMS bilateral power trade continues to expand as well as increasing renewable energy capacity in many GMS countries. Some countries also shared their national policies on carbon neutrality and national strategies for climate change. The details of the country presentations are in Attachments **5.1 to 5.6**.

12. Key points during the discussion are summarized below:

#### **Cambodia**

- On the challenges of integrating higher shares of variable renewable energy, Cambodia's delegation mentioned that this was something studied in detail during the preparation of the Power Development Masterplan (2022-2040), which lays out different scenarios for renewable energy integration. In that connection, battery energy storage systems (BESS) are expected to play an important role in balancing the fluctuation of renewable energy sources.
- In light of the solar power plants projects approved in recent years, it was inquired if this will become a trend for solar projects in the future. The Cambodia delegation noted that while the number of recent approvals was considered significant, there is no clear regulation mandating the uptake of solar, although the Power Development Masterplan indicates targets for different power generation technologies. BESS technologies were also highlighted as important to balance the fluctuations in solar power generation. In this regard, ADB mentioned that it is supporting EDC to conduct study on the options for deploying up to 2 GW of solar PV in combination with BESS.

- On the source of power generation for the export of 3,100 MW from Lao PDR to Cambodia, it was noted that several options were being considered and that discussions among the two countries were still ongoing.

#### **People's Republic of China (PRC)**

- It was noted that PRC system is huge. It was also noted that total electricity consumption in 2021 grew by 10.3% (slide#5), a substantial increase even with the COVID situation. PRC explained that the growth can be attributed to change in policy because of COVID impact, including strict border control leading to robust growth.
- PRC' generation mix comprised 42% thermal, mainly from coal.
- On the pricing mechanism and financial viability of pump storage hydro, PRC formulated market incentives and has generated investments in pump storage by CSG. Given the instability of energy, there is a need to solve energy storage and keep the balance between storage and lifespan of battery.
- PRC government approved last month a two-part tariff: first part, a capacity tariff, fixed tariff every month and second part, an energy tariff. Spot market price is now stable and gap from peak and average demand is fluctuating.

#### **Lao People's Democratic Republic (LAO PDR)**

- Singapore plans to import 4,000 MW of clean energy by 2030. 1,000 MW each from Cambodia and Laos, PDR and 2000 MW from Indonesia. A MOU has been signed between Laos and Energy Market Authority of Singapore with technical study on the possible undersea interconnection route is ongoing. Singapore will decide on moving forward with interconnection following the conclusion of the study in December 2023.
- Lao PDR is considering the development of floating solar PV system to augment renewable energy generation, but the costs seem to be high. Lao PDR requested ADB's technical assistance (TA) to study FSPV development on its hydropower reservoirs and how costs could be brought down. The TA is also to train Lao PDR in developing these projects.
- ADB highlighted the key role that Lao PDR could play in supporting the energy transition in the GMS, and that the country would be an ideal candidate to host a multilateral pilot project given its centrality in the region and resource potential for clean energy. For that end, it is important to understand the level of readiness for such pilot by assessing aspect such as existing and planned interconnections, operational procedures (e.g. smart meter, controls), and plans for upgrades.

#### **Thailand**

- It was clarified that the demand response control center and the renewable energy forecast centers are both operated by EGAT.
- It was noted that under the Smart Power Program, there is only a wheeling charge for EGAT and EDL.
- In the PDP, there is an increase in solar energy, while wind energy remained stable. In this regard some clarifications were raised on the possible reasons, apart from cost implication, as to why Thailand is not exploring wind resources given that solar mixed with wind is more stable.

#### **Viet Nam**

- As the budget for Viet Nam PDP 8 spending has doubled from PDP 7 with 80% going towards generation, including private sector and the state. For transmission, the policy

is being revised to enable private sector investment. Following approval of the Masterplan 8, the details on how to implement PDP 8 will be prepared.

- Decreasing the peak load capacity of the national power system through the implementation of the demand side management and demand response program by at least 1,500 MW in 2 years can be achieved given the volume and capacity increase and if the new financial mechanism and pricing are in place. In solving the problem of congestion, Viet Nam noted that the situation is under control as it is addressing the technical issues, including congestion. Viet Nam also shared that the problem is not as serious compared to the last 2 years. In the future, there are lessons learned as more RE will be developed and Viet Nam has the resources and solutions to manage and control risk for RE congestion.
- The power shortage in the north is due to the impact of dry season. Viet Nam also indicated that in the south and in the center, they have varying capacities as well as some limitations.
- ADB emphasized the importance for other countries to learn from experiences. As Viet Nam discussed real challenges that they must deal with and power trade is one solution to address these issues.

## Day 2

13. Mr. Joao Aleluia, Energy Specialist, ADB provided an overview of the agenda of the day and the objectives of each session.

### A. Recap on GMS Cross-Border Power Trade Data

14. Ms. Hyunjung Lee briefed the meeting on the presentation of the data receive related to the cross-border trading and stressed the importance of having all the data and information so that it will be possible to have a better understanding of the cross-border interconnections of GMS countries are at the moment and how in terms of multilateral power trade and regional power market can be developed. Plotting the data together will show if there are mismatches and gaps.

15. Mr. Chris Starling emphasized the importance of having a coherent systematic set of data that covers all the ongoing activities and planned activities relating to regional power trade. He mentioned that while data were received from the country delegations, i.e., cumulative energy traded to date, some data that are still missing were identified. Country delegations were requested to help fill out the table. There are two main objectives: (i) to finalize the assessment strategy and road map document, which is an overarching thematic documents for the GMs sub reaction in terms of identifying the opportunities and challenges shaping a strategy, and (ii) on the ETTF work streams, to collect all information available on existing bilateral contracts on master plans, interconnection projects, cross-border power trade and others to start that working group off with a systematic, systematic and complete set of data. Refer to **Attachment 6** for the Tables.

16. The first table which looks at cross-border power trade, trends in the region. However, as the work of the working groups is progressing, the RPT WG will have a very holistic picture that looks not only at those data. Mr. Starling reiterated that the aggregate level in terms of power exchange volumes, associated sub projects, i.e., grid to grid, export IPP projects, the distribution

level and the associated tariffs will all be valuable information. Further, the costs given in the table of planned projects provide a bigger picture of the investments associated with these projects.

17. Countries acknowledged the importance of data requirements and made commitments to review and check availability of data. Specifically,

- Thailand indicated that they have the information from the distribution system and the data is not confidential. Thailand also noted the data already provide and indicated to review the data and provide available data from published documents.
- Viet Nam also signified the availability of data and confirmed that they will review and provide the information after the meeting. It was also suggested that other information should also be collected to support the ETTF, to have an overview and the detailed plan.
- Lao PDR also indicated that they could provide data requested.
- PRC will need to check availability of the data requested.

18. To conclude the discussions, Ms. Hyunjung Lee reiterated that there is a higher level of agreement among the country's leaders to mandate ETTF in working together to deliver the mission and visions of the regional power trade facilitation and advancement of the power market. ADB assured that the data information shared by the countries will remain only within this group for ETTF work. She requested the countries to check the excel spread sheet in the google drive and to fill up the required data. Data information to be provided individually will be the basis to establish better scenarios to collectively move forward. Finally, the table will be revised based on the comments and will be uploaded in the Google drive.

## **B. The ETTF and Planning of Future Activities**

19. Ms. Hyunjung Lee, Senior Energy Economist, ADB discussed the Terms of Reference of the ETTF, including ETTF objectives, scope of work including four workstreams, working groups, activities, membership, and resources. The GMS ETTF key workstreams comprised: (i) sustaining GMS cooperation on Regional Power trade; (ii) implementing technology capacity building programs on renewable energy and energy storage; (ii) accelerating energy efficiency programs; and (iv) strengthening knowledge sharing and awareness raising on green financing and green bonds. The activities of GMS ETTF for 2023-2025 are as follows: (i) updating of existing and planned GMS Cross-border power interconnections, (ii) identifying and/or reviewing cross-border projects with multilateral implications, (iii) identifying and assessing opportunities for regional cooperation to accelerate the adoption of energy efficiency, and (iv) implementing capacity building and knowledge-sharing activities. These activities are indicative and will be evaluated after 2 years of ETTF operation, based on which the next course of action will be determined. **Attachment 7** provides the presentation.

20. Countries provided the following comments:

- PRC appreciated the discussion on the ETTF's TOR and noted the objectives of the ETTF and the two working groups that cover the key challenges in the energy transition progress and work on regional power trade and energy efficiency topic. For the ETTF membership, PRC will report to the National Energy Administration of China and get authorization and provide feedback later.
- Cambodia will also consult their colleagues to make sure that the everything is covered in the objectives. For example, all technology should be considered and the possibility

of achieving net zero. Further, Cambodia clarified on hydrogen, that is, if green hydrogen. Also, on holding ETTF meeting two times a year, it was mentioned that hybrid meetings are an efficient option for participants who cannot attend in person and inquired on the timing of the meetings. ADB will include the detail on the timing of these meetings into the document.

- Viet Nam will provide an official comment letter. Meanwhile, on the objective of the ETTF, it was pointed out that ETTF will continue the activities of RPTCC. On the second objective of ETTF: “to optimize use of regional clean energy resources through regional power trade facilitation and regional power market development” Viet Nam thinks that this is impossible for ETTF to achieve this and suggested to consider rewording this objective. Similarly, the first objective that will align with the Paris Agreement should be deleted. It was suggested to identify feasible activities. Viet Nam likewise thinks that the work of ETTF will be completed in two years and after that there can be a review and evaluation of the results. However, there is a need to think of the activities beyond two years. Further, the activities for next two years will focus on enhancing the interconnection and capacity building which are feasible. However, the interconnection activities will require longer time to accomplish given the planning and investment requirements. On the ETTF membership, the original members are four but now have been increased to 6. There is a need to consider the working group number and ensure that countries have the time to participate in the meetings. ADB noted these comments and will discuss further with countries.
- Thailand provided two comments. First, on the objectives and workstream, it was suggested to consider adding more details on EV in the activities, for example, how to forecast EV load, how to implement EV charging stations, among others. Second, on the regional power trade working group, how to move forward considering the two working groups under RPTCC (WGPG and WGRI) comprising the grid code and regulatory work. In addition, another Thai delegate suggested setting up four task forces that are aligned with the four objectives of ETTF.
- On the last proposal of Thailand, ADB recommended to the delegates to think about this proposal and decide. It was explained that as a start, the two working groups have clearly a defined deliverable.

### **C. Sustaining GMS cooperation on Regional Power Trade**

21. The session discussed opportunities and challenges to establish a multilateral power trade platform, possibly aligned with ASEAN power trade initiative, and develop a pilot project to experiment a regional power pool market, which can be operated to address the need for short-term power trade and balancing power, especially considering rapidly increasing renewable energy share in the regional power system. The presentation also includes examples from other regions. The session also discussed a suitable governance structure including the formation of a technical working group. The presentation was led by Ms. Hyunjung Lee, ADB along with Mr. Jonathan Hedgecock, International Regional Power Trade Expert, ADB Consultant and Mr. Hans-Arild Bredesen, International Power Market Expert, ADB Consultant. The presentation is found in **Attachment 8**.

22. Key points discussed are as follows:



- Viet Nam gave the following comments: (i) there are many activities mentioned for two years only and these are only for the RPTWG; the activities for the EEWG are not identified; (ii) activities should be prioritized to get good results considering the lessons learned from RPTCC.
- ADB shared the need to collectively review the plan and think about how to operate efficiently to achieve ETTF mission, citing the implementation of a pilot project for two years. Further, various resources will be provided to support the activities including government preparation. The workplan presented will be updated every two years given the dynamics of the power system and changes in the region.
- Thailand appreciated examples from European interconnections but requested to also utilize the grid code that could possibly serve as the manual of operation for interconnection to minimize risk as technology evolve. In addition to examples from Europe and United States, Thailand suggested to provide examples from South Korea.
- PRC shared that CSG is also working on this topic, and has unified their market in the Southern China in five provinces to also provide a solution to the wider area of power trade evolution as consumer's power consumption can also increase but with more choices on suppliers. CSG offered to share more experiences considering the countries' different development stage with different laws, tariffs, and others.
- Viet Nam also proposed to consider adopting the same model to establish and implement the power market for the country and emphasized the need for adequate infrastructure in place, including capacity building to harmonize the power market.
- In response to the comments, ADB emphasized the objective of developing a regional market through a pilot. The idea is not to have the same national market but with connection flexibility such that the regional market being proposed can be adopted considering the national market which need not exactly be the same.

#### **D. Accelerating Energy Efficiency Programs to Promote More Competitive industries through Energy Cost Savings**

23. The session discussed opportunities to strengthen collaboration among Member States on energy efficiency, including on Minimum Energy Performance Standards, Labels, mutual recognition of appliance inspection centers/laboratories, among others. The session also discussed a suitable governance structure including the formation of a technical working group. Ms. Architrandi Priambodo, Senior Energy Specialist, ADB and Mr. Rajeev Ralhan, International EE Expert, ADB Consultant gave the presentation. The presentation is in **Attachment 9**.

24. Countries offered the following comments:

- For the energy efficiency plan, Lao PDR agreed to focus on harmonization and standards for the next two years and for the terms of reference, ETTF can cover more wider scopes of energy efficiency.
- PRC proposed to apply energy efficiency not only on appliances, but also to high energy equipment like transformers for the transmission because it will also link into the interconnections and transmission lines.
- Myanmar shared current energy efficiency efforts including the maps and standard labelling scheme for food products that has been developed. In addition, a product registration system has also been developed to be launched soon. Myanmar informed

- that the Energy Efficiency and Conservation Department and the Ministry of Industry are the implementation agencies for energy efficiency in Myanmar.
- Thailand has done a lot on energy efficiency. For EETF, Thailand clarified on the priority sectors and types of equipment. ADB mentioned that the appropriate appliances and sectors to focus on will be discussed in the working group. Further, the directions that countries are taking will be considered, for example, looking at different product categories.
  - Viet Nam suggested to finalize the objective of the energy efficiency working group so that appropriate activities will be implemented considering the level of stages of energy efficiency. The stages of leveling and standards between countries are different, so there are countries which are in advanced stages and work than other countries.

25. ADB appreciated the sharing of experiences on energy efficiency for countries to learn and face the barriers and help them to adapt better. ADB will prioritize the list and start with less complex options. ADB will also look into the ASEAN initiatives as they are already working on the harmonization some appliances. The country feedback will be incorporated and update the terms of reference. The timing of setting up the EE WG will also be reconsidered based on the additional assessments.

#### **E. Updates on Capacity Building and Training Needs including Green Financing, Renewable Energy, Storage Technologies, EVs, etc.**

26. Mr. Joao Aleluia, Energy Specialist, ADB discussed and reviewed capacity building and training needs for GMS countries to support energy transition. It was noted that capacity building and training are priority areas for the GMS EETF and that these directly relate to two of its four workstreams: (i) technology capacity building programs and (ii) training on green financing and green bonds. The session reflected on the training sessions provided in the context of the EETF in 2022/2023 and proposed for discussion a training/capacity-building program for 2023/2024. The presentation is in **Attachment 10**.

27. Key discussion points were as follows:

- With regards to priority topics for the trainings, Thailand proposed to add green ammonia to the list. The delegation also expressed interest in further learning about the issues related to the disposal of battery systems used in EVs.
- China expressed the view that all the topics are of great value and therefore fully supports these. With regards to pumped storage hydropower, the delegation mentioned that this is a technology where China is a world leader, and suggested that trainings and site visits could be organized in China for GMS Member States focusing on this technology.
- Vietnam suggested to integrate contents relating to carbon finance instruments in the green finance training program planned for Q3 2023. Viet Nam also recommended to: (i) develop training programs for different levels of expertise, from basic to advanced; (ii) identify participants from government agencies other than those usually attending EETF meetings; and (iii) to indicate the estimated duration of each training session.
- Cambodia suggested other topics to be considered for the trainings, such as the cost of energy project preparation, trends on regional power trade, and future costs of renewable energy technologies.

28. In response to the points raised by delegates, ADB mentioned that training programs developed in the future would be tailored to the needs of different participants, including beginners and experts. An example was provided with the BESS training modules: while the first session on this topic, which was organized in February 2023, was an introduction to BESS, the one organized on 15 June 2023 was a deep dive on the subject. ADB also emphasized that trainings would be held, to the extent possible, in conjunction with other GMS events. In response to the suggestion of Viet Nam's delegation, it was mentioned that sessions on carbon markets and carbon finance could be organized, especially as these are topics where ADB has extensive in-house expertise. ADB took note of the topics proposed for trainings by the different delegations and that these would be considered in future sessions.

## **F. Development Partner Forum on Supporting Energy Transition in the GMS**

29. Mr. Joao Aleluia, ADB moderated the discussion with key development partners as they presented their programs and discussed priorities to support GMS countries on the energy transition. Agence Française de Développement (AFD), Australian Department of Foreign Affairs and Trade (DFAT), United States Agency for International Development (USAID), and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) delivered presentations. Refer to the presentation in **Attachments 11.1 to 11.4**.

30. Mr. Arnaud Dubrac, Regional Energy Task Team Leader, Agence Française de Développement (AFD) joined the meeting virtually and discussed AFD's support to the energy transition in Southeast Asia. AFD's focus areas include: (i) access to energy services for all, (ii) energy efficiency and demand management, and (iii) a modernized and low-carbon energy supply. To assist accelerating the energy transition in the region, AFD will focus on: (i) supporting energy transition policies; (ii) mobilizing and strengthening the capacities of different actors; and (iii) promoting innovation. AFD noted that its programs support is also supporting power utilities in the GMS.

31. Mr. Richard Neumann, Director, Climate Mitigation and Investment Section, Department of Foreign Affairs and Trade (DFAT Australia) gave a presentation on the potential of battery energy storage systems to support the grid transition to renewable energy based on Australia's experience. Mr. Neumann highlighted the 2022 integrated system plan that is supporting Australia's highly complex and rapid energy transformation, which will involve switching from higher-cost, high emission energy to lower cost-renewable energy. It is foreseen that storage capacity will increase by a factor of 30 up to 2050, and therefore storage technologies will become increasingly more important to renewable energy-based systems.

32. Mr. Grayson Heffner, Director, Utility Modernization and Power Trade, USAID Southeast Asia Smart Power Program (SPP) presented an update on the SPP. Launched in May 2022 at the US-ASEAN Special Summit in Washington, DC, this program re-affirms USA's support across ASEAN's institutions and programs with a contribution amounting to \$40 million investment with the expectation of mobilizing an additional \$2 billion in blended financing for clean energy infrastructure in Southeast Asia. The program aims to enhance energy security in Southeast Asia by creating open and transparent energy markets, promoting energy trade, and transforming the energy sector to improve access to clean, reliable, and affordable energy. Mr. Heffner discussed the SPP targets, strategy, geographic coverage, and activities in support of the ASEAN power grid.

33. Mr. Hongpeng Liu, Director, Energy Division, UNESCAP views energy cooperation, particularly in the form of energy connectivity, as a key strategy to support country efforts to meet the Sustainable Development Goals (SDGs), and in particular SDG 7 on sustainable energy. Despite progress in expanding access to electricity, renewable energy as a share of energy consumption is declining in Asia-Pacific and must be reversed. Mr. Liu shared ongoing efforts in Southeast Asia, including the ESCAP regional road map on power system connectivity with a vision, principles, and strategies to enable sustainable connectivity.

#### **G. Regional Investment Framework for GMS– Program Updates**

34. Ms. Pinsuda Alexander, Economist (Regional Cooperation, ADB presented updates of the GMS Program, giving an overview of the various GMS initiatives that are currently being undertaken. Ms. Alexander discussed the Regional Investment Framework (RIF). The RIF 2023-2025 was prepared through extensive consultative process and based on new criteria to ensure project readiness in terms of feasibility, implementation, financing, and alignment with the GMS 2030. Currently, the GMS RIF 2024-2026 is being prepared and requested the countries to submit strong proposals from the GMS the energy sector. The detailed timeline is in the presentation found in **Attachment 12**. On the GMS 2030 implementation, Ms. Alexander also presented the work on strategic alignment for stronger results.

#### **H. Summary of Discussions and Agree on Actions for GMS ETTF**

35. Ms. Hyunjung Lee, ADB presented the ETTF meeting summary highlighting (i) the potential benefit and synergy of the regional power trade, (ii) the need for grid flexibility resources and the commercialization of green energy technologies are increasing, (iii) energy efficiency, (iv) concerns and remaining questions, and (v) way forward and agreed actions. The presentation is in **Attachment 13**.

36. Countries provided the following comments:

- Cambodia and China requested to extend the schedule in submitting the comments for about a month. Further, China needs to report to NEA on this.
- Lao PDR raised the possibility of Lao-Viet Nam project in view of the power shortage in Viet Nam. ADB acknowledges this as a good proposal and could be relevant in the context of Viet Nam's power shortage.
- On the proposal of Lao, conducting a pilot for the market is very complicated. EDL can discuss in detail with Viet Nam to consider this carefully.
- ADB's proposal is not all countries participate in the pilot operation and it is the country's decision to participate. While this is not perfect, this could still be a useful experience to learn and improve. ADB will provide the necessary support in the pilot operation.
- Additional comment from Cambodia was raised on the schedule of the second ETTF meeting which is planned for the fourth quarter of 2023 may not be possible given the time to plan, discuss with stakeholders, and allot budget. On the deadline for RIF proposal, a request was made to extend the deadline as the proposals are not yet finalized and the national secretariat are screening the project proposals.
- ADB requested countries to provide additional comments, if any by email and will be incorporated in the next version of the documents.

37. The following summarizes the ETTF meeting discussions:

- (i) **The potential benefit and synergy of the regional power trade is recognized** through establishing a short-term power trading platform combined with enhancing bilateral and multilateral trading arrangements through increased interconnection capacity and harmonized interconnection rules, procedures, and establishing a transparent wheeling charge. The existing portfolio of the regional power generation mix enables the optimization and least cost utilization of abundant RE resources in the region given the different resource availability based on resource location. Further, the recent direction of power development plans of GMS countries has shown increased ambition to achieve carbon neutrality by 2050 or 2060. New developments should consider the following opportunities:
- Viet Nam's offshore wind potential;
  - All GMS countries' solar power: rooftop, floating solar PV, and grid-connected systems;
  - Lao PDR's floating solar combined with existing hydro and pumped storage hydro;
  - Acquire hydrogen and ammonia technology to generate clean fuel using RE resources;
  - Singapore's 4 GW clean energy tender; and
  - Undersea cable interconnections.
- (ii) **The need for grid flexibility resources and the commercialization of green energy technologies are increasing.** It is important to understand the cost of such technologies, provide the incentives or market mechanisms, update technical grid codes and standards, and mobilize green financing to deploy the right technologies in time. In this regard, **capacity building/training programs are critical to building awareness and knowledge.** The suggested key topics to be covered in the future capacity building/training program are as follows:
- Development of market mechanisms for ancillary services and interim regulatory solutions to incentivize storage (BESS and PSH) and demand-side resources;
  - Deployment of EVs and their integration into the grid (grid-to-vehicle services);
  - Green hydrogen for the utilization of renewable energy;
  - Virtual power plant arrangement; and
  - Demand side options to support optimized use of renewable energy.
- (iii) **Concerns and remaining questions** related to (i) the mandate of the ETTF TORs, (ii) the formation of Working Groups (WG), (iii) key deliverables in the next 2-3 years through WG activities, and (iv) resource constraints including human resources in each country government agencies and utilities to conduct activities. In this regard, it is necessary to discuss and agree on the following concerns raised in the meeting:
- Countries to provide ongoing and planned cross-border data and information to be used with confidentiality and for ETTF purposes;
  - Set realistic plans of ETTF TORs;

- Proposed two WGs: RPT and EE are the prioritized workstreams considering time and resource limitation, while cross-cutting capacity-building programs will support the all the four work streams under ETTF.
- Agreement on two priorities for RPTWG: (i) pilot regional power market model and (ii) interconnection projects to optimize the regional clean resources on a regional level (GMS/ASEAN level); and
- Resources to support country activities, including requirement for national consultants to support WG activities.

**(iv) Way forward and agreed actions:**

- By 15 September 2023, ETTF country delegates to provide all available cross-border power trade information and data (refer to Excel template and slides), and any remaining comments/suggestions on the ETTF documents to ADB Secretariat;
- By 15 September 2023, ETTF country delegates will collect comments on ETTF documents from the country stakeholders and request ADB's assistance if national consultation meetings are required.
- By 15 September 2023, WG members to be nominated and virtual meetings are organized as needed; and
- ADB continues to work with the ASEAN related to the pilot regional power market project for the participation among the common countries under ASEAN/GMS;
- ADB to update ETTF documents and send the final versions for GMS countries' endorsement by 31 October 2023;
- During Q4 2023, the second ETTF meeting will be organized by Cambodia with relevant training programs.

**I. Closing Session**

38. Ms. Hyunjung Lee, ADB closed the meeting and thanked the GMS countries, development partners, consultants, and all participants for their contributions to a productive meeting and ADB for organizing the meeting and supporting the activities of ETTF.