Proceeding of International Conference on Innovation and Engineering Technology (ICoIET)
ISSN: 3124-2375
Volume 1 Issue 01, 2025
https://icoiet.library-untagcirebon.ac.id/

Rooftop Solar PV Policy Implementation Toward Corporate Environmental Performance: A Case Study of PT Uni-Charm Indonesia Tbk

Susetyaldi Rahardjo[1,*], Zaeni Adilah[2]

[1,2]Magister of Ilmu Administrasi Negara, Universitas 17 Agustus 1945 Cirebon, Cirebon, Indonesia
*Email: susetyaldir@gmail.com

Abstract
This study examines the implementation of Minister of Energy and Mineral Resources Regulations No. 26 of 2021 and No. 2 of 2024 concerning Rooftop Solar Power Plants at PT Uni-Charm Indonesia Tbk. A qualitative case study method was employed. Data were collected through in-depth interviews with internal stakeholders, PLN, a vendor, and the ESDM office, complemented by document analysis using the Van Meter and Van Horn Model. The results demonstrate that implementation has proceeded in accordance with regulatory provisions, supported by strong management commitment and effective stakeholder collaboration. The system reduces PLN electricity consumption and greenhouse gas emissions by approximately 14,000 tons of CO_2 per year. Implementation effectiveness is classified as satisfactory. The study concludes that the policy effectively supports corporate environmental performance, though regulatory harmonization and procedural simplification remain necessary.

Keywords: *Policy Implementation, Rooftop Solar PV, Environmental Performance, Energy Transition*

INTRODUCTION

Global developments currently position energy and environmental issues among the highest priorities within the sustainable development agenda. As concern over climate change and environmental degradation continues to grow, many countries, including Indonesia, have begun formulating policies that support the transition toward renewable energy. Renewable energy derived from natural resources such as sunlight, wind, water, biomass, and geothermal energy is considered capable of reducing dependence on fossil fuels, lowering greenhouse gas emissions, and supporting economic, social, and environmental sustainability.

The Indonesian government has established an ambitious target to achieve a 23 percent share of renewable energy in the national energy mix by 2025 and 31 percent by 2050. This target is stipulated in Government Regulation No. 79 of 2014 concerning the National Energy Policy, as further elaborated in Presidential Regulation No. 22 of 2017 on the National General Energy Plan. Regarding the acceleration of New and Renewable Energy, Presidential Regulation No. 112 of 2022 concerning the Acceleration of Renewable Energy Development for Electricity Supply reinforces the push for increased investment in the clean energy sector.

To support the development of Rooftop Solar PV, the government issued Minister of Energy and Mineral Resources Regulation No. 26 of 2021. This regulation provides guidance for customers wishing to install Rooftop Solar PV systems and integrate them with the PLN electricity grid. In practice, however, various challenges have emerged, including complex licensing procedures, limited capacity for electricity export to the PLN grid, and regulatory

changes that affect investment certainty. In several regions, Rooftop Solar PV licensing requires coordination among the Ministry of Energy and Mineral Resources, PLN, and local governments. In response to field dynamics, the government issued Ministerial Regulation No. 2 of 2024, which revises several provisions of the previous regulation. One significant change is the elimination of the electricity export-import scheme from Rooftop Solar PV systems to the PLN grid, which has direct implications for the economic feasibility of Rooftop Solar PV projects for industrial and commercial customers. This policy change has generated various responses from industry players, including manufacturing companies that had previously invested in Rooftop Solar PV as part of their sustainability strategies.

Based on field observations of the Rooftop Solar PV policy implementation at PT Uni-Charm Indonesia Tbk, several problems have been identified. Regarding technical and operational challenges, not all companies possess infrastructure ready to adopt Rooftop Solar PV. The limited capacity of the PLN electricity grid in certain regions imposes restrictions on Rooftop Solar PV integration. A misalignment exists between the government policy implementation according to Ministerial Regulation No. 26 of 2021, which states that the installable capacity of Rooftop Solar PV is 100 percent of the connected power, whereas in practice PLN limits installation to only 15 percent of the connected power. This significant gap between regulation and field implementation constitutes a central problem addressed by this research.

RESEARCH METHOD

The object of this research is the implementation of Minister of Energy and Mineral Resources Regulations No. 26 of 2021 and No. 2 of 2024 concerning Rooftop Solar Power Plants connected to the electricity grid of Electric Power Supply Business License holders for public interest in an effort to realize environmental performance at PT Uni-Charm Indonesia Tbk, Karawang Regency.

The research was conducted across four factories of PT Uni-Charm Indonesia Tbk. Factory 1 and Factory 2 are located in the KIIC Industrial Estate, Karawang, West Java. Factory 3 and Factory 4 (PT Uni-Charm Non Woven Indonesia) are situated in the Ngoro Industrial Park, Mojokerto, East Java.

This study employs a qualitative research method with a library research approach and a descriptive qualitative research design. As explained by Sugiyono (2013), in qualitative research, the researcher acts as the primary instrument in data collection and analysis. Secondary data sources include official government documents, corporate sustainability reports, previous research findings, news articles, and credible online sources.

In qualitative research, the technique for determining informants follows purposive sampling, meaning informants are selected based on specific criteria and are considered capable of providing information relevant to the research focus. This aligns with the position of Lincoln and Guba (1985), who state that the sampling process in naturalistic inquiry is almost always purposive rather than random, and the inquirer selects informants who are especially knowledgeable about the phenomenon of interest.

Table 1. Categories and Number of Research Informants

No.	Category of Informant	Number	Role in Policy Implementation
1	Management of PT Uni-Charm Indonesia Tbk	3 persons	Production & Utility, QMS-Health & Safety, and Sustainability (Environment-Social-Governance)
2	Ministry of Energy and Mineral Resources (ESDM)	2 persons	Directorate General of EBTKE responsible for Rooftop Solar PV
3	PT PLN (Persero) / IUPTL Holder	2 persons	Licensing and interconnection section for PLTS integration with the public electricity grid
4	Vendor / Rooftop Solar PV Installation Company	2 persons	Technical implementers of PLTS installation and licensing affairs within the industrial environment
5	Employee Representatives / Local Community	2 persons	Recipients of impact and observers of socio-environmental perceptions
	Total	11 persons	

Data collection techniques in this research encompass three main methods: in-depth interviews, document study, and observation, as described by Creswell (2014) within the qualitative research approach. The data analysis method employed is qualitative analysis with a descriptive approach, following the Miles and Huberman (1994) interactive model, which includes data reduction, data display, and conclusion drawing with verification. To ensure data validity and credibility, this research employs source triangulation and technique triangulation. Source triangulation involves comparing data from multiple informants connected to the Rooftop Solar PV policy at PT Uni-Charm Indonesia Tbk. Technique triangulation combines interview results, policy documentation, and field observations to obtain a more objective and comprehensive understanding.

RESULTS AND DISCUSSION

Corporate Background and Policy Context

PT Uni-Charm Indonesia Tbk is a manufacturing company operating in the hygienic and health product sector, including baby diapers, sanitary napkins, and adult diapers, and holds a leading market position in Indonesia. The company demonstrates product quality commitment through halal certification and ISO 9001:2015, ISO 14001:2015, and ISO 13485:2016 certifications. As part of the Japanese Uni-Charm Group, the company applies high environmental standards, including energy efficiency and carbon emission reduction.

On July 28, 2021, PT Uni-Charm Indonesia Tbk announced "Ethical Living for SDGs," a new lifestyle concept, and began concrete activities to provide comfort to consumers and within the company itself. Ethical Living for SDGs aims to establish the company as a modern and ethical corporation working toward an environment where everyone can easily access convenience. The logo consists of twelve elements containing all thoughts toward the realization of the SDGs, including the sun as a source of natural energy and the sustainable use of resources.

Consistent with Ministerial Regulation No. 26 of 2021 and No. 2 of 2024, the company began implementing Rooftop Solar PV as a form of support for the energy transition and national carbon emission reduction targets, and as one strategy to reduce dependence on electricity from the PLN grid while optimizing the utilization of New and Renewable Energy. The Rooftop Solar PV implementation has been conducted in phases since 2021 in Karawang and Mojokerto, with an initial capacity of 1.4 MWp planned for eventual expansion. This program not only aims for energy cost efficiency but also forms part of the company's strategic target to achieve carbon neutrality according to the ESG roadmap established by Uni-Charm Global.

Supporting Factors, Challenges, and Obstacles

Based on interviews with the Corporate division of PT Uni-Charm Indonesia Tbk, the decision to implement Rooftop Solar PV was motivated not only by conditions in Indonesia but also by alignment with the strategy of Uni-Charm Corporation and the company's commitment to carbon emission reduction and energy efficiency, consistent with the global target toward Net Zero Emission by 2050. Top management engaged in discussions with the ESG division at headquarters to assess whether the investment for Rooftop Solar PV was feasible and applicable. The company also publishes its achievements in clean energy utilization through media and its Sustainability Report to demonstrate environmental commitment to stakeholders. Based on interviews with the ESG & QMS Department of PT Uni-Charm Indonesia Tbk, Rooftop Solar PV constitutes an integral part of the company's sustainability pillar, contributing to "Green Energy." The implementation has contributed to emission reductions of approximately 14,000 tons of CO_2 per year. Rooftop Solar PV data is formally reported in the Sustainability Report with total factory figures and is categorized as Scope 2 emission reduction. Approximately 11 to 13 percent of the electricity supply derived from Rooftop Solar PV has been able to reduce emission intensity by 7 to 10 percent in each factory that has implemented the system.

Based on interviews with PLN UP3 Karawang, PLN as the IUPTL holder principally strongly supports the Rooftop Solar PV policy and has implemented the licensing service pattern for On-Grid Rooftop Solar PV development in accordance with the mandate of Ministerial Regulation No. 2 of 2024. PLN UP3 Karawang stated that Rooftop Solar PV installation applications from industrial customers must pass through technical document verification and field survey stages to ensure the system does not disrupt network reliability.

Contribution to Environmental Performance

The impact of Rooftop Solar PV implementation on corporate environmental performance encompasses several measurable outcomes. First, greenhouse gas emission reduction of approximately 14,000 tons of CO_2 per year. Second, energy efficiency and cost savings ranging from 10 to 15 percent per month. Third, enhancement of environmental image and reputation. Fourth, fulfillment of environmental regulatory compliance. Fifth, improvement of internal capacity in energy management.

The implementation of Rooftop Solar PV also demonstrates alignment with the Triple Bottom Line framework. From the profit perspective, electricity cost efficiency from solar energy use strengthens the company's competitiveness. From the people perspective, this initiative enhances the company's positive image among consumers and business partners as an environmentally concerned entity. From the planet perspective, renewable energy use reduces CO_2 emissions and air pollution, thereby supporting ecosystem sustainability.

CONCLUSION

Based on the findings, four main conclusions are drawn. First, PT Uni-Charm Indonesia Tbk has demonstrated a good level of compliance with Ministerial Regulations No. 26 of 2021 and No. 2 of 2024, performing optimally across planning, licensing, technical coordination, installation, and operation stages. Second, supporting factors include management commitment, government policy support, and an experienced vendor, while challenges include regulatory changes, limited grid capacity, and cross-institutional administrative processes. Third, the Rooftop Solar PV system contributes positively to environmental performance, reducing PLN electricity consumption during peak hours and lowering greenhouse gas emissions by approximately 14,000 tons of CO_2 per year. Fourth, implementation effectiveness is classified as satisfactory, evidenced by operation according to design capacity, achievement of annual environmental targets, and continuity of maintenance and performance monitoring programs.

REFERENCES

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications. *(Source: Thesis, pp. 116, 121)*

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications. *(Source: Thesis, p. 117)*

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications.

Ministry of Energy and Mineral Resources of the Republic of Indonesia. (2021). *Ministerial Regulation No. 26 of 2021 concerning Rooftop Solar Power Plants connected to the electricity grid of Electric Power Supply Business License holders for Public Interest*.

Ministry of Energy and Mineral Resources of the Republic of Indonesia. (2024). *Ministerial Regulation No. 2 of 2024 concerning the Amendment to Ministerial Regulation No. 26 of 2021 on Rooftop Solar Power Plants*.

Sugiyono. (2013). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta. *(Source: Thesis, pp. 116, 120)*

Van Meter, D. S., & Van Horn, C. E. (1975). The policy implementation process: A conceptual framework. *Administration & Society*, 6(4), 445–488.

Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). SAGE Publications.