GREATER MEKONG SUBREGION
28th MEETING OF THE REGIONAL POWER TRADE COORDINATION COMMITTEE
(RPTCC-28)

26─27 August 2021
Via Web-based Conferencing

SUMMARY OF PROCEEDINGS

I. Introduction

1. The 28th Meeting of the Regional Power Trade Coordination Committee (RPTCC-28) was held on 26─27 August 2021 via web-based conferencing. The meetings discussed (i) summary of key results of the Greater Mekong Subregion (GMS) study on harmonization of technical performance standards and grid codes and regulatory regime, conducted under Asian Development Bank's (ADB) technical assistance (TA) on Harmonizing GMS Power Systems to Facilitate Regional Power Trade; (ii) update on regional connectivity activities in Asia as discussed by UNESCAP); (iii) country updates on the latest country power sector development, impact of the COVID-19 pandemic on demand and supply, and on the revenue of utilities; and (iv) regional investment framework for the GMS including program updates.

2. The meetings covered a range of key issues related to the ongoing clean energy transition efforts in the region. Specifically, Day 1 also covered: (i) experience sharing from the EU on approaches to integrate larger percentages of renewable energy into the energy mix, and (ii) new donor-funded regional activities in the GMS and ASEAN focused on supporting the energy transition. Day 2 reviewed the results of a recent ADB study on energy efficiency market assessments in Cambodia, Lao PDR, and Myanmar as well as presentation of development partners on energy transition cooperation, among others. Agenda is in **Attachment 1**.

4. The meeting was co-chaired by Dr. Akhomdeth Vongsay, Director General, Department of Planning and Cooperation, Ministry of Energy and Mines (Lao PDR Chair) and Toru Kubo, ADB Director for Energy in the Southeast Asia Department. More than 100 participants from the GMS ministries of energy, finance, foreign affairs, investment, and planning, attended the 2-day meeting held virtually. H.E. Ho Taing Eng, Secretary of State, and H.E. Srey Da, Deputy Director of Cabinet and Spokesperson, from the Ministry of Planning, The Kingdom of Cambodia also participated in the meeting. **Attachment 2** provides the list of participants.

II. Opening Session

3. Lao PDR Chair expressed his appreciation to all participants and indicated that the COVID-19 pandemic has still prevented the RPTCC participants to meet in person. He noted that the meeting was virtually conducted on the second year, managed through the online platform where he took part as a chair for the first time. He requested the support of GMS member countries, and hope that the COVID-19 pandemic will soon be completely controlled in our region and in the world in general.

4. The Lao PDR Chair mentioned that looking into the energy transition is very crucial today. He gave his view that it is a pathway toward transformation of the global energy sector from fossil-based to zero-carbon, and the need to reduce energy-related CO2 emissions to limit climate change. Currently, Lao PDR is implementing the 5-year power and mines development plan from 2021─2025. One of the plans included assessments on growth and improve resiliency in

domestic supply and consumption to access the energy achieve 98% in 2025 (currently reached 95%), to enable increased cross-border exports to our neighboring countries with total installed capacity more than 5.000 MW. In 2020-2021, Lao PDR signed a Power Purchase Agreement of Hydropower about 800 MW and wind power of 600 MW to be exported to Vietnam. Lao PDR Chair reiterated the RPTCC's commitment in promoting regional power trade, promote low carbon and renewable utilization as important step forward to energy transition. Lao PDR's speech in **Attachment 3**.

5. In his opening remarks, SEEN Director Toru Kubo highlighted that the 28th meeting came at an important juncture of the 5 years of GMS cooperation in harmonizing power systems to facilitate regional power trade. He underscored that the RPTCC has made significant progress on regulatory and technical harmonization among the GMS power systems—a step towards advancing GMS power cooperation with the vision for greater integration and resource optimization. SEEN Director also highlighted the vision for a cleaner and greener GMS power system. ADB Director's speech is in **Attachment 4**.

III. Plenary Meeting

Day 1

A. Update on Regional Connectivity Activities in Asia

6. Invited development partners provided updates of their respective programs during the 2-day meeting. Mr. Matthew Wittenstein, UNESCAP Chief of Section, Energy Connectivity, shared the UNESCAP's work on energy connectivity, including the Regional Roadmap on Power System Connectivity which provides strategies to guide sustainable connectivity. Mr. Wittenstein discussed the connectivity activities in various subregions in Asia, including GMS and noted that while there are many connectivity initiatives, there is limited coordination between subregions which provides opportunity to share lessons and best practices. ESCAP offers free trainings for ASEAN regulators available online and training for utilities which will be available soon. UNESCAP's presentation is in **Attachment 5**.

7. Lao PDR noted the many connectivity initiatives in the countries, shared an update on the Lao PDR-Thailand-Malaysia-Singapore project and emphasized the need to cooperate and share lessons and best practices. ADB noted that while affordable and reliable electricity as the outcome from an integrated power system is emphasized, decarbonization and renewable energy have also become important and highlighted that energy work requires input of other ministries.

B. Country Presentations

8. GMS countries provided latest county power sector development (e.g., new policies, plans, tariff regulations); the impact of the COVID-19 pandemic on the demand and supply and utilities revenue; latest development of the cross-country cooperation; near future projection of demand and supply and role of renewable energies, energy storage, smart grid, and energy efficiency for energy transition. The details of the country presentation are in **Attachments 6–11**.

9. Key points during the discussion are summarized below:

Cambodia

- ADB is pleased to work with Cambodia on the Power Development plan and noted the usefulness of data on power supply and consumption, power trade between Cambodia

and neighboring countries and requested other countries to prepare similar data which will be useful to the Secretariat.

- The existing transmission systems, while in different regions, Cambodia shared that all transmissions are interconnected. Detailed information on the 500kV under planning and future import from Lao PDR to Cambodia will be sent.

- On renewable energy, Cambodia noted that while there is no potential for wind power, solar power is integrated in the national grid with about 15% integration; there are concerns on intermittent nature of solar power but with Cambodia's interconnection with neighboring countries like Viet Nam, it helps balances on the fluctuations.

Lao PDR (LAO)

- On the recently established transmission company, EDL-T, Lao PDR shared the joint venture between EDL and CSG with10% share of Lao and 90% of CSG. EDL-T will manage the planning and investment of the 230kV transmission line project for the whole country which can be an enabler for Lao to achieve its energy goals. While the CA has been signed, there are some pending issues that needs to be negotiated.

- On the promotion of electric vehicles (EV), LAO indicated that EV policy is still in early stages.

- Further on stabilizing the output of solar PV, Lao tries to control solar PV generated to follow the national grid in terms of generation capacity and must control for smooth system but the percentage of solar PV in the LAO system is not over 5% of demand.

People's Republic of China (PRC)

- Lao PDR highlighted the need for CSG's close cooperation with EDL on the power exchange during the wet season as LAO generation is mostly from hydropower, there is huge amount of power during the wet season; need to discuss the exchange mechanism to address over supply or narrow the gap.
- On nuclear power generation, PRC indicated that it remains supportive of nuclear generation with many existing nuclear power plants under construction.
- Policies to achieve energy are as follows: (i) policy for new energy generation is now a key component of decarbonization commitment; (ii) new energy integration (100 to 200 GW) goal to make system capable to connect and utilize this amount of renewable energy; (iii) construction of energy storage facilities, including providing giving incentives to construct storage; (iv) on demand side management, pilot market mechanism to give incentives to customers to lower demand during peak time.

Myanmar

- On plans for CO2 emission reduction, Myanmar shared efforts to try to reduce CO2 emission reduction which has become smaller and will further reduce this in the future by importing power from neighboring countries. Myanmar plans to import about 8%, which LAO expressed optimism and a good sign for LAO-Myanmar connectivity.

Thailand

- On renewable energy (RE) policy, the share of new power generation with RE ratio in Thailand is projected to reach to about 60% in 2050.
- On energy efficiency (EE), under the current plan until 2037, EE target is more than 30%, but for the new plan, the policy is to be more aggressive than the current 30%.
- On the energy mix, there will be reduction of thermal in 2037 as one coal power plant will be retired in 2033. ADB noted that this is a good development as most countries in the region announced moratorium on coal power plant.
- There is a target of about 2,000 MW of floating solar under PDP 2018; but currently EGAT gave update on a pilot project of about 47 MW. There is no project yet on offshore wind, but Thailand noted that there is wind potential as well.
- Further on RE, Thailand indicated that import from hydro is included in the 36,000 MW RE generation capacity in 2037.
- On the Battery Storage System (BESS), EPPO is discussing with the Ministry of Energy and three power utilities on a pilot project which is expected to be done in 2022. BESS will be used for ancillary service and frequency regulation.
- Thailand will provide more information on Nan Ngiep 3 as it is currently waiting for processing the tariff MOU, submitted to National Energy Policy Council for approval.
- On the construction of Pak Beng to Tha Wang Pha, this is still under discussion and not yet approved to be included in the plan.

Viet Nam

- On power trade development, Viet Nam signed PPA with different power plant owners in Lao PDR with a total capacity of almost 2,000 MW of power; in the long-term, Viet Nam expects to import power from Lao PDR to about 3,000 MW up to 2025; 5,000 MW up to 2030. Viet Nam also signed one wind power project with Lao PDR to be in place in 3 to 4 years.
- In 2022, Viet Nam will stop buying power from China because of reduced consumption due to pandemic. However, in the following year up to 2025, there is a need to import again from China.
- In addition to the interconnection projects and to comprise the 3,000 MW target by 2025, Viet Nam communicated that there is a long list of hydropower plants in Lao PDR that Viet Nam would like to connect to the system. Viet Nam will share the details. Lao PDR further discussed that various projects have been discussed and ready to export to Viet Nam but needs to look at tariff rate and the actual market.
- Viet Nam explained the connections of wind power imports between the north and south and shared concern on possible congestion problem.
- On the operational challenges in managing renewables, Viet Nam identified the following: (i) congestion of the grid, (ii) system inertia, (iii) frequency reserve of the power system; (iv) limitation on renewable forecast, and (v) adopting to renewable variations.
- Viet Nam clarified that curtailment of renewable does not impose a penalty as keeping the system stable is the priority.

C. Increased Power Trade in a World with more Renewable Energy—Regional Power Trade with Increasing Share of Intermittent Renewable Energy: EU experiences and relevance to GMS

10. Duy Thanh Bui, Principal Energy Economist, SEEN and Jonathan Hedgecock, ADB Consultant led the discussion of the above topic. The presentation focused on (i) EU integrated electricity market, supply and demand, and cross-border trading; (ii) the European Electricity Market Model –Facilitating renewable (RE) development; (iii) technical solutions to improve power system performance with increased RE penetration; and (iv) comparison of EU experience with the GMS and learning from EU market for GMS region. Some of the key lessons from EU experience include (i) the development of the regional market has focused on regulatory, institutional, technical and market design as parallel activities, driven from the top down by strong regional bodies; (ii) focus on enabling regulations and technical solutions to significantly increase the penetration of renewable generation in the EU; (iii) wind and solar resources in the GMS and Europe show the scale of the potential resource; (iv) EU experience demonstrates the importance of interconnection in increasing RE penetration; and (v) EU experience suggests the requirement of strong regional institutions to define policy and implement change on the scale required to introduce an effective regional power market and support RE expansion.

11. Mr. Bui further discussed the similarity and differences between EU and GMS regions. For example, that EU has developed a very mature electricity market that can accommodate high penetration of RE. RE in EU picked up in 2018-2019 and RE in the GMS start also to pick up in the last few years. In the EU high penetration of RE achieved while electricity demand has not increased, unlike in the GMS the demand increased with a high rate (7-8% per year prior Covid). For the GMS country security in the power supply is a major concern, in EU the security is ensured by integration and great flexibility comes with higher interconnection capacity. Mr. Bui also noted that technology is part of solution, for example, battery storage. EU has advanced technologies – the element for a successful increase in RE to meet the global climate change objective. He emphasized that now is the time to take step by step actions with the lessons from EU. The EU's top-down approach may also be applicable. Presentation in **Attachment 12**.

12. Country insights are as follows:

- Lao PDR agreed that top-down approach and technology are key aspects of the success of EU on renewables.
- Cambodia stressed that interconnection is crucial and will take more time for GMS countries to attain the EU experience.
- On PRC's query on the cost of battery storage, it was mentioned that costs are coming down with increasing interest to develop this; however, unit costs are not yet available. There is also a process for connecting new equipment to the grid system which must be followed to ensure that the new equipment will not cause harm to the system.
- On Thailand's clarification, in EU, the reserves are centrally procured by the transmission systems operators and there are requirements on the renewable plants to comply with certain conditions, for example, provide reactive power in particular circumstances. Currently, there are not such requirements in Thailand Grid Code. Therefore, Thailand shall include such requirements in the Grid Code in the future.
- Viet Nam reiterated the difference in the situation of EU and GMS and noted the problem of overloading of network and the requirement of investors for a long-term solution. It was emphasized that there is a need for a regional approach to integrate

transmission planning where the interconnections could help and be able to depend on and support other systems like the 10-year development planning in Europe.

Day 2

A. Accelerating Energy Transition in GMS

13. Pradeep Tharakan, GMS-RCI focal person, led the discussion on leveraging GMS power trade cooperation as an enabler for an accelerated energy transition across the region, and introduced ADB's new regional TA program to support this work. The TA will support several countries in Southeast Asia and has outline various activities to accelerate clean energy transition. **Attachment 13**.

14. Comments and discussion on the presentation are as follows:

- PRC shared on energy transition in China including developments in renewable energy capacity and generation brought about by policies and technology developments, and reduction in coal fire generation.
- Thailand also shared EGAT's experience as it attempted transition noting progress on renewable energy forecast, demand response, and battery storage system. ADB shared that Thailand has a lot to offer as a best practice leader in the region; and suggested to use the GMS platform to share this information through knowledge sharing events
- On Viet Nam's query on the type of funds/bonds that support renewable energy projects, ADB briefly explained green financing with the different categories and issuance of bonds and mentioned that more detailed discussion can be arranged.
- Lao PDR stressed that financing approach is important for energy transition, especially for Lao PDR, Cambodia, Myanmar and emphasized that support of the government is crucial in accelerating energy transition.

B. CASE Project

15. Rolland Simon, GIZ Country Manager, Thailand presented an overview of the GIZ's CASE Programme which supports evidence-based energy transition, aiming to increase political ambition to comply with the Paris Agreement through various outputs. Mr. Simon identified potential cooperation opportunities such as (i) targeted research and technical assistance, (ii) capacity building, (iii) joint knowledge events and workshops on energy transition within and outside the region (**Attachment 14**).

16. On the mechanisms and tools, ADB and participants remarked to take stock of existing work to avoid redundancy and consider fast changing developments in various countries and create a platform that can be updated periodically. Other suggestions for discussion in the planned workshop are topics to address issues such as (i) how bilateral and multilateral trading works, (ii) challenges faced by utilities and identify possible solutions, and (iii) link between non-energy sector, investors and producers given clean energy investment challenges.

C. Energy Transition Partnership

17. Sirpa Jarvenpaa, Director, Southeast Asian Energy Transition partnership, UNOPS made a presentation on UNOPS's Energy Transition Partnership which is an innovative platform for governments and philanthropies to finance technical assistance projects and aligned capital assistance to accelerate energy transition in Southeast Asia to achieve the SDG goals and Paris Agreement objectives. **Attachment 15** provides UNOPS presentation.

18. UNOPS further discussed the on-going work on smart grids in the Philippines which will work on country-wide grid standards and develop regulatory framework and countries. Further, UNOPS had discussions with ERAV to study potential for cooperation in energy transition in Viet Nam. Lao PDR noted the energy transition challenge in Viet Nam which are similar with Lao PDR, especially the issue of mobilizing funding from private sector and expressed interest of cooperation in the future.

D. Energy Efficient Market Assessment in the GMS: Results of Study for Cambodia, Lao PDR, and Myanmar

19. A comprehensive assessment of the energy efficient market in the GMS focusing on the results of the ADB-funded study for Cambodia, Lao PDR and Myanmar was provided by Hyunjung Lee, Senior Energy Economist, which led to ADB's investment in Cambodia energy sector development program in 2022 among others. For Cambodia, based on the findings of this study, ADB is now implementing the feasibility study to prepare the Cambodia energy efficiency (EE) Sector Development Program Loan to materialize vast opportunities identified in EE, which includes policy and regulatory supports and capital investment from ADB. For other two countries, project team will finalize the recommendations on business models and financial mechanisms and submit the report to the GMS countries in next 1-2 months. (**Attachment 16**).

20. Countries expressed appreciation on the comprehensive study on energy efficiency for the 3 countries and shared some of the related on-going work. Cambodia shared that a national policy for energy efficiency for 2021-2030 has been prepared for approval. Thailand is working as planned on demand response. Meanwhile, Viet Nam shared that while they have years of experience on EE implementation, it could not achieve targets or best result on financial mechanism and requested to recommend the suitable financial mechanism in the future.

21. ADB explained that the financial mechanisms make it difficult to make EE investment possible and stressed the key role of private sector, government commitment to make this possible. ADB will work with Lao PDR to identify the suitable mechanism. ADB also noted that the study is just the beginning in understanding opportunities which can be implemented in the future, by private sector, public sector, of public-private partnership which ADB will continue support through the new TA.

E. Regional Investment Framework for GMS– Program Updates

22. Regional Cooperation and Operations Coordination Division's (SERC's) Pinsuda Alexander, Economist (Regional Cooperation) presented updates of the Regional Investment Framework (RIF) 2021 and GMS Program updates which is being reported to the GMS Leaders' Summit on 9 September 2021. (**Attachment 17**). The GMS Economic Cooperation Program Strategic Framework 2030 (GMS 2030) include energy strategy in the connectivity pillar which consisting of (i) energy supply security and environment sustainability;

(ii) cross-border trade, (iii) greater private sector participation, and (iv) promotion of clean and renewable energy; capturing the energy issues being addressed by RPTCC. On the energy sector RIF projects, Lao PDR and Myanmar provided information on the latest RIF project progress.

F. Regional Power Cooperation to Accelerate the Energy Transition – SOM, Ministerial Meetings, GMS Summits, ASEAN coordination, and Proposal for a New taskforce

23. Pradeep Tharakan, ADB emphasized that a strong regional power trade platform will act as an enabler for the energy transition and achieving the long-term goal of decarbonization in the region. The proposed next steps were presented as follows: (i) involvement of GMS ministers which is essential to accelerate and realize the benefits of regional power trade; (iii) discussions on regional power trade to be brought at the level of GMS Senior Officials' Meeting (SOM); (iii) set up a Task Force, which could pave the way for the establishment of a Technical Working Group at a later stage, and (iv) take steps to plan for a multi-country power trade pilot. Presentation in **Attachment 18**.

24. The following points were raised:

- Viet Nam and Cambodia supports higher level meeting to discuss RPTCC work as well as plan for a multi-country power trade pilot and requested for more details. Further on the proposed task force, PRC shared those issues are not technical in nature but rather policy and regulatory issues; thus, task force should have a broader scope. Lao PDR shared that RPTCC work resulted to many research and studies but requires more results in implementation phase and supports upgrading the committee to a task force to look address not only connectivity but also energy transition but should not duplicate ASEAN work.
- On Thailand's request for examples from other countries concerning market transition, there are various international models with three structures in place: (i) intergovernmental bodies, (ii) utility bodies, and (iii) regulatory bodies; collaborating on what needs to be done in that institutional level and then it feeds through parallel work being done in the GMS but requires for an inter-governmental MOU and utility MOU to be in place which helps to drive the process for change.
- On PRC's observation on managing the difference in economic and power sector structures, ADB emphasized the need for dialogues at all levels to help in the integration. While this is challenge, this also brings opportunities to collaborate, e.g., the LTMS project – power is being wheeled from Lao to Thailand to Malaysia and eventually to Singapore and there also opportunities for investments as many developed countries from ASEAN, i.e., private independent power producers are investing in Cambodia and Viet Nam.

G. Sustaining Continuity of GMS Cooperation

25. Duy-Thanh Bui, Principal Energy Economist, led the discussion on ways to sustain GMS power trade cooperation, which includes regular updates of GMS interconnection and GMS power trade on the GMS website and conceptualizing a 3-country power trade pilot project. The member countries supported and adopted these actions going forward. The meeting noted the high interest in integration of battery storage technologies as a solution to maintain grid flexibility to handle scaled up share of wind-and solar-based electricity, which will be supported by ADB's new technical assistance (**Attachment 19**).

26. The three countries, Cambodia, Lao PDR, and Thailand welcome and generally support the proposed three-country pilot project and raised the following points for consideration:

- Lao PDR suggested to focus on three pillars: (i) technical, (ii) commercial, and (iii) regulatory and reminded that this is not the first time to undertake this project given the LTM project. Lao PDR also shared the need to understand the nature of energy generation and consider supply and demand given Lao PDR's case that it can only export power during the wet season and import during dry season.
- Cambodia emphasized the importance of understanding the constraints particularly, technical constraints on how it will impact and consider in parallel with the commercial and regulatory aspects.
- Thailand pointed out that the pilot project will largely depend on technical matters and requires a systematic approach and data sharing to successfully implement the project.

27. ADB acknowledged the need for a systematic approach to address the issues in three pillars, commercial, technical, and regulatory. Taking note of the comments of countries, including the internal consultation required by countries, ADB will prepare a scoping study on the proposed pilot project, seek needed inputs, and submit to countries for their consideration.

IV. Final Session

28. The meeting discussed further coordination of five key areas: (i) knowledge sharing event on grid integration of a battery energy storage system for grid flexibility and stability supported by ADB's new technical assistance, (ii) explore green financing for supporting energy transition, (iii) facilitate the regular updating of the power interconnection trade status and interconnection projects, (iv) propose the establishment of a taskforce (starting with a working group initially) on energy transition in the GMS, and elevate this request to the senior officials' meeting, and (v) select a 3-country pilot project to advance further GMS cooperation in power trade.

A. Business Matters

29. To continue the tradition of hosting and chairing RPTCC meeting, it was agreed that the next chair will still be Lao PDR. The timing of meeting will be confirmed in early 2022 or after the pandemic eases in the GMS countries. If physical meeting will be allowed, RPTCC secretariat mentioned that the meeting will be held in Cambodia as the last meeting was held in Viet Nam.

30. The draft summary of proceedings will be circulated to all GMS countries for review and comments and final summary of proceedings with attachments will be uploaded in ADB's GMS website.

B. Closing Remarks

31. Lao PDR, Chair of the meeting expressed appreciation to the countries for their participation, comments, and suggestions in moving the agenda forward and appreciated ADB's preparation of the meeting. He expressed Lao PDR's continued support for the preparation of a taskforce and enhance coordination among RPTCC members.

32. Pradeep Tharakan, on behalf of the ADB Co-Chair closed the meeting which covered important issues, addressed meeting's objectives and informative presentation, and virtually thanked all participants for a productive discussion.