

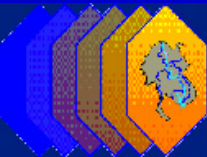
Regional Power Trading Mekong Experience

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0 50 100 200 300

-  National Capital
-  City/Town
-  Road
-  River
-  Provincial Boundary

B

Basic Data of GMS Power

Country	Ins. Capacity MW	Generation TWh	Hydro Potential GW
Cambodia (2004)	230	1	
PRC (2002) (Southern Grid)	57,300	269	
Lao PDR (2003)	650	3.5	15,000
Myanmar (2000)	1,200	4.5	37,000
Thailand (2003)	25,700	117	
Vietnam (2003)	9600	40	

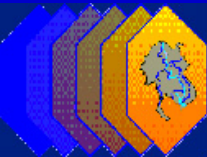
Cross Border Trading

1. Current Status

- 230 KV & 115 KV lines for Thailand to buy from Laos (400 MW)
- Trading at border areas between PRC – Vietnam & Thailand – Laos using 110 KV & 35 KV lines respectively.

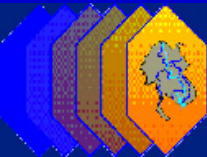
2. Proposed Developments

- 500 KV line from Laos to Thailand to sell power from NT2 (1,000 MW HPP).
- 220 KV line from Vietnam to Cambodia to trade 200 MW
- 500 KV line from Vietnam to Laos to Connect to NT 2 HPP
- 115 KV line from Thailand to Cambodia
- Thailand – Laos – PRC 500 KV DC Link to transmit 3,000 MW
- Thailand to purchase 3,000 MW from Laos
- Power trading between Myanmar and Thailand (2,000 MW)
- Power Trading between Vietnam and Laos (2,000MW)



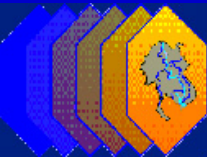
Progress in GMS Energy Trading

- **GMS Master Plan for Power Interconnection prepared under ADB TA**
- **IGA on Regional Power Trade was signed and ratified by GMS countries.**
- **RPTCC was formed in 2004.**
- **Draft RPTOA is prepared under ADB TA**
- **MOU to initiate Power trading will be signed in GMS Summit in 2005**



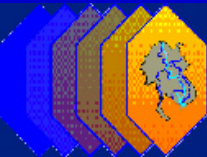
Key Regulating Issues : GMS Trading

- Progress in sector reforms in GMS countries
- Unbundling of transmission tariffs & open access to TX network.
- Terms of IPP PPAs
- TX lines crossing third countries



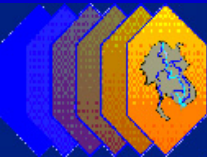
GMS RPTOA : Stage 1 (2005 – 2010)

- Weak cross-border capacity linked to IPPS.
- Only single buyers will trade.
- Significant economic benefit from opportunistic trading.
- Bilateral trading along common framework.
- Guaranteed revenues for investors in new cross-border transmission capacity .
- Existing cross-border lines to be rewarded based on usage for cross-border transactions.
- Development of operating & planning guidelines for synchronized operation of regional network.
- Establishment of regional institutions such as regional regulator.
- Standardized PPA for cross border IPPs



GMS RPTOA : Stage 2 (2011 – 2015)

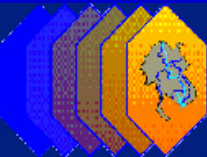
- Sufficient cross-border capacity for opportunistic trading, but not enough to establish market clearance price.
- Regional Transaction Coordinator (RTC) to determine the available cross-border capacity for opportunity trading.
- RTC to receive daily bid – offers and schedule the cross-border trading among single buyers.
- Dispatching will be done by the National System Operators.
- Voltage & Frequency to be maintained within stipulated limits at the key nodes in the regional network.
- Transmission Tariff to be based on postage stamp method . (i.e. annuity type payment)



Regional Institutions

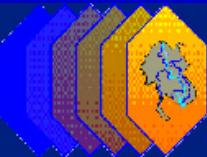
Stage I

- Technical Secretariat for coordinating cross-border trading
- System Planning Working group for developing the regional network
- Operating planning working group for determining available cross border capacity.



Key Issues : Stage 2

- Regulated Transmission Tariffs
 - Dedicated cross-border lines to be paid annuity payment to provide adequate return.
 - Lines shared with IPPs to be paid a % of return based on use of line for cross-border trading.
- Close coordination on system operation to ensure system security
- Regional regulator to monitor the regional trading.
- Long-term planning of cross-border transmission capacity.
- Different Security Standards (N-1 vs N- 0)



GMS RPTOA : Stage 3 (Beyond 2015)

- Presence of reliable regional network and regional system & market operator.
- Regional spot market initially limited to single buyers, large consumers / DISCOs .
- Regional regulator with enforcement powers.
- Congestion management using transmission tariffs and zonal / location pricing.
- Centralized settlement and billing.
- Trading in ancillary services

