

**GREATER MEKONG SUBREGION  
21<sup>ST</sup> MEETING OF THE REGIONAL POWER TRADE COORDINATION COMMITTEE  
(RPTCC-21)  
SIEM REAP, 8–9 DECEMBER 2016**

**SUMMARY OF PROCEEDINGS**

**I. Introduction**

1. The Regional Power Trade Coordination Committee convened its 21<sup>st</sup> meeting, with back-to-back meetings of the Working Group on Performance Standards and Grid Codes (WGPG) and Working Group on Regulatory Issues (WGRI), on 8–9 December 2016 in Siem Reap, Cambodia (RPTCC-21). The meetings (i) discussed the latest results of works under WGPG and WGRI, (ii) deliberated on the follow-up actions under the working groups, (iii) updated country power sector development, and (iv) discussed future cross-border power interconnection and trade in the Greater Mekong Subregion (GMS). The agenda of the meetings is in **Attachment 1**.

2. The RPTCC-21 was organized by the Ministry of Mines and Energy of Cambodia in cooperation with the Asian Development Bank (ADB). RPTCC-21 was co-chaired by Mr. Moe Thet, Director for Power Transmission and System Control of the Ministry of Electricity and Energy (MOEE) of Myanmar, and Mr. Andrew Jeffries, Director for Energy Division, Southeast Asia Department of ADB. Members of RPTCC, WGPG, and WGRI from the GMS countries, and representatives of ADB and the World Bank attended the meeting. **Attachment 2** provides list of participants.

**II. Progress of WGRI**

3. The latest works of the WGRI (the second WGRI report<sup>1</sup>—**Attachment 3**) made major advancement on two important aspects of the GMS regulatory harmonization: (i) third party access (TPA) and (ii) methodology for calculating wheeling charges. The report defined principles for TPA in the GMS context, and proposed key regulatory and contractual requirements to be set out to enable TPA in the GMS power systems. The second part of the WGRI works concerns the methodology for calculating wheeling charges (MWC) for using common transmission system. Review of worldwide methodologies was provided followed by the proposal of the one to be adopted for the GMS power market.

4. Mr. Jonathan Hedgecock, the consultant assisting the WGRI, made a presentation summarizing the key findings and recommendations about TPA and MWC, and short term trading rules, which are documented in the WGRI second report. The GMS delegates and specialists from ADB and the World Bank discussed the above issues and proposed comments. In general, the GMS delegates appreciated the work done by the consultant and ADB in preparing the WGRI second report.

5. Regarding TPA, GMS countries requested to provide more reference documents, real examples from the world (e.g. European power market rules and grid codes) to be able to understand these regulatory and contractual documents to be applied in the GMS. GMS countries also requested clarification if the proposed regulatory and contractual documents are for a single country or for the entire GMS, and on who makes decisions on these regulations.

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<sup>1</sup> The first WGRI report was presented at RPTCC-20.

6. Regarding MWC, the meeting participants commented that the methodology should be easy to understand and simple to apply. Load flow based methodology is difficult to apply in GMS conditions. For example, in People's Republic of China (PRC), contract-path methodology is adopted for inter-provincial transmission power trade contracts while post-stamp methodology is adopted for the power transmission within one province; Viet Nam uses post-stamp methodology. From methodological point of view, MWC should also account for loss charges, administrative charges, and transmission system operator (TSO) charges. Balancing charges also need to be considered, either within the MWC, or separately. In addition, the choice of MWC model needs to be relevant to the prevailing market model, and conditions for each MWC approach should be specified.

7. It was agreed among the GMS countries that the countries further review the second WGRI report and provide written comments by 31 January 2017 (in addition to comments provided at this meeting). The consultant will revise the second report incorporating all above and additional comments by 31 March 2017 for final acceptance by the GMS countries. [ACTION1: GMS countries to review and provide written comments on the second report; Mr. Hedgecock to incorporate all comments and revise report; ADB to circulate final version].

8. It was suggested that while reviewing the second report, the WGRI members pay attention to the concept of TSO and the application of this concept in the GMS context, considering the existing arrangements operating cross-border interconnections. The report proposed three options for TSO. Which option is suitable, what are the advantages and disadvantages of each option? Key regulatory and contractual documents are also proposed. If the existing arrangements are to be improved/refined, how will they evolve? Who makes the decisions at national and GMS levels? The report also proposed steps for calculating wheeling charges; how are these steps applicable to the GMS countries?

9. The meeting also agreed to further explore the pilot application of MWC for a real transmission interconnection. [ACTION2: ADB to discuss with GMS countries on possible application of the methodology in a real project].

### **III. Progress of WGPG**

10. A highlight of WGPG work under the guidance of ADB was the discussion and conclusion reached on the potential GMS power interconnection projects for the near term. The GMS countries held a round table discussion, which examined each of the proposed GMS interconnection projects and established six transmission interconnection projects for the period 2018–2024. The list is provided in **Table 1**. GMS countries confirmed the interest in further studying the viability and feasibility of six interconnections. [ACTION 3: ADB will commence a new regional technical assistance to assist GMS countries to study these potential interconnections].

11. The WGPG continues to make progress in establishing common technical performance standards for GMS. Draft performance standards have been established and a gap analysis was completed in 2014. A consultant was engaged to support the WGPG for further reviewing draft performance standards. The consultant revised the already established draft standards in June 2016 without sound rationale. The consultant could not fully address the WGPG's request to elaborate on the rationale and the significance of each of the standards in the revised draft report by the consultant. WGPG co-chair from PRC, Mr. Zhou Jian, presented the revised performance standards and GMS countries discussed each of the performance standards, and different opinions still exist. Therefore it was agreed to provide consultancy services to support

WGPG to further review the common performance standards and complete this exercise by June 2017. ADB plans to engage an expert in order to finalize a set of common performance standards

**Table 1: Potential GMS Transmission Interconnection Projects 2018–2024**

#	Location		Technical Information		
	Feeding	Receiving	Voltage(kV)	Length	Peak capacity
1	Lao PDR (Luang Namtha)	Myanmar (Shan State and extend)	230 kV or 500 kV	TBC	TBC
2	Lao PDR (Na Bong)	Thailand (Udon Thani 3)	Upgrading existing 230 kV designed for 500 kV operation	107 km	1,800 MW
3	Lao PDR (Ban Lak25)	Thailand (Ubon 3)		150 km	1,400 MW
4	Lao PDR (Pak Beng or Pak Nguyen)	Thailand (Tha Wang Pha)	500 kV	120 km	800 MW
5	Lao PDR -Ton Pheung	Thailand - Mea Chan	115 kV	TBC	TBC
6	Lao PDR (Nam Mo 1 and Nam Mo 2)	Viet Nam, Ban Ve	220 kV	70 km	TBC

12. Ms. Aruna Wanniachchi, Senior Energy Specialist, ADB, presented overview of the WGPG: background, progress of tasks assigned to WGPG, and ongoing activities. Draft common performance standards and some work on the transmission regulations have been established. She also presented the planned activities for 2017–2018. The main objective of the WGPG is to establish technical rules for the coordinated planning and operation of the regional electricity market. Hence, the WGPG work plan in 2017 would focus on: the continued activities in the regulatory and technical aspects; and integrated Regional Planning to establish potential for GMS power trade and infrastructure development.

13. WGPG summary of discussions are in the **Attachment 4**.

14. The World Bank (WB) consultant presented inception report under the WB TA for Power Market Development in GMS (P151457). The WB TA has three pillars (work streams) focusing on (1) assessment of electricity trade alternatives; (2) support to WGRI on power market regulatory issues; and (3) support to WGPG on performance standards and grid codes. The inception report focused on the first pillar and presented three case studies for possible scale-up of electricity trade (a) South Lao PDR – Central Viet Nam; (b) Myanmar – Thailand; and (c) South Lao PDR – South Viet Nam. Seven additional case studies have been identified for future analysis under the pillar 1. Following discussion of scope of work under pillars 2 and 3, it was agreed to update the TOR of WB consultant as detailed in para 17 (below). The Inception Report prepared by the WB consultants is enclosed in the **Attachment 5**.

#### **IV. Update of GMS Countries Power System Development, Cooperation, and Trade**

15. GMS countries provided update of their power system development, intra GMS cooperation, and trade (country presentations are in **Attachment 6**). The update recorded continued trend of high electricity demand growth across the region; increased attention to renewable energies; and new initiatives for GMS cooperation evidenced by new and revised memorandums of understanding (MOUs) signed among the countries with high prospect of bilateral electricity trade. Incorporating potential cross-border import/export of power in national

planning has become normal practice in the GMS. Country update also pointed to the obstacles of cooperation such as not-yet-transparent electricity tariff, and disparity of technical and technological levels.

16. Key points discussed in the following country presentations relevant to GMS power cooperation are summarized below:

**A. Cambodia**

- (i) Cambodia's decline of imports from Thailand and Viet Nam was brought about by the operation of power plants in the Power Development Plan, including a hydropower plant in 2015 and a coal-fired power plant in early 2016; Cambodia also indicated that with strong technical capability, there is a possibility to export power to Thailand (115 kV) during rainy season;
- (ii) Cambodia noted the same frequency and synchronization with Viet Nam but different from Thailand and cited the discussions with Electricite du Laos on the possibilities of synchronization of Viet Nam, Cambodia, and Lao PDR; and
- (iii) Cambodia plans to open up to investors given the growing demand for power. Also, Cambodia plans to introduce power system stabilizers to improve stability of its power grid.

**B. PRC**

- (i) PRC held various ongoing discussions with Cambodia, Lao PDR, Myanmar, Thailand, and Viet Nam on PRC's future plans to export power in these countries;
- (ii) PRC proposed a 3GW HVDC interconnection with Myanmar estimated at USD 1.04 billion. The proposal has been submitted to Myanmar MOEE in September 2016.;
- (iii) It was noted that hydropower projects originally built to export electricity from Myanmar to China cannot fully reverse the flow and supply domestic market in Myanmar due to lack of internal transmission capacity. ; and
- (iv) On the potential power trade between China and Viet Nam, EVN identified several options on interconnections which will require further studies.

**C. Lao PDR**

- (i) Lao PDR has renewed a number of MOUs with neighboring countries for power export. Regarding the MOU between Lao PDR and Viet Nam, adjustments will be made as technical studies are undertaken and as changes in demand take place, e.g., importation of power is needed during dry season in Lao PDR with power supply coming mostly from hydropower.

**D. Myanmar**

- (i) Myanmar stressed the priorities to establish the 500 kV North-South backbone transmission system and decongest the power grid for evacuation of electricity generation from North to South;
- (ii) on the development of renewable energy, Myanmar has obligation to meet renewable energy target of about 19,000 MW and shared that plans are underway to meet the target;

- (iii) On regulations, Myanmar shared that electricity laws provide authority to the Ministry to prescribe rules on grid codes; and
- (iv) With most of generation plants implemented in Northern Myanmar, there is a need to implement a new power generation program in the next 3–5 years.

#### **E. Thailand**

- (i) Thailand's obligation to produce renewable energy of around 10,000 MW for 2013–2019; target is 19,600 MW in the future; studies are ongoing to address implementation issues; and
- (ii) On plans to import hydropower, Thailand said it will comprise 13-15 percent of total capacity.

#### **F. Viet Nam**

- (i) Viet Nam shared plans to meet the growing power demand which is increasing by 10–15 percent annually with peak load reaching 30 percent.

### **V. Coordination between ADB and the World Bank Technical Assistances in Support of Working Groups**

17. In order to ensure efficient utilization of available TA resources provided by ADB and the World Bank, and to improve coordination between consultants supporting the RPTCC, the ADB and the World Bank teams met with representatives of the two working groups and agreed the following:

- Pillars 2 and 3 of the WB TA (P151457) will focus primarily on assisting WGPG in preparing the GMS grid code and related documentation, as requested by RPTCC for adoption.
- The ADB TA8830-REG will continue assisting WGRI and WGPG in delivering required outputs. This activity will be closely coordinated with the WB TA.
- The ADB team is responsible for communicating all matters pertaining to both TAs with working groups and members of the RPTCC. ADB and World Bank teams work closely with each other in producing TAs outputs, including reviewing each other's results and reports, and working with consultants to ensure timely delivery of outputs.

18. Members of working groups and RPTCC are requested to actively participate in the implementation of TAs, provide timely comments and suggestions on reports prepared by consultants; provide data information to support the consultant works, and propose any necessary adjustment to the scope of works to suit the intended outcome.

19. It was agreed to update the TOR for the WB TA in line with the above agreement (para 17). The updated TOR will be circulated to all members of the RPTCC for comments. [ACTION 4: ADB and the WB to update TOR for the WB TA; GMS countries to review, comment, and confirm the revised TOR].

## **VI. Update of Regional Investment Framework Implementation**

20. ADB presented on the outcomes of the 21<sup>st</sup> GMS Ministerial Conference and the newly endorsed Regional Investment Framework Implementation Plan 2020 (RIF IP 2020). The report of the Senior Officials Meeting (SOM) to the GMS Ministers took note of recent achievements in the energy sector, namely: adoption of work plans for WGRI and WGPG, and plans for new regional interconnections among Lao–Thailand–Malaysia–Singapore and PRC, Lao and Myanmar. These achievements were also reflected in the 21<sup>st</sup> GMS Ministerial Conference Joint Statement.

21. One key outcome of the GMS Ministerial Conference was the endorsement of the Study on Strengthening the GMS Institutional Framework which recommended creating a regular reporting mechanism from the Working Groups to the GMS SOM to update the SOM on new developments and progress in each sector. Another key endorsement of the GMS Ministerial Conference was the Midterm Review and RIF IP 2020, which expands the regional pipeline of projects from 93 to 107 projects with an estimated financing need of \$32.7 billion. Although \$26 billion has been identified for project financing, a significant financing gap of \$6.7 billion remains, and the GMS Ministers called for identifying new financing modalities in order to bridge the financing gap.

22. ADB presented a proposed set of energy related data indicators to the RPTCC. These indicators are planned for inclusion in the handbook on GMS Statistics on Growth, Infrastructure, and Trade. RPTCC members were asked to send feedback on the proposed indicators to the ADB GMS Secretariat. (See more details in **Attachment 7**).

## **VII. Suggestions for Improving the Effectiveness of RPTCC and Working Groups**

23. RPTCC-21 discussed ways to improve the performance of RPTCC and the two working groups. The open discussion provided the following suggestions:

- One way to increase interactions among the members of working groups is to hold more regular meetings, particularly using videoconference.
- The representatives consult with relevant decision makers (e.g., respective government authorities) prior to coming to RPTCC meeting so that delegations come prepared and make more contribution to the RPTCC deliberations.
- All countries are requested to keep strong commitment and actively participate in all activities under the RPTCC. Continuity of country representation is important.
- ADB secretariat should (i) provide a common template of country presentation to cover key issues and to avoid asking duplicate information, (ii) provide information about the meeting and its preparation to countries well in advance, and (iii) renovate the format of the meetings.
- Increase the linkage and interaction between two working groups.

24. GMS countries recognize the achievement so far under the RPTCC. Many requirements under MOU2 have been and are being addressed. Countries continue to support RPTCC and advise to find ways for works done under RPTCC to be acknowledged by wider GMS forum.

## **VIII. Conclusions and Follow-Up Actions**

25. RPTCC-21 endorsed the following follow-up actions: (also listed under the respective working groups):

- GMS countries to review and provide written comments on the second report; Mr. Hedgecock to incorporate all comments and revise report; ADB to circulate final version.
- ADB to discuss with GMS countries on possible application of the methodology in a real project.
- ADB will commence a new regional technical assistance to assist GMS countries to study these potential interconnections.
- ADB team works with the World Bank team to produce a concise TOR for this task; GMS countries to review, comment, and confirm the revised TOR.
- Update the directories of focal persons for RPTCC, WGPG, and WGRI. The update to be done through email communication between ADB secretariat and GMS countries.

26. RPTCC-21 reconfirmed that chairmanship of RPTCC rotated by alphabetical order (Cambodia, China, Laos, Myanmar, Thailand, and Viet Nam). Each country chairs two meetings of RPTCC (one year). Similarly hosting of RPTCC meetings is also rotated by the same alphabetical order.

27. China has graciously agreed to host the next RPTCC, WGs meetings. Date and venue will be confirmed later in cooperation with China delegation.

### **List of Attachments (Available Upon Request)**

Attachment 1: Meeting Agenda + Information note

Attachment 2: List of participants + Opening remarks

Attachment 3: RETA8830 second report (WGRI) + power point presentation by JH

Attachment 4: WGPG summary of discussion

Attachment 5: Inception Report under the WB TA for Power Market Development in GMS (P151457)

Attachment 6: Country presentations (all six countries)

Attachment 7: SERC presentation