

**GREATER MEKONG SUBREGION  
24<sup>th</sup> MEETING OF THE REGIONAL POWER TRADE COORDINATION COMMITTEE  
(RPTCC-24)  
NAY PYI TAW, MYANMAR, 19-20 JUNE 2018**

**SUMMARY OF PROCEEDINGS**

**I. Introduction**

1. The 24<sup>th</sup> Meeting of the Regional Power Trade Coordination Committee (RPTCC-24) was held back-to-back with the meetings of the Working Group on Performance Standards and Grid Codes (WGPG) and Working Group on Regulatory Issues (WGRI), on 18-20 June 2018 in Nay Pyi Taw, Myanmar. The meetings discussed (i) the progress of the work performed under WGPG and WGRI; (ii) future activities of the two working groups; and (iii) future activities to support cross-border power interconnections and trade in the Greater Mekong Subregion (GMS). Refer to agenda in **Attachment 1**.

**II. Opening Session**

2. The Department of Electric Power Planning, Ministry of Electricity and Energy, Myanmar in cooperation with the Asian Development Bank (ADB) organized RPTCC-24. Mr. Pham Quang Huy, Deputy Director General, Electricity Regulatory Authority of Viet Nam (ERAV), Viet Nam, RPTCC Chair; Daw Mi Khaing, Director General, Department of Electric Power Planning, Ministry of Electricity and Energy, Myanmar; and Mr. Andrew Jeffries, Director for Energy Division, Southeast Asia Department of ADB warmly welcomed participants and expressed appreciation to Myanmar for the excellent meeting arrangements. Members of RPTCC, WGPG, and WGRI from the GMS countries, and representatives of ADB, Agence Française de Développement (AFD), Japan International Cooperation Agency (JICA), International Finance Corporation, Mekong River Commission, and the World Bank (WB) attended the meeting. **Attachment 2** provides the list of participants.

**III. Working Group on Performance Standards and Grid Codes (WGPG)**

**A. GMS Grid Code Progress**

3. Ms. Aruna Wannachchi, Senior Energy Specialist, ADB updated RPTCC on the progress of the four assigned tasks namely: (i) GMS performance standards; (ii) regional transmission regulations; (iii) standard regional metering arrangements and communications, including, comments matrix which will be a part of the grid code documentation; and (iv) regional grid code for GMS. WGPG has also undertaken other activities such as (i) GMS regional master plan, (ii) feasibility studies of priority interconnections, and (iii) expanding the WGPG to include the above tasks and progressing to next stages of planning and operationalizing grid code. See **Attachment 3** for the presentation.

## **B. Comments Matrix of Completed Codes: ADB Presentation**

4. Mr. Michel Caubet, ADB Consultant, discussed (i) comments collected from the countries on transmission regulations and metering arrangements, including transmission policies and (ii) comments on GMS operational network codes. In addition, Mr. Caubet discussed the two new GMS network codes: load-frequency control and reserves (LFCR) and the GMS network code on emergency and restoration. The presentation is in **Attachment 4**.

### **Discussion**

- Lao PDR emphasized the need to discuss standards at the policy level along with technical aspects, including the analysis of the difference between countries given the gaps in the standards and code. Due to the gaps synchronizing between the GMS countries will face difficulties.
- Thailand will send further comments on the completed codes for consideration.
- Viet Nam also stressed the importance of synchronizing the system and requested WGPG to finalize the gap assessment within the year. Furthermore, WGRI should review this to be consistent with the output of WGPG. ADB pointed out that WGPG is communicating with WGRI.
- ADB shared that a gap assessment for Lao PDR, Myanmar, and Cambodia has been prepared, but to be finalized pending the compliance to government standards. ADB acknowledge the importance of synchronization but uncertain if it is possible at the regional level. ADB reiterated its commitment to assist countries on gap assessment, including compliance at the national level.
- ADB shared that additional comments can still be considered until end of the year and encouraged the countries to contact ADB for any questions and assistance needed.

## **C. Comments matrix of completed codes: World Bank presentation**

5. Mr. Graeme Chown, World Bank engaged consultant presented the progress to date for codes assigned to him. He discussed the summary of comments received on the GMS Grid code sections, namely, (i) preamble, (ii) governance code, (iii) connection code, (iv) market code, and (v) operations training code. He shared examples of international regional planning codes such as Europe, United States of America, and Africa. Mr. Chown emphasized the need for a planning code and the need to plan on the preparation given the divided views: those against think that grid code and long-term planning is a separate issue while those in favor have a view that planning code is important, as there is a lot of expansion ongoing in GMS. Possible alternative solutions include (i) producing a separate stand-alone document and (ii) make the planning code a guideline in code. Refer to the presentation in **Attachment 5**.

### **Discussion**

- Lao PDR fully supported the planning code and requested the countries to adopt the code, as this will bring benefits to the countries.

- Viet Nam shared the need for a regional master plan to be consistent with national code. In addition, it was noted that planning code is very important for all countries and emphasized the need to prioritize but carefully developing the methodology.
- PRC agreed to incorporate Planning Code with Grid Code given the close relationship with planning and operations.
- Myanmar noted the importance of planning code that may affect grid development.
- Cambodia shared the cooperation with Viet Nam, Lao PDR, Thailand (operating system) to support other GMS countries.
- Thailand indicated that planning code should be a stand-alone document.
- Mr. Chown appreciated all comments and encouraged the countries to contact him for further queries and will await the final decision on producing a planning code.

#### **D. Regional Master Plan Study**

6. ADB Consultant, Dharshana Muthumuni discussed the development of the regional generation and transmission master plan for the power trade of GMS region covering the period 2022-2035. See **Attachment 6**. The project will identify technically and economically feasible cross-border transfer scenarios. To achieve this, the project team developed a comprehensive study methodology, including detailed network models of Thailand, Myanmar, Cambodia, Vietnam, and Lao PDR based on available information. An economic analysis was carried out using a high-level model of the GMS network. Preliminary results show that there can be significant cost advantages to strengthening the cross-border transmission corridors between GMS countries. Mr. Muthumuni emphasized that need for each country to provide power system data. The presentation also highlighted the study's preliminary four scenarios, results, and future work.

#### **Discussion**

- The countries (PRC, Lao PDR and Viet Nam) clarified on technical aspects of the regional mater plan, including the scenarios, thermal capacity, location of power plant and the methodology of the study. Further, the countries recognized the importance of data in the preparation of the regional masterplan.
- ADB underscored the need for all the countries to provide data to the team and requested some guidance on the best approaches in making the data available.

#### **E. Expanding WGPG and Revised Terms of Reference (TOR)**

7. Ms. Wanniachchi and Mr. Caubet updated the meeting on WGPG's proposed expansion. They noted that WGPG has substantially achieved numerous tasks. With the support of ADB, WGPG has further undertaken the two important additional functions; including (i) updating the GMS regional master plan and (ii) pre-feasibility studies of four regional transmission interconnection projects. Considering the progress of GMS Grid Code and integration of the above two new functions, the scope of WGPG's activities requires a revision of the TOR of WGPG and a change in its name: "Working Group on Strategic Planning and Operation" (WGPO). The TOR will be expanded to include: (i) strategic planning to ensure that the GMS Interconnected Transmission System is planned in accordance with the regional planning standards; and (ii) operation to accompany the implementation, follow up and review of the GMS Grid Code technical requirements. The presentation is in **Attachment 7**. TOR for WGPO is in **Attachment 8**.

8. ADB requested the countries to carefully review the TOR and provide comments to be discussed during the next WGPG meeting in October 2018.

#### **IV. ADB Support for Prefeasibility of Potential GMS interconnections**

9. Ms. Wanniachchi, ADB updated RPTCC on the proposed pre-feasibility studies of priority projects for 2022-2025 including the consultant composition, scope, and schedule. The proposed interconnections are in **Attachment 9**. ADB engaged consultancy firm Electricity De France (EDF) to conduct the pre-feasibility studies. Two of the most advanced projects are the Lao PDR-Myanmar interconnection at 230 kV or 500 kV voltage and Lao PDR – Cambodia interconnection at 230 kV or 500 V voltage level. Thailand and Viet Nam to confirm the prospective projects.

#### **Discussion**

- Lao PDR will have to discuss separately with Viet Nam to confirm interconnection.
- Lao PDR noted that the interconnection with Thailand is still to be confirmed due to demand constraints. Thailand shared that it is in the process of revising their Power Development Plan and needs to consider several limitations.
- On the Lao PDR (Ban Hatsan) and Cambodia (Stung Treng), ADB clarified that this may change and will send an official letter to confirm.
- ADB emphasized that the proposal has been discussed in the past RPTCC meetings.
- Chair enjoined the countries to discuss and prepare a time schedule in finalizing the details as well as meeting among countries.

#### **V. Working Group on Regulatory Issues (WGRI): Presentations and Q&A of GMS national transmission charges and international practices**

10. The summary of WGRI meeting was presented. The presentation highlighted the work done after the RPTCC-23, particularly a survey of international approaches to network pricing; key findings from country presentations, emphasizing on specific application of wheeling charge. The WGRI also discussed and generally agreed on the priorities for the next phase of work as well as key stages in the immediate future work. WGRI presentation is in **Attachment 10**.

#### **Discussion**

- On the future work of WGRI, it was requested for WGRI to summarize and share country reports including the software to develop analytical work and to make basic assumptions for calculating wheeling charges.
- Lao PDR noted that wheeling charge calculation is quite simple but with complex connection, there is a need see a few case studies to determine the appropriate methodology for calculation.
- Myanmar cited the importance of correctly estimating transmission charges prior to interconnection of transmission line. Further, Myanmar stressed the importance of close collaboration to ensure accurate calculation.
- Thailand shared the need consider the context in applying the wheeling charges.
- Viet Nam commented that the MW-km methodology is suitable to countries where investors are free to choose location.
- For the next steps, the focus will be the work for Lao PDR, Myanmar, and Thailand. ADB will prepare a detailed schedule on the implementation of WGRI activities for the

next six months. (TA 8830 is managed by ADB, who is responsible for its working schedule)

**Specific actions to be carried out** are as follows:

- A. Complete the work on the survey of GMS member countries' transmission pricing methodologies and the survey of international methods. Combine this with the development of a Road Map for future actions relating to the integration of regional and national wheeling charges. This should include making questionnaire for transmission pricing methodologies, defining what we mean by a "Road Map" and circulating these to the WGRI members for their agreement. This will keep our regional focus and we shall not lose the regional extent of the TA.
  
- B. The tasks of assisting countries: For each of these works, first the Consultant will conceptualize based on the understanding gained at the RPTCC-23 and 24 meeting, the end-product for each country request. The end-product will then define the steps to be taken by the Consultant and by country team, including collection of data and information, analytical works, modelling works. Such concept will be communicated with each country, for review and acceptance and cooperation. The Consultant will conduct country visits to further carry out the works in cooperation with respective country:
  - i. **Lao PDR:** Proposals for developing the regulatory, technical and commercial issues associated with setting up a Transmission company – we should look at the required outputs from the viewpoint of the different stakeholders and consider what is needed from the point of view of the BOT Transmission Developer, the Government and EDL. Initial work will be carried out as a desk study, to be followed by a mission to Lao and discussions with GoL and EDL if these can be arranged and will add value.
  - ii. **Myanmar:** Continue to progress the discussion with MOEE representatives on the WGRI regarding pricing calculations for the 500kV lines associated with new IPPs. We recognised the difficulty of obtaining data from Myanmar and other delegations without face to face contact, but we will keep under review the requirement for a mission to Myanmar to follow up on data and modelling work. It will be important to define the anticipated outputs from this work carefully.
  - iii. **Thailand:** In principle, work will be carried out to support EGAT with the review and refinement of their postage stamp transmission pricing methodology. The focus should be on addressing specific issues that EGAT agree they want assistance with, to be discussed with them.
  
- C. Review transmission interconnectors in GMS countries and identify:
  - Line capacities;
  - Existing loading;
  - Power trading contract period
  - Trading counterparties
  - Measures required to enable short term trades to be entered on the existing lines, using the concepts and processes introduced in our earlier work

- Requirements for making good imbalances, again based on the principles from the earlier work, but taking note of the utilities likely to be involved in any of the individual case studies.

To assist the selection of candidate projects to study, information will be sought from the team working on TA 9426 to understand more about the network infrastructure between Lao and Vietnam. To obtain more information about potential interconnectors with spare capacity, and to follow up on the points relating to Lao PDR in item B above, a possible mission to Lao PDR will take place.

- D. Regarding study about taxes and subsidies, a data request will be sent to the regulatory authorities in each of the GMS countries, asking for details of the existing policies on electricity subsidies and taxation rules for power imports and exports.

### **Timeline:**

Task A: to be completed by the end of August 2018 (Jonathan to send to Bui for review)

Task B: to be completed by the end of October 2018 (Concept showing the proposed end deliverable for each country, and steps to be taken by the Consultant and by country)

Task C – E: to be completed by the end of November 2018

## **VI. Updates on Various Initiatives**

### **A. RETA 9003 – Progress, Next Steps**

11. Ms. Hyunjung Lee, Senior Energy Economist, ADB and Mr. Nikolay Nikolov, ADB Consultant provided an update on RETA 9003 which aims to strengthen power sector planning in the GMS countries using integrated resource planning (IRP) and strategic environmental assessment (SEA). They discussed the project progress on (i) Viet Nam and IRP and SEA, (ii) capacity building in GMS countries, and (iii) knowledge products (KP). Progress on the Viet Nam IRP and SEA comprised (i) completion of review of integration of SEAs in PDP, (ii) near completion of the report on feasibility of including externalities in Viet Nam's IRP modelling, and (iii) strengthening the policy framework for power sector planning in Viet Nam for PDP VIII currently under progress. Key findings on the China gap analysis and update on KPs were also discussed. Remaining activities in 2018 include (i) country workshops, (ii) country specific guidelines on IRP with SEA, (iii) KP 2: Strategic Power Development Planning through Integrating SEA into an IRP Approach in the GMS Region, and (iv) three twinning programs with potential hosting countries. Refer to **Attachment 11** for the presentation.

### **Discussion**

- On PRC's clarification on the data used for the environment sector, ADB cited the challenge in quantifying environment data and shared experience in the Viet Nam

study. ADB also emphasized that countrywide monetization is important to integrate environmental and social cost into the optimization process.

- With regards to Myanmar's clarification on the different scenarios of generation mix, including production cost, ADB shared that production cost are not yet available but it is expected that renewable energy is larger.
- Viet Nam shared that the Power Master Plan VII is currently being developed and will consider advice of ADB. ADB confirmed that it is the process of providing recommendations to Viet Nam.

## **B. Invited Presentation: Introduction to the Sustainable Hydro Development Strategy 2018**

12. Mekong River Commission (MRC) attended RPTCC meeting for the first time. Mr. Palakorn Chanbanyong and Mr. William Derbyshire, MRC gave a brief introduction on MRC and discussed the Lower Mekong Basin (LMB) sustainable hydro development strategy (SHDS) 2018. MRC raised the question of reconciling national power development plans and MRC study as well as potential approaches for reconciliation. MRC presentation is in **Attachment 12**.

### **Discussion**

- Thailand shared that a SEA was already prepared and inquired on suggestions on how to improve PDP. MRC clarified that they are drawing on previous studies, including SEA. Assumptions are consistent with PDP in Thailand and explore different pathways of hydropower in the Mekong River.
- PRC suggested to considering the possibility of starting inventory study of Mekong River Basin.
- On IFC's questions: (i) on design guidelines, MRC noted that these are being considered only in large tributaries on a limited extent; (ii) on the export to Myanmar, MRC do not have much information; and (ii) cascade operation will be considered by MRC.
- MRC discussed the tradeoffs between large and small dams, noting the cost implications and impact on storage that is ability to store energy. Further, on relationship of hydropower generation vs. irrigation, MRC noted the positive relations with irrigation benefiting from hydropower.
- MRC requested for country contact information to follow up responses to the three questions posed to RPTCC. Countries will provide contact information and respond during the national consultations scheduled in August.

## **C. Invited Presentation: Strategic Environment Impact Assessment Framework for Myanmar – Update of the Latest Results**

13. Ms. Kate Lazarus, International Finance Corporation shared insights on maintaining basin health and developing hydropower in Myanmar. It was noted that (i) large scale hydropower will impact basin health for a century or more but it is possible to balance hydropower development with long-term basin health; (ii) balancing resource protection and hydropower development is difficult but essential; and (iii) implementation of the basin zoning plans to screen projects is an important first step. Refer to **Attachment 13** for IFC presentation.

## Discussion

- Myanmar shared the importance of data collection during the preparation of SEA noting that hydropower sector will require more studies and will require enormous data. It was also suggested to prepare EIA for the power sector. IFC clarified that the study is not for a specific project but for the whole country to mitigate and manage impacts.
- PRC emphasized the complexity of developing hydropower in a country and suggested to assess energy mix in Myanmar. IFC shared that other energy sources are being considered and will determine the right energy mix.
- In relation to fitting in the EIA to SEA work, particularly on the approaches in monetizing the impact, IFC shared that the economics and costs are not being done since they are already considered in power sector studies. With so much negative perceptions and legacy issues, the approach is to focus is on environment and social understanding and then integrate to the power sector work. IFC will continue to discuss with Myanmar has no experience on SEA.

### D. Outcome of the 6<sup>th</sup> GMS Summit and Future Directions for GMS Program

14. Ms. Pinsuda Alexander, Economist (Regional Cooperation), ADB presented the highlights of the 6<sup>th</sup> GMS Summit and related events held in March 2018 in Ha Noi, Viet Nam. The GMS Leaders' adopted the GMS Hanoi Action Plan (HAP) 2018-2022: a document that sets refined strategic directions and operational priorities in the remaining 5 years of the GMS Strategic Framework. For energy sector, HAP recommends continued focus on power market integration and advancement of regional power trade. Ms. Alexander briefed RPTCC on Cambodia Prime Minister Hun Sen's proposal on renewable energy initiative. In addition to the HAP, the Leaders also adopted the Regional Investment Framework (RIF) 2022: a living pipeline of 227 projects worth \$66 billion to support the HAP. Ms. Alexander discussed the RIF 2022 monitoring and updates for 2018, including the progress report formats for on-going and proposed projects. The revised GMS power interconnection map was also shared and requested RPTCC to provide comments. The GMS Secretariat requested RPTCC to provide RIF project update as well as comments to the interconnection map by 31 July 2018 and suggested to consider other future directions of the energy sector beyond 2022. See **Attachment 14** for the presentation.

## Discussion

- Viet Nam observed the varied sets of energy projects presented by ADB and Word Bank and emphasized that planned interconnection projects should be based on the existing Master Plan. Viet Nam will collect the information and provide official comment to ADB.
- Lao PDR cited difficulty in confirming interconnection projects that are under consideration and can only provide the planned projects at the national level that ADB can use to prepare optimum interconnection points for GMS. Lao PDR will inform ADB of bilateral projects once confirmed. Lao PDR will also send updates to the GMS power interconnection map.
- ADB shared that RIF 2022 has taken a top-down approach, taking off from the original RIF 2013-2022 that is being refined continually in contrast to RPTCC's bottom-up approach, emanating from country information.

- On the Leaders' mandate on renewable energy, Viet Nam inquired on the prospects of ADB financing for solar and wind power projects. ADB indicated that the RIF is a good platform to propose regional projects aligned with the strategy.

#### **E. Progress of World Bank Technical Assistance**

15. Mr. Stuart Thorncraft, WB Consultant discussed update on World Bank TA: GMS Power Market Development. The presentation (see **Attachment 15**) comprised the following: (i) Task 1 objectives: assessment of business cases to support GMS power market integration; (ii) summary of findings from business cases; (iii) methodology for integrated GMS modelling; and (iv) integrated GMS modelling results in terms of the implications for (a) regional transmission expansion, (b) national transmission expansion, (c) generation expansion, and (d) overall economic benefit. Finally, Mr. Thorncraft presented the conclusions highlighting the importance of coordination between national and regional transmission planning as well the need for country coordination of grid-to-grid planning and operation to realize the benefits.

#### **Discussion**

- Viet Nam noted that there is an inconsistency with business cases selected for this study with other ongoing work. For example, ADB ongoing master plan studies, projects being proposed by GMS Secretariat. Viet Nam raised the issue of consistency and proposed to consider other ongoing projects.
- World Bank shared that different approaches were adopted in coming up with these proposals. World Bank's bottom-up approach involves looking at business cases and determine which of these must be harmonized and prioritized. World Bank proposed to analyze these studies.
- Myanmar clarified on the proposed interconnection projects with other countries and cited some technical issues on the feasibility of these interconnections. World Bank discussed the process of generating from a long list of projects.
- ADB raised the issue of project selection and suggested to validate with countries before proceeding with further work. ADB requested to demonstrate the models. If the WB continue this kind of activities and select the business cases in coordination with the respective countries and ensure delivery of meaningful results without duplicating ongoing efforts by RPTCC
- For next steps, World Bank will write a report that will include the assumptions, modelling/methodology, and present results. The report will be sent to the countries for comments before finalization.

#### **VII. Other Businesses**

- The next WGPG meeting will be held in Thailand in September 2018.
- WGRI will assess the current activities and decide on the conduct of the next WGRI meeting.
- Thailand concurred to host RPTCC-25, with the venue and date to be determined.
- Viet Nam will continue to chair RPTCC-25.

## **VIII. Closing Session**

16. RPTCC-24 Chair summarized the discussions of the meeting, stressing the work accomplished during the past few days and thanked all participants for their valuable contributions to the meeting.

17. ADB also expressed appreciation to all GMS countries; development partners, namely, AFD, World Bank, and JICA; and consultants for valuable inputs.