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Solar energy in ASEAN: national and regional dimensions

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Goal

Systemic change for a resilient, just and equitable world through research, evidence and influence

Overview

- Formed in 1960 as the Overseas Development Institute
- Rebranded to ODI Global in 2024
- Headquartered in London with offices in Washington and Brussels
- Researchers work remotely from Singapore, and other countries

Core Programmes

- Climate & Sustainability
- Development & Public Finance
- Digital Societies
- Gender Equality & Social Inclusion
- Global Risks & Resilience

Key Messages

1. National energy plans have ambitions to increase solar generation exponentially
2. At the regional level, solar will be the key driver of RE expansion
3. Subsea cable projects are based on solar energy trade
4. Grids can become a key bottleneck!
5. Regional cooperation can enhance solar uptake and reduce inefficiencies
6. Need to address critical mineral supply chains

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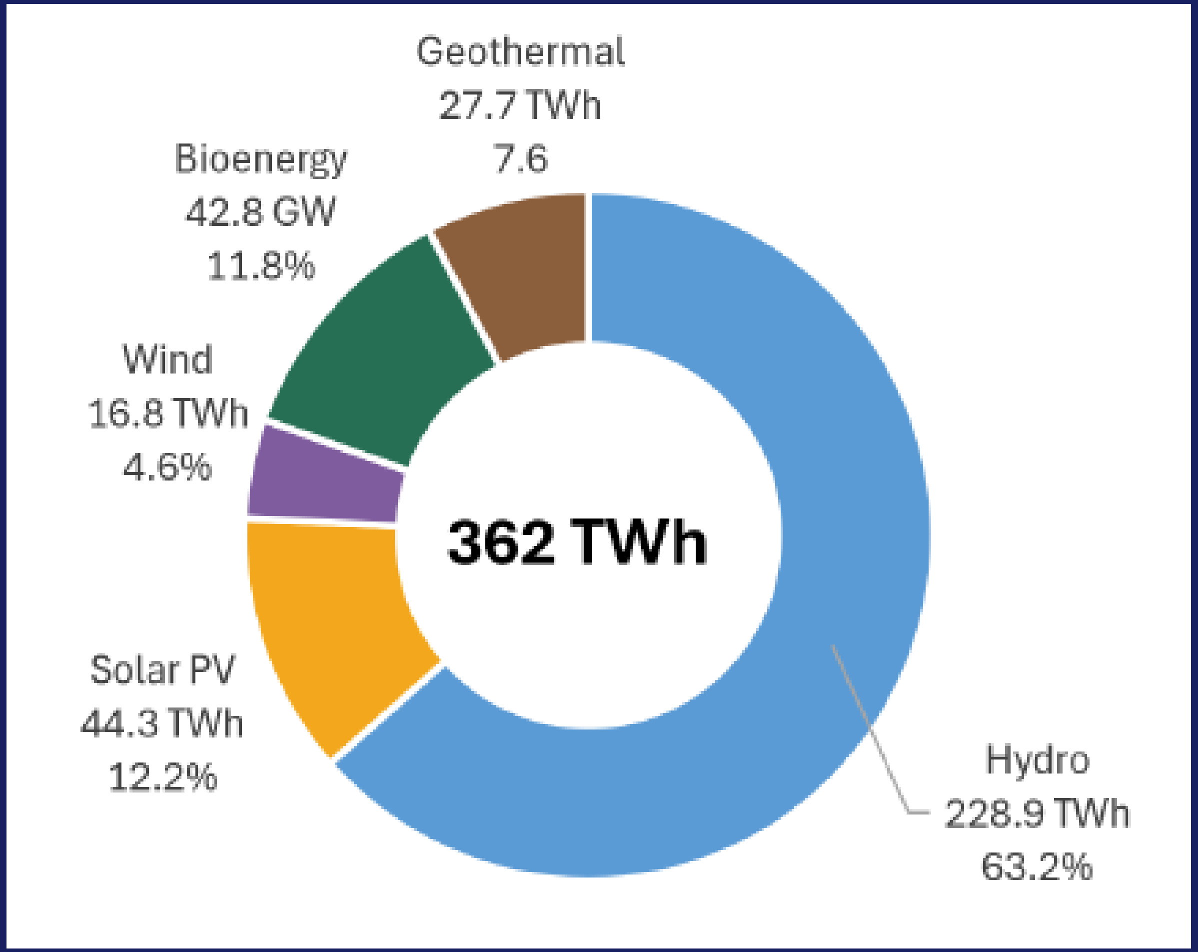
Solar generation capacity in ASEAN

Solar capacity by country, 2023

Country	Operating Solar
Vietnam	13,035
Thailand	1,041
Philippines	2,343
Malaysia	1,577
Cambodia	429
Myanmar	190
Singapore	186
Indonesia	21
Brunei	0
Laos	0
Timor-Leste	0

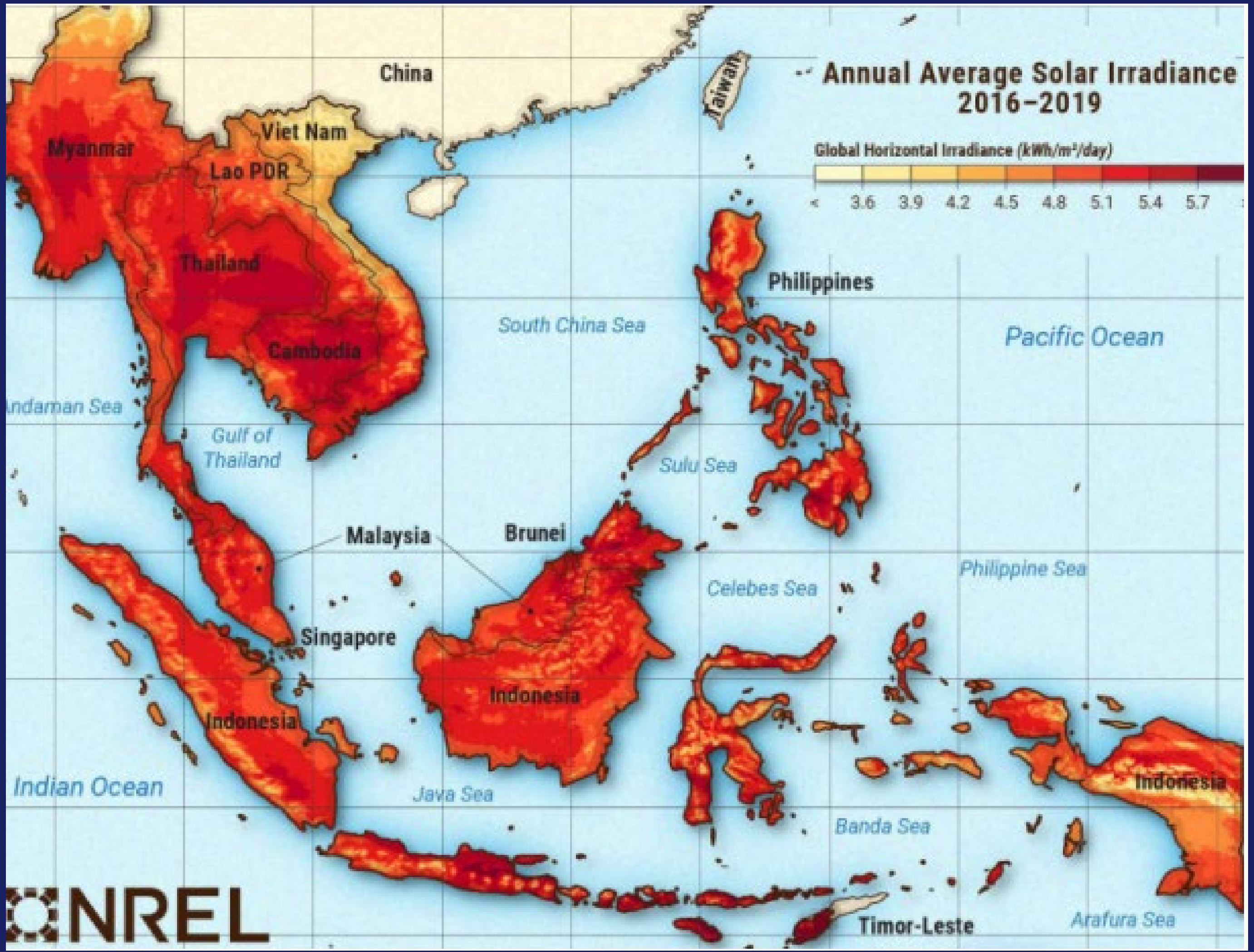
Renewable Energy Capacity in ASEAN, 2023



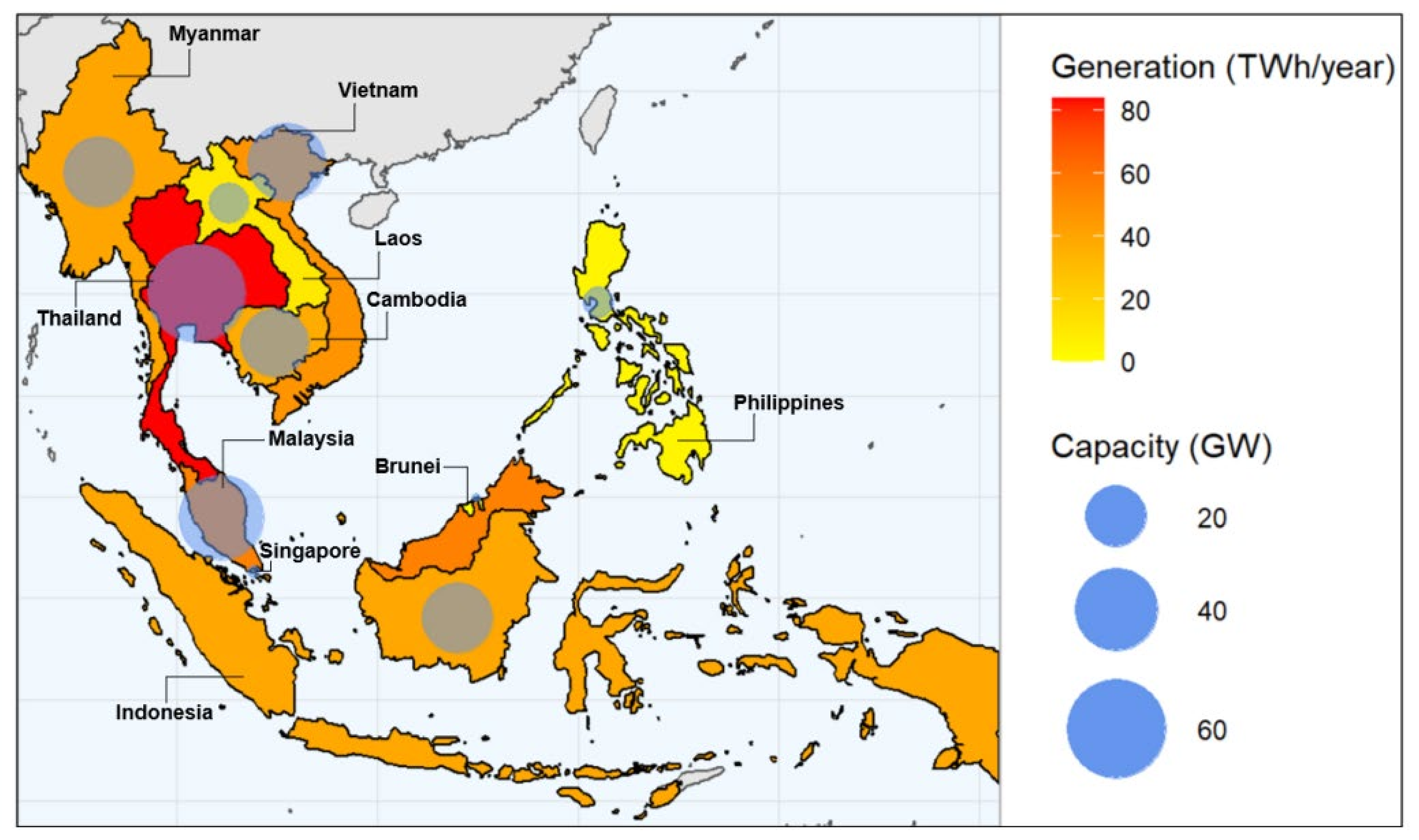
Source: ASEAN Centre for Energy, 2025; Global Energy Monitor, 2024

Solar Potential

Solar Potential



Solar Potential in Reservoirs



Source: NREL, 2023

National-level solar ambitions

Cirata Floating Solar Farm, Indonesia

Dau Tieng Solar Power Complex, Vietnam

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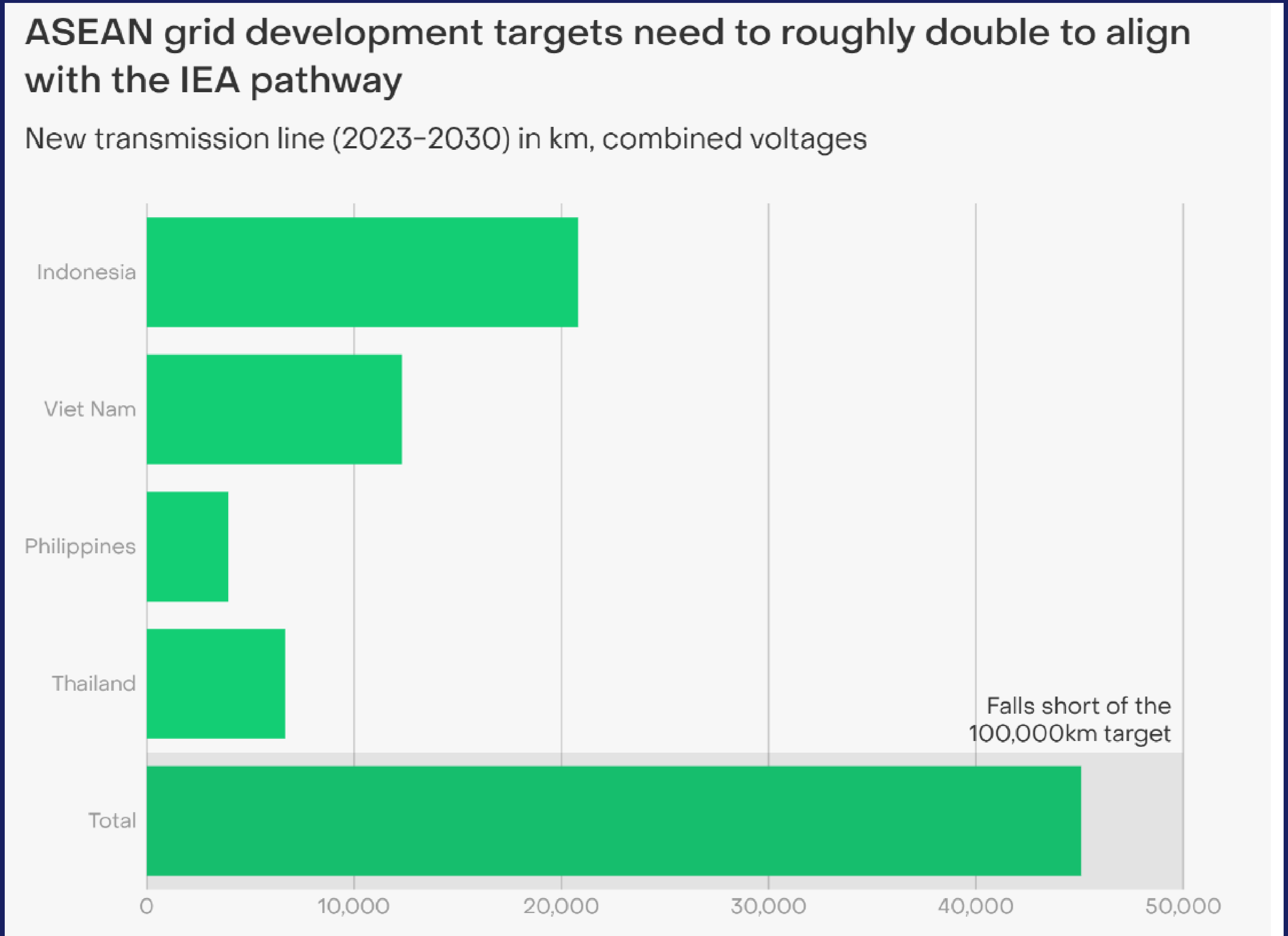
Grids can become a key bottleneck



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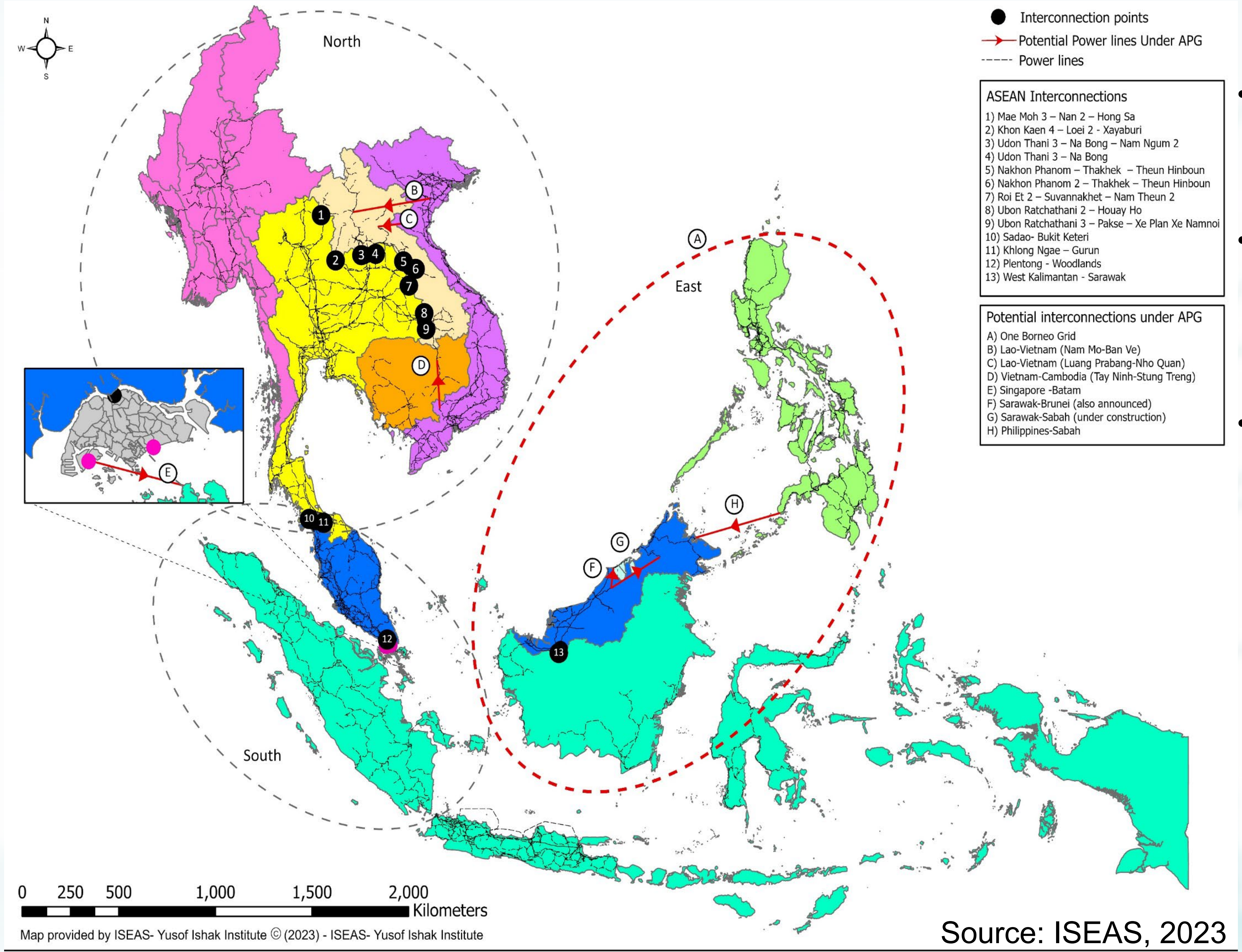
Source: Ember, 2025

Developing flexible grids for solar uptake

- Smart grid - smart meters, automation, monitoring, cybersecurity – underway in Singapore, Vietnam, Thailand
- Pumped hydro can enhance solar penetration and flexibility – being planned in Philippines, Indonesia and Thailand
- Battery Energy Storage Systems (BESS) — projects under development in Sa Kaeo, Thailand and Sabah, Malaysia
- Need investments of US$764 billion by 2040

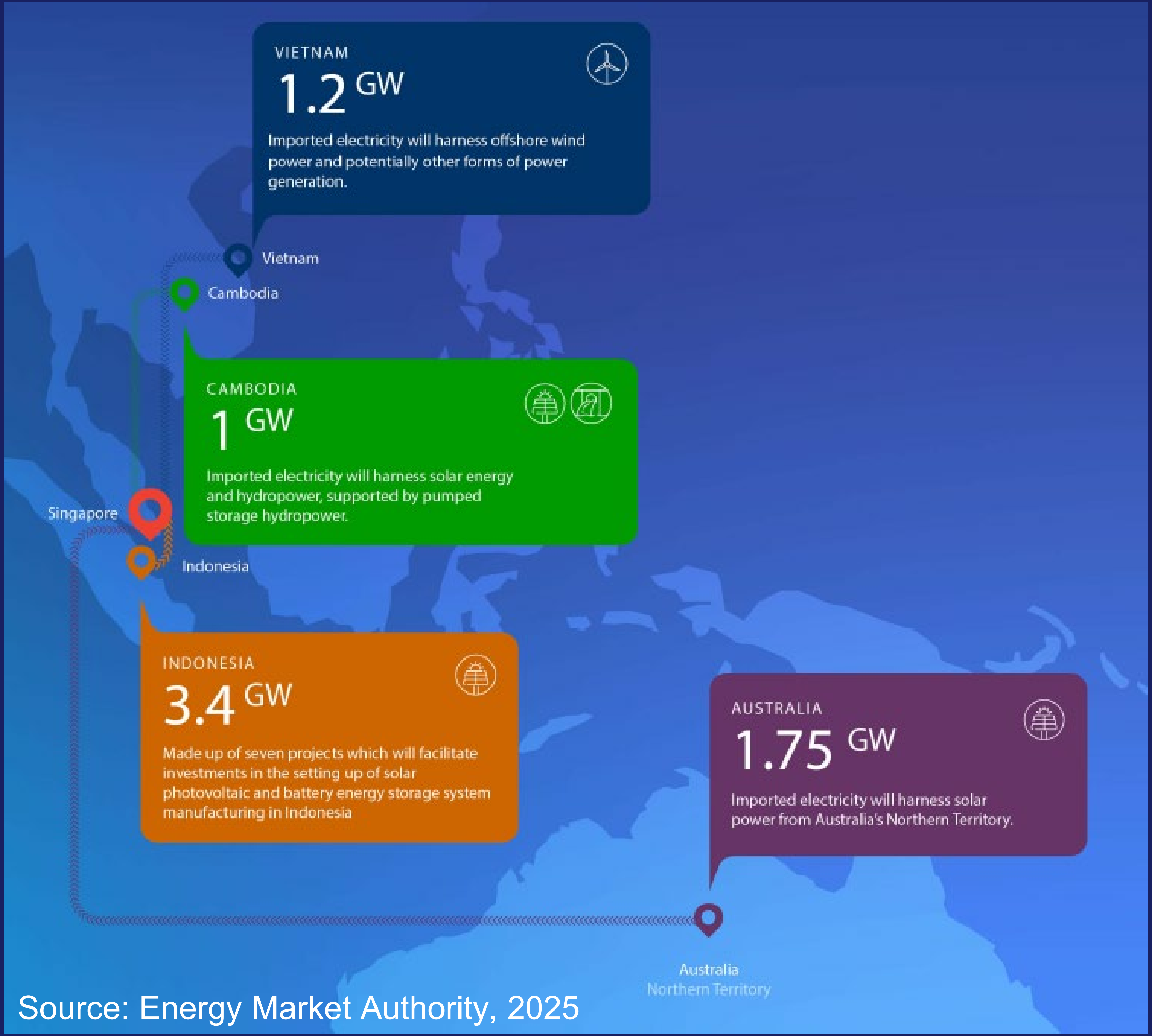
Regional Integration through APG



Source: ISEAS, 2023

- Interconnections will lead to the development of 42 solar projects with capacity of 8,119 GW
- 124,000 jobs in the solar industry by 2040
  (ACE, 2021)
- Reduce the need for 600GW of solar capacity and 13% footprint reduction
  (DNV, 2004)

Solar trade through subsea cables



Source: Energy Market Authority, 2025

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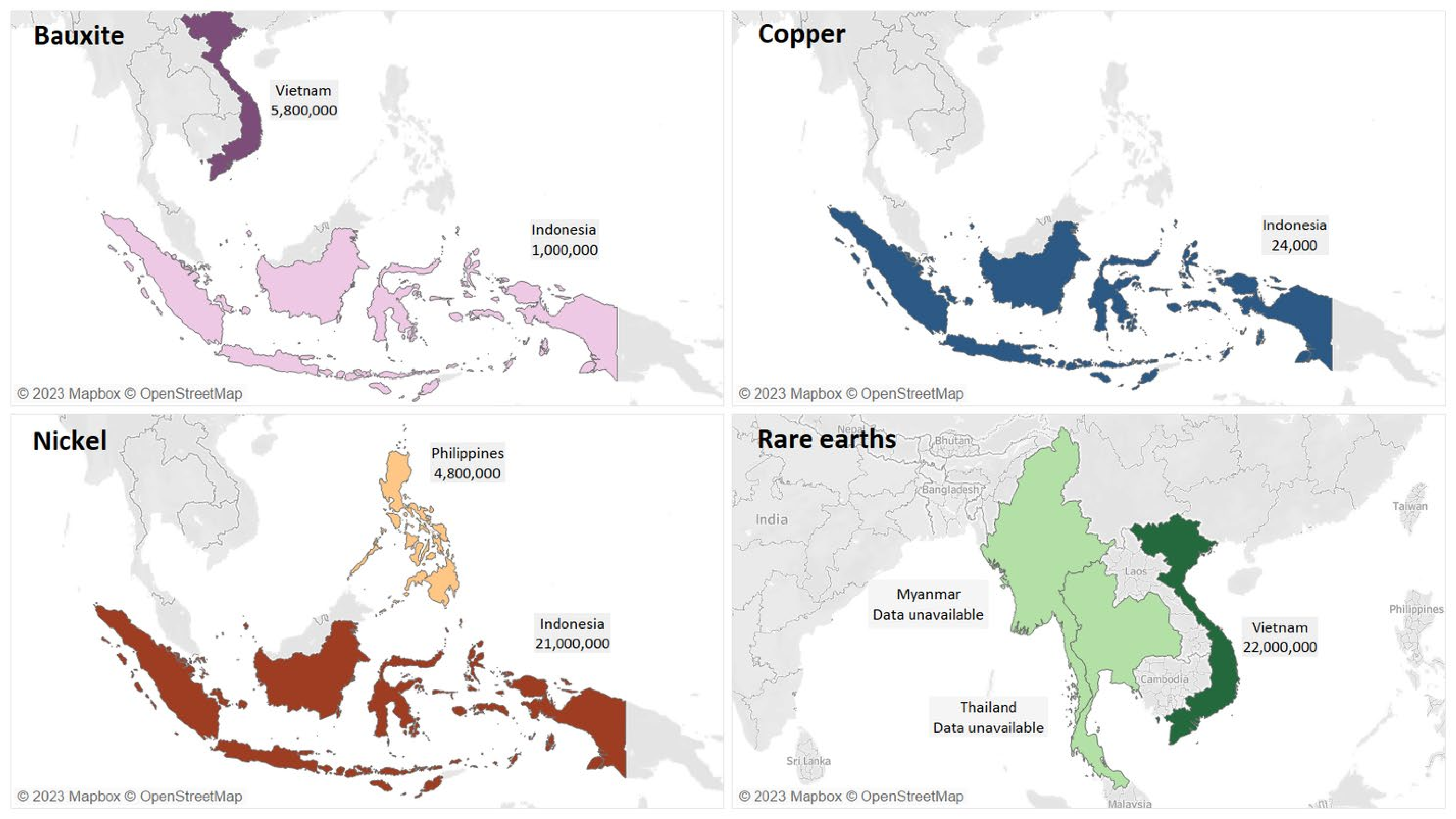
Developing Resilient Supply Chains



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Source: ISEAS, 2024

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Thank you!

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