Development Partners Support for GMS and ASEAN Energy Initiatives

December 11, 2024
The 4th GMS Energy Transition Task Force Meeting

USAID Southeast Asia Smart Power Program (SPP)

Outline

- Introduction to USAID Southeast Asia Smart Power Program (SPP)
- Interconnection Feasibility Study Playbook
- Lao and Regional Renewable Energy Certificates
- Wheeling Charges and Power Exchange Data Sharing

USAID SOUTHEAST ASIA SMART POWER PROGRAM (SPP)

Based in Bangkok, the 5-year program's goal is to help energy sectors in Southeast Asia become more secure and market-driven

Deploy 2 GW of Advanced Energy Systems (AES)

Catalyze $2 Billion in Financing for AES

Contribute to a 5% Increase in Regional Power Trade

Ambitious Results are Expected by USAID

SPP's APPROACH

SPP's Key Regional Partnerships

ASEAN CENTRE FOR ENERGY • ACE •

DEPARTMENT OF STATE • UNITED STATES OF AMERICA

JUMPP

MEKONG - U.S. PARTNERSHIP

SPP'S BUILDING BLOCKS FOR ASEAN POWER GRID DEVELOPMENT AND INVESTMENT

Subsea Connector Capacity Building

Subsea grid investment will approach $20 billion over the next 15 years; capacity building & enabling frameworks needed.

Renewable Energy Certificates (REC)

Monetizing the zero-emissions attribute of RE will stimulate demand and attract interconnector investment

Power Exchange Data Sharing

APG planners, operators and stakeholders do not readily share the data needed for planning, attracting investment, and coordination.

VRE Grid Integration

A prime purpose of the APG is to connect RE production to load centers. But grid operators are reluctant to import Variable Renewable Energy

Cost-based Wheeling Charges

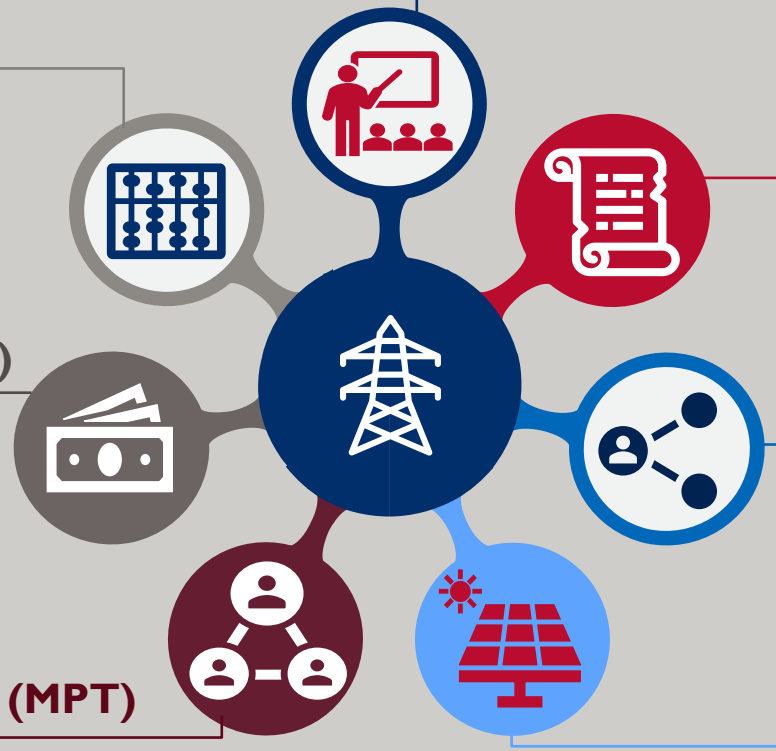
Essential to recover the cost of transmission services and finance new infrastructure

Grant-financed Feasibility Studies (FS)

Initial project development can be costly and difficult to finance with debt. Grants provide much-needed equity finance.

Support to Multi-Lateral Power Trade (MPT)

Data sharing, subregional power development planning, & joint power system planning will foster new MPT arrangements



Playbook for ASEAN Power Grid Interconnector Feasibility Studies (FS)

ASEAN Power Grid Interconnector FS Playbook

The Playbook aims to ensure APG interconnector feasibility studies meet a standard of quality and consistency that establishes confidence in study results and improves the likelihood that priority interconnectors found to be feasible will be advanced.

Background, Status, Next Steps

- SPP and ACE worked together to secured $2 million from USTDA for two priority interconnectors identified in AIMS III (Sumatra-Malacca subsea and Kalimantan-Sabah overhead)
- SPP and ACE co-developed the playbook. Draft was delivered in Oct 2024. Now is in final review process. Finalized Playbook will be launched at the Special SOME or a separate workshop in Jan 2025

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Approach

1. Conduct a thorough literature review for best practices and examples of successful feasibility studies.
2. Interview other ASEAN Power Grid stakeholders for special regional considerations and insights.
3. interviews with leading consultancies providing FS services for specific projects in the region.

Applications

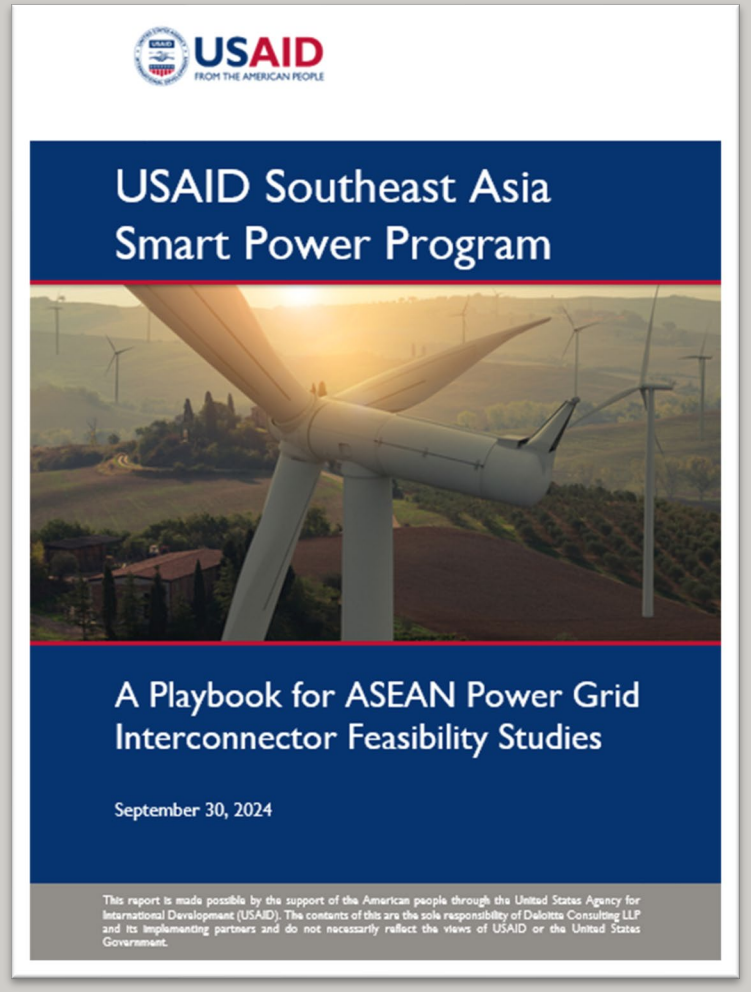
All stakeholders can benefit:

- Energy ministries and utilities increase their confidence to navigate the feasibility study funding process
- Development partners better understand how to scope
- Technical consultants get best practices for creating cooperation agreements/MOUs

Bottom line: the Playbook will streamline the process for FS development of other AIMS-III priority interconnectors.

FS Playbook's Outline

- **Frameworks for Partner Cooperation**
  - Memorandam of Understanding/Discussion Agreements
  - Data sharing arrangements
- **Project Scoping and Initiation**
  - Developing the Scope of Work and ToR
  - Case Study: USTDA-Funded Indonesia-Malaysia Cross-border Interconnection FS
  - Cost sharing arrangements
- **FS Delivery**
  - Kickoff Meetings
  - Data Collections and Site Visits
  - Project Management Best Practices
- **Subsea Line Considerations**
  - Operation and Maintenance
  - Supply Chain



Key recommendations

- **Best Practices for MPT**: Focus on data sharing, funding alignment, and selecting qualified consultants for FS
- **Utilize AIMS III Study**: Use study results to prioritize interconnectors and engage with organizations to connect with International Financial Institutions
- **Customize Data Sharing Agreements**: Tailor agreements for each interconnector project based on specific ToR & Develop an improved data sharing framework
- **Align Scope of Work and ToR**: To match with available data
- **Early Involvement and Collaboration**: Engage development partners and beneficiary countries early
- **Conduct Thorough Kickoff Meetings**: Allocate adequate budget for site visits and involve input from all stakeholders

Suggested FS ToR Template
• Inception Meeting and Data Collection
• Technical FS
• Policy, Regulatory, and Legal FS
• Commercial Framework FS
• Cost Estimates and Economic Analysis
• Financing Options Assessment
• Environmental and Social Impact Assessment (ESIA)
• Implementation Plan
• Final Report

Lao and Regional Renewable Energy Certificates (REC)

Technical Support to Laos Government on REC Market Development (1/2)

- **Objectives**: support Ministry of Energy and Mines (MEM) through Lao REC Working Group on developing and implementing REC market development roadmap
- **Timeline:** 2024-2025
- **Government counterparts:** MEM and Lao REC Working Group
- **Partner:** JICA through Japan-U.S.-Mekong Power Partnership (JUMPP)

Capacity building workshop on May 8-9, 2024

Lao REC Working Group Meeting on Nov 14, 2024


- DRAFT -

IMPLEMENTATION ROADMAP: DEVELOPING A LAO RENEWABLE ENERGY CERTIFICATE (REC) MARKET STRATEGY

Produced by USAID Southeast Asia Smart Power Program (SPP) and Japan International Cooperation Agency (JICA) under Japan-U.S.-Mekong Power Partnership (JUMPP) Framework

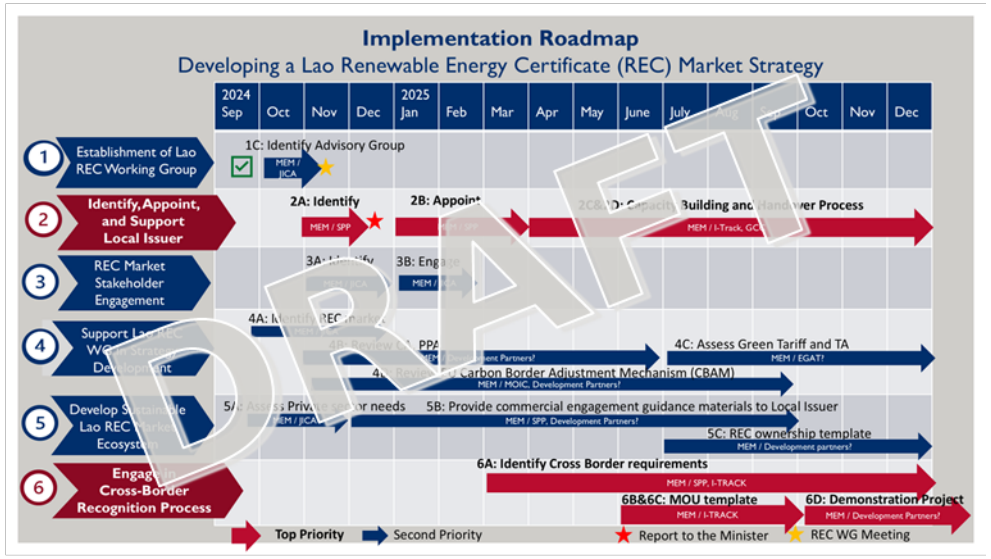
November 7, 2024

This report is made possible by the support of the American people through the United States Agency for International Development (USAID). The contents of this are the sole responsibility of Deloitte Consulting LLP and its implementing partners and do not necessarily reflect the views of USAID or the United States Government

Technical Support to Laos Government on REC Market Development (2/2)

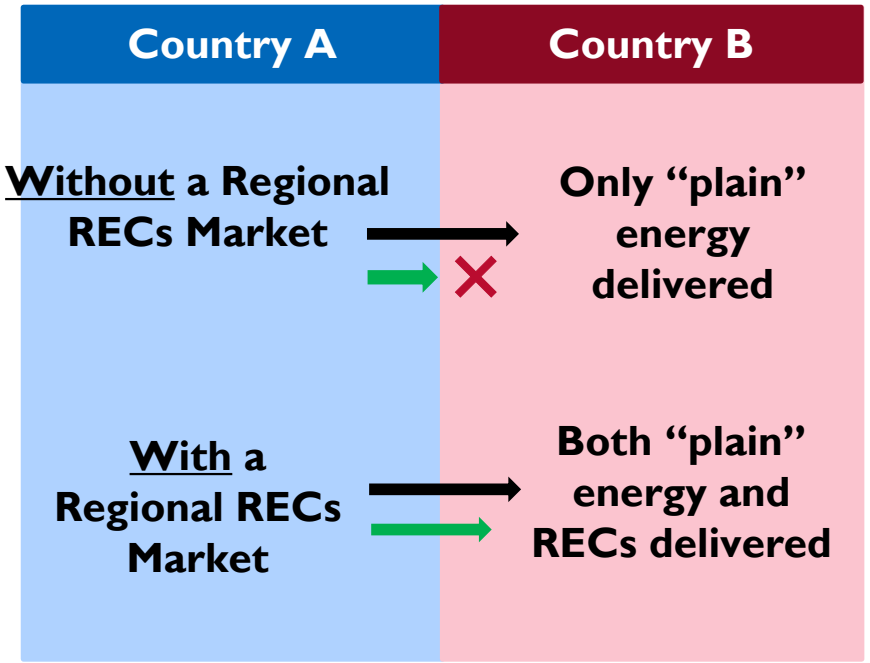
Key milestones:

- Capacity building workshop to introduce REC market concept and collect inputs for developing roadmap in May 2024
- Develop Lao REC Market Development Roadmap, draft submitted and presented to Working Group in Nov 2024
- Interview REC buyers and sellers in the region and conduct market assessment to understand REC cross-border trading potential (ongoing)
- Establishment and empowerment of local REC issuing authority (ongoing)
- Engaging in cross-border recognition process (begin in 2025)



Why do we need a regional REC framework?

Global Reporting Frameworks for Unbundled Grid-to-Grid Flows



*For international RECs recognition

REC tracking systems **do currently allow** cross-border transactions, globally.

BUT

Reporting frameworks **do not recognize** cross-border transactions in ASEAN.

Cross-border REC transaction will…

- ✓ **Allow unbundled cross-border REC sales to be counted internationally**
- ✓ **Improve the financial viability of generation and transmission projects** that boost RE deployment

Developing Conceptual Framework for Regional REC

- **Objectives:** support development of ASEAN REC conceptual framework to enable cross-border transactions in region
- **Timeline:** begin in 2025
- **Partners:** ACE, I-TRACK Foundation, UN ESCAP, IEA
- **Key milestones:**
  - Development of Best Practice Paper for recognizing cross-border and multilateral REC transactions
  - Cooperation and coordination with IEA, UNESCAP on content and rationale for the Framework Document
  - Technical support for a dialogue with international voluntary reporting bodies (e.g., CDP and RE 100) on a regional REC market for ASEAN for clean energy procurement

Wheeling Charges and Data Sharing

An ASEAN Power Grid Needs Standardized Fees and Data Access

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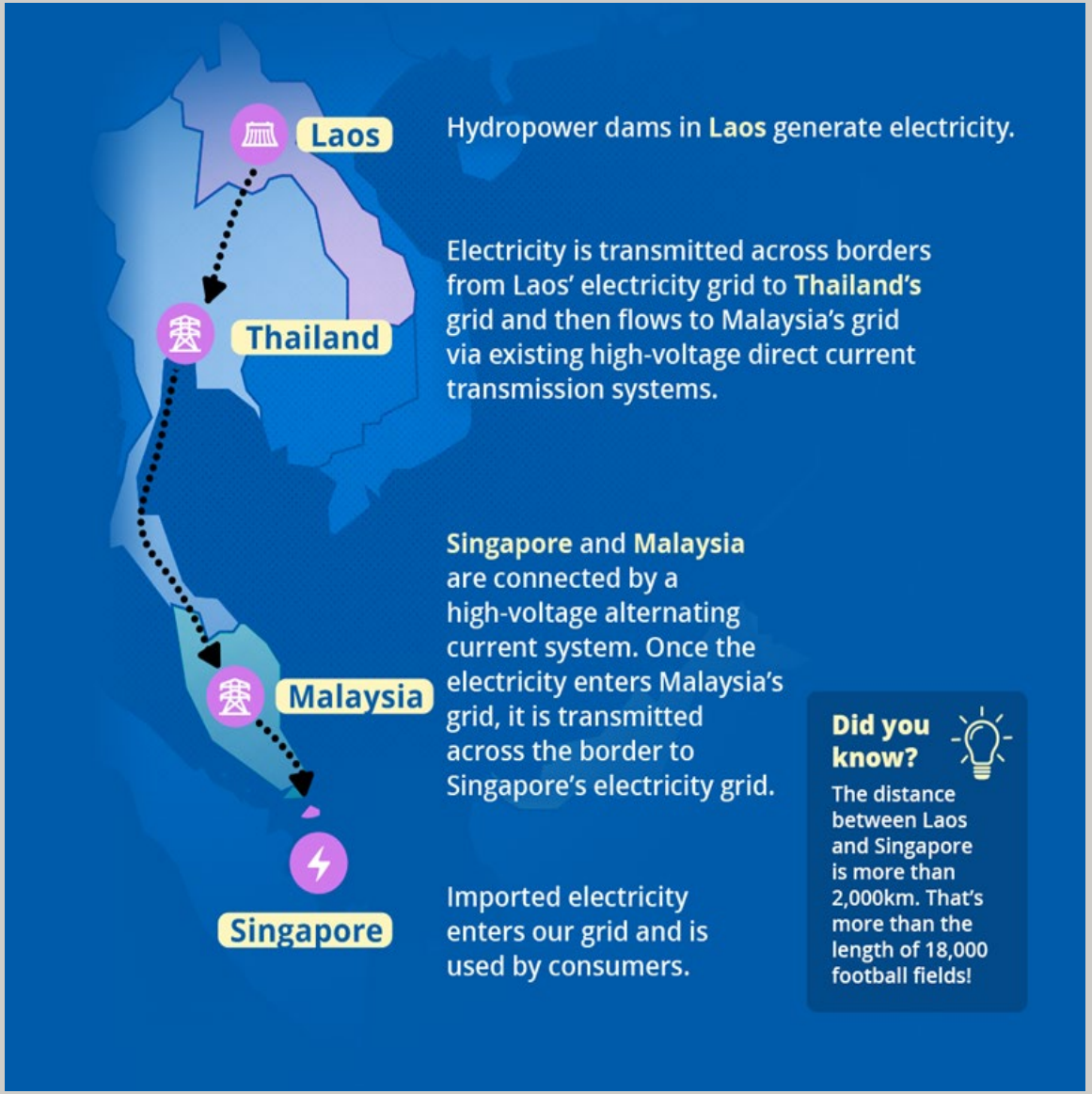
Wheeling Charges in ASEAN

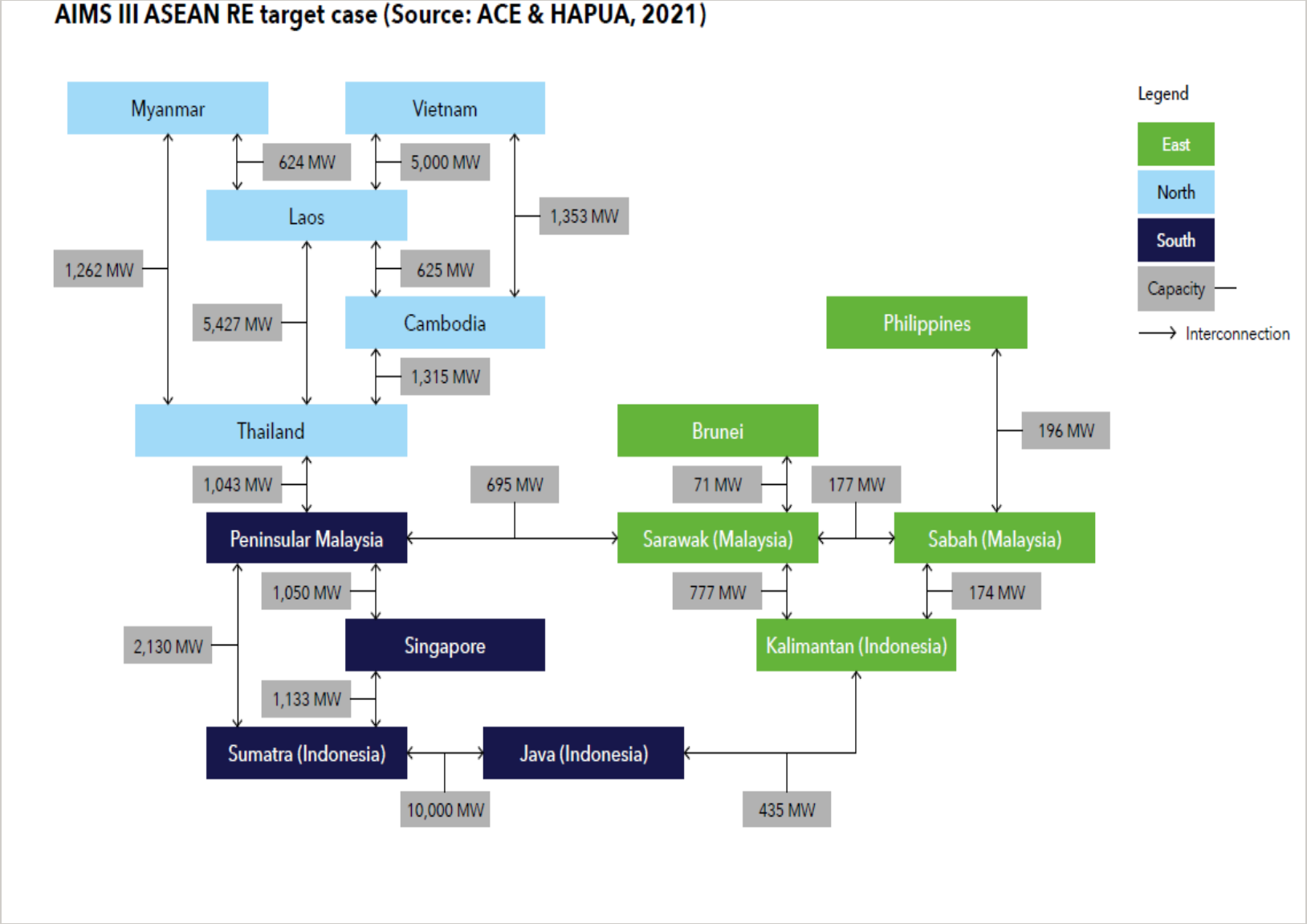
- This is a **per megawatt-hour charge** that transmission owners receive for the use of its system.
- Important for the wheeling fee methodology to be **transparent** and **cost-based** to encourage future investments and efficient behavior.
- Laos sends electricity to Singapore via Thailand and Malaysia, who charge **individual wheeling fees** for the transit along the transmission network.
    - The Philippines use wheeling charges for retail competition.
    - Vietnam is developing wheeling charges for direct power purchase agreements.



Source: Singapore Energy Market Authority

Need for Wheeling will Grow

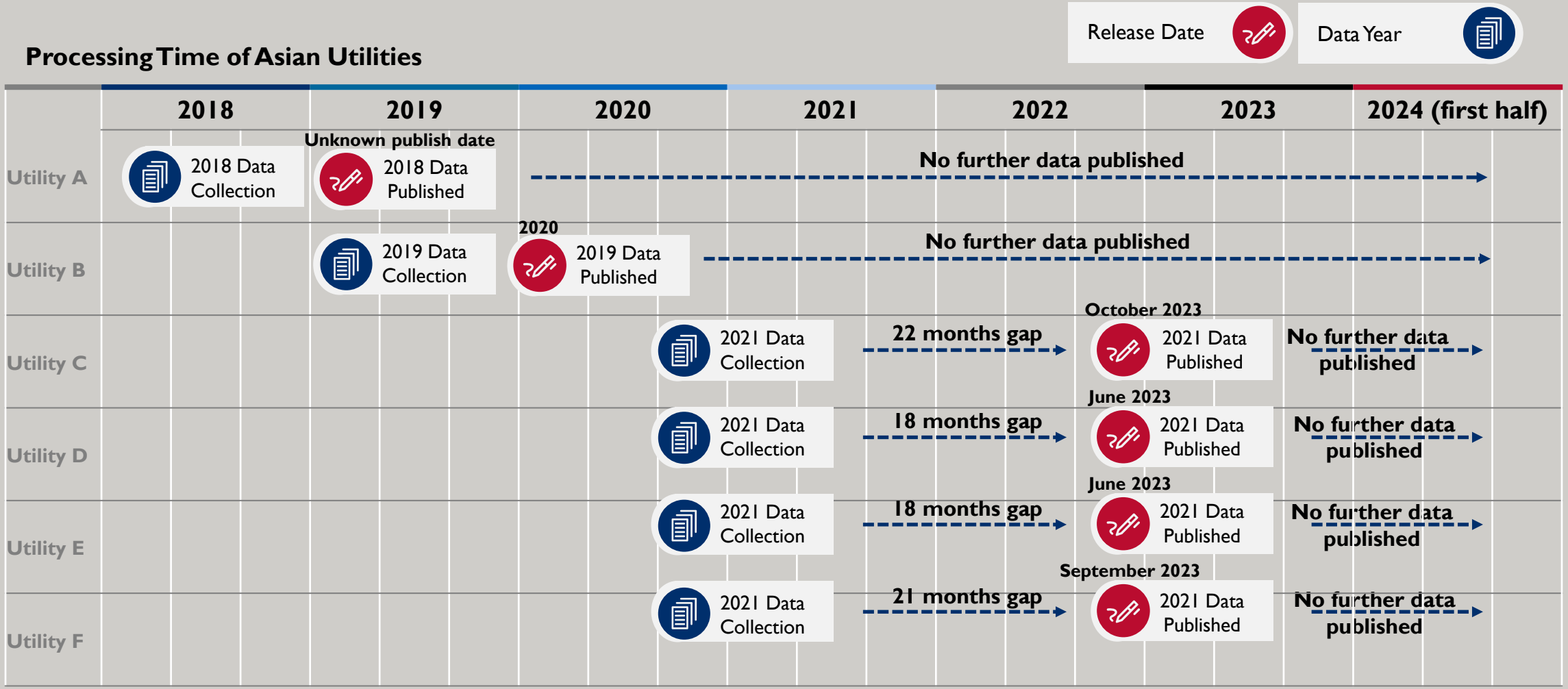
- As interconnections increase, wheeling demand will **grow**.
- Expected power interconnectors – as projected in the ASEAN AIMS III renewable energy target – are expected to **double** or **triple**.
- More interconnectors means **more wheeling** transactions are likely in the future.



Source: DNV 2024

How is Power Exchange Data Currently Reported?

- At present there is no common mechanism for sharing of power exchange data.
- Annual reports from individual utilities report power exchange data in different ways and at different intervals

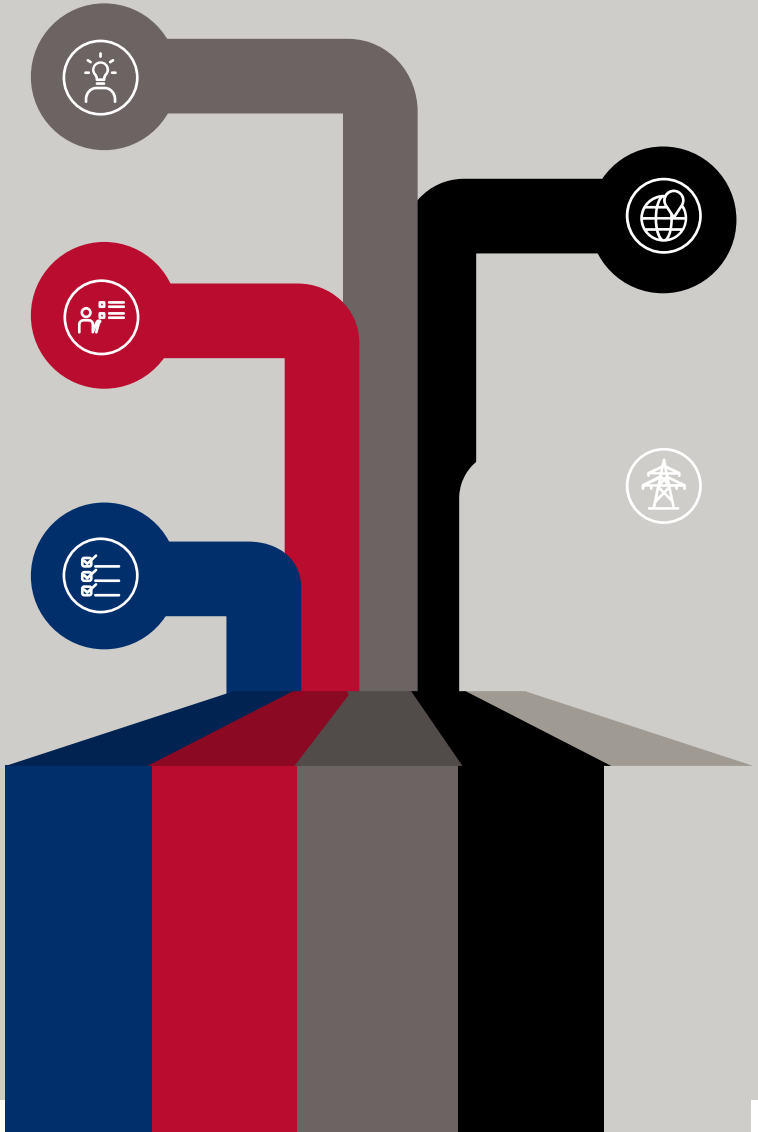


Benefits of Sharing Power Exchange Data

1. Improved awareness of APG trends and developments for all stakeholders

2. Increased confidence of policy makers, regulators, utilities, and investors to understand the power trade opportunities and issues

3. Better planning, identification of investment needs, and improved coordination by grid operators and Control Centers.



4. Steppingstone towards development of regional frameworks for coordinated grid and market operations

5. Essential to other functional requirements of multi-lateral power trading (MPT), such as tracking and tagging of RE power flow and delivery

Challenges in Tariff Setting and Data Access

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Wheeling Challenges

Cost-based wheeling requires establishing the costs of operating and expanding the transmission network

- Power typically flows over **multiple paths** to a load center, so the cost of wheeling is the sum of the costs of the incremental power flows over **all paths** in the network.
- A wheeling utility must be compensated for the effect of the **extra load** on the reliability of its service and its operating costs.
- In an **interconnected network**, utilities must synchronize their generating units, match local generation to local loads, and provide for local correction of power factors.
- Each of these activities may require some **additional expenditure** as the volume of power transfers grows.
- If its transmission capability is strained, a wheeling utility may need to **expand** its transmission capacity to ensure the reliability of the system.
- The wheeler also incurs the **administrative costs** of metering power flows and billing the wheeling customer for services.

Data Access Challenges

Current practice reflects the reporting requirements of individual ASEAN utilities rather than a focus on data sharing with power trading partners.

1 Long **delays in availability** of power exchange data

2 **Lack of granularity** (time and interconnection differentiation) in the power exchange data provided

3 Data **Availability and Accuracy depending on Annual Report** issuance

4 Presentation in **Annual Reports is scattered** across multiple statistical categories

5 **Inconsistencies and potential double-counting** in the data provided by different sources

6 **Existing regional data sharing platforms** such as ASEAN Energy Data System **are not being utilized**

Way Forward

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WHEELING CHARGE WORKSHOPS

- **Objective:** Develop a uniform system for ASEAN power trading utilities to calculate cost-based wheeling and direct power purchase charges, in accordance with APAEC OBS 3 Action Plan 3.2
- **Achievement:** Organized capacity building workshops for AERN and HAPUA in 2024

  Partners: ACE, AERN, HAPUA, UNESCAP

  Almost 300 participants!
- **Way forward:** Technical assistance and capacity building for utilities, regulators and ministries, e.g., development of a wheeling calculatorbased on standard accounting categories for transmission assets

  – ***Frameworks: ADB ETTF, LTMS(?)***

Wheeling Charges Capacity Building Workshop on Sep 9-10, 2024

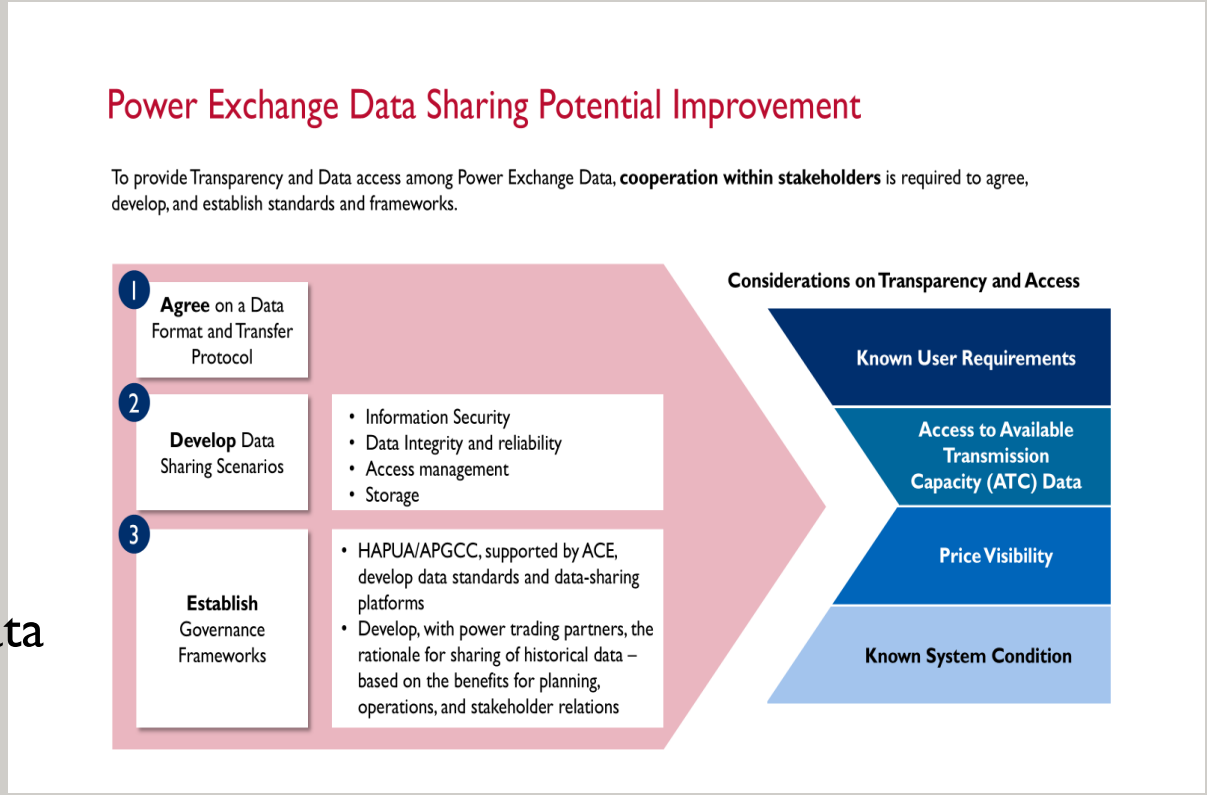
POWER EXCHANGE DATA SHARING PATHFINDER PROJECT

- **Objective:** Establish a portal within ACE's ASEAN Energy Database System (AEDS) for annual and monthly reporting of regional power trade, with data made available to APG stakeholders
- **Achievement:** Acknowledgement on the concept of power exchange data sharing in June 2024.

  Partner: ACE
- **Way forward:**
  - a letter of endorsement from HAPUA
  - Conduct country visits/consultations to introduce the pathfinder project and discuss data collection process.
  - Develop database, portal, and power exchange reporting protocol and upgrade AEDS.

  Partners: ACE, HAPUA

Concepts of Pathfinder Project



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Thank you

Learn more about USAID Southeast Asia Smart Power Program

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