



The COMMITTED Consortium
Near-term policy frameworks and their role in secure
and resilient energy transitions

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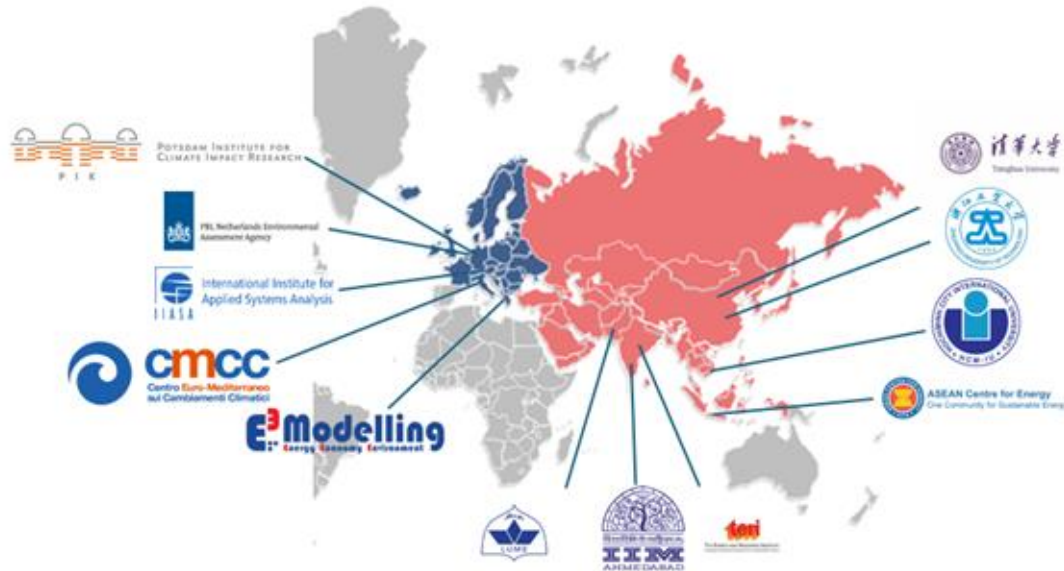
Role of the ASEAN Power Grid in unlocking RE

The grid as a key enabler, its pain points, and the way forward



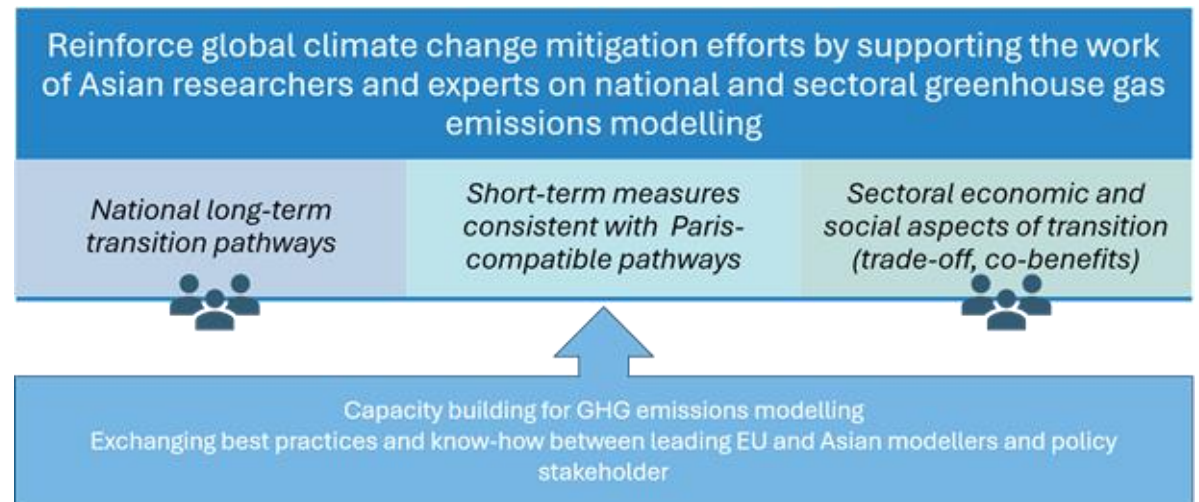
What is COMMITTED?

Climate pOlicy assessment and Mitigation Modeling to Integrate national and global TransiTiOn pathways for Environmental-friendly Development



A consortium of 12 partners from Europe, China, India, Indonesia, Pakistan and Vietnam, managed by PBL

Goals of COMMITTED



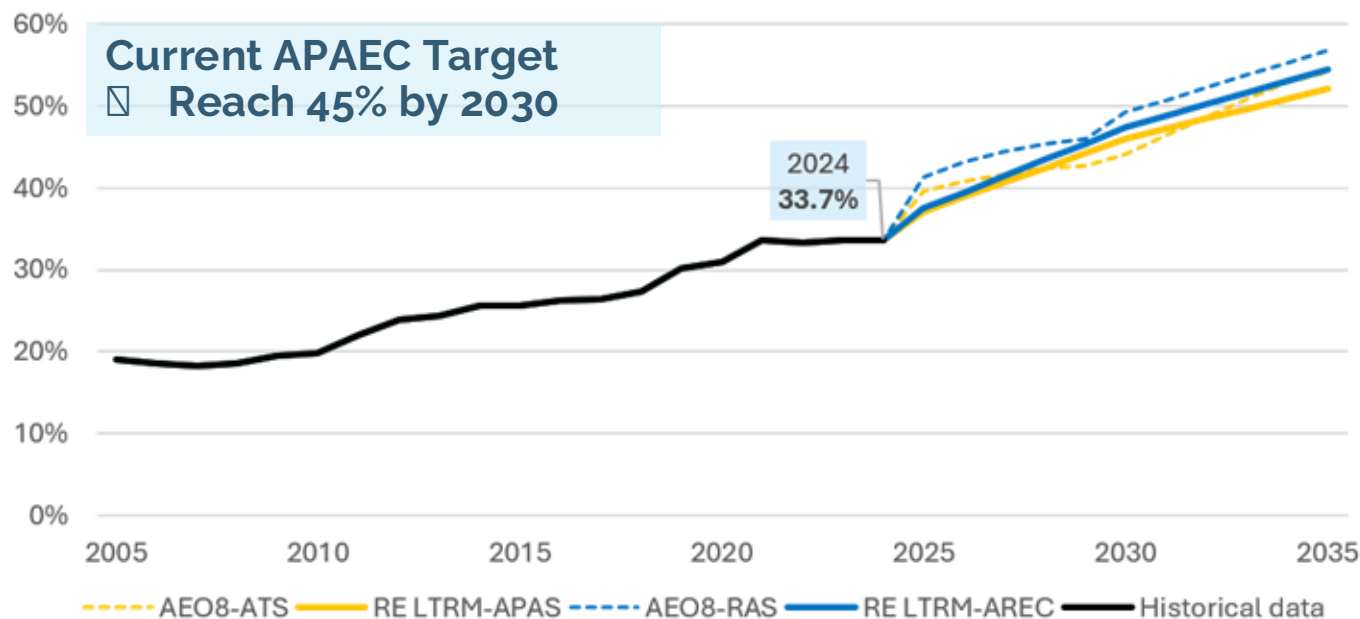
FUNDED BY
EU Directorate General for
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DURATION
Jan 2023 – Jun 2026
a 3.5-year programme

FOCUS
Energy & climate transitions in
the power and wider energy
system

Status of RE in Installed Capacity Target in 2024

RE in Installed Capacity



Attained RE share in Installed Capacity at **33.7%** in **2024**

Additional installed capacity in 2024 reached 14 GW, of which about 40% came from RE, particularly solar power

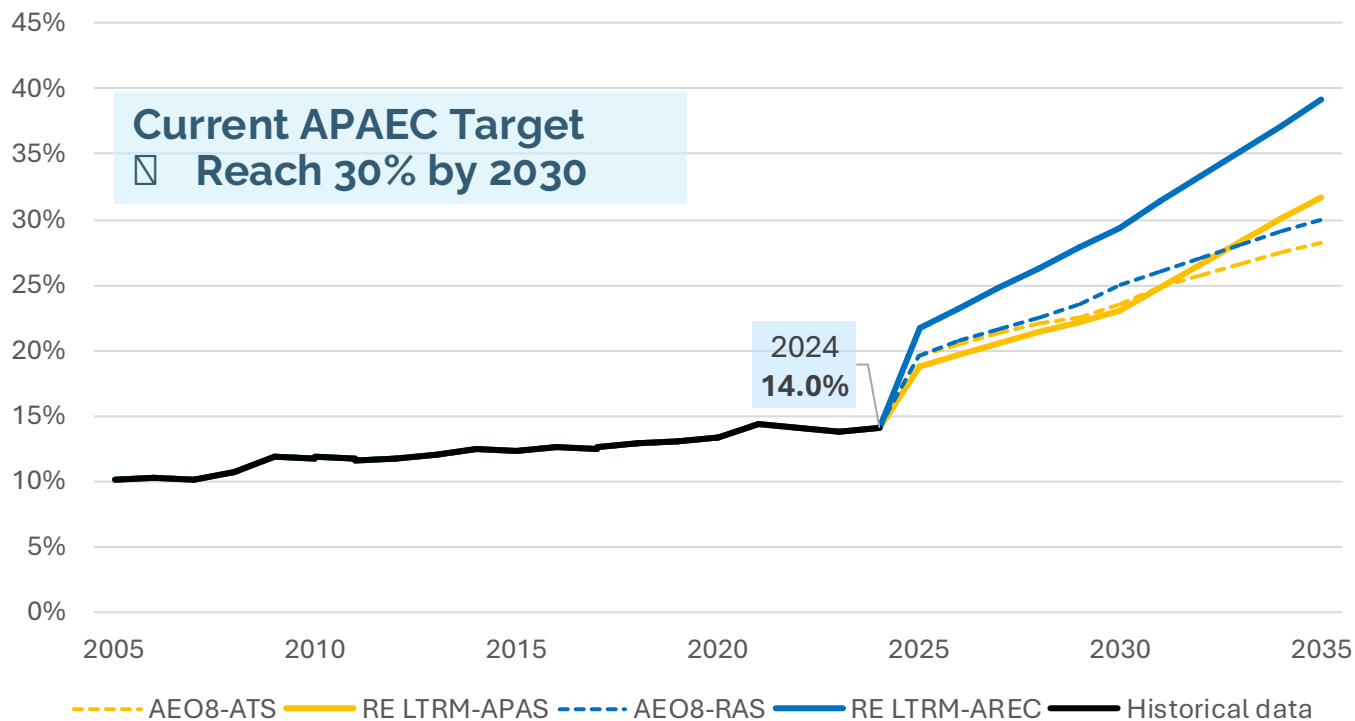
Strategies to achieve the current aspirational target for renewable energy (RE) in installed capacity should be optimised by scaling up successful initiatives from the power sector to other sectors, such as industry and transportation.

Notes: RE Share includes Hydro, Geothermal, Solar, Wind, Biomass and Other

2022	2023	2024	Scenarios	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
33.2%	33.6%	33.7%	AEO8-ATS	39.6%	40.9%	41.6%	42.5%	42.7%	44.1%	46.5%	48.7%	50.8%	52.8%	54.1%
			RE LTRM-APAS	37.1%	38.9%	40.7%	42.5%	44.2%	46.0%	47.2%	48.4%	49.6%	50.8%	52.0%
			AEO8-RAS	41.3%	43.2%	44.4%	45.3%	46.1%	49.3%	50.8%	52.3%	53.8%	55.3%	56.7%
			RE LTRM-AREC	37.5%	39.5%	41.4%	43.4%	45.4%	47.4%	48.8%	50.2%	51.7%	53.1%	54.5%

Status of RE in TPES Target in 2024

RE in TPES



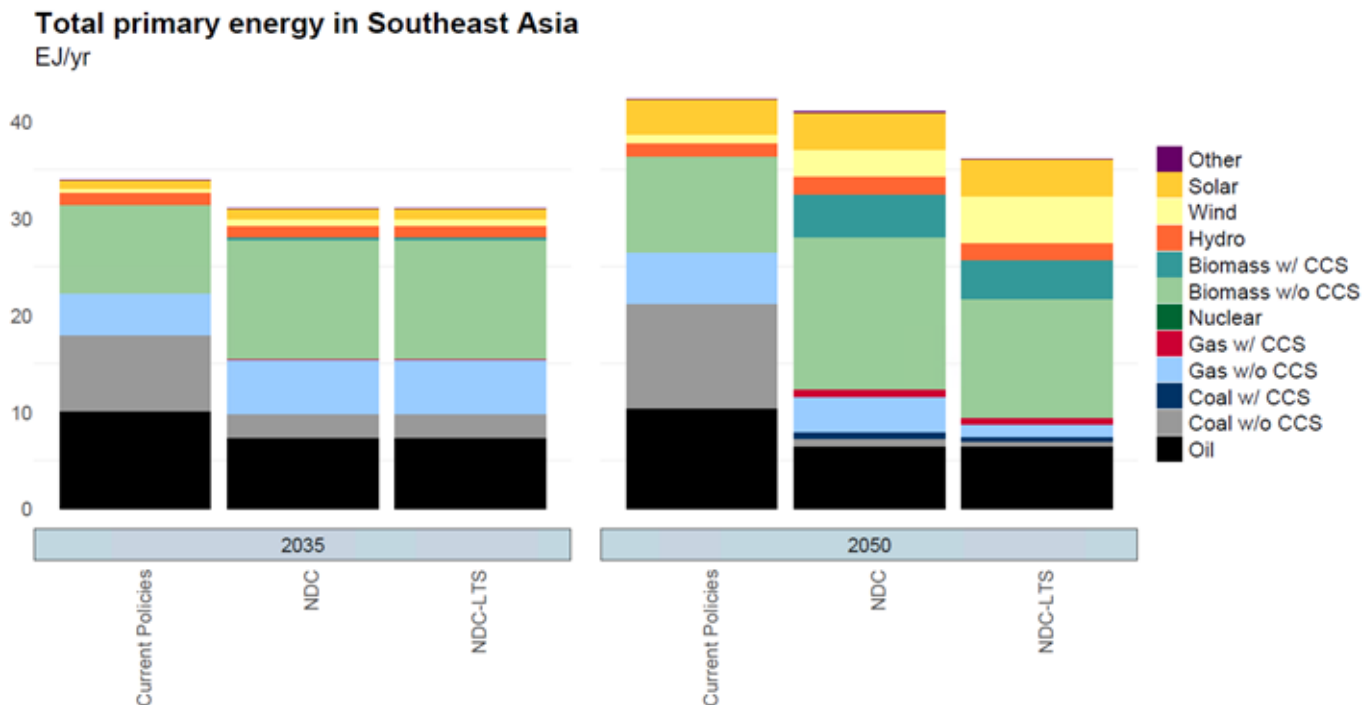
Attained RE share in Energy Supply at **14%** in **2024**

To optimise strategies for achieving the current aspirational target for renewable energy (RE) in the Total Primary Energy Supply (TPES), **stronger policy measures and greater support for energy projects and infrastructure** are needed to address the existing implementation gap.

Notes: RE Share includes Hydro, Geothermal, Solar, Wind, Biomass and Other

2022	2023	2024	Scenarios	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
14.0%	13.8%	14.0%	AEO8-ATS	19.6%	20.5%	21.3%	22.1%	22.5%	23.5%	24.9%	25.7%	26.6%	27.5%	28.2%
			RE LTRM-APAS	18.8%	19.7%	20.5%	21.4%	22.2%	23.1%	24.8%	26.5%	28.3%	30.0%	31.7%
			AEO8-RAS	19.6%	20.7%	21.7%	22.6%	23.5%	25.0%	26.0%	27.0%	28.0%	29.0%	30.1%
			RE LTRM-AREC	21.6%	23.2%	24.8%	26.3%	27.9%	29.4%	31.4%	33.3%	35.2%	37.2%	39.1%

Energy outlook for Southeast Asia under climate policy scenarios



Total primary energy (EJ/yr) by fuel, 2035 and 2050. **Based on the IMAGE model, work in progress: please do not cite.**

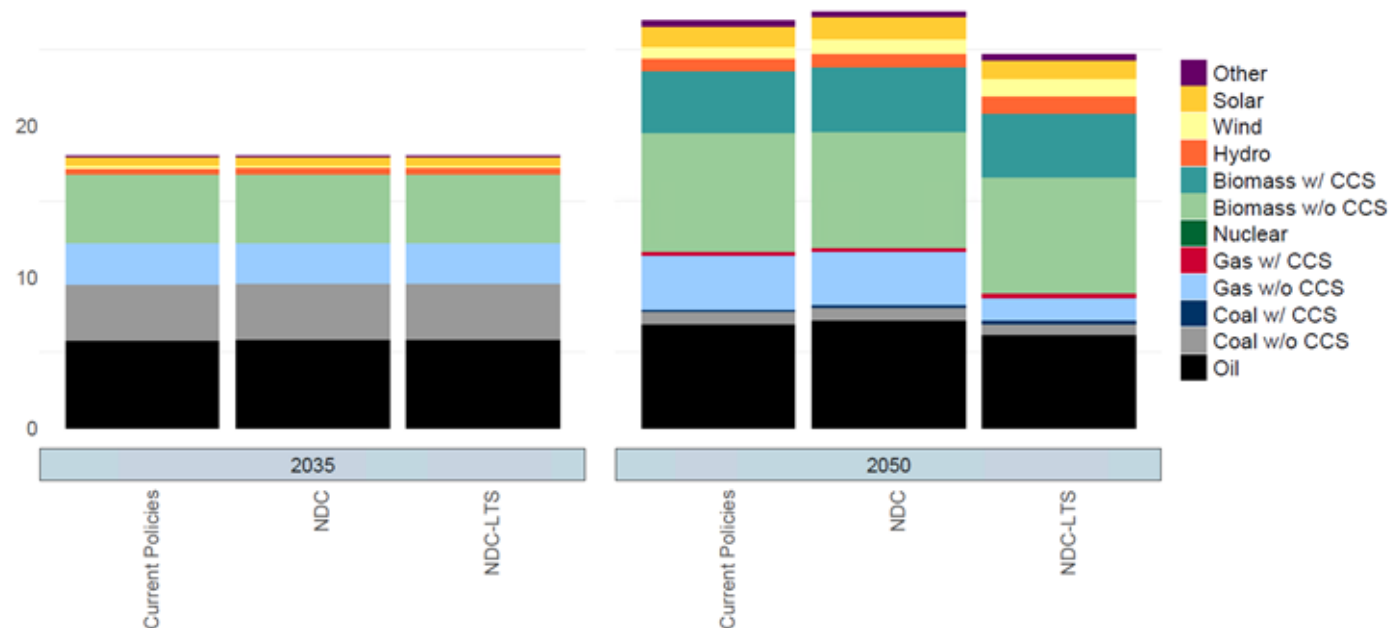
Why does NDC look so different from BAU?

- Under the NDC pathway, coal (grey) is squeezed out, but it is replaced by a **much higher share of gas** as a lower-carbon “bridge” fuel.
- NDC also brings in **far more wind, solar and biomass**, the model deploys whatever combination meets the emissions target at least cost.
- The difference is not “more of one thing”: it is a structural shift away from coal toward gas plus renewables.
- Moving from NDC to net-zero requires improvement in energy efficiency and relies more on clean energy.

Energy outlook in Indonesia under climate policy scenarios

Total primary energy in Indonesia

EJ/yr



Why does NDC look so different from BAU?

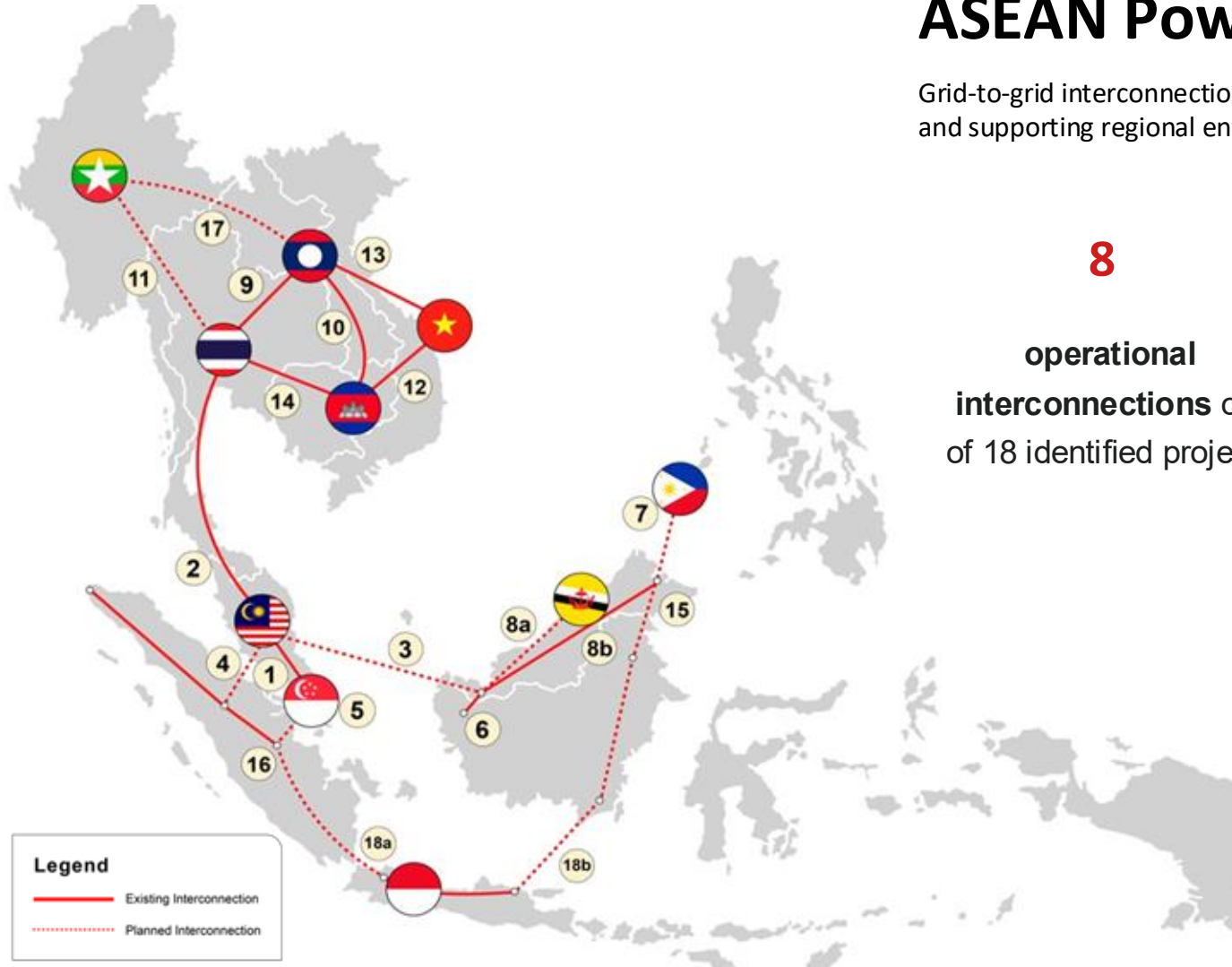
- By 2050 the NDC pathway pushes coal almost out of the mix and leans heavily on **gas plus biomass (much of it with CCS)** to cut emissions while meeting fast-growing demand.
- Wind and solar also scale up, but Indonesia's abundant biomass gives bioenergy a larger role here than in the regional picture.
- The model chooses this gas-plus-bioenergy blend because it is the least-cost way to hit the target given the available resources.

Total primary energy (EJ/yr) by fuel, 2035 and 2050. **Based on the IMAGE model, work in progress: please do not cite.**



ASEAN Power Grid: capacity overview

Grid-to-grid interconnection capacity across ASEAN continues to grow, enhancing power system reliability and supporting regional energy security.



8
operational
interconnections out
of 18 identified projects

2.8 GW
operational grid-to-grid
capacity
(as of 2024)

7.5 GW
operational generation-
to-grid capacity
(as of 2024)

266 GWh
total of cross-
border power trade
through LTMS-PIP
(as of 2024)

13.7 GW
planned
interconnection
capacity by 2040

6
future submarine
interconnections

Source:

ASEAN Power Grid Interconnections Project Profiles (2024)
HAPUA Working Group 2 at the 41st HAPUA Working Committee Meeting (2025)

Under the ASEAN regional cooperation, the focus on APG is to support and facilitate the establishment of more APG infra and expand the cross-border / MPT trade, leveraging the experience from LTMS –PIP

LTMS-PIP Phase 1 (2022-2024)

The project utilised the APG to trade 100 MW of hydropower to Singapore, enabling a **total of 266 GWh traded electricity** over the course of 2 years.



In its second phase, the LTMS-PIP is expected to increase its trade capacity to 200 MW with extension until 2026.

Success Factor

- **The virtue of simplicity.** The design of the market matches underlying economic drivers: Lao PDR has excess supply of cheap RE and there is demand for that RE in the south; and with Sept 2024 extension, Malaysia joins as a supplier
- **Political commitment.** LTMS PIP endorsed by energy ministers and AGP institutions starting in 2014
- **Governance mechanism.** During the market design stage, allocating tasks to different countries gave them a sense of ownership
- **Learn by doing.** Later phases built on experience gained during earlier stages

Challenges

- **Complexity of the political economy** involved in developing MPT
- Internationally **recognized cross-border regional RECs** market required to support renewables MPT trade
- **Limited transfer capacity** and costs related to the operation of the interconnection
- The **dimensionality problem**: adding a single market feature, e.g., multi-directionality, can significantly increase complexity
- **Existing institutional limitations.** LTMS PIP working group/task force structure, with no external parties, worked for the simple LTMS PIP effort, but a larger, more complex, MPT regional market requires support from development partners & regional bodies



Key take-aways

01

Strong RE capacity, slow deployment

Renewable energy's current share of installed capacity is satisfactory; however, the pace of new deployment is not. Annual RE additions must accelerate to remain aligned with the targets.

02

RE leads, deployment trails

To meet NDC targets, renewables are expected to account for the largest share of the energy mix. Yet RE implementation across ASEAN and Indonesia remains limited, despite the huge potential.

03

The APG is on track

Development of the regional power grid is currently progressing on track, with cross-border interconnections being extended across ASEAN.

04

Diverse markets aren't a barrier

Cross-border and multilateral trade can occur between AMS with different market structures — reform is beneficial but not a prerequisite.

05

Pursue both trade models

Long-term bilateral and short-term multilateral trade can co-exist; ASEAN should advance both to accelerate APG infrastructure.

06

Regulatory alignment is key

Common trading rules reflecting each AMS's interests and market type are crucial for successful multilateral power trade.



Thank you for your attention!

The COMMITTED consortium — funded by the EU Directorate General for Climate Action (DG CLIMA)

