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Renewable Energy Certificate (REC) Market Demand Mapping in Brunei Darussalam

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Highlights

- Brunei is targeting 30% renewable energy by 2035. This ambitious goal is driving the development of a Renewable Energy Certificate (REC) market, which is still in its early stages.
- Key sectors for REC demand in Brunei include manufacturing, and non-manufacturing (primarily oil and gas), and data processing. These sectors have high energy consumption and are under increasing pressure to demonstrate sustainability commitments.
- Some multinational companies with operations in Brunei are already using RECs to meet their sustainability targets. This creates a potential ripple effect, encouraging local companies to adopt RECs to align with global partners and enhance their appeal.
- Brunei's oil and gas industry presents both a challenge and an opportunity for REC adoption. While currently excluded from initiatives like RE100 due to their high emissions, these companies are facing growing pressure to decarbonise and could utilise RECs to demonstrate progress.
- Policy support for RECs is still developing. While Brunei has ambitious renewable energy targets, a dedicated REC policy framework or guidance is needed to further drive adoption and market growth.

1. Introduction

Brunei Darussalam's Department of Energy has set ambitious renewable energy (RE) targets, aiming for at least 30% RE share in total installed capacity by 2035. As a way of understanding the potential demand for RE-generated electricity, Brunei is actively involved in the Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) initiative on Renewable Energy Certificate (REC), which aims to establish a conceptual regional REC framework.

Brunei's REC market is in its nascent stage, with operational transactions underway, exemplified by the nation's adoption of the internationally recognised I-REC(E) standard. Currently, Brunei's REC market operates on a voluntary basis, driven by the demand of its energy-intensive industries [1]. This policy brief seeks to map the country's REC demand, aligning the REC market stakeholders, industry-specific opportunities, and relevant policies, providing a comprehensive understanding of REC demand and projecting future market growth.

Acknowledging the volume of REC issuance and redemption available in I-TRACK I-REC(E) database, buyers' information is lacking due to confidentiality concerns. This policy brief also aims to fill in such a gap of information.

The brief first identifies and categorises relevant REC participants in the national market, then analyses key sectors to assess the current demand landscape. The key sectors evaluated in this document, include manufacturing, smelting, non-manufacturing sectors, and data processing industries. This policy brief also considers Brunei's unique context of a predominantly homogenous oil and gas industry. Additionally, Brunei's existing policies and regulations governing RECs will be evaluated to identify opportunities and challenges.

2. Identifying Key Stakeholders

The typical REC market comprises two primary stakeholder categories: market actors, as well as oversight and implementation bodies. This policy brief focuses on the initial categorisation of market actors, further divided into four sectors: manufacturing, smelting, non-manufacturing, and data processing. Each sector holds distinct importance in driving REC demand, which will be examined in detail in the following chapter.

The subsequent category, the Energy Transition Division and the Energy Policy and Strategy Division of the Department of Energy (DoE), Autoriti Elektrik Negara Brunei Darussalam (AENBD), and Brunei Darussalam Climate Change Office (BCCO) are the local oversight bodies. Whilst for the implementation bodies, nascent REC market, like the majority in ASEAN, utilises international bodies that facilitate the physical production of RECs and their delivery to end users.

With Brunei in particular, the national market leverages the operation of I-TRACK's I-REC(E) registry. Other relevant implementation bodies assessed are RE100 and Science-Based Targets initiative (SBTi). Companies from the four key sectors will also be assessed based on their membership in both initiatives. The RE100 tracks the firms that committed to sourcing 100% renewable electricity, while SBTi requires members to reduce carbon emissions, particularly Scope 2 emissions related to electricity.

3. Rationale for Selecting Key Sectors

Although Brunei has a small industrial base, the growing manufacturing industry remains relevant, as Brunei is pursuing its economic development in manufacturing sectors.

According to the 8th ASEAN Energy Outlook, non-metallic minerals, iron, and steel sectors are among the most energy-intensive [2] and in alignment of the region's emerging interest on smelting sector, making it considerable to also assess this specific sector in Brunei.

Brunei's non-manufacturing sector is dominated by the oil and gas industry, known for its environmental challenges. This category provides a compelling lens to examine the complexities of advancing RE within a traditionally high-emission industry. It also highlights the potential role of RECs in addressing these challenges and supporting a transition toward cleaner energy practices in Brunei's oil and gas sector.

Lastly, data processing sectors are experiencing rapid growth in ASEAN, with 1.5 GW of data centre capacity currently operational. These centres are inherently energy-intensive, especially due to cooling systems, highlighting the need for energy-efficient and sustainable solutions to meet growing digital demands while addressing energy consumption challenges [3].

4. Case Studies in Key Sectors

Initially, it is crucial to outline the approach used to assess companies' REC purchases. Companies for which no publicly available records of REC procurement could be found are acknowledged as potentially engaging in such purchases, albeit without accessible documentation. However, only those with concrete and verifiable evidence of REC acquisition have been included in this review. Where REC procurement is cited as part of future strategies, these instances are classified as lacking a recorded purchase. This policy brief primarily relies on company sustainability reports as the primary source of information. In cases where these are unavailable, secondary sources such as press releases and news articles are considered.

4.1. Manufacturing Sector

Due to Brunei's limited industrial base, there are currently no local manufacturing companies identified as members of either RE100 or SBTi. However, it remains pertinent to explore manufacturers maintaining distributional activities within the country, given that these sectors are known for their high energy demand throughout the entirety of their processes.

Table 1 Manufacturing Companies with Distributional Activities in Brunei Darussalam Listed under Members of RE100 [4] and/or SBTi [5] and with recorded RECs usage

Company	REC	RE100	SBTi	Category	Activity
Johnson & Johnson	YES	YES	YES	Pharmaceuticals	Healthcare Products
Danone	YES	YES	YES	Food & Beverage	Dairy & Plant-Based Products
PepsiCo	YES	YES	YES	Food & Beverage	Snacks & Beverages

Company	REC	RE100	SBTi	Category	Activity
Unilever	YES	YES	YES	Consumer Goods	Personal Care Products
Nestle	YES	YES	YES	Food & Beverage	Dairy & Food Products
Coca Cola Europacific	YES	YES	YES	Food & Beverage	Beverages
HP	YES	YES	YES	Technology	Computers & Printers
Monde Nissin	NO	NO	YES	Food & Beverage	Snacks & Instant Noodles
New Balance Athletic	NO	NO	YES	Apparel	Footwear & Apparel

The above-listed multinational companies (*Table 1*) set a positive precedent of REC demands to meet their RE100 and SBTi commitments. Although REC adoption among local manufacturing companies in Brunei is currently unidentified, this trend offers promising implications for the domestic market. These multinationals, driven by their sustainability commitments, may also exert pressure on local supply chains to demonstrate environmental progress through REC usage. As global sustainability awareness grows, Brunei's manufacturers may be incentivised to align with environmentally conscious corporations by adopting RECs, enhancing their appeal to international partners.

The perception that RE investments necessitate substantial capital has often served as a deterrent to company's commitment toward such investment. RECs have emerged as a compelling counterpoint to this notion, offering a fluid and accessible economic tool for supporting renewable energy development. The trade of RECs allows buyers to contribute to the growth of renewable energy infrastructure, especially when traded bundled with Power Purchase Agreement (PPA), effectively making REC procurement a form of RE investment.

This flexibility extends to corporate supply chains, where RECs can be tailored to specific needs, enabling supply chain partners to align with the sustainability goals of larger organisations. Thus, the adoption of RECs not only advances renewable energy development but also ensures broader engagement across supply chains, reinforcing a company's sustainability commitment. In this way, RECs act as a bridge, enabling organisations and their partners to partake in the renewable energy transition without the immediate burden of large-scale capital investments.

4.2. Non-Manufacturing Sector

Historically dominated by the oil and gas sector, Brunei's non-manufacturing industries also include another key sector, such as financial services, captured in Table 2. With the exception of HSBC—which is a member of RE100—the other below-listed companies are not affiliated with neither RE100 nor SBTi. Encouragingly the rest of the financial services such as BIBD and Standard Chartered Bank are already immersing themselves into RE-related projects.

One of BIBD's key initiatives in 2022 is the installation of an external LED TV semi-powered using solar panels at BIBD's headquarter. In 2024, BIBD also installed a 60 kWh photovoltaic (PV) system at its headquarter. The local financial service has also made a more impactful commitment through MoU signing with BNCCC to cooperate in climate solutions. Within the scheme of this MoU, the BNCCC could explore opportunities to mainstream REC utilisation as part of its broader contribution to climate solutions. While this MoU may not have a direct impact on driving REC adoption, it still provides valuable insights that can inform future strategies [6].

Another notable example is the Baiduri Bank of Brunei, which joined a corporate sustainability initiative of the United Nations Global Compact (UNGC) that focuses on supporting business to adopt sustainable and socially responsible practices [7]. This initiative entails a significant potential for financial institutions in driving the RE transition in Brunei Darussalam.

Table 2 Non-Manufacturing Companies in Brunei Darussalam

Company	Industry	Relevance to Smelting Sectors
Brunei Shell Petroleum (BSP)	Oil and Gas	The leading oil and gas company in Brunei, engaged in exploration, production, and refining..
Brunei Methanol Company Sdn Bhd	Oil and Gas	Produces methanol for both domestic use and export.
Bank Islam Brunei Darussalam (BIBD)	Financial Services	The largest bank in Brunei, offering a range of financial services including banking, investment, and insurance.
Baiduri Bank Brunei	Financial Services	Provide financial products and services.
Standard Chartered Bank (Brunei)	Financial Services	Provides banking services, focusing on corporate and retail banking.

4.3. Data Processing Sector

Brunei is advancing its digital transformation under the Digital Economy Masterplan 2025, focusing on strengthening digital infrastructure, data governance, and promoting technologies like AI, cloud computing, and IoT. A key priority is developing commercial data centres to enhance productivity and support a growing digital economy. The data processing sector contributed BND 484.8 million (USD 362.6 million) in 2023, which is crucial to economic growth. Facilities such as the Brunei Innovation Lab are driving tech business development by providing funding, programs, and market access, positioning Brunei to become a "Smart Nation."

Currently, the data processing sector in Brunei is primarily represented by Schneider Electric, a prominent support infrastructure company that operates in the nation and is a member of both RE100 and SBTi.

Similar to the non-manufacturing industries, companies like Schneider Electric can showcase the environmental benefits of their energy usage by purchasing RECs equivalent to their energy consumption. This approach is crucial for the company's pursuit of zero Scope 2 emissions.

Moreover, the data processing sector, predominantly data centres, operates using cooling systems as ancillary utilities. Such technology is energy-intensive in its nature. On that note, RECs will become more relevant to the sector including RE to power data centres.

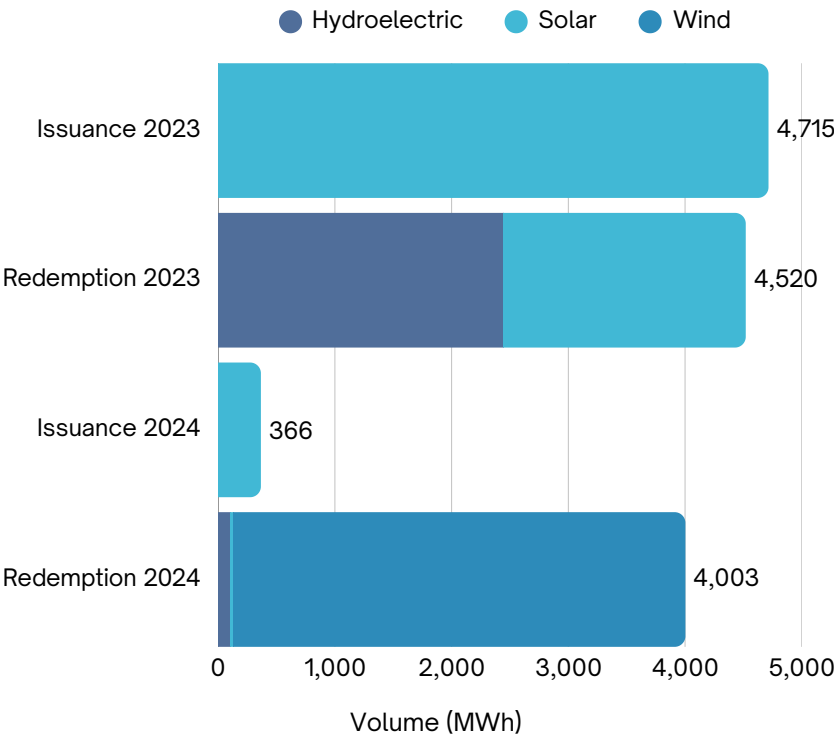
5. Status Quo of REC Demand

As illustrated by Figure 1, solar technology dominates Brunei's REC issuance, with total of 4,715 MWh in 2023. However, in 2024, the amount of REC issuance decreased to 366 MWh. In contrast, REC redemption with total of 4,520 and 4,003, consequently from 2023 to 2024, exhibits a more diverse technological mix, encompassing solar (still dominant), hydroelectric, and a modest share of wind [8]. This diversity indicates that many redeemed RECs are imported rather than issued domestically. Notably, the average gap between REC vintage and redemption is approximately 1 year and 5 months.

Aligned with Brunei's ambitious target of achieving 30% RE by 2035, solar RECs remain the frontrunner of the national REC market, demonstrating a clear preference for this technology.

Despite these challenges, Brunei's abundant solar resources provide a strong foundation for REC market development. To foster domestic growth, the government should incentivise corporate REC adoption through demand-side measures, corporate green procurement programme, as exemplified by Malaysia's GET programme that offers bundled RECs with green electricity procurement through electricity bills [9]. Moreover, promoting Brunei's solar RECs to international companies operating within the country could bolster demand.

Figure 1 REC Issuance and Redemption in Brunei Darussalam Recorded in I-REC Registry per October 2024.
The data is acquired from I-TRACK and the figure is generated by ACE. [9]



6. Policy and Regulatory Landscape

Brunei’s REC market is still in its infancy, but the nation has made substantial progress through its National Climate Change Policy (BNCCP) Strategy 4 on RE, aiming for a 30% share of RE in its total installed capacity. Policies such as net-metering guideline are intended to boost the uptake of small scale installations whereas larger scale projects are intended to leverage public private partnership. Today, there is zero import tax on solar panels. Recent large scale solar projects have been led by energy intensive industries as well as agrovoltaic applications.

RECs can play a pivotal role in all three strategies by fostering public-private collaboration, providing additional revenue for large-scale projects, and enabling private companies to invest in RE initiatives without owning or operating the facilities directly.

7. Ways Forward

Taking into account Brunei’s unique circumstances as a country with the predominance of oil and gas companies, Brunei Darussalam must incentivise companies to consider REC as one of their front-line solutions in assisting to increase new RE power plants. Such incentivisation can be achieved as follows:

- a. **Take into Account Companies’ Increasing Awareness on Sustainability:** Predominantly oil and gas industry, exemplified by Brunei Shell Petroleum’s (BSP) solar PV plant, demonstrates a promising trajectory for increased REC demand. As these companies actively seek avenues to showcase their commitment to renewable energy, a lucrative opportunity emerges for REC suppliers both within Brunei and across its borders, underscoring the potential for a dynamic and expanding market.
- b. **Encourage Corporate Transparency:** Encourage companies to report their carbon footprints and REC purchases publicly. This transparency can increase stakeholder awareness and create a competitive push for companies to demonstrate their commitment to sustainable practices.
- c. **Establish incentives for private entities for REC adoption:** As corporates contribute substantial share to REC demand, Brunei’s government should incentivise REC adoption through prongs like Malaysia’s GET programme, to support Brunei’s REC purchase from private entities.
- d. **Rolling Out a Transformative Green Energy Pricing Scheme:** A green energy pricing scheme will promote the adoption of RE by allowing consumers to purchase electricity generated from sustainable sources. Each unit of green energy purchased could generate an equivalent REC, increasing the overall volume of RECs in circulation.

- e. **Incorporate RECs into Export Requirements:** With international policies like the EU's CBAM affecting trade, Brunei can mandate or encourage REC procurement as part of export preparations, especially for energy-intensive goods. This measure could support Brunei's competitiveness in global markets while promoting sustainable practices. The EU's CBAM is expected to drive REC adoption in Brunei's key sectors, notably smelting, as it imposes fees on imports from countries with high-carbon production, urging alignment with decarbonisation. For Brunei, RECs as a proof of clean energy consumption can help mitigate CBAM costs, supporting both economic competitiveness and sustainability goals.
- f. **Leverage Regional Partnerships:** Brunei should utilise its role within the BIMP-EAGA and ASEAN to establish a shared REC market framework or guidance. Regional collaborations can enhance market scalability, making RECs more accessible for Brunei's industries and fostering cross-border sustainability efforts.

8. References

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