The Implementation of Renewable Energy Certificates (RECs) in Six APEC Southeast Asia Economies

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APERC is preparing a report on RECs in Southeast Asia

Importance of RECs in APEC Southeast Asia economies

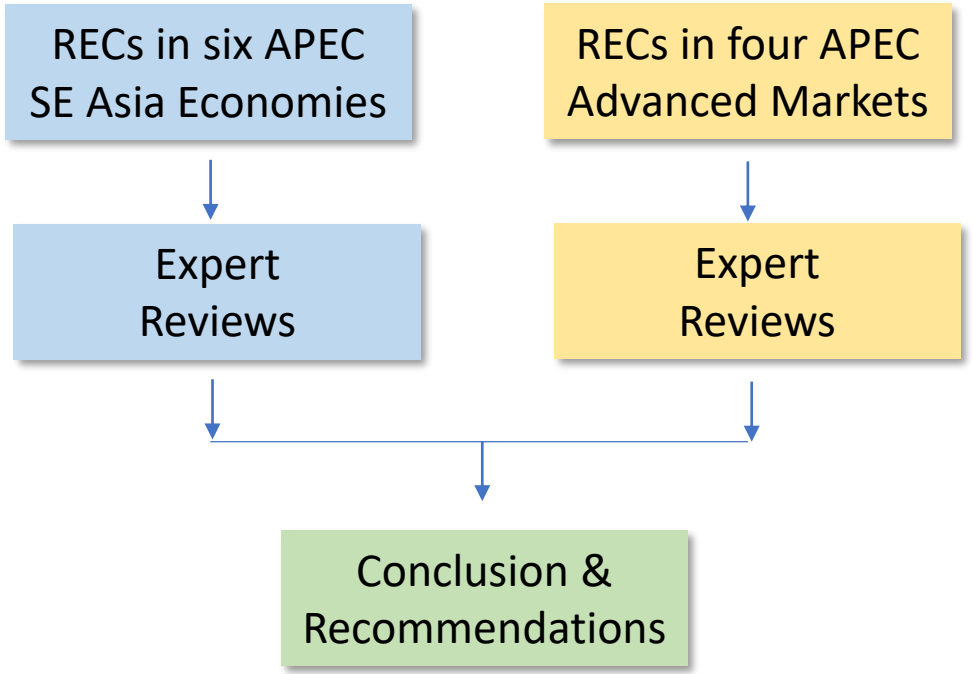
- Increase of RECs demand from corporates wishing to meet RE-100 targets
- Increase of RECs supply from renewable power plants to seek additional source of revenue streams
- RECs are identified as policy lever to boost investment in renewable energy to meet economies' decarbonization targets

Purpose of this report

- To describe and analyze the emerging REC markets in six APEC economies in Southeast Asia (Indonesia, Malaysia, Philippines, Singapore, Thailand, and Viet Nam)
- To present the authors' observations regarding the effectiveness and challenges of RECs markets

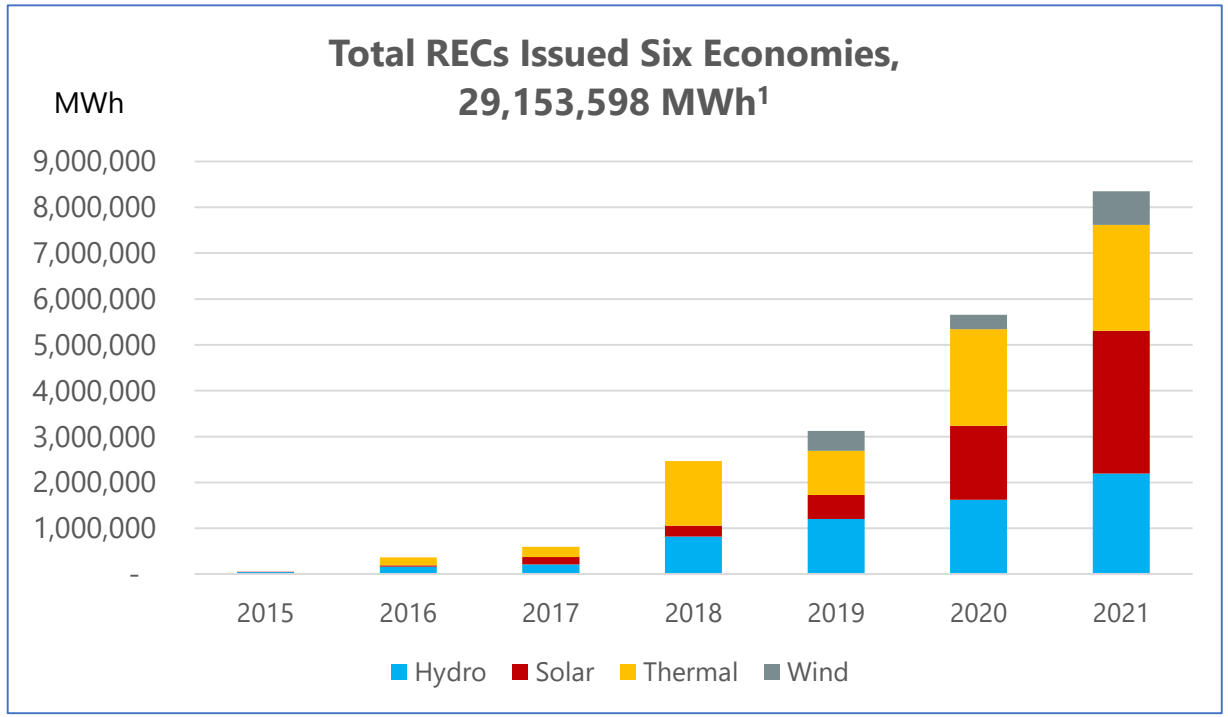
Value of the report:

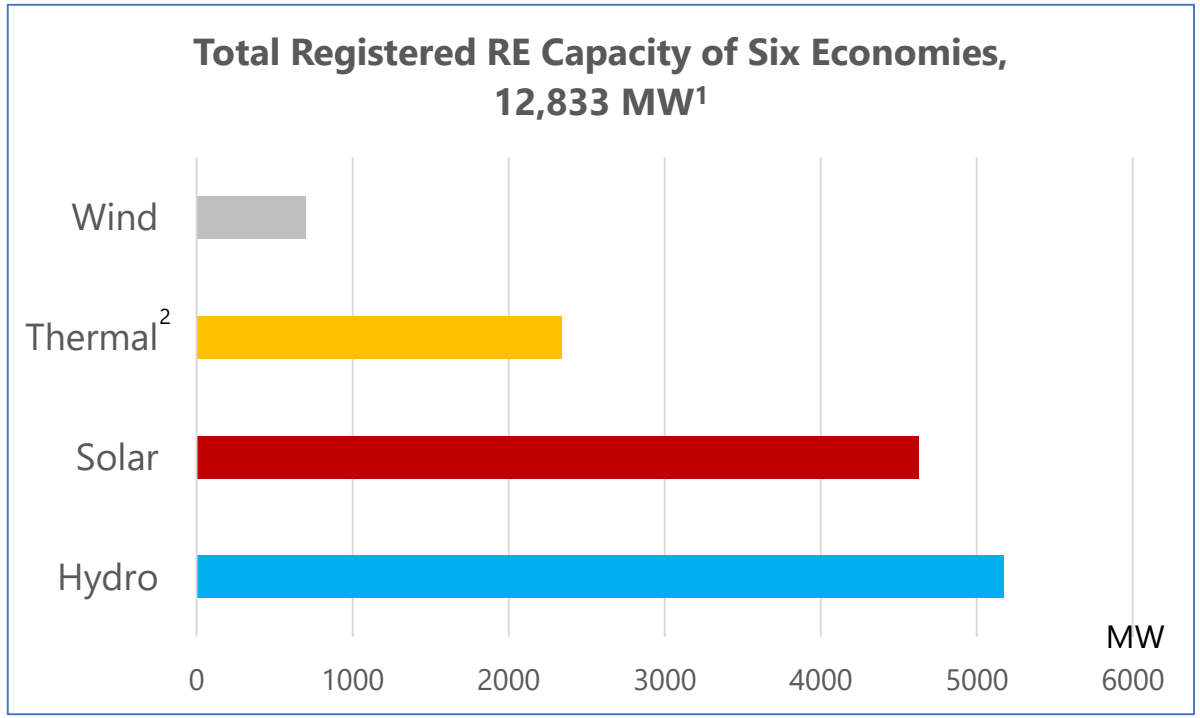
- Provides an examination of RECs markets in the six APEC economies
- Describes how RECs markets are currently implemented in detail
- Examines RECs in selected APEC developed markets to learn from their success and challenges
- Identifies key challenges and provides recommendations for sustainable development of RECs markets in six APEC economies in Southeast Asia



Overview of RECs in six APEC economies in Southeast Asia

- On the demand side, RECs markets in APEC Southeast Asia started around 2015 and are growing exponentially
  - Market size in 2022 is expected at 15-20 million RECs (MWh)
- On the supply side, the registered capacity of 12.8 GW is well under 30% of total aggregated RE capacity (45.8 GW[3] in 2019), which could provide security of supply for future demand of RECs.





Notes: 1-Data from I-REC and APX reports, July 2022
2-Biomass and geothermal combined
3-Data from APEC Energy Demand and Supply Outlook 8th Edition

Comparison of RECs in six APEC economies in Southeast Asia

	Indonesia	Malaysia	Philippines	Singapore	Thailand	Viet Nam
Type of market	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary
Cumulative registered RE capacity, GW (total 12.8)	1.5	2.3	1.4	0.8	3.9	2.9
Cumulative number of issued RECs, million RECs (total 29.1)	4.3	4.0	6.3	1.2	6.5	6.8
RECs issuance and tracking system	• I-REC (by EGAT, GCC) • APX	• I-REC (by GCC) • APX • TNBX (national)	• I-REC (by GCC) • APX	• I-REC (by GCC) • APX	• I-REC (by GCC) • APX	• I-REC (by GCC) • APX
Trading market	• I-REC • APX	• I-REC • APX • mGAT (national)	• I-REC • APX	• I-REC • APX	• I-REC • APX	• I-REC • APX

Overview of RECs in four APEC advanced markets

Economy	Types of RE Credit/Certificate Systems
U.S.A.	REC, Green Tag, RE Credit, Tradable Renewable Certificate (TRC)
Japan	Non-Fossil Certificates (NFC), Green Electricity Certificates (GEC), J-Credits, and REC (by I-REC)
China	Green Electricity Certificate (GEC), and REC (by I-REC)
Australia	large-scale generation certificates (LGCs), small-scale technology certificates (STCs), and REC

Preliminary observations regarding RECs markets in Southeast Asia economies

- Each economy should establish a legal framework and governance body for its RECs market
- A robust accounting and reconciliation system should be established to ensure integrity and to prevent double-counting
- When established in a balanced and pragmatic manner, a RECs market can encourage additional investment in renewable energy generation capacity
- The interaction of RECs transactions across six economies and the development of an ASEAN power grid needs further study
- The conflicts of interest between renewable generators with PPA and state-owned utilities need to be resolved

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