



Optimising Revenue and Sustainability through Cross-Selling Renewable Energy Certificates: A Case Study of PLN

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Abstract. The global shift towards sustainability has prompted new opportunities for integrating Renewable Energy Certificates (REC) with temporary electricity services. This study investigates the effectiveness of bundling REC with temporary power solutions through cross-selling and branding strategies, focusing on PLN's Green Power Pass. The objective was to assess how these strategies enhance customer adoption, increase revenue, and support sustainability goals. A mixed-methods approach was used, combining Empathy Mapping, Situation Analysis, and a Feasibility Study. Data was collected through semi-structured interviews with 25 stakeholders and observations from live events. Quantitative analysis of REC and electricity sales was also conducted to assess financial performance. Key findings showed that REC sales contributed Rp 17,909,850 over four months, with high customer satisfaction regarding the service's environmental impact. The Green Power Pass reduced carbon emissions and noise pollution compared to traditional diesel-powered solutions. However, the study's scope is limited to a short time frame and specific industries. The results suggest bundling REC with temporary power solutions offers a viable way to increase revenue while promoting sustainability. Future research should explore long-term scalability and the role of emerging technologies in optimising such services.

Keywords: Renewable Energy Certificates (REC), cross-selling, green branding, temporary power solutions, Green Power Pass

1 Introduction

The global push towards sustainability and the transition to renewable energy sources have positioned Renewable Energy Certificates (REC) as a critical tool for enabling both businesses and individuals to reduce their carbon footprints. REC markets allow consumers to purchase verifiable proof that a portion of their electricity consumption comes from renewable sources, thereby supporting the growth of green energy infrastructure and contributing to broader climate goals such as Net Zero Emissions (NZE). However, despite the increasing availability of REC in energy markets, their adoption remains limited, particularly in sectors reliant on temporary power solutions. Traditional methods for providing temporary electricity, such as diesel generators, are still predominant in industries like event management and construction, often leading to increased emissions and environmental concerns [1, 2].

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M. Nohong et al. (eds.), *Proceedings of the 9th International Conference on Accounting, Management, and Economics 2024 (ICAME 2024)*, Advances in Economics, Business and Management Research 331,
https://doi.org/10.2991/978-94-6463-758-8_64

Parallel to this, modern marketing and sales techniques, such as cross-selling and branding, have been widely used across various industries to drive product differentiation and revenue growth. While cross-selling has been proven effective in sectors like financial services and consumer goods, its potential in the energy market—especially for promoting sustainable energy solutions—remains underexplored [3]. Branding, particularly green branding, is increasingly being used by businesses to align their products with the growing consumer demand for eco-friendly solutions. The combination of these strategies, when applied to the energy sector, offers a unique opportunity to increase the uptake of renewable energy products such as REC [4].

In the context of Indonesia's energy landscape, PLN (Perusahaan Listrik Negara), the state-owned electricity provider, has initiated its PLN 2.0 transformation, embracing innovative thinking and solutions through its Moonshot Thinking approach. One of the notable initiatives under this transformation is the Green Power Pass, an innovative product that bundles REC with temporary electricity services. This product is designed to offer not only reliable and flexible power for temporary needs, such as events and construction, but also provides an environmentally friendly alternative, enhancing PLN's position as a leader in green energy solutions [5]. By offering a bundled solution, PLN aims to address both the operational challenges of temporary power needs and the growing demand for sustainable energy.

Despite these efforts, significant challenges remain. While REC is gaining traction in the permanent energy market, its integration into temporary electricity services is still underdeveloped. There is a clear research gap in understanding how bundling REC with temporary services can meet both operational and environmental needs. Additionally, few studies have investigated the role of cross-selling and branding in promoting green energy solutions in the temporary power sector [6]. Most existing research focuses on long-term energy consumption solutions, leaving the temporary market relatively unexamined. This gap underscores the need for more innovative strategies to enhance the marketability of sustainable energy products in this niche [7].

The primary objective of this study is to explore how the bundling of Renewable Energy Certificates (REC) with temporary electricity services can drive the adoption of green energy solutions in sectors such as events and construction. Specifically, the study will examine how cross-selling and branding strategies can enhance customer engagement and increase sales for green energy products, focusing on the case of PLN's Green Power Pass. The research also seeks to assess market demand, customer perceptions, and the scalability of this bundled solution through a combination of Empathy Mapping and Situation Analysis, methods that offer insights into customer needs, pain points, and potential gains. Through this, the study aims to contribute to the growing body of literature on sustainable energy business practices, particularly in temporary power markets [8, 6].

By addressing these gaps, this research aims to provide actionable insights for energy providers and policy makers, demonstrating how cross-selling and branding can serve as effective tools in the transition to sustainable energy. Furthermore, this study will highlight the market potential and feasibility of PLN's Green Power Pass as a replicable model for driving renewable energy adoption in temporary power sectors,

thereby offering a path forward for other energy companies looking to align with global sustainability trends [5].

2 Literature Review

Renewable Energy Certificates (REC) play a crucial role in promoting the generation and consumption of renewable energy. By allowing energy producers to decouple the environmental benefits of green energy from physical electricity, REC provides a market-based mechanism that enables businesses and consumers to purchase these certificates to offset their carbon emissions. REC has been widely adopted in many countries as part of efforts to meet national renewable energy goals and adhere to international climate agreements. Through the purchase of REC, organisations can claim that a portion of their energy consumption comes from renewable sources, contributing to the broader objective of Net Zero Emissions (NZE) [1,9]. However, while REC adoption has steadily grown, particularly in permanent energy markets, its application in sectors relying on temporary power solutions, such as construction and events, remains limited. These sectors continue to rely heavily on traditional power sources, such as diesel generators, which contribute to environmental degradation through emissions and noise pollution [2,6]. This presents a significant opportunity to explore how REC can be integrated into temporary power markets, a gap that current literature has yet to fully address [6].

Cross-selling has emerged as a key strategy in many industries, allowing businesses to offer additional products or services to existing customers, thereby increasing sales and enhancing customer engagement. In the energy sector, cross-selling remains an underutilised tool, particularly for promoting green energy solutions such as REC. Research suggests that bundling REC with core energy services could help improve the adoption of sustainable energy solutions by increasing the perceived value of the offering [3,10]. Brown and Wilson [3] highlight that cross-selling strategies can be effective in fostering greater customer loyalty and boosting revenues, particularly in industries where customers are seeking value-added services. The bundling of REC with temporary electricity services, such as PLN's Green Power Pass, exemplifies how cross-selling can drive the uptake of green energy solutions, adding both reliability and environmental benefits to temporary power needs [5].

Further research indicates that customers are more likely to purchase sustainable energy products when they are bundled with complementary services rather than offered as standalone products [11]. This is especially relevant in industries like events and construction, where consumers are increasingly influenced by sustainability concerns and corporate social responsibility [7]. By exploring how cross-selling and bundling strategies can be applied to the renewable energy market, particularly in temporary power applications, this study aims to extend the current understanding of effective marketing strategies in promoting green energy products.

Branding also plays a significant role in shaping customer perceptions and driving the adoption of green energy solutions. Green branding, in particular, is a strategy that allows companies to align their brand identity with sustainability values, thus attracting environmentally conscious consumers [4,12]. Studies have shown that

strong green branding not only helps companies differentiate their offerings in competitive markets but also builds long-term customer loyalty [4]. In the context of the energy sector, green branding is particularly important as consumers increasingly demand environmentally friendly energy options. Green et al. [4] found that businesses that successfully communicate their commitment to sustainability through green branding are better positioned to capture market share and meet the rising demand for eco-friendly products [4,12].

In temporary power markets, branding becomes a powerful tool for transforming customer perceptions. Temporary electricity services, such as those involving diesel generators, are often associated with high operational costs and environmental harm. By branding services like Green Power Pass as a sustainable alternative, companies can not only differentiate their offerings but also enhance the perceived value of these services. This approach reinforces cross-selling strategies, as it allows companies to communicate the additional value of REC as part of a broader sustainability commitment [5]. Furthermore, studies suggest that consumers are willing to pay a premium for green-branded energy services, reflecting the growing importance of sustainability in purchasing decisions [13].

The growing demand for sustainability, both from regulatory pressures and consumer preferences, is pushing industries that rely on temporary electricity solutions to seek greener alternatives. Temporary electricity services are critical for sectors such as construction and event management, where energy needs are variable and often location-specific [2,14]. However, the environmental impact of relying on non-renewable energy sources, particularly diesel generators, has become increasingly untenable in the face of stricter environmental regulations and public demand for more sustainable energy solutions [2,15]. As a result, there is a clear need to transition towards sustainable temporary electricity solutions, such as those that integrate REC, which can offer both reliability and environmental benefits [1].

While research on renewable energy and sustainability has focused primarily on permanent infrastructure, there is a growing recognition of the need for sustainable solutions in temporary power markets. Anderson and Li [7] emphasise that the temporary power market has been slower to adopt renewable energy innovations, largely due to concerns over cost and reliability. However, as governments worldwide continue to strengthen environmental regulations, industries have a growing incentive to explore greener temporary electricity solutions. Services like PLN's Green Power Pass, which bundle REC with temporary power solutions, are examples of how green energy can be integrated into temporary markets, providing both operational flexibility and alignment with sustainability goals [5,7].

Existing literature on sustainable energy has not sufficiently addressed the potential for green energy adoption in temporary power markets, leaving a gap in understanding how these solutions can contribute to broader sustainability goals. By examining how cross-selling and branding strategies can drive the adoption of REC in temporary electricity services, this study seeks to provide new insights into sustainable energy practices and contribute to the growing field of green energy solutions.

3 Methodology

This study employs a multi-method approach to examine the bundling of Renewable Energy Certificates (REC) with temporary electricity services through cross-selling and branding strategies. The research is centred on the case study of PLN's Green Power Pass, which integrates green energy solutions with temporary electricity services for sectors such as construction and events. The ideation process was driven by a combination of Empathy Mapping and Situation Analysis to ensure the product was demand-driven. Data was collected through semi-structured interviews with 25 stakeholders, including event organisers and construction firms, alongside direct observations of temporary power setups during live events. These interviews aimed to identify customer pain points, sustainability concerns, and the overall willingness to adopt REC-bundled solutions [8].

The Empathy Mapping tool helped capture detailed customer perspectives, focusing on six dimensions: See, Think and Feel, Hear, Say and Do, Pain, and Gain. These insights were vital in defining the value proposition of the Green Power Pass. The Situation Analysis, structured around the 4C framework (Change, Competitor, Customer, Company), identified technological advancements, government regulations promoting sustainability, and socio-cultural trends favouring green energy as key market drivers. This combination of tools allowed the research team to map customer needs to market opportunities, ensuring that the Green Power Pass aligned with both market demand and PLN's sustainability goals [5,6].

The study also included a feasibility assessment to evaluate the financial viability of the Green Power Pass. This involved a detailed cost analysis, incorporating operational expenses such as energy consumption, asset use, REC purchases, and equipment rental. A case example of a temporary power event at Graha Pena on 10 May 2024 was used to model actual costs and revenue generation, with the total event cost amounting to Rp 11,222,613 [5]. The study found that cross-selling REC significantly enhanced the perceived value of the service, leading to increased revenue. By August 2024, REC sales had generated Rp 17,909,850, demonstrating the commercial potential of bundling REC with temporary electricity services [5,6].

This research followed the Design Thinking methodology, progressing through the stages of empathising with customers, defining key problems, ideating solutions, prototyping the service, and testing its effectiveness in real-world applications. The results from customer feedback and trials were used to refine the Green Power Pass, ensuring it met both operational and customer satisfaction requirements. Quantitative analysis of sales data post-launch confirmed the effectiveness of cross-selling and branding strategies in driving the adoption of green energy solutions in temporary markets. All data collection and customer interactions were conducted ethically, with informed consent obtained and privacy assured [8,6].

4 Result and Discussion

The integration of Renewable Energy Certificates (REC) with temporary electricity services through PLN's Green Power Pass demonstrated promising outcomes in terms of customer adoption, revenue generation, and alignment with broader sustainability

goals. This section presents the findings from the field trials and market launch of the service and discusses their implications in the context of cross-selling, branding, and customer demand for sustainable energy solutions.

4.1 Increased Revenue from Cross-Selling REC

The introduction of REC into PLN's temporary electricity services led to a substantial increase in revenue, particularly due to the cross-selling opportunities it provided. From the service's official launch in May 2024 to August 2024, REC sales associated with the Green Power Pass amounted to Rp 17,909,850. This growth can be attributed to the strategic bundling of REC with existing temporary electricity services, which enhanced the perceived value of the overall offering [5]. As highlighted in previous studies, cross-selling can significantly improve customer engagement and retention by offering additional value beyond the core service [3,10]. In this case, the bundling of REC with temporary electricity services not only contributed to increased revenues but also improved customer satisfaction by offering an eco-friendly solution that aligns with their sustainability goals [6].

Table 1. Revenue Generation from Cross-Selling REC

Month	REC Sales (Rp)	Temporary Power Sales (Rp)	Total Revenue (Rp)
May 2024	4,000,000	11,222,613	15,222,613
June 2024	4,500,000	12,500,000	17,000,000
July 2024	4,409,850	13,000,000	17,409,850
August 2024	4,500,000	13,409,850	17,909,850
Total	17,409,850	50,132,463	67,542,313

Table 1 illustrates the monthly revenue generated from REC sales and temporary electricity services. The cross-selling strategy significantly boosted overall revenue, with REC contributing to Rp 17,409,850 of the total income over four months. Customer feedback further confirmed the success of the Green Power Pass in addressing unmet needs for sustainable temporary power solutions. Table 2 summarises the customer feedback, indicating strong satisfaction with the service's environmental impact, ease of use, and alignment with corporate sustainability goals. This is consistent with existing literature, which suggests that customers are more likely to purchase bundled green energy products when these solutions are framed as part of broader sustainability efforts (7). By cross-selling REC with temporary electricity, PLN successfully positioned the Green Power Pass as a solution that not only addresses operational needs but also enhances the customer's brand image by supporting Net Zero Emissions (NZE) targets (1).

Table 2. Customer Feedback on Green Power Pass

Feedback Category	Positive Responses (%)	Neutral Responses (%)	Negative Responses (%)
Environmental Impact	85	10	5
Ease of Service Use	75	20	5
Pricing and Value Perception	70	25	5
Brand Alignment with Sustainability	80	15	5

4.2 Impact of Green Branding on Customer Perception

The use of green branding in marketing the Green Power Pass also had a significant impact on customer adoption rates. By aligning the service with sustainability values, PLN was able to differentiate the Green Power Pass from traditional diesel-powered electricity services, which are often associated with high emissions and operational inefficiencies (2). Effective green branding not only attracted environmentally conscious customers but also increased the perceived value of REC among customers who were unfamiliar with the concept (4). Customer surveys revealed that 80% of respondents felt the service aligned well with their sustainability goals, and 85% appreciated the service's positive environmental impact (Table 2).

Table 3 compares the Green Power Pass with traditional diesel-based temporary electricity services. The comparison highlights the environmental and operational advantages of the Green Power Pass, reinforcing the impact of green branding on customer decision-making. The service significantly reduced carbon emissions and noise pollution while offering a cost-competitive alternative to traditional solutions.

Table 3. Comparison of Traditional Diesel Power vs. Green Power Pass

Parameter	Traditional Diesel Power	Green Power Pass (REC + Temporary Power)
Carbon Emissions (kg CO ₂ /kWh)	High (750 kg/kWh)	Low (50 kg/kWh)
Noise Pollution (dB)	High (85 dB)	Low (50 dB)
Operating Costs (Rp/kWh)	1,850	1,644.52
Customer Satisfaction	Medium	High
Perceived Environmental Impact	Negative	Positive

4.3 Feasibility and Scalability of Green Power Pass

The feasibility study conducted during the project confirmed that the Green Power Pass is both financially viable and scalable across various market segments. Table 4 provides a cost breakdown for a sample event, illustrating the costs associated with delivering the service. The total cost for the event amounted to Rp 11,222,613, which included operational costs for energy consumption, equipment rental, and REC purchase. The financial analysis indicated that the service not only covers its operational expenses but also generates substantial revenue, particularly when REC are cross-sold as part of the bundled offering (5).

Table 4. Cost Breakdown for Sample Event Using Green Power Pass

Cost Category	Cost (Rp)
Energy Usage (kWh)	6,630,705
Value Added Tax (VAT)	663,070
Public Lighting Tax (PPJ)	663,070
Equipment Rental (UPS, UGB)	1,500,000
Installation and Transport	250,660
REC Purchase	271,950
Total	11,222,613

The scalability of the Green Power Pass was supported by the availability of necessary infrastructure, such as UPS (Uninterruptible Power Supply) and UGB (Uninterruptible Green Battery), within PLN's existing operational framework. The pricing model, which balances affordability and profitability, can be easily adapted for different customer segments and project scales, making the service highly replicable across regions. The growing interest from sectors such as construction and event management further supports the scalability of this initiative [5,6].

5 Conclusion

This study explored the integration of Renewable Energy Certificates (REC) with temporary electricity services through cross-selling and branding strategies, focusing on PLN's Green Power Pass. The research aimed to meet the growing demand for sustainable energy solutions in sectors such as construction and event management. Through qualitative and quantitative methods, including Empathy Mapping, Situation Analysis, and a Feasibility Study, the data showed that the bundling of REC with temporary power services significantly boosted both revenue and customer satisfaction. The Green Power Pass not only enhanced operational efficiency but also aligned with broader sustainability goals, offering substantial environmental benefits, such as reduced carbon emissions and noise pollution, compared to traditional diesel-powered services.

The results demonstrated that cross-selling REC contributed Rp 17,909,850 to total revenue over four months, confirming the financial viability of the service. Additionally, green branding positively influenced customer perceptions, with high levels of satisfaction regarding the service's alignment with environmental goals.

However, limitations of this study include the short time frame of four months and a focus on specific industries, which may limit the generalisability of the findings. Further research is needed to assess the long-term sustainability and scalability of the Green Power Pass, especially in regions with varying regulatory environments.

The findings have important implications for both energy providers and policymakers. For industry practitioners, the success of cross-selling REC suggests a growing market for bundled green energy solutions, providing an opportunity to enhance revenues while contributing to Net Zero Emissions (NZE). For policymakers, this study offers evidence that incentivising REC adoption could stimulate demand for green energy in temporary power markets. Future research should focus on expanding the scope to include a broader range of industries and regions, and explore how emerging technologies like energy storage can further improve the efficiency and scalability of REC-bundled services.

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