



Regional: Harmonizing the Greater Mekong Subregion Power Systems to Facilitate Regional Power Trade

Project Name	Harmonizing the Greater Mekong Subregion Power Systems to Facilitate Regional Power Trade	
Project Number	47129-001	
Country	Regional	
Project Status	Active	
Project Type / Modality of Assistance	Technical Assistance	
Source of Funding / Amount	TA 8830-REG: Harmonizing the Greater Mekong Subregion Power Systems to Facilitate Regional Power Trade	
	People's Republic of China Regional Cooperation and Poverty Reduction Fund	US\$ 500,000.00
	Technical Assistance Special Fund	US\$ 1.00 million
Strategic Agendas	Inclusive economic growth Regional integration	
Drivers of Change	Governance and capacity development Knowledge solutions Partnerships Private sector development	
Sector / Subsector	Energy - Energy sector development and institutional reform	
Gender Equity and Mainstreaming	No gender elements	
Description	<p>This regional technical assistance (RETA) is designed to support the continuous work of the Regional Power Trade Coordination Committee, the Working Group on Performance Standard and Grid Code, the Working Group on Regulatory Issues, and eventually the Regional Power Coordination Center in laying the essential building blocks to facilitate GMS regional power trade. Through these institutions, much more will be done by the GMS members themselves in developing a full-fledged GMS power market where all countries can realize and share the full benefits of synchronous operations. Interventions include harmonizing performance standards and grid codes dictating the technical rules for the coordinated planning and operation of the regional electricity market; and harmonizing regulatory framework, pricing, legal framework for third party access to the grid and wheeling obligations_all towards a unified, fair and transparent regional electricity market.</p> <p>To realize and share the full benefits of synchronous operations, the establishment of the RPCC will tangibly demonstrate members' ownership and leadership of the regional power trade and market development process.</p> <p>This RETA is intended to continue to build on the achievements of RETA 6440: Facilitating Regional Power Trading and Environmentally Sustainable Development of Electricity Infrastructure in the GMS. Specifically, this RETA supports the necessary institutional works for the establishment of the RPCC, and the work plan and activities of WGPG and WGRI towards the development of a GMS power market. Ultimately, the RETA is designed to maintain the momentum of regional power trade.</p>	

Project Rationale and Linkage to Country/Regional Strategy

Subregional Greater Mekong Subregion (GMS) power trade based on interconnected electric power networks will provide long-term economic and environmental benefits for individual countries and the entire GMS subregion. Such trade will enable members to (i) reduce national investments in the power reserves maintained to meet peak demand; (ii) provide a more reliable supply of electricity, including power supply from an interconnected network in case of power failure; (iii) reduce operational costs; (iv) reduce greenhouse gas emissions and other pollutants; and (v) increase consumers' access to the cheapest and most environmentally sustainable source of electricity in the subregion.

Confirming that subregional power trade will develop in phases, the Regional Power Trade Coordination Committee (RPTCC) systematically anchored on four development stages: (i) Stage 1: bilateral cross-border connections through power purchase agreements (PPAs); (ii) Stage 2: grid-to-grid power trading between any pair of GMS countries, eventually using transmission facilities of a third regional country; (iii) Stage 3: development of transmission links dedicated to cross-border trading; and, (iv) Stage 4: most GMS countries with multiple seller-buyer regulatory frameworks, towards the implementation of a wholly competitive regional market.

To-date, the GMS power market has built on cross-border interconnections associated with power exports and bilateral power purchase agreements (PPAs), as described in Stage 1. This was achieved through a two-pronged approach to develop the GMS power market focusing on policy and institutional framework for promoting power trade, and physical interconnections to facilitate cross-border power. Before 1992, the only significant cross-border power transmission in the subregion existed to export hydropower from Lao PDR to Thailand. Some low voltage lines also connected certain areas in Lao PDR to Thailand and separately to Cambodia, distributing power to remote border regions. By 2010, total electricity trade in the GMS was approximately 34,139 gigawatt-hours (GWh). Thailand is the largest importer at 6,938 GWh, comprising hydropower purchases from Lao PDR. Lao PDR, Myanmar and PRC are the region's net exporters, with Lao PDR exporting the largest electricity volume and offering the most competitive supply price. Competitively priced electricity from Lao PDR and PRC has helped Thailand and Viet Nam meet their large and rapidly growing demand. Likewise, Cambodia can access more affordable electric power (versus its own power production cost) from its GMS neighbors. Moreover, remote border regions of Cambodia, Lao PDR and Viet Nam have benefitted from accessing cross-border power supply based in neighboring countries. Overall, electricity access has roughly doubled from about 37% on average in 1994 to around 69% in 2009, mostly benefiting remote rural populations.

To progress further on regional power trade and to help accelerate graduation into the Stage 2, much more should be done by the GMS members themselves to realize and share the full benefits of synchronous operations. In this regard, the establishment of the Regional Power Coordination Center (RPCC) will tangibly demonstrate members' ownership and leadership of the regional power trade and market development process. The institution will have a legal identity and be fully dedicated to managing cross-border power infrastructure and trade in the GMS. Following the signing of the Intergovernmental Memorandum of Understanding for the establishment of the RPCC in December 2013 by all six members, the bids to host the RPCC headquarters will be opened and a venue selected. Subsequently, the RPCC's Articles of Association should be finalized for approval at the first RPCC board meeting.

Regional power trade necessitates regionally integrated power systems. They need a high degree of technical compatibility, careful system planning and operational coordination to minimize the threat of voltage collapse, dynamic and transient instability, or supply disruption. Otherwise, multiple systems across several countries may be downed by cascading outages arising from technical (or other) faults started in just one member country. Overall, various organizational frameworks, technical capabilities, and even cultural distinctions can all contribute significantly to supply interruption.

The Working Group on Performance Standard and Grid Code (WGPG) and Working Group on Regulatory Issues (WGRI) are needed to help bridge the gaps between GMS country technical standards and regulatory framework to enable the regional power trade. These include harmonizing (i) performance standards and grid codes that set down the technical rules for the coordinated planning and operation of the regional electricity market; and, (ii) regulatory frameworks, pricing, legal frameworks for third party access to the grid and wheeling obligations. These prerequisites are fundamental in constructing a unified, fair and transparent regional electricity market.

Impact	Improved energy security through enhanced cross-border regional power trade
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Project Outcome

Description of Outcome	GMS performance standards, grid codes, and regulatory framework developed and harmonized at a regional level
Progress Toward Outcome	In the recent RPTCC-21 meeting, the GMS members continue to foster power trade and interconnections.

Implementation Progress

Description of Project Outputs	RPCC established and operations commenced through continued support to RPTCC GMS performance standards and grid codes considered for implementation by WGPG Guidelines for GMS regulatory framework proposed by WGRI
Status of Implementation Progress (Outputs, Activities, and Issues)	During RPTCC-20 meeting, discussion on establishing the RPCC was put on hold as no agreement has been reached on the selection criteria. However, GMS members agreed to continue discussion on how to foster power trade and interconnections. Tasks and deliverables for the two working groups are being complied with.

Geographical Location	
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Summary of Environmental and Social Aspects

Environmental Aspects

Involuntary Resettlement

Indigenous Peoples

Stakeholder Communication, Participation, and Consultation

During Project Design

During Project Implementation

Business Opportunities

Consulting Services The TA will require 27 person-months of international consulting inputs. ADB will administer the TA and recruit the consultants, manage the contract administration, and be responsible for ensuring that the consultants deliver the TA reports and contribute meaningfully to RPTCC and working group meetings. GMS members will actively participate in successfully delivering the studies by contributing significantly to data gathering and analyses. The consultants will be hired on an individual basis in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).

Responsible Staff

Responsible ADB Officer	Bui, Duy-Thanh
Responsible ADB Department	Southeast Asia Department
Responsible ADB Division	Energy Division, SERD
Executing Agencies	<i>Asian Development Bank 6 ADB Avenue, Mandaluyong City 1550, Philippines</i>

Timetable

Concept Clearance	30 Apr 2014
Fact Finding	18 Jun 2013 to 19 Jun 2013
MRM	-
Approval	16 Dec 2014
Last Review Mission	-
Last PDS Update	27 Mar 2017

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Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
16 Dec 2014	-	16 Dec 2014	31 Dec 2017	-	-

Financing Plan/TA Utilization						Cumulative Disbursements		
ADB	Cofinancing	Counterpart				Total	Date	Amount
		Gov	Beneficiaries	Project Sponsor	Others			
1,000,000.00	500,000.00	0.00	0.00	0.00	0.00	1,500,000.00	16 Dec 2014	392,595.23

Project Page	https://www.adb.org/projects/47129-001/main
Request for Information	http://www.adb.org/forms/request-information-form?subject=47129-001
Date Generated	06 July 2017

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