Review of Paper

Balancing the needs of energy security, economic growth, and climate sustainability in ASEAN

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Objective of this Paper

- This paper provides an integrative review of the energy landscape and cross-sectoral energy-related policies in the ASEAN Member States (AMS) ***in balancing the needs of energy security, economic growth,and climate sustainability***.

- To achieve this broad objective, this paper aims to empirically investigate the changing structure of the economy by comparing it with the changing role of energy, especially coal, in ASEAN.

- The second aim of the paper is to assess national policies in ASEAN related to energy transition away from coal, using horizontal integrated policy analysis.

Observation

Ambitious Challenges

to cover

3 Fundamental Issues

Energy Security

Economic Growth

Climate Change

which I also had tackled as former Energy, Climate Change, and PPP Specialist ADB (2000-2017)

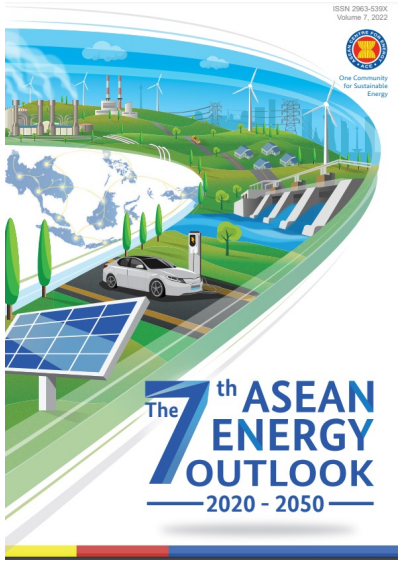
This Paper properly identified issues and raised way-forwards based on depth policy assessments

This Paper leads to pragmatic conclusions to gradually phase out coal by mainstreaming renewable energy (RE)

Observation-Methodologies

This paper excellently analyze multiple policies based on reliable information.

1. both country policies and regional perspectives.
2. three dimensions – macro-economy, macro-energy-policies and concrete measures
3. Linkage of those vertical & horizontal initiatives



<u>Regional</u>

Economic Growth

Macro-Energy

Concrete Measures

Regional Cooperation

How Structural Transformation of Economy Affects Energy Sector?

Regional Cooperation

Regional Grid Connection
Mutual Complement
Diversification of resoueces

<u>Country</u>

Economy Policy

Macro-Energy Policy

Concrete Measures

How Structural Transformation of Energy Sector Affects Economy?

Energy Access
Demand Side Management
Energy Efficiency

Conclusion of this Paper

① Heavy reliance on fossil fuel-based energy will be a crucial challenge for ASEAN's energy security and sustainability

② Tackling this issue by fuel shifting towards low-carbon sources can together satisfy the two dimensions of the energy trilemma.

③ Although half of AMS already pledged to phase out coal, **its existence will not vanish entirely in the near future**. Due to its mature technology and low price, coal will still play a significant role in the ASEAN energy mix.

④ With solid commitments by the ASEAN energy policymakers to implement measures both on the demand and supply sides, balancing the needs of energy security, energy equity, and climate sustainability can be realized.

Observation

The paper could provide as conclusion more concrete and dynamic critical reasoning on "Achieving Economic Growth" or "Way-forward to Trilemma"

No one can challenge that ASEAN energy policymakers should be committed to mainstream RE and phase out coal.

In fact, the 7th ASEAN Energy Outlook 2020-2050 deeply analyze the issues where I believe Author has contributed considerably.

In this paper, Author analyzed AMS's ambitious 2050 Net-Zero-Emission policies (table 3) and relatively conservative 2030 RE development policies (table 2) which could be contradictory.

Noting those, the argument could be much stronger if clarifying "How much" "By what means" "When" "By whom" based on the findings of Outlook and Author's original toughs while Author may face trilemma of official duty, diplomacy, and personal views.

More Technical (1)

- There is potential for additional solar and wind sources based on RE resources assessment, although they are still limited to 20% penetration.
- The power grid needs to be enhanced with flexibility and digitalization in order to manage the intermittency nature of VRE

- It is true that solar & wind power should be mainstreamed
- In addition to the power grid enhancement to manage the intermittency nature of VRE, there exist multiple, complicated and interlinked factors hampering it in dimensions of
- **i) Policy and regulatory framework** (e.g., FIT, power sector reform, intra-interregional cooperation),
- **Ii) Finance** (e.g., PPP, risk mitigation, Demand Charge) and
- **Iii) Technologies** (e.g., Decentralization of Power System, Demand Response, Storage, VPP, V2G and Hydrogen.
- Policy should create enabling environment solve the issues taking a holistic approach.

More Technical (2)

- The energy efficiency measures should be taken firmly on the two end users with the highest energy consumption in the region: industry and transportation.
- It is also in-line with the structural transformation of most AMS, which are moving its economy from agriculture towards industry and services.
- In the industrial sector, energy efficiency measures are crucial to accelerating the energy transition.

- Quite important arguments
- On top of that, the argument would be much stronger if covering incentive policies for promoting not only energy efficiency enhancement (reducing kWh) but also

i. **Demand Response (DR)** including creation of power exchange market to manage the intermittency nature of VRE (ΔkW kW),

ii. **Installation on-site RE and storage** which could drastically alleviate burdens of power grid, and

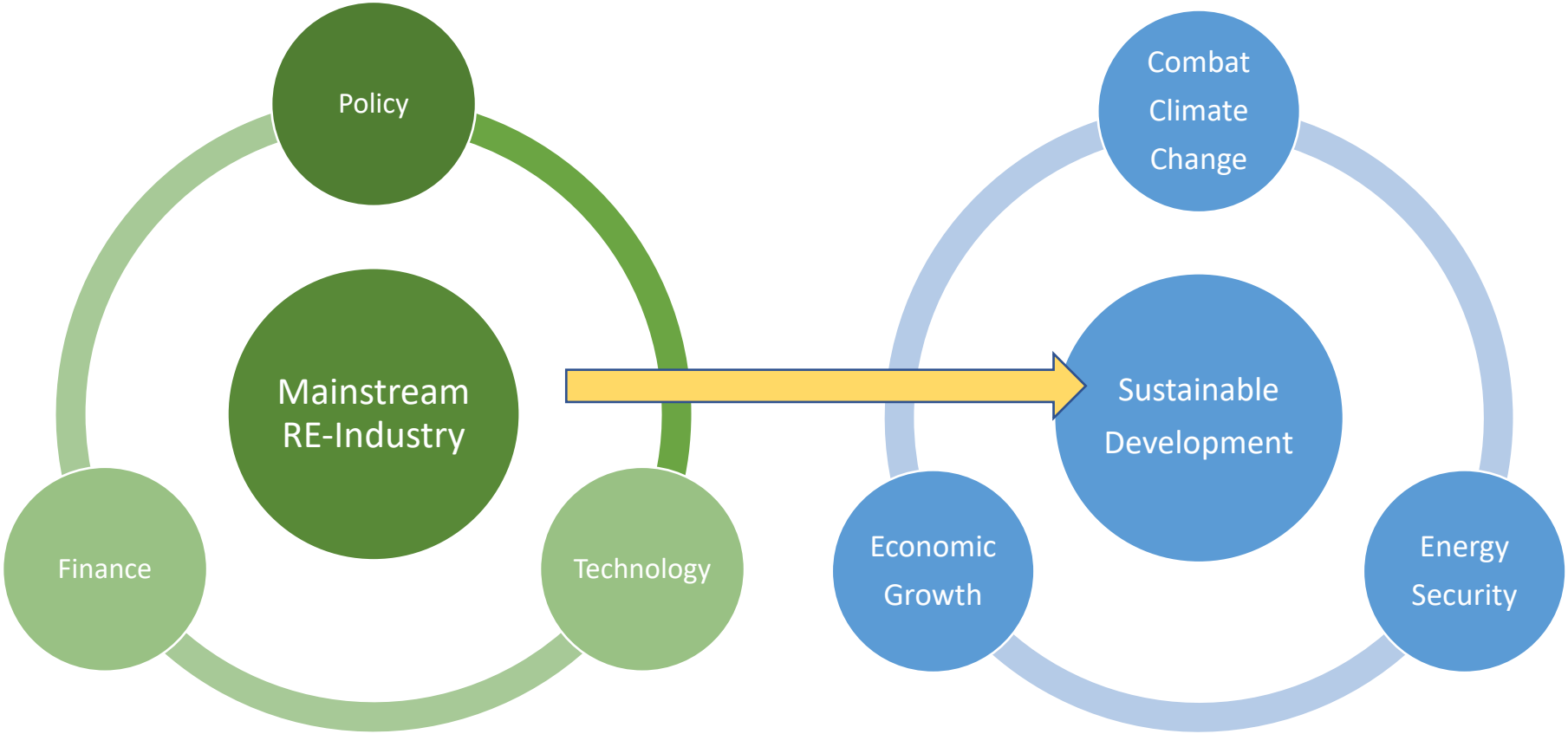
iii. **Possible Carbon Trading** e.g., renewable Energy Certificate as several AMSs have already introduced International Renewable Energy Certificate (i-REC) system.

- In addition, the paper could cover policies for households' EE.

Scope of this Paper: TWO AGENDA

Mainstream Renewable Energy

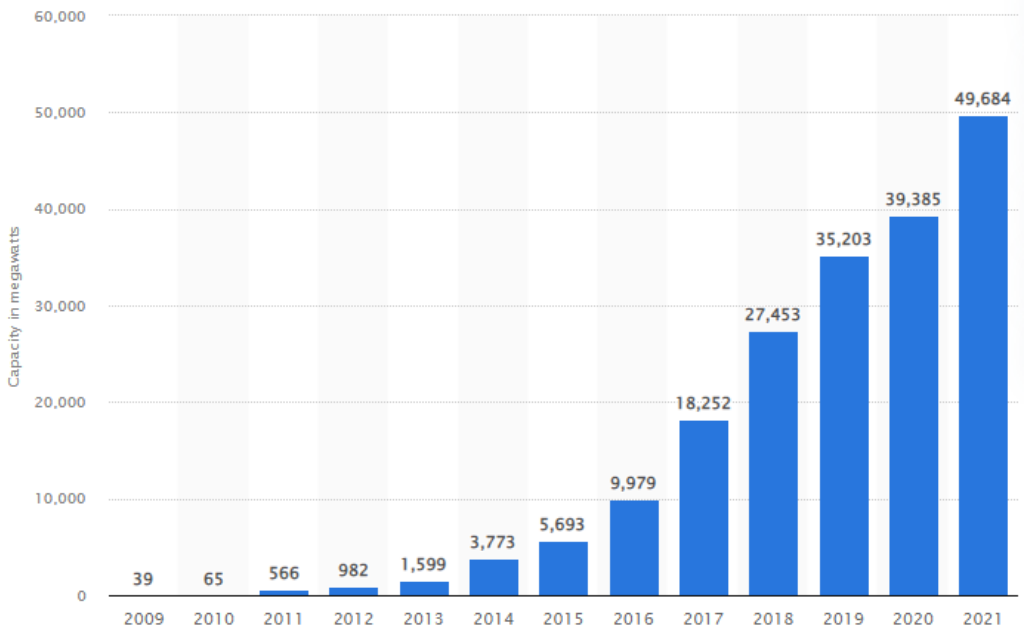
Solve Trilemma



Case Study of India: National Solar Mission

- The objective of the National Solar Mission set out in 2010 is to "establish India as a global leader in solar energy, by creating the policy conditions for its diffusion across the country as quickly as possible".

The original target of 20 GW was surpassed in 2018, four years ahead of the 2022 deadline.



- Achieving Grid Parity
- Industry Development
- Exports of Solar Park Model
- Energy Access

https://www.adb.org/sites/default/files/publication/30150/thorough-planning-solar-park.pdf

ADB Knowledge Showcases

Thorough Planning of Solar Park Mitigates Risk for Investors, Locals

Highlights

- India's Gujarat State passed a policy promoting the use of solar power to alleviate the escalating pressure to produce thermal energy arising from the country's growing consumption.
- The Charanka solar power park, poised to be the world's largest photovoltaic power station upon its completion in 2014, was constructed using the build-own-operate mode.
- Reduced and fixed solar power tariffs, favorable policies, capacity development, and education campaign drew the participation and sustained interest of investors, residents, civil society, and other key stakeholders.

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