Accelerating Progress on the ASEAN Power Grid 2.0:

Lessons from the Laos-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP)

2nd GMS Energy Transition Taskforce Committee Meeting

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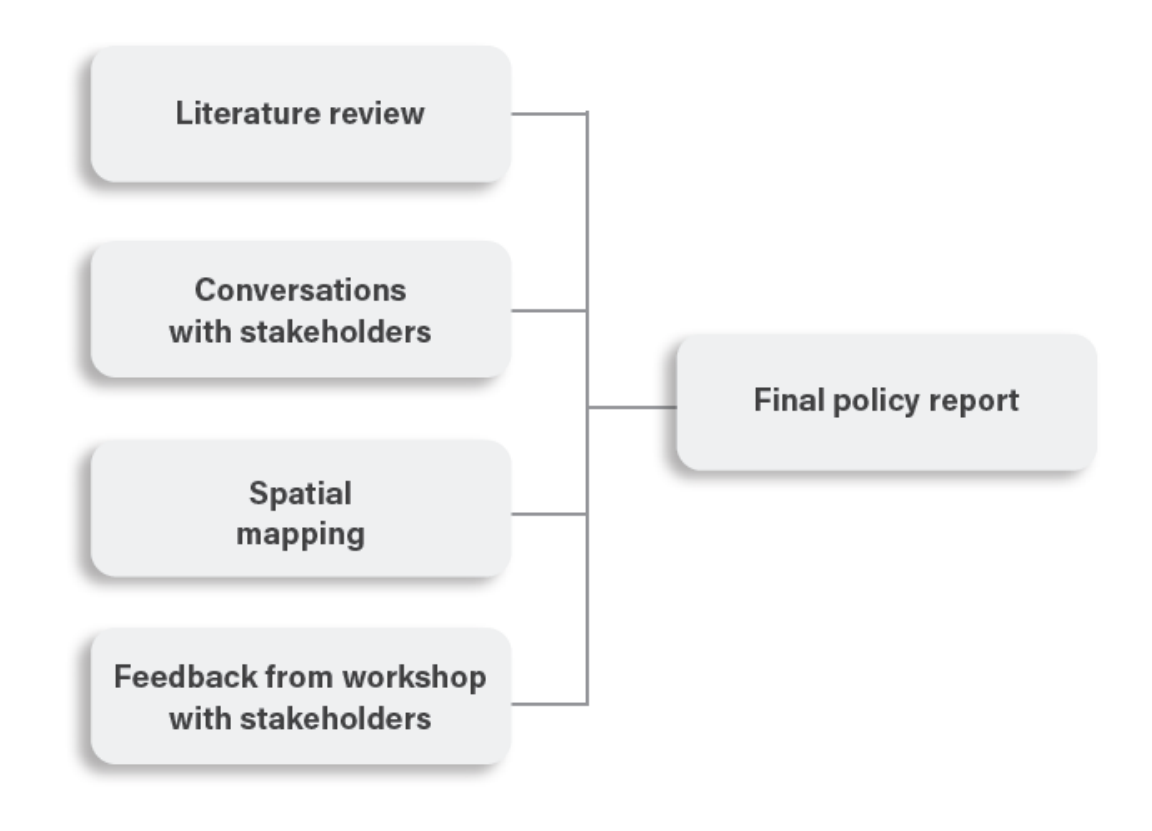
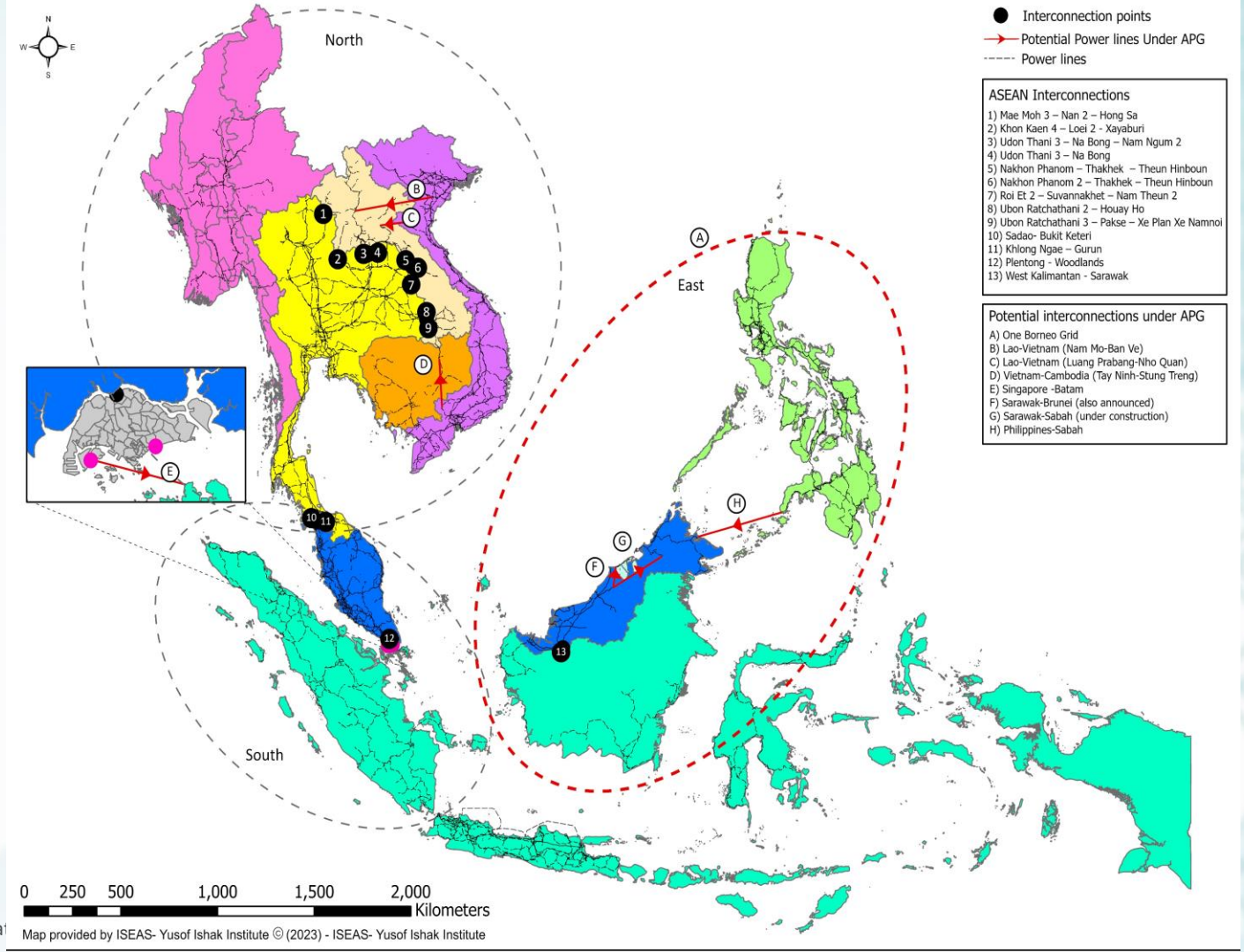
Rationale & Objectives

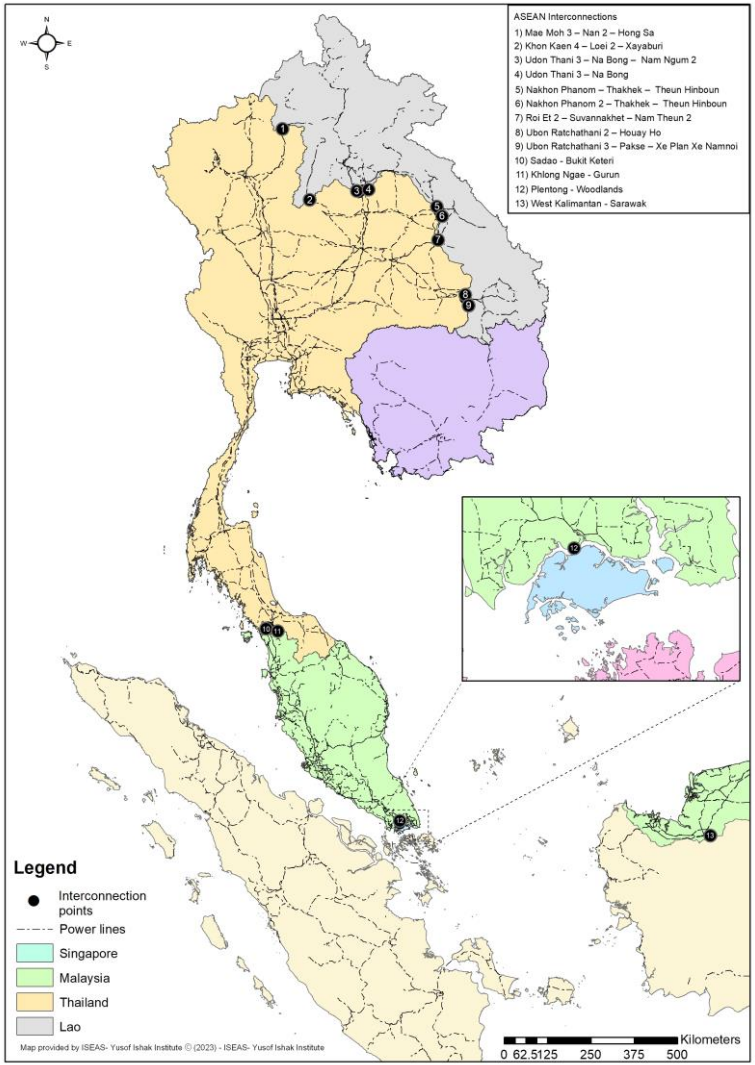
Phase 1: Lessons from the LTMS-PIP: Jan-Dec 2023 Phase 2: Renewable energy trade through the APG: Jan-Dec 2024	
Rationale	1. Importance of interconnections to energy transition 2. Contemporary momentum towards interconnections
Objectives	1. Assess the root causes of the slow progression of the APG 2. Suggest suitable policy responses 3. Facilitate discussion among policymakers

Methodology





- The technical feasibility of the APG has been established by the ASEAN Interconnection Masterplan Study (II) and reconfirmed as per preliminary findings of AIMS-III
- There is also academic and political consensus on the benefits of the APG
- Research has proposed multiple pathways to the realization of the APG
- We know the APG is feasible, provides multiple benefits and there are numerous pathways and best practices to guide us.
- The critical questions for energy research are: Why has the APG not developed to its fullest potential? What are the challenges to the APG? How can they be overcome?
- Our research tries to address the challenges to the realization of the APG through a case study on the LTMS-PIP



EDL

EGAT

TNB

Keppel

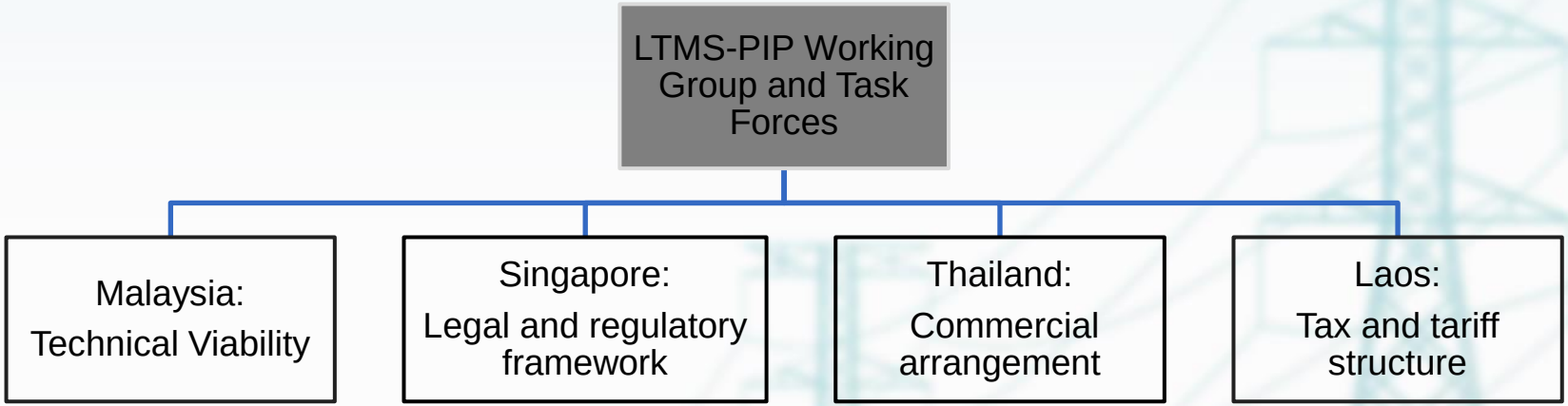
Transmission of electricity to Singapore

Payment to Laos

Supply agreement between EDL and Keppel

Energy Wheeling Agreement between: EDL and EGAT EDL and TNB 2-year term with a capacity of - Min. 30MW, up to 100MW	Wheeling charge is paid by Laos to Thailand through 7 interconnection points	(Laos-Thailand) Dongphosy-Nogkhai Tanalang-Nongkhai Pakxan-Bueng Kani Thakhek-Nakhon Phanom Pakbo-Mukdahan Bangyo-Sirindhorn2	Wheeling charge is paid by Laos to Malaysia through 1 interconnection point between Malaysia and Thailand Gurun-Khlong Ngae

Success Factor 1: Governance Mechanism



- Allocating tasks to different countries gave them a sense of ownership
- Allows member states to join at different times
- Facilitates discussions for overcoming market and technical differences and develop protocols on trade and emergencies
- Can be a model for other regional energy projects

Success Factor 2: Political Commitment

- The APG endorsed as a mechanism for regional integration and prosperity at the ASEAN Summit
- The LTMS-PIP mentioned in every AMEM Joint Statement from the 32nd to 41st over a period of nine years from 2014 to 2023
- The energy ministers of LTMS-PIP countries released four joint statements on the project between 2014–2023 on the sidelines of the AMEM, which further publicised political consensus on the project
- The LTMS-PIP and the broader vision of the APG also received mention in discussions at the highest levels in countries involved in the project and in statements by foreign ministry officials

Challenges

- Current maximum capacity of the grids used for the LTMS-PIP is 300 MW, which will limit the expansion of the project in the future.
- Lack of consensus on effectiveness of wheeling charges
- Impact of climate change and human activity on hydropower development
- Some stakeholders feel that environmental and social impacts of hydropower dams can be minimised, while others view that large dams have irreversible impacts on communities and biodiversity.

Minimum Requirements for Establishing Multilateral Power Trade

POLITICAL

- Political will
- Intergovermental agreement(s)
- Common working language

TECHNICAL

- Harmonised technical standars (grid codes)
- Harmonised wheeling charge methodology
- Third-party access for external resources
- Data and information sharing
- Interconnector capacity calculation methodology

INSTITUTIONAL

- Institutional arrangements
- Settlement and payment mechanism
- Dispute resolution mechanism

Source: IEA (2019), Establishing Multilateral Power Trade in ASEAN

From the LTMS-PIP to APG 2.0: Addressing Challenges to Requirements of Multilateral Power Trade

Challenges

Political requirements	• Resource nationalism • Lack of continuity in energy trade policies
Technical requirements	• Differing perceptions on wheeling charge methodologies • Outdated grid infrastructure • Lack of harmonization of grid codes
Institutional requirements	• Existing institutional limitations e.g. absence of stakeholders from financial institutions and other commercial players in working group • Limited human resources • Resistance to market reforms

Policy Recommendation on Political Requirements

Develop a **targeted communication strategy** highlighting the positive benefits of regional interconnections for local communities, economic development and the environment. A collective **ASEAN net-zero target** in the power generation sector can motivate collective action and help resolve issues of resource nationalism.

Ensure **continuity of regional energy interconnection plans** by facilitating long-term contracts and developing consistent domestic policies. Develop broad-based support for energy interconnections through **inclusive governance mechanisms** that incorporate the views of multiple stakeholders in the routing of energy grids as well as their social and environmental impacts.

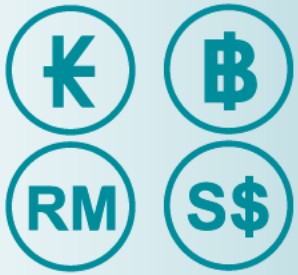
Policy Recommendation on Technical Requirements

Identify and prioritise **ASEAN Projects of Common Interest (APCI)** to ensure that regional efforts are concentrated towards initiatives that are critical to the APG initiative. APCI can be developed through consultations with energy stakeholders and through collaborative research on the benefits and costs of particular interconnections.

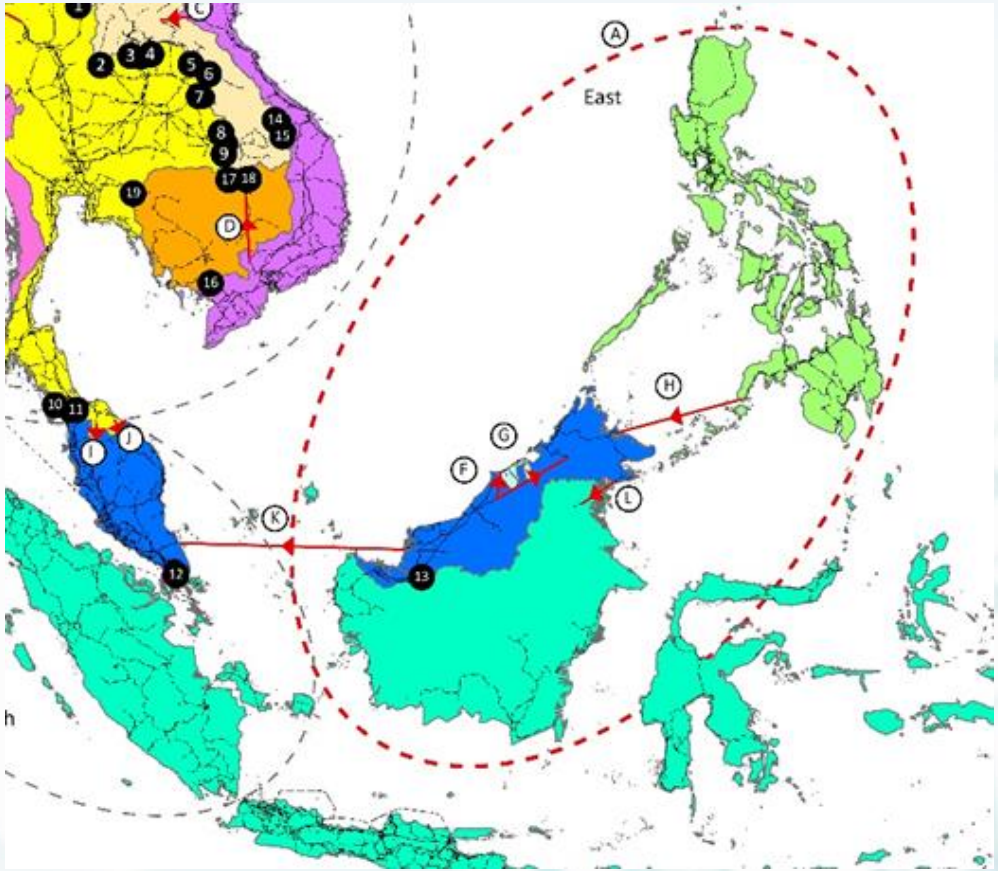
Develop a **common wheeling charge methodology** based on four internationally recognised principles: promoting efficiency; recovering costs; ensuring transparency, fairness and predictability; and promoting non-discriminatory behaviour. Undertake consultations and training on best practices from developed economies, such as the Nord Pool, and emerging economies, such as the Southern African Power Pool.

Policy recommendations on Institutional Requirements

Include financial institutions and other commercial actors in the Working Groups of interconnection projects. Multilateral Development Banks can play an important role by providing advice on financial inclusivity and assessing the bankability of projects. In some instances, financial institutions may facilitate negotiations between public sector officials and guide the implementation of social and environmental safeguards.



Establish a **regional institution** that can **drive energy integration processes** by sharing real-time data, implementing long-term energy plans, enforcing market regulations, administering payments and coordinating a dispute resolution mechanism. The study on the establishment of the ASEAN Power Grid Generation and Transmission System Planning Institution highlights some key pathways towards regional institution-building.



- New subsea cable projects are being considered between Peninsular Malaysia and Sarawak, Singapore and Sarawak, Cambodia and Singapore
- The BIMP-PIP is set to be the region's second multilateral power project
- Envisioning the APG 2.0 through development of infrastructure, institutions and markets

Thank you

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HYBRID SEMINAR

ISEAS YUSOF ISHAK INSTITUTE

CLIMATE CHANGE IN SOUTHEAST ASIA PROGRAMME

Accelerating The ASEAN Power Grid 2.0: Lessons From The LTMS-PIP

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12 DECEMBER 2023 | 3PM – 4.30PM (SG TIME)