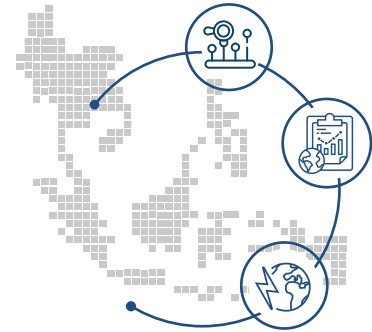




Brunei Darussalam's REC Market Assessment and Opportunities for Regional Integration



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Highlights

- **Nascent Market with Untapped Potential:** Brunei's REC market is in its early stages, but it has potential due to untapped renewable energy resources.
- **Key Stakeholders:** Various stakeholders, including government agencies, utilities, private companies, and international organisations, play a crucial role in developing and shaping Brunei's REC market.
- **Challenges to Overcome:** The market faces challenges like the lack of a comprehensive regulatory framework, subsidised electricity tariffs, and limited awareness and understanding of RECs among potential buyers.
- **Applying Best Practices:** Brunei can adopt global and regional best practices, such as those from Malaysia and Singapore, to enhance its REC market design and implementation.
- **Opportunities for Regional Integration:** Brunei's REC market presents opportunities for regional collaboration and cross-border trading, especially, but not limited to neighbouring regions like Sarawak and Sabah.

1. Introduction

Brunei Darussalam has set ambitious targets for renewable energy integration, aiming for 30% by 2035 [1]. A well-functioning REC market can be a key enabler of this transition by providing a mechanism for tracking and trading renewable energy attributes. This policy brief explores the current state of Brunei's REC market, its strengths, weaknesses, and opportunities for regional integration. The analysis provided here is the result of research and consultation with different stakeholders of Brunei's REC market which are conducted under the Project of Renewable Energy Certificate System in BIMP-EAGA Countries (RECAP) which supported by BIMP-Korea Cooperation Fund (BKCF).

2. Brunei National Climate Change Policy (BNCCP)

Brunei Darussalam adopts a whole-of-nation approach in addressing climate change. The Brunei Darussalam National Climate Change Policy underpins the principles, values and

strategies to reduce carbon emissions, increase carbon sink and strengthen climate resilience nationwide. The policy was established to pave Brunei Darussalam's low carbon and climate resilient pathways for a sustainable nation, of which ten key strategies shall be adopted by 2035 as a target year. The policy is guided by the principles of achieving the National Vision 2035 and promoting Brunei Darussalam's economic security, sustainability and prosperity, in accordance to the nation's key national circumstances. Strategy 4 focuses on increasing total share of renewable energy.

3. REC Potential Contribution to Brunei's Energy Transition Strategy

The smooth transition to renewable energy is a key strategy in Brunei's national climate change policy. The country has abundant solar resources and is exploring hydropower imports potential from neighbouring Sarawak. Implementing a REC market can play a crucial role in accelerating this transition.

A REC market provides a mechanism for tracking and trading the environmental attributes of renewable energy generation. Each REC represents one megawatt-hour (MWh) of renewable electricity produced and delivered to the grid. By purchasing RECs, consumers and businesses can offset their carbon footprint and support the growth of renewable energy projects.

Implementing a REC market in Brunei can:

- **Incentivise renewable energy investment:** RECs create a financial incentive for investing in renewable energy projects, as developers can sell the RECs to generate additional revenue.
- **Increase transparency and accountability:** RECs provide a transparent way to track the amount of renewable energy being produced and consumed, ensuring that claims of using renewable energy are credible.
- **Facilitate corporate sustainability goals:** Many companies have set targets to increase their use of renewable energy. RECs offer a flexible and cost-effective way for them to achieve these goals.
- **Support Brunei's move towards net-zero ambitions:** By promoting the growth of renewable energy, RECs can help Brunei reduce its greenhouse gas emissions and move closer to its net-zero ambitions.

4. Current State of Brunei's REC Market

Brunei Darussalam's REC market is in a nascent stage, primarily characterised by self-consumption by Brunei Shell Petroleum (BSP) [2]. and limited participation from other entities. While the government has expressed strong commitment to renewable energy integration, with targets of 30% by 2035, the market currently lacks a comprehensive regulatory framework and clear guidelines for participation. This has created uncertainty and potential risks for investors and market participants, hindering the market's growth and development.

Despite these challenges, Brunei's REC market has potential for growth. The country has adopted the internationally recognised I-REC(E) standard, which enhances credibility and facilitates cross-border transactions. Additionally, Brunei boasts untapped renewable energy potential, particularly in solar energy, and there is growing global corporate demand for RECs, especially among multinational corporations seeking to meet sustainability targets.

However, the market faces several hurdles to overcome. **Lack of a regulatory framework and limited stakeholder engagement** hinder market development. **The subsidised electricity tariff and reliable fossil fuel-based electricity supply** also pose challenges to the economic viability of renewable energy projects. Furthermore, **land constraints and grid infrastructure limitations** require innovative solutions for integrating renewable energy sources into the national grid.

5. Key Stakeholders in Brunei's REC Market

5.1. Government Agencies

Energy Transition Division of the Department of Energy: Responsible for initiating and delivering clean energy programs that promote the adoption of renewable energy sources and their integration into the national grid. The division also actively participates in the development of the REC market in Brunei by defining the role of RECs in achieving the national renewable targets, and identifying the legal and regulatory framework for the REC market. When the market reaches more significant growth, their role may be expanded to designing the structure of the REC market, and determining how RECs will be issued, traded, and retired.

Energy Policy and Strategy Division of the Department of Energy: While this division's role may not be as direct as the Energy Transition Division, the Energy Policy and Strategy Division significantly contributes to developing the overarching energy policies and strategies for Brunei.

Energy Legal and Compliance Division: With the focus on legal and regulatory aspects, their role is to provide legal support and ensure compliance throughout the REC market's lifecycle by safeguarding the market's integrity and protecting the interests of all stakeholders.

Autoriti Elektrik Negara Brunei Darussalam (AENBD): As the electricity regulator, AENBD potentially holds a crucial role in overseeing the REC market's implementation and ensuring its compliance with regulations. It could also be involved in designating a local issuer for the market.

Department of Electrical Services (DES) and Berakas Power Company (BPC): As the primary utilities, DES and BPC are responsible for electricity distribution and may play a role in integrating RECs into their operations, such as through bundled offerings or facilitating REC trading platforms.

Brunei Darussalam National Council on Climate Change (BNCCC) and Brunei Climate Change Office (BCCO): These bodies guide climate change policies and implementation. Their involvement in the REC market is crucial for aligning the market with national decarbonization goals.

FDI Action and Support Centre (FAST) of Brunei's Economic Development Board: While FAST doesn't directly regulate or administer the REC market, its activities can stimulate demand for RECs and contribute to the market's growth by attracting FDI in renewable energy and facilitating project development. The increased investment in renewable energy projects leads to a larger supply of RECs, creating a more vibrant and liquid market.

5.2. Market Actors

Independent Power Producers (IPPs): IPPs with active assets in Brunei are potential key players in the REC market. They stand to gain from selling RECs generated from their renewable energy projects and are likely to be early adopters.

Traders: International or regional traders can facilitate REC transactions between buyers and sellers, increasing market liquidity and ensuring a fair price discovery mechanism.

End-users (Corporations and Consumers): Large corporations, especially those with sustainability commitments, are potential buyers of RECs to offset their carbon footprint and demonstrate their commitment to renewable energy. As the market matures, individual consumers may also participate in the REC market to support renewable energy development.

5.3. International Organisations

I-REC Standard Foundation (now I-Track): As the current REC standard provider in Brunei, the I-REC Standard Foundation plays a crucial role in educating stakeholders, supporting the designation of a local issuer, and ensuring the market aligns with international best practices.

6. Challenges of REC Market Implementation

Nascent Market and Regulatory Framework: Brunei's REC market is in its infancy, lacking a comprehensive regulatory framework and clear guidelines. This creates uncertainty and potential risks for investors and market participants, hindering market growth and investment in renewable energy projects.

Subsidised Electricity Tariffs and Limited Policy Interventions: High upfront costs of solar installations, coupled with subsidised electricity tariffs and limited policy incentives like net metering and feed-in tariffs, reduce the financial attractiveness of renewable energy projects. This discourages investment and adoption of renewable energy.

Land Constraints and Grid Infrastructure Limitations: Land scarcity and the need to preserve forested areas pose challenges for large-scale solar installations. Additionally, integrating renewable energy projects into the existing grid infrastructure requires upgrades and advanced technological solutions, which can be expensive and complex.

Ownership and Contractual Clarification: Ambiguity regarding ownership rights and contractual obligations for RECs, particularly in joint ventures or rooftop solar installations, can lead to disputes and hinder market growth.

Limited Awareness and Understanding: Lack of awareness and understanding among potential REC buyers about the benefits of RECs and their role in achieving sustainability goals can hinder market development.

7. Adopting Global and Regional REC Market Best Practices to Brunei's Context

7.1. Lessons from Malaysia

Active Utility Involvement: Malaysia's state-owned utility, TNB, plays a central role in implementing and managing the Green Electricity Tariff (GET) program and associated RECs. This active involvement ensures efficient program delivery and revenue management. Brunei could explore a similar model, leveraging the existing utility infrastructure and expertise to facilitate REC transactions and revenue distribution.

Diverse Purchase Options: Malaysia offers both bundled and unbundled RECs, with both utility and I-REC certificates. This flexibility caters to different consumer preferences and needs. Brunei could adopt a similar approach, allowing consumers to choose the option that best suits their sustainability goals and budget.

Government Incentives: The Malaysian government provides incentives such as bill exemptions for GET subscribers, encouraging REC adoption. Brunei could consider similar incentives to stimulate demand and encourage participation in the REC market.

Cross-Border Trading: Malaysia's focus on cross-border trading with Singapore, through mechanisms for cross-border electricity sales, offers a valuable lesson for Brunei. By establishing clear frameworks and agreements for cross-border REC transactions, Brunei can expand its market access and increase liquidity.

Established Regulatory Framework: Malaysia's REC market operates under the Renewable Energy Act of 2011, providing a legal and regulatory foundation for the market. This framework could serve as a reference for Brunei in developing its own comprehensive regulations for REC issuance, trading, and retirement.

7.2. Lessons from Singapore

Market Drivers: Singapore's REC market is driven by both compliance needs, such as the carbon tax, and voluntary commitments to sustainability. Brunei could leverage similar drivers by implementing carbon pricing mechanisms or promoting voluntary corporate sustainability initiatives to create demand for RECs.

Pricing Dynamics: Singapore's REC prices are influenced by factors like carbon taxes, scope emissions, and sustainability commitments. While the exact pricing mechanisms may differ, Brunei can learn from Singapore's experience in considering various factors that can influence REC prices, including environmental policies, market demand, and the cost of renewable energy generation.

High Sustainability Standards: Singapore's emphasis on high sustainability standards, particularly among companies aiming for RE100 certification, underscores the importance of RECs in achieving ambitious environmental goals. Brunei can cater to this demand by ensuring the quality and credibility of its RECs, aligning with international standards, and promoting the use of RECs in corporate sustainability reporting.

7.3. Lessons from Mature Markets (EU and US)

Comprehensive Regulatory Frameworks: Mature markets like the EU and US have robust regulatory frameworks that govern REC issuance, trading, tracking, verification process, and retirement. These frameworks provide clear guidelines, standards, and government oversight to ensure market integrity and credibility. This will provide clarity and reduce uncertainty for investors and market participants, fostering greater confidence and participation in the market.

Diverse Market Participation: Mature markets feature active

participation from a wide range of stakeholders, including producers, buyers, traders, and brokers. This diversity fosters competition and liquidity, ensuring a vibrant and efficient market.

Variety of Market Instruments: Mature markets offer diverse options for REC transactions, such as Power Purchase Agreements (PPAs), leasing, tracking, and green tariffs. This variety caters to different needs and preferences, stimulating market demand and facilitating greater flexibility for buyers and sellers.

Cross-Border Trading Mechanisms: The EU and US have well-established mechanisms for cross-border REC transactions, facilitated by integrated grids and mutual recognition of energy attributes. While direct implementation may be challenging due to Brunei's smaller market size and regional context, the country can still learn from these mechanisms while exploring the potential cooperation with Sabah and Sarawak.

Government Oversight and Market Governance: Strong government oversight and clear governance structures are essential for ensuring market integrity and transparency. Mature markets have independent bodies that oversee REC issuance, trading, and registry management. Brunei can follow suit by establishing a similar independent body or partnering with existing international platforms like I-REC. This will enhance the credibility of the market and provide confidence to both domestic and international investors.

8. Growing Brunei's REC Market

To enhance Brunei Darussalam's REC market development, the research, and consultation with relevant stakeholders have pointed out several key recommendations below,

Enhance Market Liquidity and Pricing: Brunei can address the challenge of its small market size by implementing strategies to enhance liquidity, such as aggregating RECs from smaller projects and exploring cross-border trading opportunities with neighbouring countries. Additionally, clear guidelines for REC pricing should be established, taking into account market dynamics and the need to incentivise renewable energy generation while ensuring affordability for buyers.

Develop Regulatory Framework and Implementation Roadmap: The gradual introduction of REC market improvements is advisable, but a clear roadmap and timeline for regulatory updates are essential to provide certainty for investors and market participants. This roadmap should outline

the steps to be taken to establish a comprehensive regulatory framework for RECs, including guidelines for issuance, trading, and retirement while addressing local challenges such as geographical constraints and grid limitations.

Establish Local Issuer and Governance Structure:

Establishing a local issuer or strengthening the partnership with I-REC is crucial for building market credibility and ensuring the quality and validity of RECs. This issuer should operate independently, with a clear mandate and accountability measures to ensure transparency and fairness in the market. The issuer's role would include implementing international standards, validating RECs, and maintaining a robust registry system.

Develop Cross-Border Trading Mechanisms: While regional collaboration is essential, specific mechanisms for cross-border REC trading need careful consideration. Brunei's regulatory framework should clearly define eligibility criteria for imported RECs, ensuring they meet local standards and prevent double counting. Streamlined processes for recognising and validating RECs from other countries should also be established to encourage regional trade and integration.

9. Opportunities for Regional REC Integration

To enhance Brunei Darussalam's REC market development, the research, and consultation with relevant stakeholders have pointed out several key recommendations below,


The adoption of the I-REC(E) standard has positioned Brunei's REC market within a globally recognised framework, ensuring credibility and transparency. This alignment with international best practices is crucial for attracting foreign investment and facilitating cross-border transactions, opening doors for regional trade and collaboration.


The increasing emphasis on sustainability among multinational corporations operating in Brunei, particularly in the oil and gas industry, has created a significant demand for RECs. These companies are actively seeking ways to demonstrate their commitment to renewable energy and meet ambitious emission reduction targets, presenting a lucrative opportunity for REC suppliers within and beyond Brunei's borders.


Brunei's strategic discussions with neighbouring regions regarding potential hydropower imports lay the groundwork for a cross-border REC framework. The exploration of this regional cooperation not only opens the diversification opportunity for Brunei's renewable energy mix but also fosters a larger, more robust REC market with unified standards and increased investment opportunities, benefiting all participating nations.

References

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