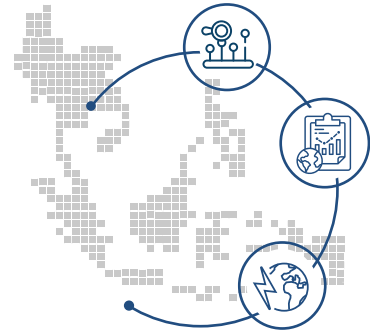




Philippines' REC Market Assessment and Opportunities for Regional Integration



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Highlights

- **The Philippines' REC market is at a crossroads.** While the compliance market (PREM) is established, the voluntary market is nascent and faces challenges like limited supply and international recognition.
- **Ambitious renewable energy targets.** The Philippines aims for a 35% renewable energy share by 2030 and 50% by 2040, necessitating a thriving REC market to accelerate this transition.
- **Key challenges to overcome.** These include dual market structure integration, price caps, lack of international recognition, regulatory uncertainty, supply-demand imbalances, and ensuring market liquidity and transparency.
- **Learning from international best practices.** The Philippines can adapt successful models from the EU and US, like the Renewable Energy Directive and HEPIS, to strengthen its regulatory framework and incentivise renewable energy investments.
- **Regional collaboration opportunities.** The Philippines can benefit from collaborating with ASEAN countries, harmonising standards, developing cross-border trading mechanisms, and promoting joint renewable energy projects.

1. Introduction

The Philippines' renewable energy certificate (REC) market is at a pivotal juncture, with a well-established compliance market (PREM) and a nascent voluntary market. The country's ambitious renewable energy targets, aiming for a 35% RE share by 2030 and 50% by 2040, highlight the importance of the REC market in accelerating the transition towards a cleaner energy future. However, the REC market's current structure, particularly the restrictions on voluntary market access and the misalignment between buyer needs and RPS rules, poses significant hurdles to achieving these targets.

This policy brief summarises insights from a series of discussions held to assess the Philippines' REC market and explore opportunities for regional integration. The valuable insights and findings presented in this brief are a direct outcome of the RECAP project, a collaborative effort funded by the BIMP-Korea Cooperation Fund (BKCF) dedicated to promoting Renewable Energy Certificate Systems across BIMP-EAGA countries.

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2. Philippines' Energy Plan

2.1. Energy Mix Status Quo

Primary Energy Mix. The Philippines' energy mix is heavily reliant on imported sources, with over half of its energy requirements coming from abroad in 2022. The total primary energy supply was 61.6 million tons of oil equivalent (Mtoe). The energy mix was dominated by oil (32.2%), coal (31.0%), and renewable energy sources, primarily geothermal (14.6%) and biomass (12.6%). Natural gas accounted for a smaller share (4.2%).

Power Generation. The power generation sector heavily relied on coal, which accounted for 59.6% of power generation and 66,430 GWh of electricity generated in 2022. Renewable energy sources contributed 22.1% (24,684 GWh). Oil-based power generation accounted for 2.3% (2,519 GWh), while natural gas contributed 16.0% (17,884 GWh).

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Capacity. In terms of power capacity, coal also dominated, with 48.8% dependable capacity and 11,504 MW. Natural gas followed with 30.3% (7,151 MW). Renewable energy sources accounted for 13.6% (3,834 MW), while oil-based power had 8.8% (2,081 MW).

2.2. Energy Plan 2023 – 2050: Directions and Scenarios

Energy Strategic Directions. The Philippines Energy Plan (PEP) for 2023-2050 [1] outlines the country's energy strategic direction and future energy scenarios. The plan aims to achieve energy security, a lower cost of electricity, and sustainable energy development. The PEP envisions a future energy scenario where the Philippines achieve energy security, reduce the cost of electricity, and promote sustainable energy development a 35% renewable energy share in the power generation mix by 2030 and 50% or more

by 2040. It also aims for a 10% energy savings on oil products and electricity by 2040 and a 50% electric vehicle (EV) penetration rate in road transport by 2040.

Energy Scenarios. The PEP presents three scenarios for the future energy mix – as illustrated in Figure 1: (1) **Clean Energy Scenario 1 (CES1)** envisions a high share of renewable energy in the power generation mix, with a lower share of offshore wind and nuclear power. It also includes coal repurposing initiatives. (2) **Clean Energy Scenario 2 (CES2)** is similar to CES1. This scenario also targets a high share of renewable energy but with a higher share of offshore wind and nuclear power. Coal repurposing is also considered. (3) **Reference Scenario:** This scenario serves as a baseline for comparison and assumes a continuation of current trends and policies.

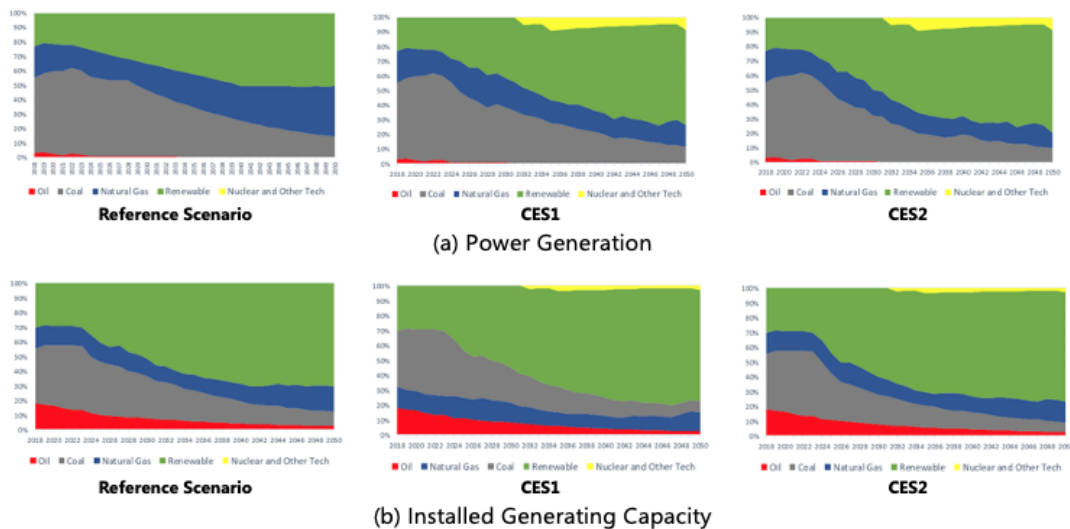


Figure 1. Philippines Energy Plan Energy 2018 – 2050 Scenarios

3. Philippines' REC Market

3.1. Regulatory Framework

Fundamental Regulations. The Renewable Energy Act of 2008 is the foundation of the regulatory framework for RECs in the Philippines. This act mandates RPS, which requires a certain percentage of electricity to come from renewable sources. It also establishes a Renewable Energy Market (REM) to facilitate the trading of RECs. Subsequent Department Circulars (DCs) in 2017 and 2018 set specific RPS targets for on-grid and off-grid systems, respectively. In 2019, DC2019-12-0016 outlined the rules for the REM, providing the operational framework for REC trading and compliance with RPS requirements [2].

Defining Rules and Manuals. DCs issued from 2021 to 2023 gradually developed the REC framework. Key milestones include the release of the REM Manual (DC2021-10-0032), the start of the REM's interim commercial operations (DC2022-06-0019), an increase in the minimum annual incremental renewable energy percentage (DC2022-09-0030), and revisions to the RPS rules for both off-grid and on-grid systems (DC2023-05-0014, DC2023-05-0015). An overall timeline that summarises the regulatory development of the Philippines' compliance REC market is captured in Figure 2 .

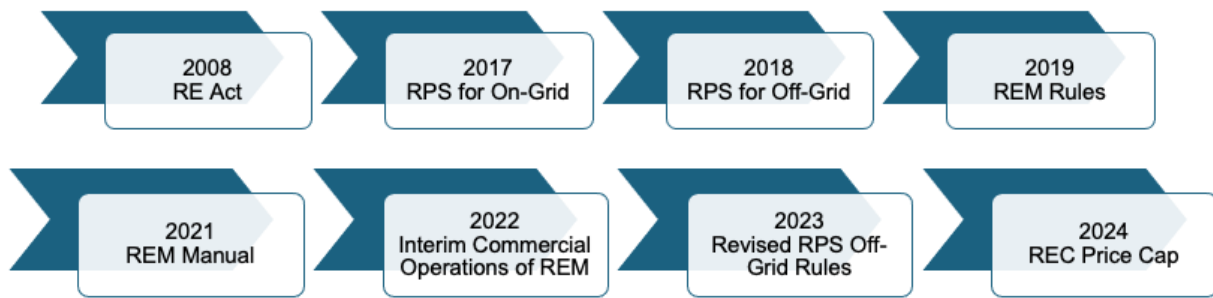


Figure 2. Regulatory Development Timeline of Philippines' Compliance REC Market

3.2. Eligible REC for RPS Compliance

Eligible Capacity. As of March 2024, the Philippines had 3,128 MW of eligible renewable energy capacity, capable of generating 9.1 TWh of electricity annually, equivalent to 9.1 million RECs. Of this capacity, 43% (1,355.6 MW) is under the Feed-in Tariff (FIT) scheme. RECs generated from FIT facilities are allocated proportionally to on-grid mandated participants. The remaining capacity is non-FIT. The distribution of eligible renewable energy capacity by technology is provided in Table 1.

Technology	Under FIT (MW)	Non-FIT (MW)
Biomass	253.85	87.04
Geothermal	526.32	222.17
Solar	181.53	1,139.54
Hydropower	393.9	307.55
Wind	0	16
Total	1,355.6	1,772.3
Percentage	43%	57%

Table 1. Eligible Renewable Energy Capacity for REC Issuance

REC Shortfall and Potential Compliance Mechanisms. Figure 3 projects a significant REC shortfall in the Philippines

from 2024 to 2032, with the gap widening over time. This shortfall is the difference between the RECs required for compliance with the RPS and the RECs available from existing renewable energy generation and other sources like the Wholesale Electricity Spot Market (WESM).

To address this shortfall, the government has implemented the Green Energy Auction Program (GEAP). This program aims to incentivise the development of new renewable energy capacity through competitive bidding. The winning bids from GEAP 1, 2, and 3 represent a substantial potential increase in renewable energy generation – equivalent to 1.9 GW, 3.4 GW, and 4.4 GW, respectively, and, consequently, REC supply.

The projected contribution of GEAP to REC supply, combined with RECs from WESM generators and expiring RECs, is expected to offset the REC shortfall partially. However, a significant gap is still anticipated, highlighting the need for continued efforts to expand renewable energy capacity in the Philippines.

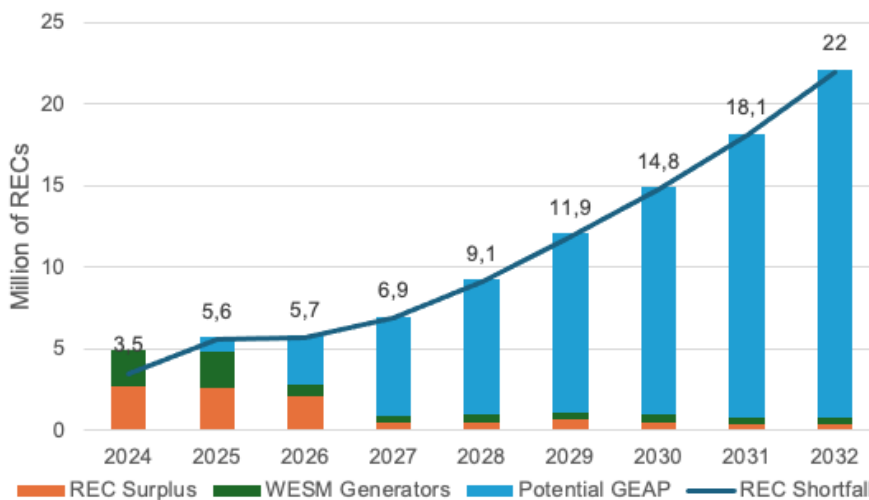


Figure 3. Potential REC Shortfall based on 2022 Data

3.3. Current State of Philippines' Compliance REC Market

3.3.1. Introducing PREM

The **Philippines Renewable Energy Market (PREM)** is a venue for buying and selling RECs, which are electronic certificates representing 1 MWh of eligible renewable energy generation. The PREM aims to create a fair and transparent market, facilitate compliance with the RPS, ensure a level playing field, issue RECs, and ensure REC prices are governed by market forces and reflect the long-term marginal cost [3].

The **RE Registrar** is responsible for administering the PREM's operation, maintaining the REC Registry, issuing and verifying RECs corresponding to the energy generated from eligible RE generators, making information on REC issuances, REC transactions, and RPS compliance available to REM members, and monitoring and reporting RPS compliance of Mandated Participants to the RGC, PEM Board, DOE, and ERC. Upon successful registration in the REM, participants are provided access to the PREMS.

3.3.2. PREM Mandated Participants and Generators

Mandated Participants in the PREM are entities obligated to comply with the RPS. These participants are categorised into on-grid and off-grid entities.

a. On-Grid Mandated Participants:

- Distribution Utilities serving Captive Customers (Electric Cooperatives, Private Distribution Utilities, Economic Zones, Local Government Units-owned and controlled)
- Retail Market Suppliers (Retail Electricity Suppliers, Local Retail Electricity Suppliers)
- Generators of Directly Connected Customers (Generation companies serving Directly Connected Customers to the extent of their contract)

b. On-Grid Mandated Participants:

- Generation Companies (National Power Corporation Small Power Utilities Group or NPC-SPUG, New Private Power Providers, Micro-Grid Service Providers)
- Distribution Utilities and Local Government Units operating electric systems in Off-Grid Areas
- Other entities identified by the Department of Energy (DOE)

Mandatory Generators are generation companies with eligible RE facilities that generate electricity in the WESM pool. These embedded eligible RE facilities are WESM members, and hybrid systems or dual-fired generators.

Voluntary Generators are Net-metered RE facilities, RE facilities for own-use or embedded facilities not WESM registered, and end-users under the Green Energy Option Program (GEOP) that are also RPS eligible.

PREM Registration Status as 31 May 2024:

- a. On-Grid Area: 92% (292 out of 317) participants/companies approved.
- b. Off-Grid Area: 8% (2 out of 24) participants/companies approved.
- c. Facility Registration: 15,836 registered facilities with a total eligible capacity of 3,031.24 MWh.
- d. PREMS Access: 100% (294 out of 294) of REM Registered Participants have access to PREMS.

3.3.3. PREM Rules and REC Issuance

REM Rules on REC Issuance and Ownership are based on whether the generator is under the FIT system and if they have a Power Supply Agreement (PSA). The issued RECs from each category are captured in Figure 4.

- a. **FIT System:** If the REM generator is under FIT, the RECs are allocated among the RPS Mandated Participants, including Distribution Utilities, Retail Electricity Suppliers, and generation companies serving Directly Connected Customers.
- b. **PSA with Mandated Participants:** If the RPS-eligible REM generator is not under FIT but has a PSA with a Participant, the RECs are owned by the Distribution Utility or Retail Electricity Supplier counterparty.
- c. **No PSA:** If the RPS-eligible REM generator is not under FIT and has no PSA, the RECs are owned by the Generating Company.
- d. **Voluntary Generators:** In the case of voluntary generators, the ownership varies:
 - For net-metered RE generators and RE generation facilities for the end-user's own use, the Host Distribution Utility owns the RECs.
 - For non-WESM member-embedded RE facilities, the Generating Company owns the RECs.
 - For GEOP end-users with RPS-eligible RE facilities, the GEOP end-user owns the RECs.

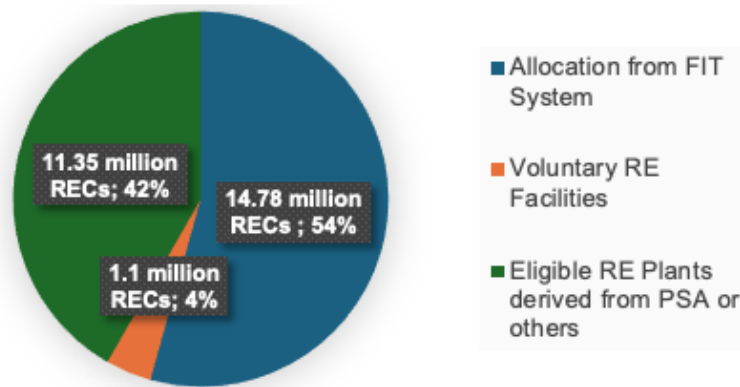


Figure 4. Issued RECs by PREM as of 31 May 2024

3.3.4. PREM Bulletin Board

REM Bulletin Board is a platform provided by the RE Registrar (RER) for REM participants to post offers to buy or sell RECs. It facilitates price discovery and transparency in the REM, allowing participants to connect and negotiate REC transactions outside the platform. The RER's role is to ensure fair and transparent information dissemination while maintaining the confidentiality of the actual transactions. It is not a trading platform but serves as an advertising space for REC transactions. Key features are,

- a. **Open Access:** All REM participants can use the Bulletin Board to advertise their RECs.
- b. **Information Display:** Sellers can post the quantity of RECs they want to sell, the desired price, vintage, technology type, and expiry date. Buyers can post the quantity of RECs they want to buy, the price they are willing to pay, and the preferred vintage and technology type.
- c. **Non-Binding:** The Bulletin Board is for advertising only. Transactions are not executed on the platform.
- d. **Transparency:** The RER publishes information on available RECs for trade, including the number of RECs, price, vintage, technology type, remaining validity, and the date the information was posted.
- e. **Confidentiality:** The RER ensures the confidentiality of REC trade transactions, disclosing only the volume of RECs traded, price, vintage, technology type, and transaction date. The identities of the buyer and seller are kept confidential.

4. Key Stakeholders in the Philippines REC Market

4.1. Government Agencies

Department of Energy (DOE) as the national oversight body, DOE is responsible for policy formulation and implementation. Specifically, the Renewable Energy Management Bureau (REMB) under DOE serves to implement renewable energy policies.

National Renewable Energy Board (NREB) serves as a collegial body that is primarily tasked with recommending policies to the Department of Energy and monitoring the implementation of the Renewable Energy Act.

Energy Regulatory Commission (ERC) acts as a regulatory oversight body of the market and determines the PREM RECs price cap. ERC issued Resolution No. 08 Series of 2024, which stipulates that the RECs' price cap in the PREMS is approximately USD 4.13.

Independent Electricity Market Operator of the Philippines (IEMOP). Manages the electricity trade in the Philippines as the independent market operator of the Wholesale Electricity Spot Market (WESM).

4.2. Market Actors

4.2.1. Market Operators

Philippine Electricity Market Corporation (PEMC) serves as the registrar for the compliance market registry, the Philippine Renewable Energy Market System (PREMS). The PEMC has the responsibility to register and issue PREMS RECs according with the rules established in the REM rules.

4.2.2. Renewable Energy Generators

Mandatory RE Generators are larger entities like generation companies owning eligible RE facilities, mandated to participate in the REC market.

Voluntary RE Generators are smaller-scale entities generating RE for own use or net metering, participating voluntarily in the REC market to sell excess RECs.

4.2.3. Electricity Suppliers

Distribution Utilities (DUs) are responsible for electricity distribution, mandated to source part of their energy from renewables. Active in the compliance market, buying RECs to meet RPS obligations.

Retail Electricity Suppliers (RES) supply electricity directly to consumers and are subject to RPS obligations. Participate in both compliance and voluntary REC markets

4.2.4. Corporate Buyers

Multinational Corporations are major drivers of voluntary REC market demand, seeking to meet sustainability targets and comply with international reporting standards.

Domestic Companies are increasingly interested in RECs for sustainability commitments and to meet consumer/investor expectations.

4.3. International Organisations

I-Track (formerly known as I-REC Standard Foundation) governs the issuance and management of International RECs (I-RECs). I-REC has been adopted by several renewable energy generators, particularly those whose projects are not eligible for the domestic compliance market (PREM). Due to the Philippines' existing compliance market (PREM), the I-Track has implemented restrictions on I-REC issuance to prevent double counting, where the same energy generation is used for both compliance and voluntary RECs. This limits the scope of I-RECs to renewable energy projects that are not participating in PREM.

APX TIGRs is a registry for tracking and trading renewable energy certificates. In the Philippines, APX TIGRs has experienced limited activity, primarily due to the dominance of I-RECs in the voluntary market and the restrictions imposed to avoid double counting with PREM RECs.

5. Challenges of REC Market Implementation

Dual Market Structure and Integration. The coexistence of compliance (PREM) and corporate-driven voluntary REC markets in the Philippines creates complexity and potential confusion for market participants. The key challenge lies in ensuring seamless integration of these two markets, preventing issues such as double counting RECs and ensuring fair and consistent pricing across both markets.

Price Caps and Market Signals. Although the price cap is intended to limit the possibility of electricity tariff increases which end-use customers will bear, the price cap in the compliance market may not accurately reflect the actual cost of renewable energy generation, potentially disincentivising new investments in RE projects and limiting market viability. The challenge is to establish a pricing mechanism that incentivises new renewable energy generation while balancing affordability for consumers.

International Recognition and Alignment. The lack of full recognition for Philippines compliance RECs in the international market hinders their appeal to multinational corporations and foreign investors. The challenge is to align the Philippine REC system with international standards, such as the I-Track, to gain credibility and attract foreign investment.

Regulatory Uncertainty and Complexity. The regulatory framework, particularly for the voluntary REC market, lacks clarity and comprehensive guidelines. This uncertainty deters investment and hinders market growth. The challenge lies in developing a clear and comprehensive framework that addresses issues like double-counting, market manipulation, and integrating compliance and voluntary markets.

Supply-Demand Imbalance. The projected REC shortfall raises concerns about meeting the growing demand from both compliance and voluntary buyers. The challenge is to address this imbalance by incentivising new renewable energy projects through mechanisms like feed-in tariffs, tax credits, or other financial incentives.

Stakeholder Coordination and Engagement. The diverse interests and concerns of stakeholders require effective coordination and alignment. The challenge is to build consensus

and collaboration among government agencies, utilities, RE generators, and corporate buyers to create a supportive environment for the REC market and ensure its long-term success. This can be achieved through open communication, awareness campaigns, and establishing a multi-stakeholder platform for dialogue.

6. Adopting Global and Regional REC Market Best Practices to Philippines' Context

6.1. International Best Practices (EU and US)

6.1.1. Improvement in Regulatory Framework

EU. The Philippines could enact similar legislation like EU's Renewable Energy Directive (RED) that sets clear and binding renewable energy targets, defines eligibility criteria for projects, and establishes a robust system for tracking and verifying renewable energy generation.

US. The Philippines can draw inspiration from successful state-level REC programs in the US, such as the High Energy Price for Intended Support (HEPIS) implemented in California and New England. The HEPIS mechanism sets a price floor for RECs, ensuring that renewable energy generators receive adequate compensation and incentivising new investments in renewable energy projects.

6.1.2. Market Design and Integration

EU. The EU's unified REC market, with cross-border trading of Guarantees of Origin (GOs), can serve as a model for the Philippines to integrate its compliance and voluntary markets. A centralised registry system could be established to ensure transparency, prevent double counting, and facilitate efficient REC transactions.

US. While the US REC market is fragmented, the ongoing efforts to harmonise state-level systems can provide insights for the Philippines to streamline its REC market and promote interoperability among different platforms. The Philippines could consider developing a national REC tracking system that integrates with platforms like PREM and I-REC, ensuring compatibility and ease of use for all market participants.

6.1.3. International Recognition and Standards

EU & US. The Philippines can align its REC system with internationally recognised standards like the I-REC Standard. This would enhance the credibility of Philippine RECs, attract international buyers and investors, and facilitate participation in the global REC market.

6.2. Regional Experiences (ASEAN and BIMP-EAGA)

Singapore. The Philippines can adopt a hybrid REC market model like the one outlined in Singapore Standard (SS) 673, combining voluntary and compliance components (via carbon tax). This would allow for greater government control and oversight while catering to the diverse needs of both utilities and corporate buyers.

Malaysia. The Green Energy Tariff (GET) program in Malaysia provides a model for the Philippines to offer RECs bundled with electricity supply to consumers. This could increase consumer awareness of RECs and create a new demand stream.

7. Growing Philippines' REC Market

7.1. Appoint Local Issuer

Selection Criteria. Designate a local entity with a proven track record in renewable energy, strong governance, and technical expertise. This entity should not be involved in buying or selling RECs to avoid conflicts of interest.

Responsibilities. The local issuer would manage the issuance, tracking, and retirement of RECs in the voluntary market, ensuring compliance with international standards and facilitating transparent transactions.

7.2. Review and Optimise Policies

Align with International Standards: Ensure that existing policies and regulations align with international best practices, such as the I-REC Standard, to gain credibility and attract foreign investment.

Clarify Ownership of RE Attributes: The Philippines is currently in the process of amending existing mechanisms like Net-Metering (NM) and GEOP to clearly define the ownership and transfer of renewable energy attributes, eliminating ambiguities and potential disputes.

Address Supply-Demand Imbalances: Implement policies that incentivise new renewable energy projects, such as feed-in tariffs, tax credits, or auctions, to increase the supply of RECs and meet growing demand.

Enhance Price Signals: Revise the price cap in the compliance market to reflect the actual costs of renewable energy generation and provide a fair price signal to investors. Explore additional mechanisms like HEPIS to further incentivise renewable energy development.

7.3. Adopt a Hybrid Model

Leverage Existing Infrastructure: Utilise existing market operator systems like PREM and I-Track to establish a functioning voluntary REC market, ensuring a smooth and quick transition.

Customise for Local Context: Adapt the hybrid model to the specific needs of the Philippines, ensuring compliance with existing laws and regulations and addressing the unique characteristics of the country's renewable energy landscape.

8. Opportunities for Regional REC Integration

8.1. Harmonisation of Standards and Regulations

Harmonise Standards: Collaborate with ASEAN countries to harmonise REC standards and procedures, facilitating cross-border trade and creating a regional REC market.

Mutual Recognition Agreements (MRAs): Pursue MRAs with other ASEAN countries to recognise and accept each other's RECs, reducing barriers to trade and promoting regional cooperation.

8.2. Development of Cross-Border Trading Mechanisms

Standardised Contracts and Procedures: Establish clear and standardised contracts and procedures for cross-border REC transactions, including provisions for dispute resolution. This would reduce transaction costs, increase transparency, and facilitate seamless REC trading among ASEAN countries.

Regional Trading Platform: Explore the possibility of developing a regional trading platform for RECs, leveraging existing infrastructure like the ASEAN Power Grid. This would enhance market liquidity and accessibility for both buyers and sellers across the region.

8.3. Promote Regional Cooperation and Investment


Joint Renewable Energy Projects: Encourage joint development of renewable energy projects among ASEAN

countries, with the potential for cross-border REC trading. This could attract more investment, increase renewable energy generation capacity, and create a more integrated regional market.


Collaborative Policy Development: Collaborate with other ASEAN countries to develop policies and regulations that support cross-border REC trade and promote the growth of renewable energy in the region. This could include establishing a regional renewable energy target, developing common standards for RECs, and creating a supportive environment for cross-border investment.

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