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Driving the clean energy transition in ASEAN: The potential for collaboration

Singapore
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29 October 2021



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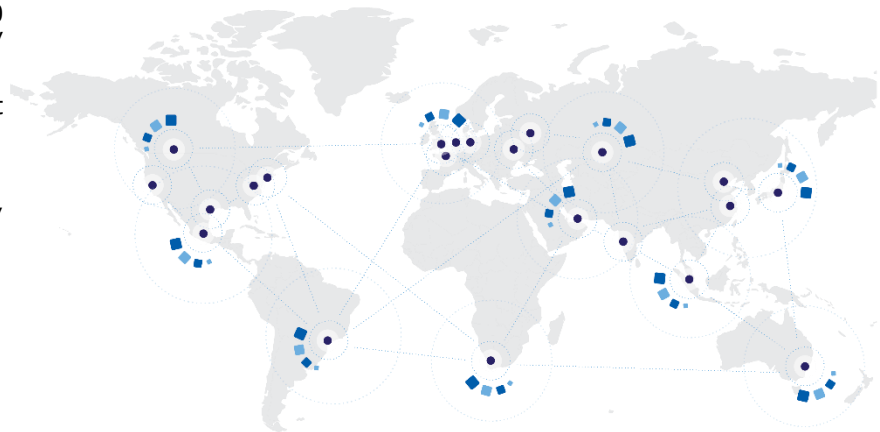
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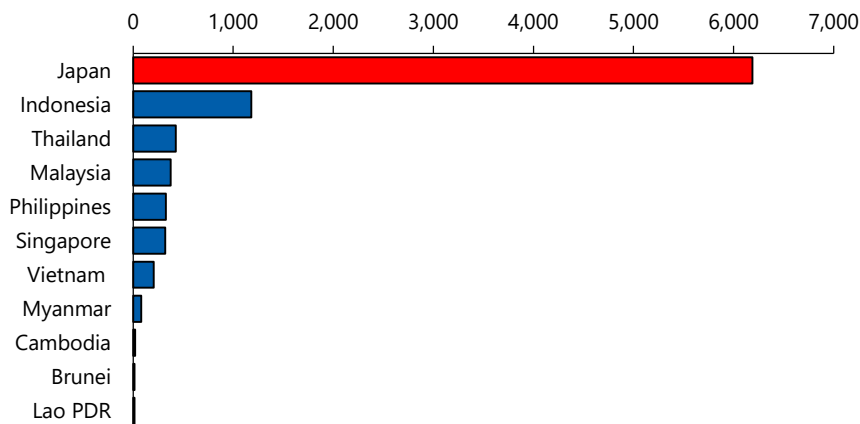
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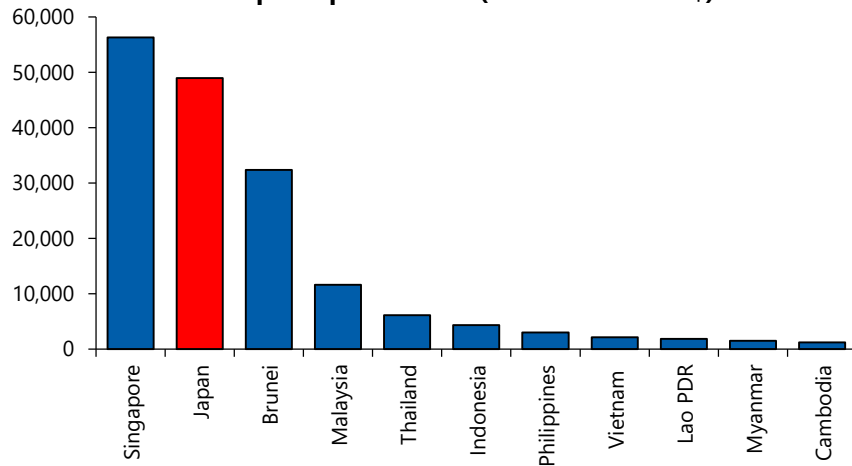
Disparate economic circumstances

- Economic activity in ASEAN as a whole is around half of Japan's.
- The region is largely comprised of lower-middle income countries.
 - **Impacts raising of capital for the energy transition and willingness-to-pay for low carbon technologies**

GDP in 2020 (constant 2010US\$, million)



GDP per capita in 2020 (constant 2010US\$)



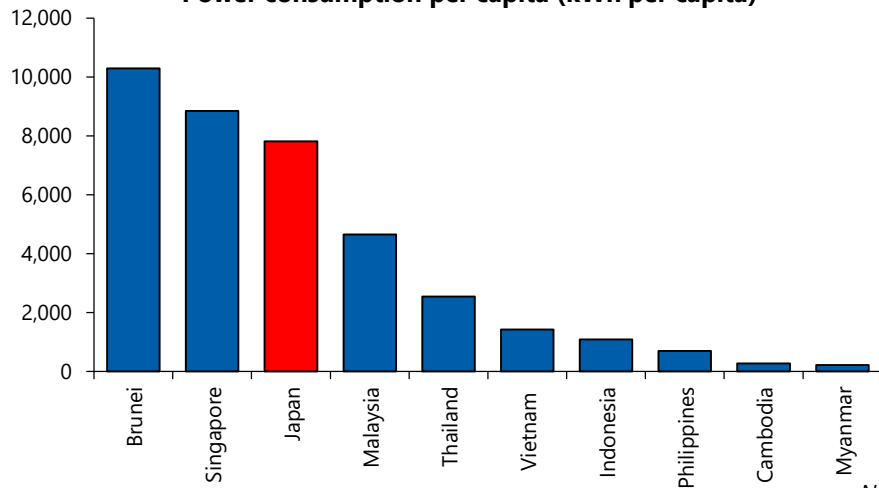
Notes:
— World Bank

Notes:
— World Bank

Energy consumption in ASEAN

- Japan's emphasis on energy efficiency (EE) as a policy tool has in part allowed for lower per capita use of energy than its income level would suggest.
 - **EE is thus an important means of lowering energy demand and hence engendering emissions reduction.**

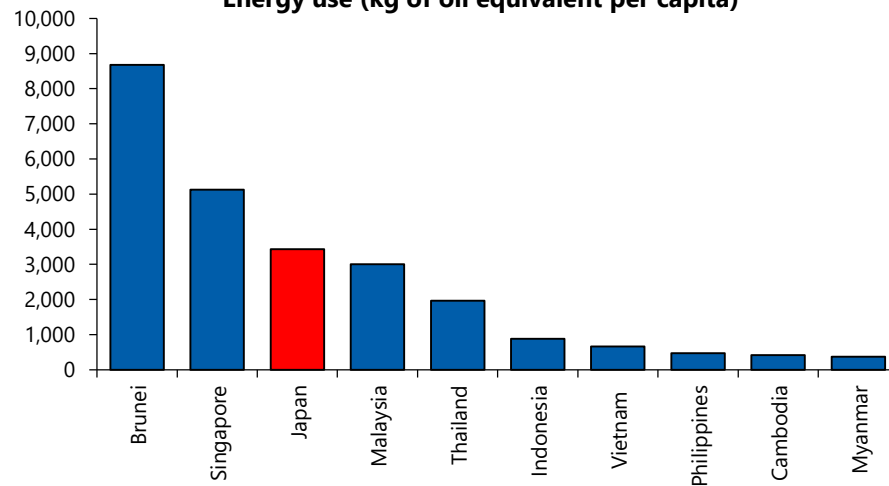
Power consumption per capita (kWh per capita)



Notes:

— World Bank, latest data available is from 2014

Energy use (kg of oil equivalent per capita)

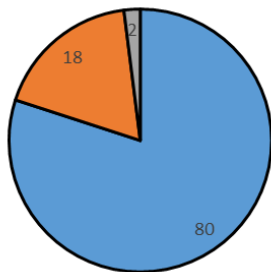


Notes:

— World Bank, data for Lao unavailable, data is from 2014

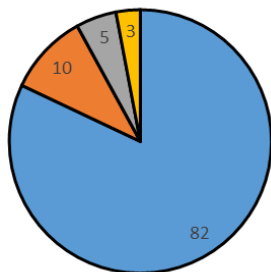
Heterogeneity in endowments

Hard coal reserves (17 bn t)



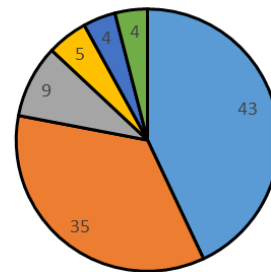
Indonesia Vietnam Rest of ASEAN

Lignite reserves (11 bn t)



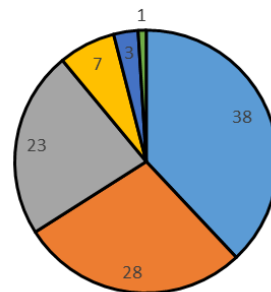
Indonesia Thailand Lao PDR Rest of ASEAN

Natural gas reserves (6.8 tr m³)



Indonesia Malaysia Vietnam Rest of ASEAN Thailand Brunei

Crude oil reserves (2.1 bn t)

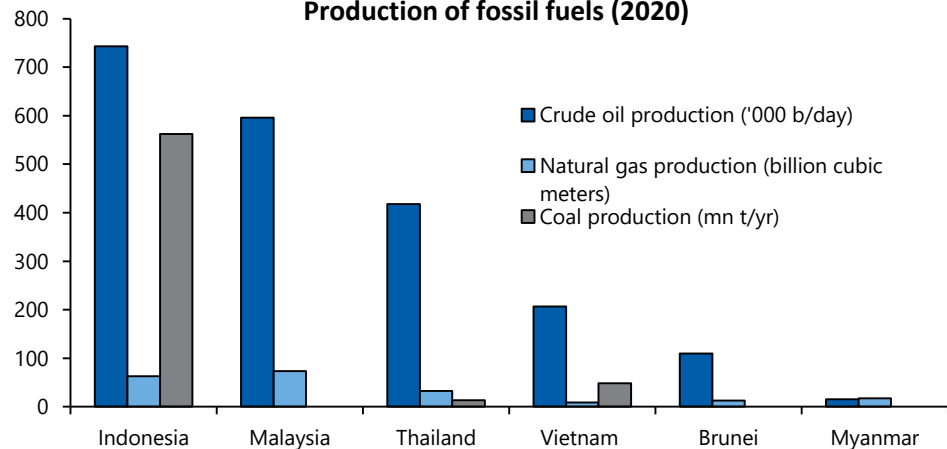


Malaysia Vietnam Indonesia Brunei Thailand Rest of ASEAN

Heterogeneity in endowments (2)

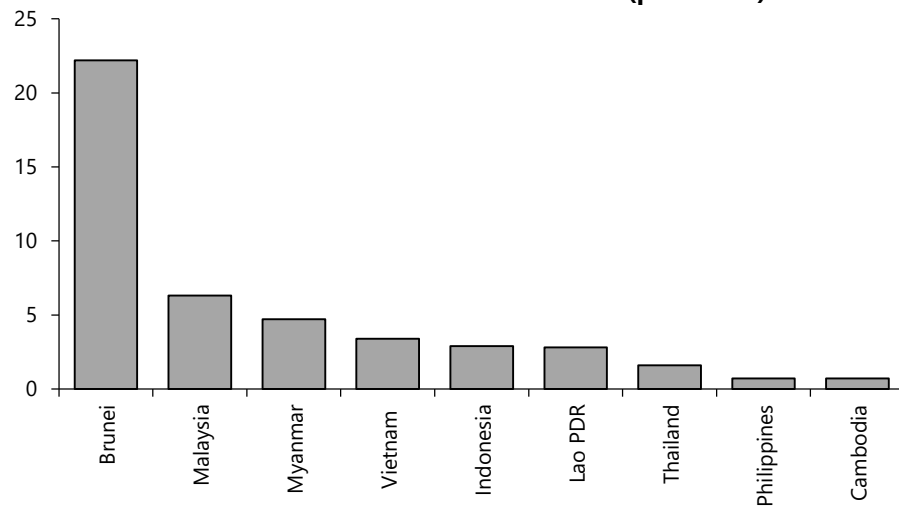
- Natural resource endowments have shaped the economies in SEA. Governments are dependent on the sector for its finances.
 - The transition to a lower carbon economy would need to manage this dependence.**

Production of fossil fuels (2020)



Notes:
— BP Statistics

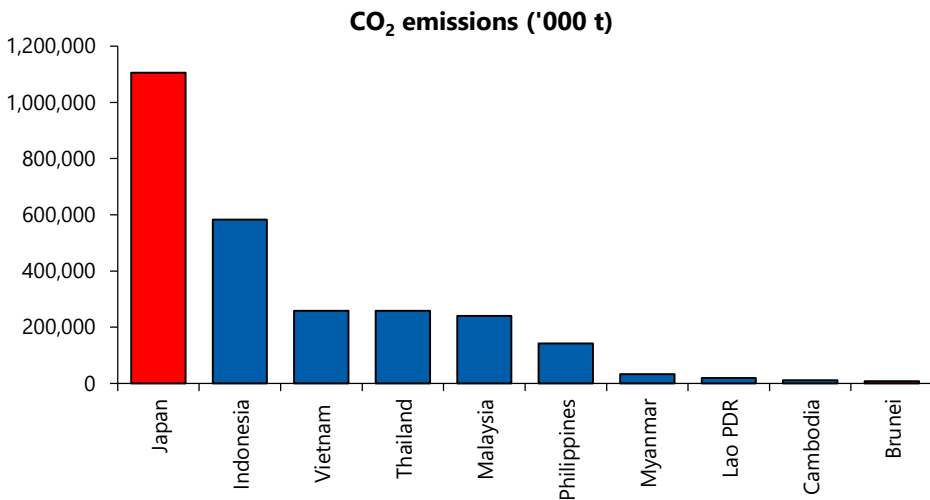
Total natural resources rents in 2019 (pc of GDP)



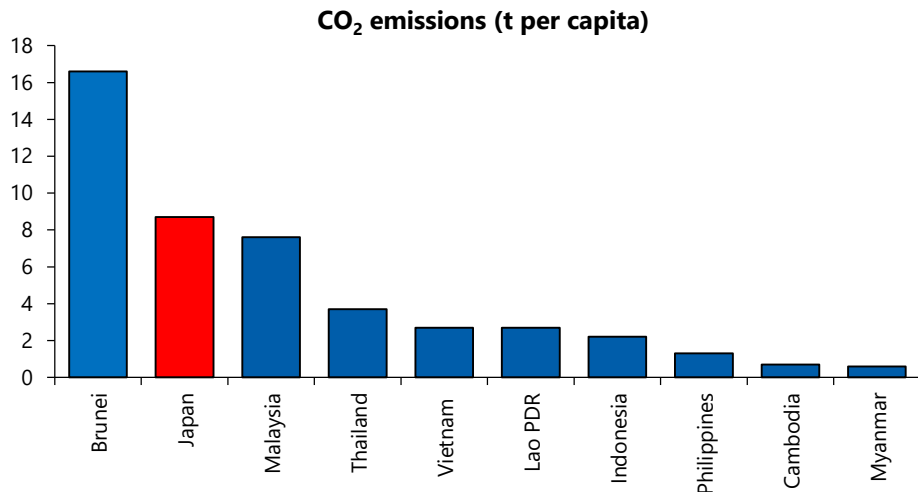
Notes:
— World Bank

Carbon dioxide emissions

- As the region is reliant of fossil fuels, contribution to the global carbon dioxide emissions has been growing



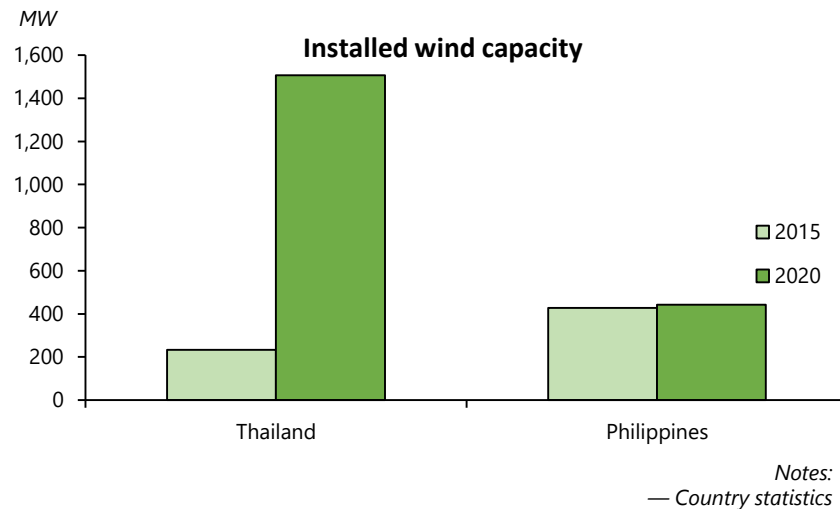
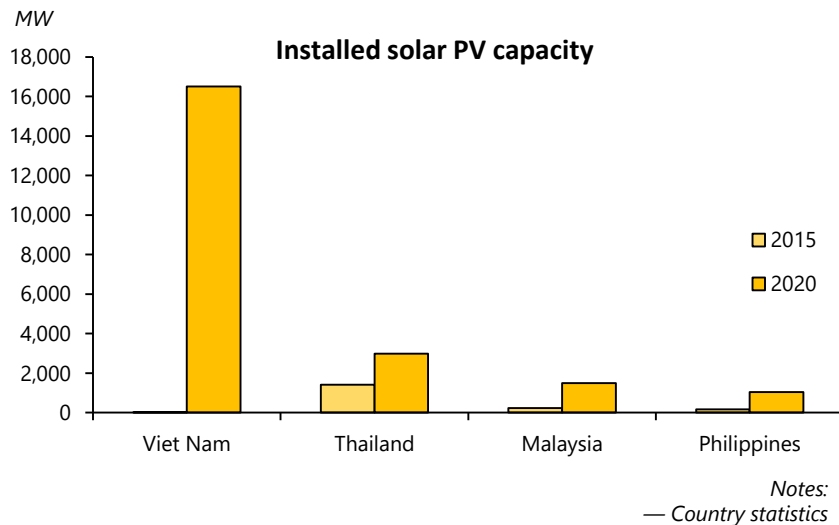
Notes:
— World Bank, 2019 data



Notes:
— World Bank, 2019 data

Nevertheless, renewables are fast progressing

- Policymakers have been looking to accelerate the uptake of renewables and decarbonize the grid.



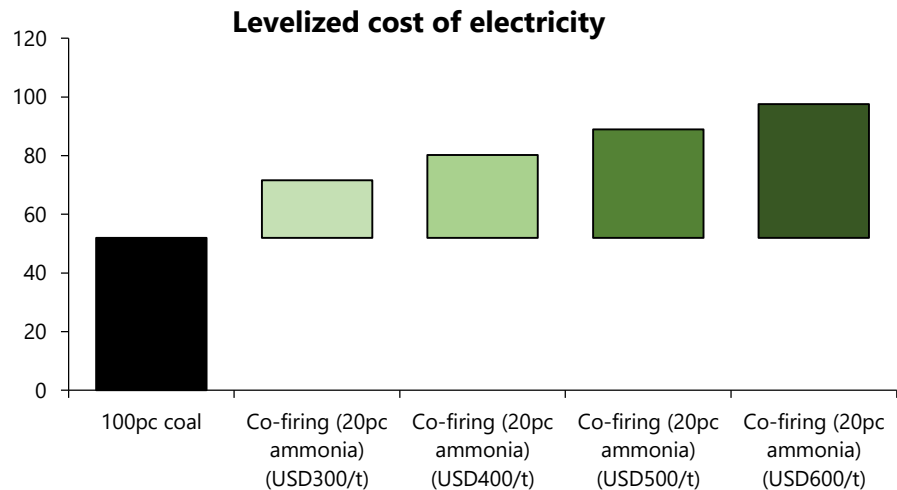
Accelerating the transition: Synergies with Japan

Target	Offshore wind roadmap	Fuel ammonia roadmap	Hydrogen roadmap	Roadmap for the shipping industry
2030	10GW	3mn t	3mn t	Commercialization of zero-emissions ships
2040	30 - 45GW			
2050		20mn t	20mn t	Conversion of ships to run on low carbon fuels

Source: Japan's Green Growth Strategy

Accelerating the transition: Synergies with Japan (2)

- **Technology** will play a key role in achieving net zero targets, some of which are being trialed/driven by Japan/Japanese firms.
 - E.g. Ammonia co-firing in coal-fired power plants.
- ASEAN could become a **test-bed** for these nascent technologies accelerating their path towards economic viability.
- The lowering of costs over time would improve the economics of decarbonization in ASEAN.



Notes:
— Argus estimates, illustrative

Concluding thoughts

- Multitude of technologies would help ASEAN get to the net zero target
 - Continue promoting renewables such as wind and solar where economically viable.
 - Energy efficiency needs to be a policy tool in certain sub-sectors.
- View the energy transition as an opportunity to grow the macroeconomy via the creation of new industries.
- Enable the energy transition by allowing test-bedding of novel technologies in ASEAN.
 - Test beds help quicker uptake of a technology in a jurisdiction once proven.
- Produce roadmaps for decarbonization that specify how net zero targets are to be achieved.

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