



GMS Regional Power Trade Coordination Committee

Working Group for Planning and Operation Summary Discussions

27 November 2019

Ha Noi, Viet Nam

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Outline

- Progress
- GMS Grid Code Compliance Assessment
- Grid Code Enforcement
- Regional Master Plan
- Pre-feasibility studies of Lao-Myanmar project
- WGPO Tasks – 6 Tasks
- WGPO Work Plan for 2020 – 2021
- Resource Requirements

Progress

- (i) GMS Grid Code
- (ii) GMS Master Plan
- (iii) Expansion of the Working Group

1. Compliance Assessment of the GMS Grid Code

Progress

- Institutional-legal, Regulatory, Technical Aspects
- Pre-requisites for moving from Stage 1 to Stage 2

Roadmap

- Minimum requirements for integration
- Gaps that can be addressed during operations

2. Enforcement of GMS Grid Code

- Need for an Inter-Governmental MOU
- Need to Establish a Grid Code Management Body (in RPCCC!)
 - ✓ GMS Grid Code Secretariat, and
 - ✓ Grid Code Review Panel

3. WGPO Work Plan for next 2 years

Six Tasks (Tasks 5 – 10)



WGPO Work Plan –Tasks related to Operation

Tasks related to Operation	Schedule
▪ Task 5 - Establish an implementation roadmap of the regional GMS Grid Codes	June 2020
▪ Task 6 – Establish an organization for the operationalization of the GMS synchronous areas	June 2021
▪ Task 7 – Establish the design of the regional electrical ITC system (Electronic Highway)	June 2021
▪ Task 8 – Establish an ad-hoc Metering Organization and Architecture	Dec 2021

Tasks related to Strategic Planning	Schedule
<ul style="list-style-type: none"> ▪ Task 9 – Establish GMS regional Master Plan management 	2020 - continue
<ul style="list-style-type: none"> ▪ Task 10 – Assess new Interconnection Projects and manage the portfolio 	2020 - continue

Resource Planning – Task 5

TASK / Activities	GMS Region / GMS Countries	Number of Experts	Person/D ays	TA-CB
T5 - Implementation roadmap of the regional GMS Grid Code				
T5.1 - Enforcement of the GMS Grid Code	GMS Region	1	20	TA
T5.2 - Detailed assessment of national technical framework for compliance to the Performance Standards and harmonization of the operational practices	GMS Countries	3	30 (6 x 30)	TA-CB
T5.3 - Operational Processes, Procedures and Rules for compliance with the GMS Grid Code for national purposes	GMS Countries	3	45 (6 x 45)	TA-CB
T5.4 - Mechanism for compliance monitoring of the GMS Countries	GMS Region	1	50/Year for 2-3 years	TA

TASK / Activities	GMS Region / GMS Countries	Number of Experts	Person/D ays	TA-CB
T6 - Establish an organization for the operationalization of the GMS synchronous areas				
T6.1 - LFC Organization and Structure	GMS Region	1	45	TA-CB
T6.2 - Synchronous Area Operational Agreement	GMS Region	1	45	TA-CB
T6.3 - Multi-Parties Operational Agreements	GMS Region	1	60	TA-CB
T6.4 - Establishment of common methodologies	GMS Region	1	60	TA-CB
T6.5 - Establishment of Coordination Procedures	GMS Region	1	60	TA-CB



Resource Planning – Tasks 7 and 8

TASK / Activities	GMS Region / GMS Countries	Number of Experts	Person/D ays	TA-CB
T7 - Establish the design of the Regional ITC System				
T7.1 - Preliminary Design of the Regional ITC System	GMS Region	2	40	TA-CB

TASK / Activities	GMS Region / GMS Countries	Number of Experts	Person/D ays	TA-CB
T8 - Establish an ad-hoc Metering Organization and Architecture				
T8.1 - Preliminary Design of the Metering Organization and Architecture	GMS Region	2	40	TA-CB

Assistance Required for WGPO Work Plan

40 - 50 person-months

Estimated \$1 million for future work

WGPO Group Composition

(i) Transmission System Planning and Operation Expert:

One permanent and **alternate optional**

(ii) Grid Code Specialist

(iii) Power Generation Planning and Operation Expert

(iv) Expert Having Regulatory Experience

- Please confirm country designations by - **15 December 2019**
- Cannot replace the designated experts unless there are reasons
- Suggestion, ADB Invitations for the WGPO meetings will include the names of the designated experts

4. GMS Power Master Plan

Progress

- Study Commenced in 2017
- Interim Results – November 2019
 - ✓ Cost Benefits; and
 - ✓ The regional generation plan and transmission plan for the period from 2022 to 2035



Regional Power Master Plan

- Regional generation planning scenarios have been studied and optimized generation plan **2022 - 2035**.
- Regional power transmission plan **2022 to 2030**.

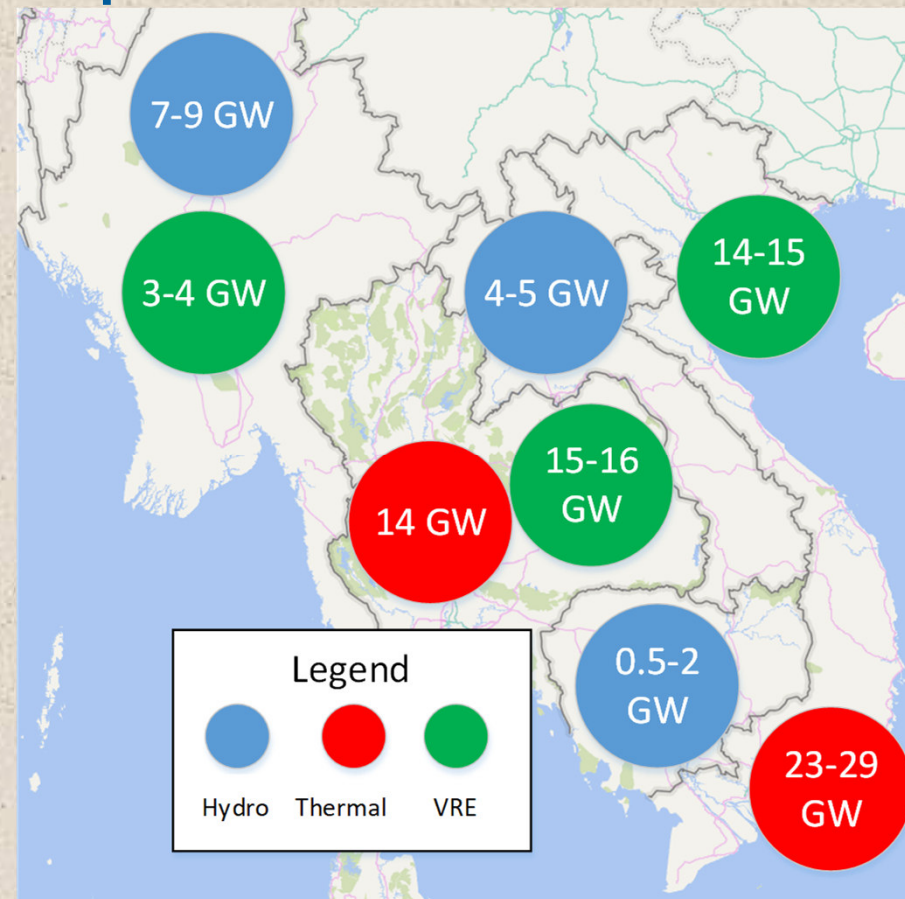
Cost benefit summary for selected scenarios

Cost Savings (B\$): Medium Demand Growth Scenarios		
Economic factor	Base	High cross-border power trade
Base	18	27
VRE cost reduced	20	29
High fossil fuel price	-10	0
Low gas price	31	-



New generation development

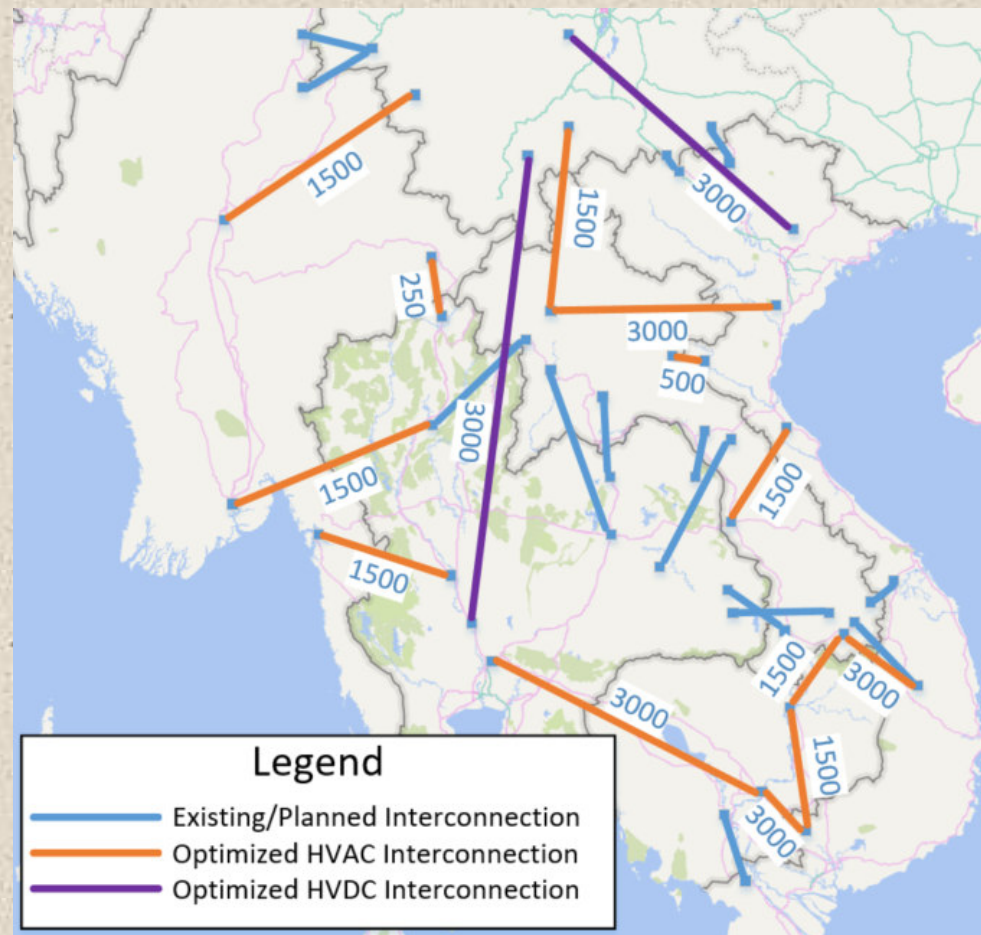
- Base Scenario
- Large hydro in Myanmar and Lao PDR
- Large thermal and VRE in Thailand, Viet Nam





New transmission interconnections

- Base Scenario
- More than ten (10) interconnections were identified for the study period



GMS Power Master Plan ...

Next Steps

- Data validation
- Draft Report in March 2020
- Final Draft in June 2020

5. Feasibility Study of Lao PDR – Myanmar Interconnection

A. Feasibility Studies of

- i. Tachileik- Kengtung in Myanmar line; and
- ii. Tachileik -Kenglatt (Lao border) line to be commissioned in 2023

B. Study high voltage transmission systems in Myanmar and Lao PDR to interconnect the two power systems

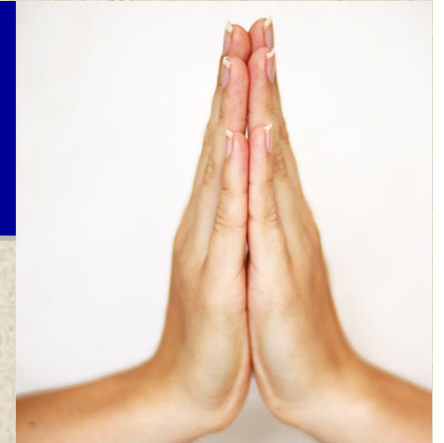
C. Assess the TECHNICAL GAPS and recommend remedial measures to synchronize Myanmar Grid with Lao PDR and Thailand Grids.

Good Progress with the Tasks Forces

Next Steps – Complete the studies by June 2020

Proposals by the Countries

Consultants



- Mr Michel Caubet, former EDF
 - Grid Code (2012 – 2019)
- Mr Dharshana Muthumani, Mr Bathiya Jayasekara and the team, Manitoba Hydro International
 - GMS Master Plan (2017 – 2020)
- Mr Philippe Leinart, EDF
 - Feasibility Study (2019 – 2020)

