

Laos–Thailand–Malaysia–Singapore (LTMS) Interconnection and its Prospect to be connected to the rest GMS countries

Dr. Titiporn Sangpetch

Chief, Power System Connection and Cooperation Planning Department
Electricity Generating Authorities of Thailand (EGAT)

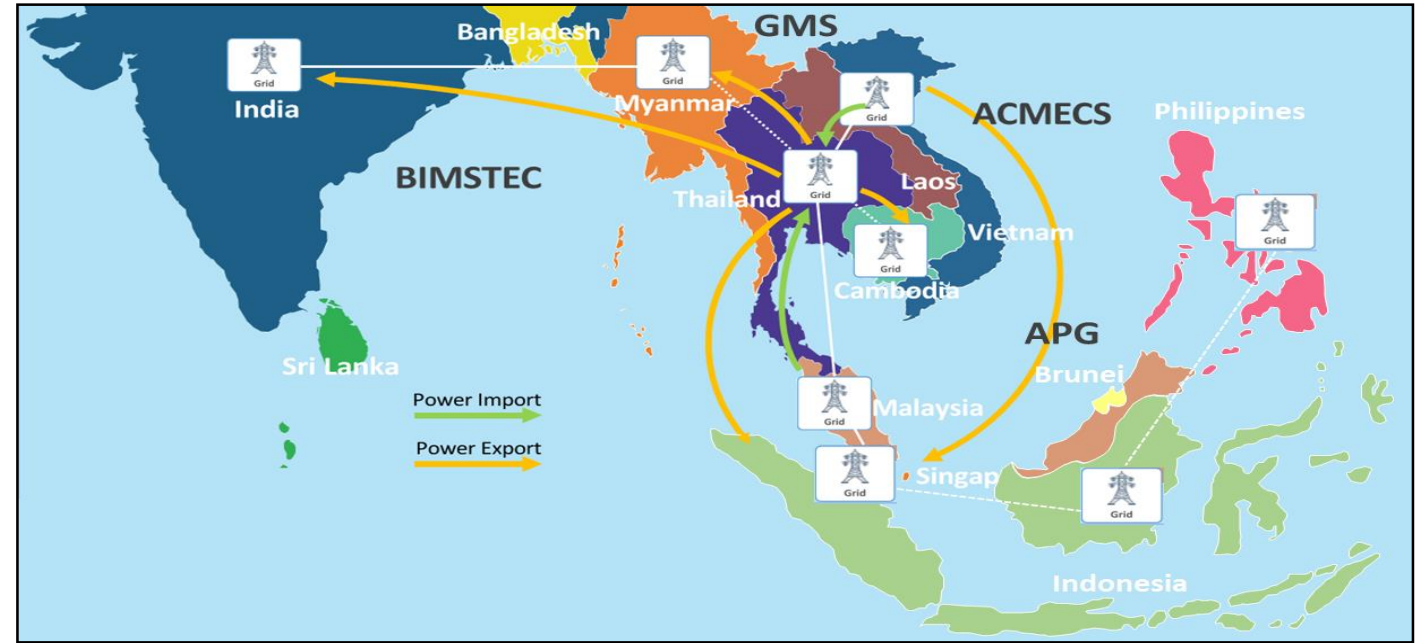
GMS ETTF Committee Meeting

June 5, 2024

Thailand Cross-border Power Trade Development

Benefits

- Energy Security
- Energy Access
- Energy Resource Sharing
- Investment Cost Saving
- Integration of RE
- Long-term Decarbonization



Power Trade Development



Bilateral

- 1
 - 1.1 Power Purchase (Unidirectional Power Trade)
 - 5,935 MW [Already COD]
 - 1.2 Energy Exchange (Bidirectional Power Trade)
 - EGAT-TNB (HVDC) : 300 MW
 - EGAT-TNB (HVAC) : 80 MW
 - EGAT-EDL

Multilateral

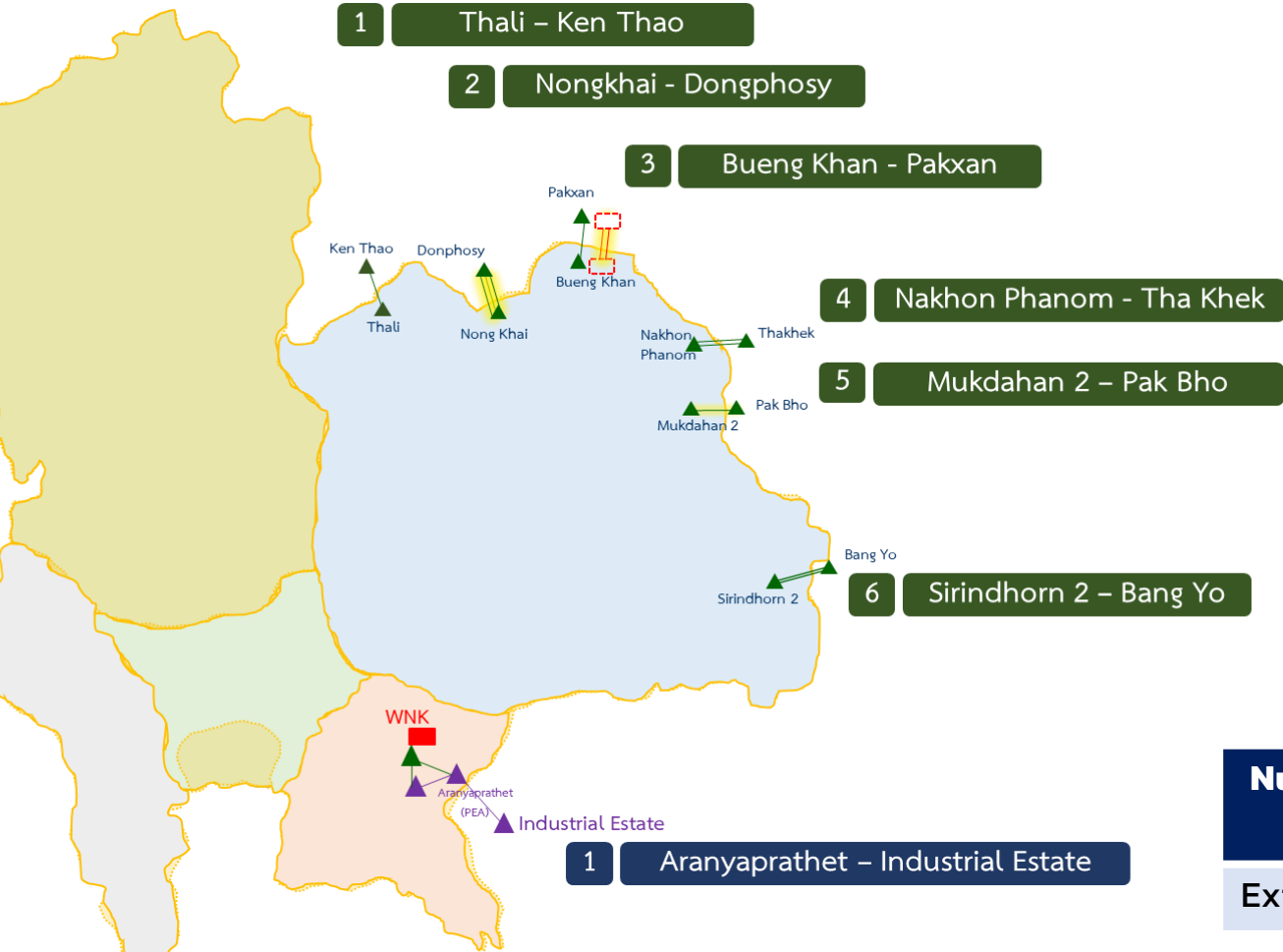
- 2
 - 2.1 LTM-PIP
(Energy Purchase and Wheeling Agreement : EPWA)
 - Phase 1 : 100 MW (2018 – 2019)
 - Phase 2 : 300 MW (2020 – 2021)
 - 2.2 LTMS-PIP : 100 MW (2022 – 2024)
(Energy Wheeling Agreement : EWA)

Total Energy Trading is 266 million kWh
(from 23 June 2022 – April 2024)

Regional

- 3
 - 3.1 Sub-Regional & Regional Trading
 - ACMECS (Ayeyawady – Chao Phraya – Mekong Economic Cooperation Strategy)
 - **GMS (Greater Mekong Subregion)**
 - APG (ASEAN Power Grid)
 - 3.2 Cross-Regional Trading
 - BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)

Existing Grid-to-Grid Interconnection Lines



Num	Interconnection lines	Max.Capacity (N-1,MW)
-----	-----------------------	-----------------------

Existing Interconnection Thailand – Lao PDR

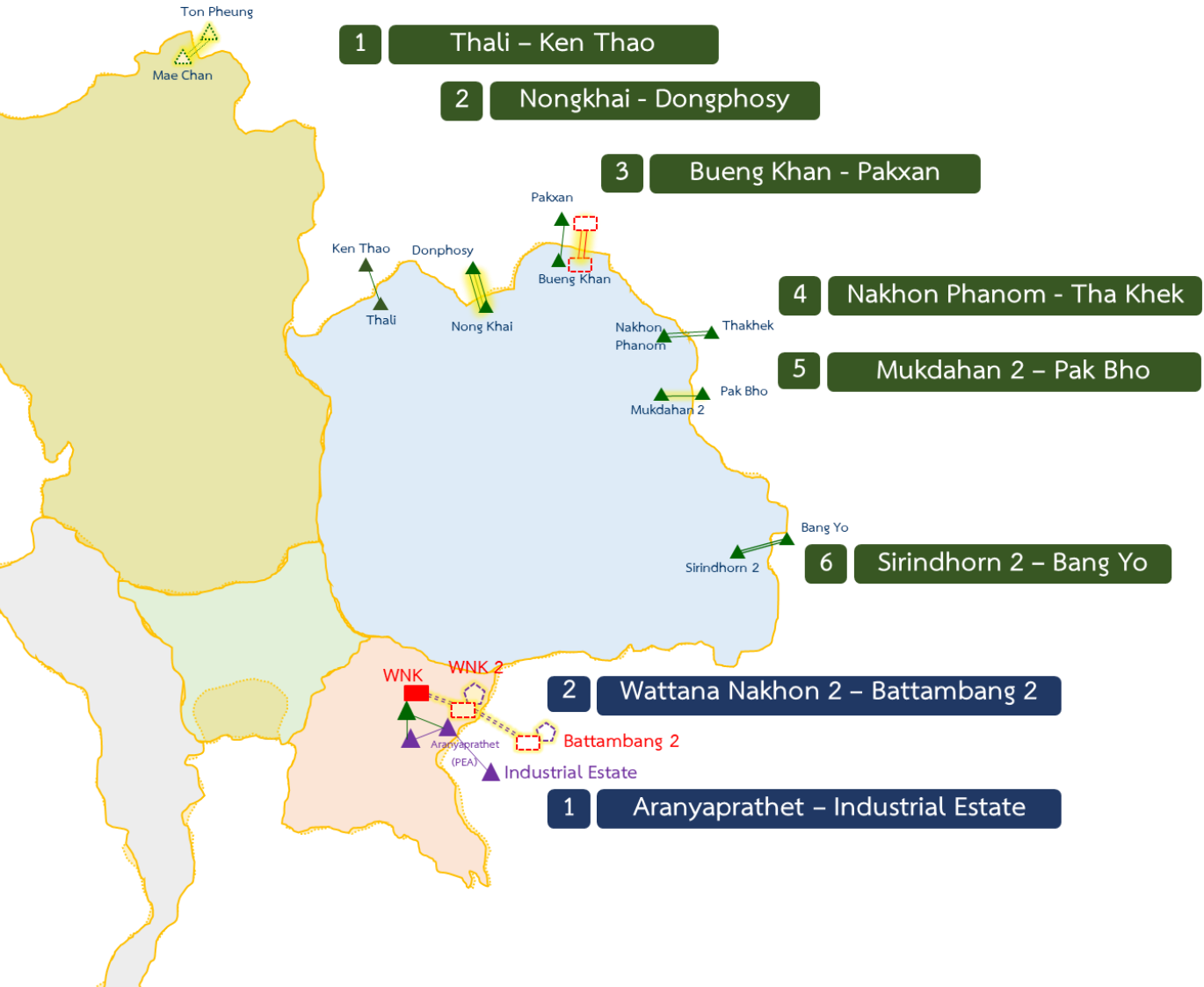
1	115 kV Tha Li – Kenthao	100
2	115 kV Nong Khai – Dongphosy 115 kV Nong Khai – Dongphosy (Tha Na Leang)	200
3	115 kV Bung Khan – Pakxan	100
4	115 kV Nakhon Phanom – Thakhek	200
5	115 kV Mukdahan 2 – Pak Bo	100
6	115 kV Sirindhorn 2 – Bang Yo	300

Num	Interconnection lines	Max.Capacity (N-1,MW)
-----	-----------------------	-----------------------

Existing Interconnection Thailand – Cambodia

1	115 kV Aranyaprathet (PEA) – Industrial Estate	100
---	--	-----

Potential for Expanding Interconnection with Neighboring Countries




Lao PDR


EGAT collaborated with EDL on the expansion of the interconnection system under the coordinative work of the bipartite Power System Study Working Group to conduct the feasible potential for expanding the system interconnection between two parties. The seven potential interconnection points are as follows;

1. Tha Li – Ken Thao	4. Nakhon Phanom – Thakhek
2. Nong Khai – Dongphosy (Upgrade) (Nong Khai – Tha Na Laeng)	5. Mukdahan 2 – Pak Bo (Upgrade)
3. Bueng Kan – Pakxan (Upgrade)	6. Sirindhorn 2 – Bang Yo
	7. Mae Chan – Ton Phueng (NEW)


Cambodia


EGAT and PEA conjointly conducted the study on the Closed loop system improvement project. This aims to enhance the power transfer capability at the existing selling point (Wattana Nakhon (EGAT) – Aranyaprathet – Industrial Estate (EDC)) for up to 250 MW.

In addition, EGAT also conducted a feasibility study and negotiated with EDC to construct the new 500 kV transmission system between two parties (Initially energized 230 kV) which could accommodate the increasing power transfer up to 650 MW or more in the future.

JUMPP cross-border interconnection pilot project



In the 4th United States-Thailand Energy Policy Dialogue and Deepen Clean Energy Cooperation Meeting during April 4-5, 2024

During this meeting, representatives from Thailand presented progress on the collaboration between the two countries through the Japan-U.S.-Mekong Power Partnership (JUMPP).

This initiative supports the Mekong region’s pursuit of energy security while encouraging greater regional power trade, integration, decarbonization, and resilience. EGAT, in collaboration with JUMPP, discussed opportunities to accelerate multilateral power trade in the Mekong region (2021-present).

Thailand recognizes the potential to expand cross-border power trade via new trading platforms, LTC-PIP. With infrastructure readiness, Thailand together with two (2) Lower Mekong member countries (Lao PDR and Cambodia), aims to position LTC-PIP as pilot projects advancing MPT in the GMS region.

JUMPP cross-border interconnection pilot project

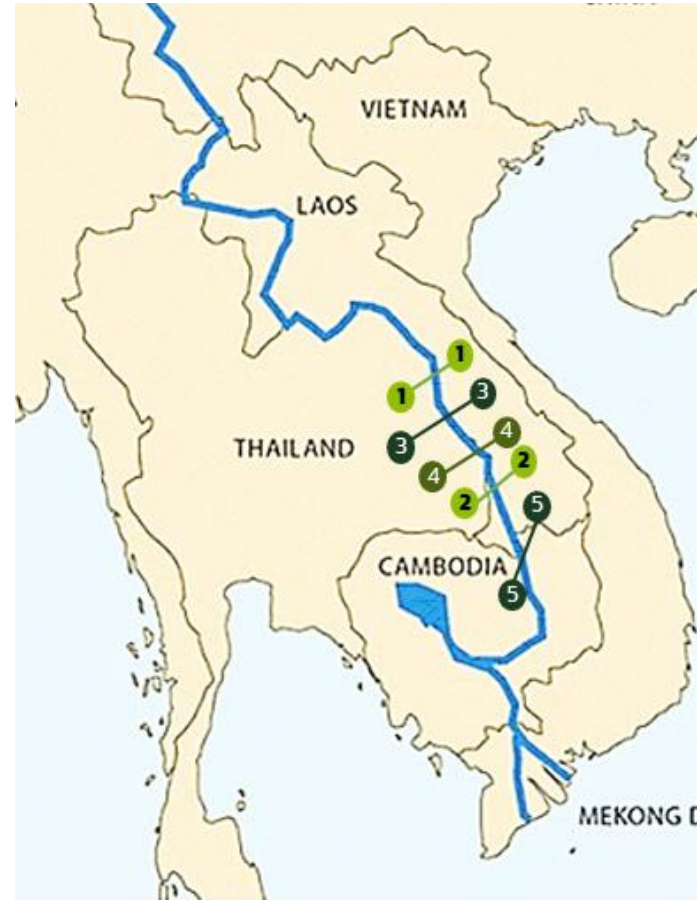


Topics :

- Discussion of final pilot candidates
- Key foundation market model structures
- Allocating capacity
- **Identify gaps and challenges to the pilot interconnector selection**

Relevant issues :

- ATC assessment/ calculation methodology
- Standardized interconnector for this pilot project
- Grid modelling to implement the cross-border power trade



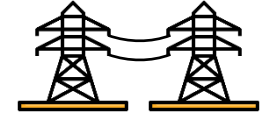
Thailand – Lao PDR Interconnection				
Number	Voltage	Country A	Country B	Connection Points
1	115	Thailand	Lao PDR	Nakhon Phanom – Thakhek
2	115	Thailand	Lao PDR	Sirindhorn 2 – Bang Yo
3	500	Thailand	Lao PDR	Roi Et 2 – Nam Theun 2 HPP
4	230	Thailand	Lao PDR	Ubon Ratchathani 2 – Houay Ho HPP

Lao PDR – Cambodia Interconnection				
Number	Voltage	Country A	Country B	Connection Points
5	500	Lao PDR	Cambodia	Ban Hat – Stung treng

JUMPP cross-border interconnection pilot project



Pilot Interconnector between Thailand – Lao PDR



115 kV Sirindhorn 2 – Bang Yo

1. The structure supports a maximum transmission capacity of 300 MW (N-1 Criteria).
2. This transmission line can transmit electrical power more than 20 years.
3. The transmission line is located in the southern part of Lao PDR, connecting with Cambodia and Vietnam. It is suitable for this pilot on which to increase cross- border power trade.



Next steps :

- Deloitte to deliver the final report to Mekong countries
- Mekong countries to meet in-person for multilateral training and workshop

Thank You!

For more information:



Dr. Titiporn Sangpetch



titiporn.s@egat.co.th



+66 2436 3540

