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Southeast Asia Energy Transition: Opportunities and Challenges Ahead

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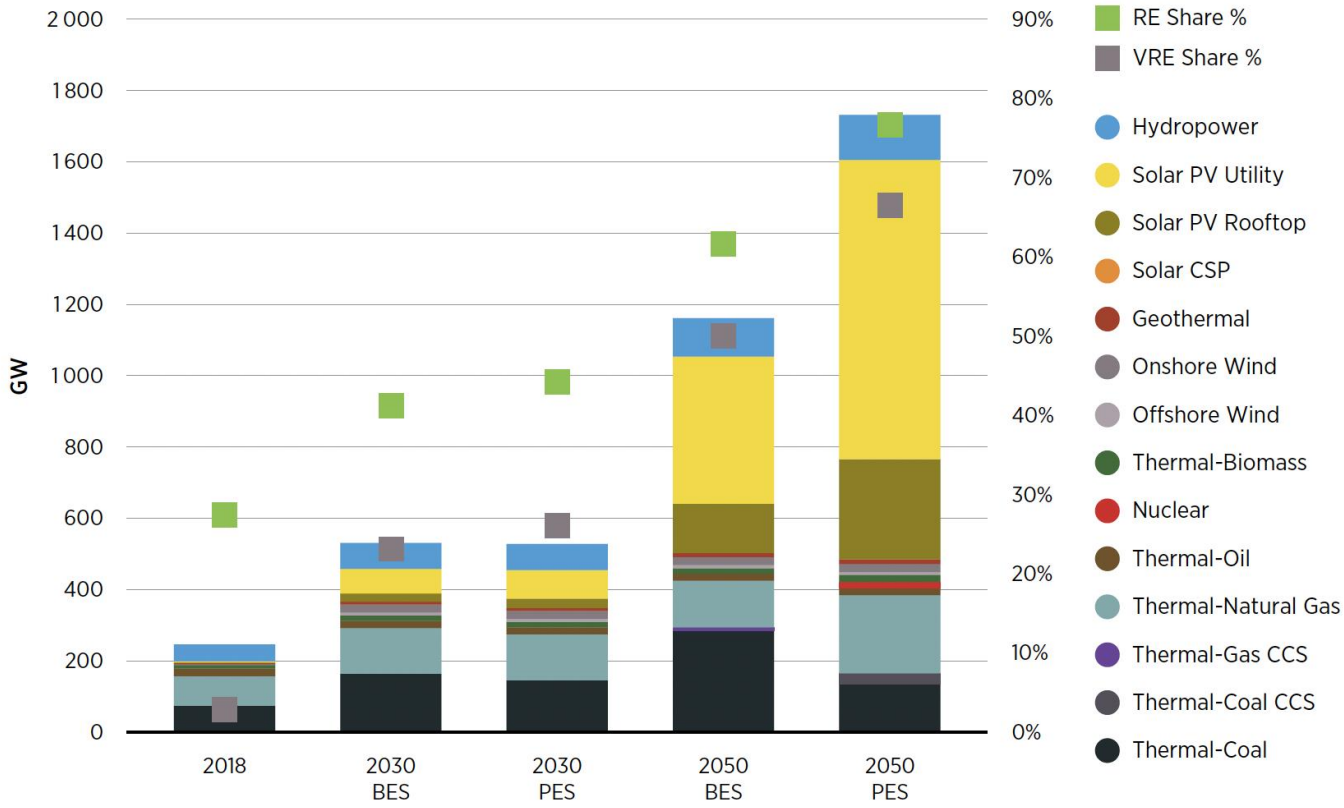
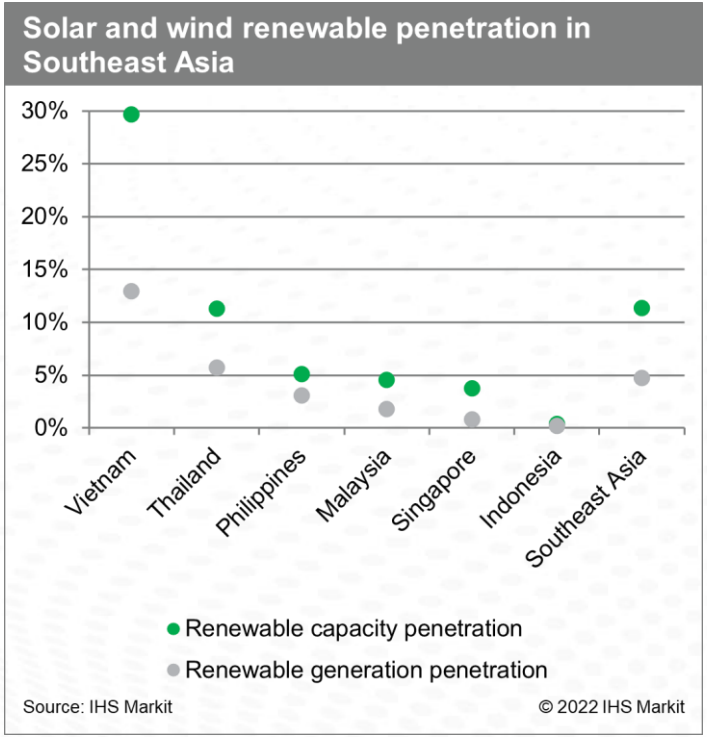
Southeast Asia can transition from 19% renewable share of final energy to 65% by 2050



Source: IRENA (2022)

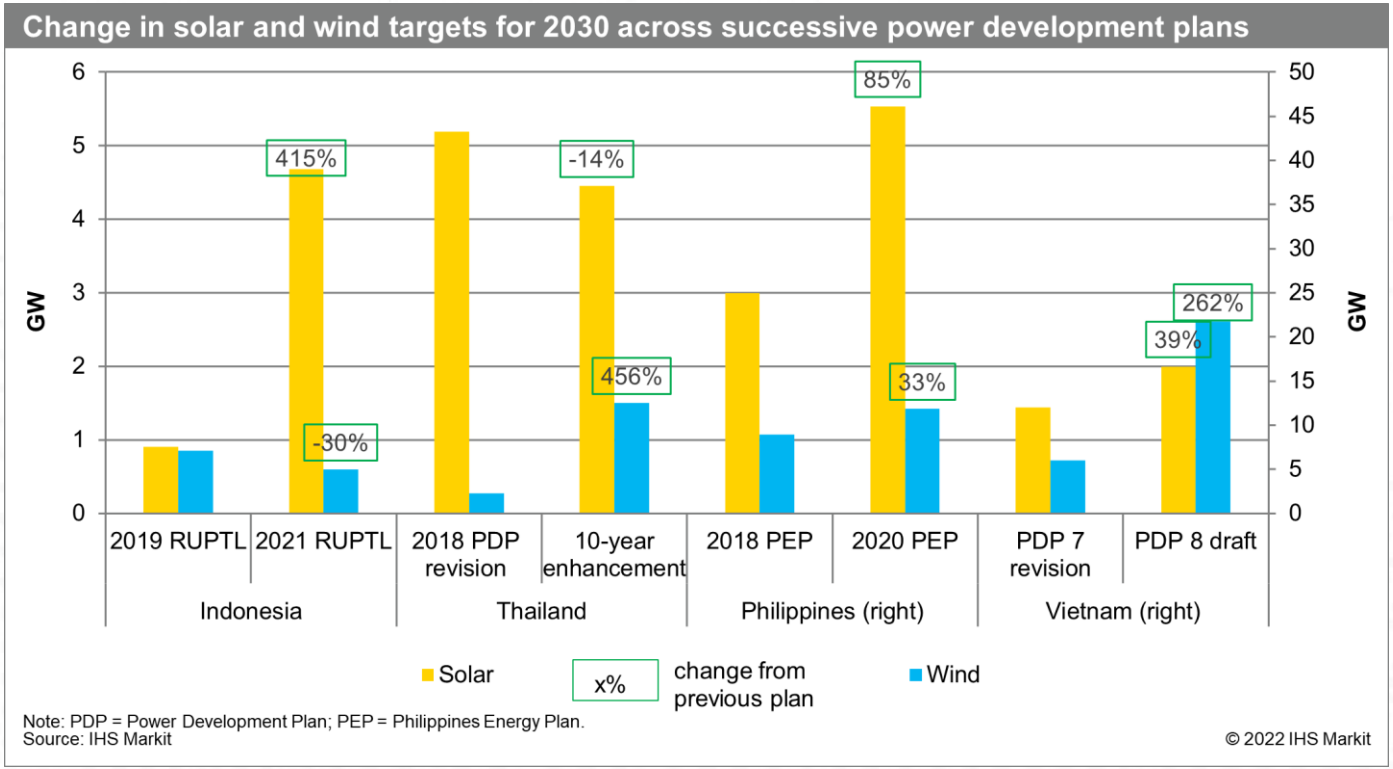
Southeast Asia nations have an aspirational target to reach 23% renewable energy of primary energy and 35% of renewable power capacity by 2025

- Total renewable energy capacity share reached 33% in 2020, boosted by the high deployment of solar PV.
- Some SEA countries signed Global Coal to Clean Power Transition in COP-26, pledging to phase out coal plants before 2050.
- Solar and wind capacity penetration in SEA is still low, total VRE generation is just 5%, will be 11% by 2030 from updated electricity plan.
- SEA countries plan to add 50 GW combine solar & wind capacity by 2030.
- In some countries, grid congestion, and the ability to manage/operate the grid with VRE generation hampers the acceleration of VRE's adoption.



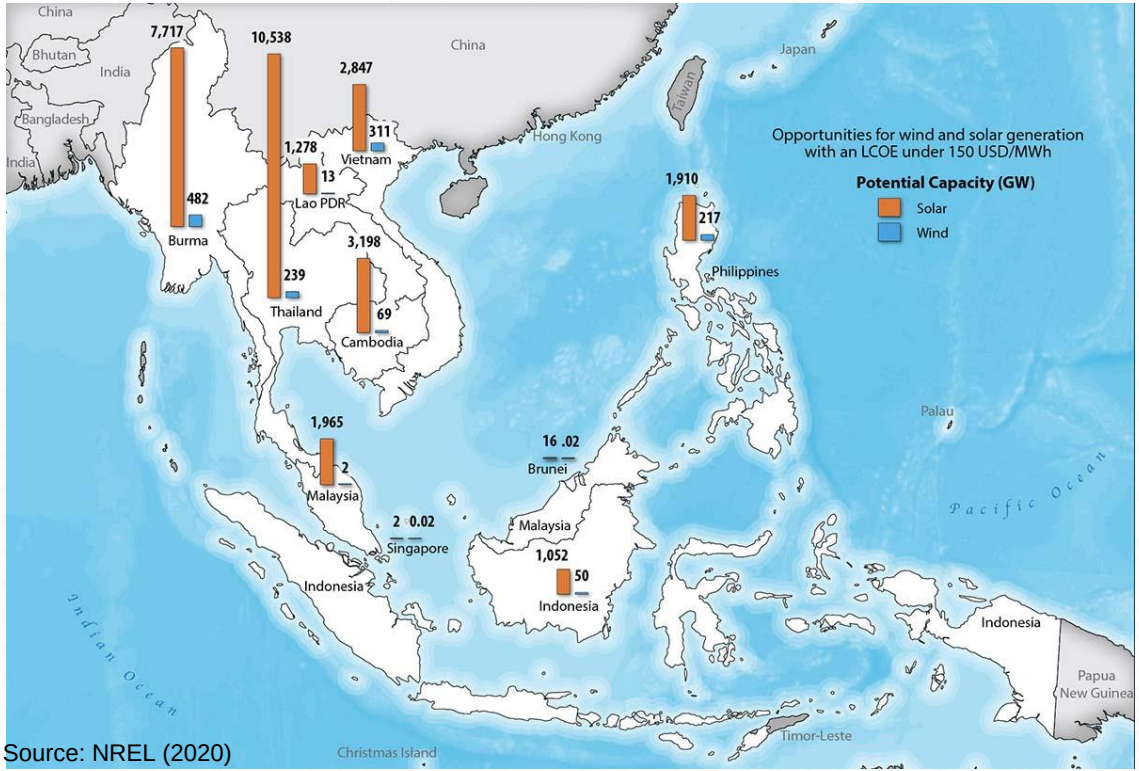
Source: Lee (S&P Global, 2022)

National utilities in SEA have updated their power plan to reflect the change in the economics of solar & wind power leading to 11% share of VRE by 2030



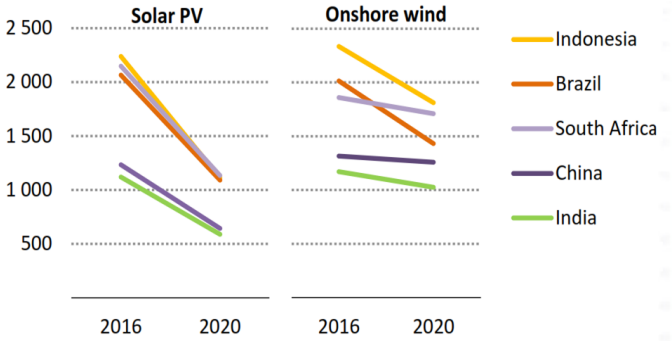
Source: Lee (S&P Global, 2022)

Based on 2018 capex, there are more than 30.5 TWp of solar PV projects and 1.4 TW of wind projects with LCOE <USD 150/MWh potentially to be developed in SEA*



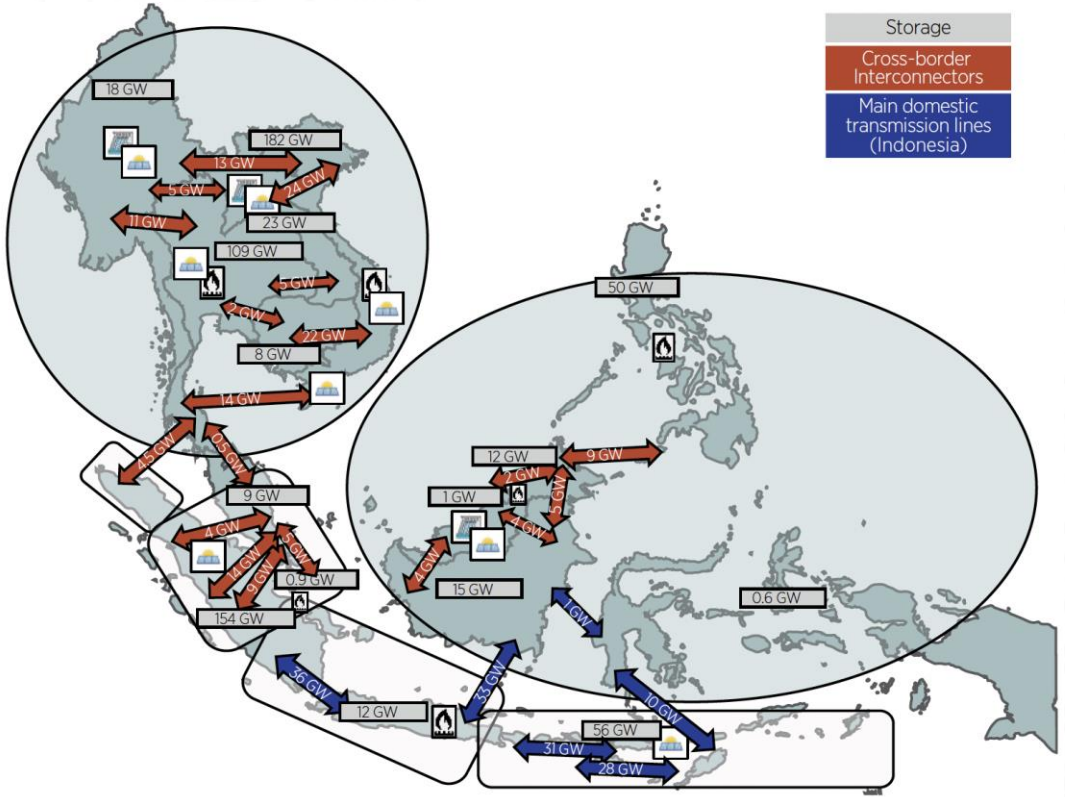
Source: NREL (2020)

Declining CAPEX of wind & solar in selected countries



* Based on the 2018's capex figure. Capacity is potentially higher as capex is now below $1000/kWp

Grid interconnection and energy storage are needed to maximize the utilization of VREs to reach an energy transition compatible with 1.5C-90% renewables in SEA region



Source: IRENA (2022)

Challenge to enhance rapid renewable deployment

- ***The political influence*** of fossil fuel/coal industries *i.e. determining subsidies to gain popularity before an election (lessons learned from Indonesia).*
- ***Overlap issues*** *i.e. lack of coordination of inter-governmental (local & central government), inter-ministries, intra-ministry (between directorate general) (lessons learned from Indonesia)*.
- ***Critical infrastructure development*** in the areas of transmission and distribution to evacuate VREs to load center (lessons learned from Vietnam's "boom and bust" of solar PV).
- ***Hindering policies*** i.e. changing government/ministerial regimes' commitments, inconsistent pricing policy.
- ***Diversion technologies*** such as ammonia co-firing, CCS/CCUS, and SMR's nuclear power delay country and utility to switch fully to renewable.

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Thank You

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