ORGANIZATIONAL COMMUNICATION DYNAMICS AT PT PERUSAHAAN GAS NEGARA: A Case Study of Corporate Communication Strategies in Communicating the Net Zero Emissions (NZE) Policy to Internal Employees

Alya Shafa Zhafira

Email: alyashafa@students.undip.ac.id

International Undergraduate Program of Communication Science Faculty of Political and Social Science Universitas Diponegoro

Jl. Dr. Antonius Suryo, Tembalang, Semarang Postal Code 50275

Telephone (024) 74605407 Fax (024) 74605407

Website: http://www.fisip.undip.ac.id Email: fisip@undip.ac.id

ABSTRACT

Organizational communication plays a crucial role in conveying strategic policies to employees. This study aims to analyze the organizational communication dynamics at PGN in delivering the NZE policy and the communication strategies employed to enhance employees' comprehension and engagement. This research utilizes a qualitative descriptive approach with thematic analysis to identify communication patterns. The findings reveal that PGN implements a combination of one-way and two-way communication through various formal and informal channels. While this strategy has proven relatively effective, employee engagement varies, particularly among those not directly involved in sustainability-related aspects. Additionally, the hierarchical structure contributes to delays in information dissemination. The study concludes that PGN's communication strategy establishes an effective internal communication network for delivering the NZE policy. The strategy is structured around four key organizational communication integration, persuasion, and network connectivity. functions: command, Top-down communication ensures policy alignment and message consistency, while persuasive efforts, such as digital campaigns and mentoring sessions, aim to increase employee engagement in supporting the NZE policy. However, challenges remain in interdepartmental coordination and employee participation, especially among those whose roles are not directly related to sustainability.

Keywords: Organizational Communication Dynamics, Net Zero Emissions (NZE), Corporate Communication Strategy, PT Perusahaan Gas Negara

ABSTRAK

Komunikasi organisasi memegang peranan penting dalam menyampaikan kebijakan strategis kepada karyawan. Penelitian ini bertujuan untuk menganalisis dinamika komunikasi organisasi di PGN dalam menyampaikan kebijakan NZE dan strategi komunikasi yang digunakan untuk meningkatkan pemahaman dan keterlibatan karyawan. Penelitian ini menggunakan pendekatan deskriptif kualitatif dengan analisis tematik untuk mengidentifikasi pola komunikasi. Temuan penelitian mengungkapkan bahwa PGN menerapkan kombinasi komunikasi satu arah dan dua arah melalui berbagai saluran formal dan informal. Meskipun strategi ini terbukti relatif efektif, keterlibatan karyawan bervariasi, terutama di antara mereka yang tidak terlibat langsung dalam aspek terkait keberlanjutan. Selain itu, struktur hierarki berkontribusi terhadap keterlambatan dalam penyebaran informasi. Penelitian ini menyimpulkan bahwa strategi komunikasi PGN membangun jaringan komunikasi internal yang efektif untuk menyampaikan kebijakan NZE. Strategi ini disusun berdasarkan empat fungsi komunikasi organisasi utama: perintah, integrasi, persuasi, dan konektivitas jaringan. Komunikasi top-down memastikan keselarasan kebijakan dan konsistensi pesan, sementara upaya persuasif, seperti kampanye digital dan sesi mentoring, bertujuan untuk meningkatkan keterlibatan karyawan dalam mendukung kebijakan NZE. Namun, tantangan tetap ada dalam koordinasi antar departemen dan partisipasi karyawan, terutama di antara mereka yang perannya tidak terkait langsung dengan keberlanjutan.

Kata Kunci: Komunikasi Organisasi, Net Zero Emissions (NZE), Strategi Komunikasi, PT Perusahaan Gas Negara

INTRODUCTION

Organizational communication is essential for disseminating policies, fostering engagement, and ensuring smooth policy implementation. Effective communication help organizations structures navigate challenges such as differing perceptions, resistance to change, and interdepartmental misalignment (Miller, 2015). Within an organization, employees need to be well-informed about corporate goals and strategic initiatives to foster a sense of ownership and commitment (Robbins &

Judge, 2013). This is particularly relevant when introducing large-scale sustainability policies that require alignment across all levels.

PT Perusahaan Gas Negara (PGN) is actively working towards the Net Zero Emissions (NZE) 2060 target, aligning with Indonesia's sustainability agenda. As a key player in the gas industry, PGN faces challenges in ensuring that its NZE policies are clearly communicated and adopted by employees. The effectiveness of this communication relies on both formal methods—such emails. structured as meetings. and training-and informal networks, including peer discussions and internal collaborations. A well-balanced communication strategy ensures that employees not only receive information but also understand its significance and feel contribute to motivated to corporate sustainability efforts.

Similar communication challenges have been observed in global energy companies like BP and Shell, which faced internal when introducing carbon resistance reduction Both companies targets. integrating responded by structured communication strategies, including leader engagement forums, town hall meetings, and interactive digital platforms, to improve employee understanding and participation. These cases highlight the importance of a multi-channel communication approach in driving organizational sustainability initiatives

For PGN, achieving Net Zero Emissions requires more than just policy formulation; it necessitates widespread understanding, acceptance, and engagement from employees. By integrating formal and informal communication channels, PGN can enhance internal communication effectiveness, minimize resistance to change, and foster a collaborative work culture. Ensuring clear and continuous communication will strengthen employee commitment, ultimately contributing to the long-term success of PGN's sustainability efforts.

RESEARCH PURPOSES

This research focuses on analyzing the communication strategies implemented by PT Perusahaan Gas Negara (PGN)in disseminating the Net Zero Emissions (NZE) policy to its internal employees. The study explores how these strategies impact employee understanding and support for the policy, emphasizing the role of structured communication in ensuring clarity and engagement. Additionally, the research examines the internal communication channels and tactics used by PGN to facilitate the successful implementation of the NZE policy. By assessing the effectiveness of these strategies, this study aims to highlight how PGN fosters employee collaboration, alignment, and participation active in sustainability initiatives. ensuring that corporate sustainability effectively goals are communicated and adopted across all levels of the organization.

THEORETICAL FRAMEWORK

Research Paradigm

In this research, a paradigm that will be used is constructivism that focuses on understanding how individuals or groups create meaning and construct their reality through social interactions and experiences. Through a constructivist lens, the research can explore how employees interpret and make sense of the communication they receive about NZE policies and how these interpretations impact their attitudes. behaviors, and commitment to the organization's sustainability objectives. By focusing on how individuals within PGN construct meaning from their interactions, the study can identify how communication either facilitate processes or hinder alignment with the company's overarching sustainability goals.

State of The Art

State of the art includes related research that is relevant to this research topic. One of the researches that is relevant to this research topic is organizational communication dynamics by Megi Cahya (2023) which analyzed organizational communication in Lumicos using a case study method with qualitative data collection through

interviews. The study found that Lumicos employs cross-channel communication. allowing seamless interaction between employees across hierarchical levels. The also identified research seven kev organizational communication concepts: process, message, network, interdependence, relationships, environment, and uncertainty. These elements shape the communication dynamics within the company, influencing coordination, work collaboration, and overall efficiency. In comparison, this study on PT Perusahaan Gas Negara (PGN) focuses on how internal communication strategies are utilized to disseminate the Net Zero Emissions (NZE) policy and how they impact employee engagement and policy adoption. Unlike Lumicos which informal and cross-channel emphasizes communication, PGN integrates both formal and informal communication approaches while navigating the complexities of hierarchical structures and sustainability initiatives.

The Phenomenon of Sustainability Communication in Indonesia

Sustainability has become a central focus for businesses in Indonesia, particularly in industries with significant environmental footprints such as energy, manufacturing, and transportation. As awareness of climate change grows worldwide, businesses in Indonesia face increasing pressure from government regulations, investors, and consumers to adopt environmentally responsible practices. Effective sustainability communication plays a critical role in ensuring that corporate sustainability initiatives are understood, embraced, and supported by internal stakeholders, the public, and regulatory bodies. The evolution of sustainability communication in Indonesia has turned it into a strategic corporate priority, driven by global environmental concerns, shifting market demands, and regulatory advancements. Companies must now actively communicate their sustainability efforts to various stakeholders. including employees, consumers. investors, and government authorities. This has led to the adoption of sustainability reporting, digital engagement platforms, and collaborations with NGOs and government agencies. For corporate communication professionals, crafting compelling sustainability narratives that align with business objectives and resonate with key audiences is more critical than ever.

The Corporate Communication Division and Its Role in Achieving Strategic Goals

As an internal communication facilitator, the division bridges management and ensuring that employees, corporate objectives are clearly conveyed, understood, and embraced at all organizational levels. This division is responsible for developing structured communication plans, integrating formal and informal channels to disseminate key policies, and fostering an environment where employees feel informed, engaged, motivated to contribute to and the company's sustainability initiatives. One of the primary functions of the Corporate Communication Division is ensuring transparency and consistency in information Through exchange. communication strategies such as email updates, town hall meetings, internal campaigns, and digital division engagement platforms, the reinforces corporate messages, enhances employee participation, and promotes a collaborative work culture. Additionally, customizing messages to suit different departments helps employees better comprehend their roles in achieving the NZE target, fostering a sense of ownership and accountability toward sustainability efforts.

information dissemination, Beyond the manages division also organizational change, particularly in driving sustainability initiatives. Transitioning toward NZE compliance requires significant shifts in operational procedures, employee responsibilities, and corporate culture. To support this, the division facilitates training shares success stories, and programs, recognizes employee contributions, ensuring that all stakeholders are equipped with the knowledge and motivation to participate in the company's sustainability agenda. By bridging communication gaps, encouraging feedback, and addressing concerns, the Corporate Communication Division ensures that organizational strategies are effectively implemented, reinforcing PGN's long-term goals in environmental responsibility and corporate excellence.

Employees' Engagement In The Role of Sustainability Context

As sustainability becomes a core component of corporate strategy, employees are increasingly recognized as key drivers in achieving Environmental, Social, and Governance (ESG) goals. At PT Perusahaan Gas Negara (PGN), fostering employee engagement in sustainability efforts. particularly in relation to the Net Zero

Emissions (NZE) goal, is essential for ensuring meaningful progress. Employees who understand the relevance of sustainability and how their roles contribute to broader corporate objectives are more likely to adopt eco-friendly behaviors and practices. employees When actively participate in energy conservation programs, waste reduction efforts, or green initiatives, they develop a sense of ownership and accountability, accelerating the company's transition toward net-zero emissions. To effectively in engage employees communication sustainability, plays а pivotal role. Providing clear and consistent information about the importance of sustainability, the company's specific NZE targets, and the expected contributions of employees ensures that they are both aware and motivated to take action. PGN employs various communication strategies, including training sessions, workshops, and internal awareness campaigns, to build a shared understanding of sustainability practices. Additionally, storytelling techniques—such as highlighting employee success stories and contributions recognizing to sustainability-help boost motivation, foster a collective sense of achievement, and reinforce culture of environmental а responsibility. By integrating effective

communication and active employee participation, PGN strengthens its sustainability framework, ensuring that its workforce remains aligned and committed to achieving long-term environmental goals.

Organizational Communication Theory

The theory formulated by W. Charles Redding in 1972 that concerns organizational improvement is one of the basic concepts for studying the role of communication within organizations. Communication tends to be the basic element that causes the structure, functions, and overall success of the organization through which it is used as a transmitting medium for sharing information and as a means of uniting individuals and motivating the people of an organization to collaborate. It stresses the importance of transparency, feedback, and flexibility in the flow of communication so that the information is properly transmitted and there is a smooth communication process between all levels of the organization, both horizontally and vertically. This theory describes communication functions as sharing of information. persuasion. command. integration, and innovation, offering an organized scheme to identify and develop communication dynamics within

organizations. Thus, the framework would help in the situation where there are challenges in communication in an organization and when there is a need for the development of strategies that will enable an organization to operate effectively.

Empirical studies that have used Redding's framework assess to communication effectiveness. Chen and Tjosvold (2006) identified the fact that open communication was the main determinant for teamwork and the growth of the corporation in worldwide. multinational corporations Tourish and Robson (2006) pointed out feedback mechanisms were effective in reducing resistance to change, while Goodman and Truss (2004) showed the importance of interactive communication in employee commitment to sustainability policies. These studies depict the ways in which Redding's model can be effectively utilized to evaluate and enhance organizational communication strategies in various contexts.

Communication Network Theory

Communication network theory offers a complete framework for understanding how information flows, within the formal and informal communication structures, in an organization. According to the Monge and Contractor (2003)Theories of Communication Networks. the communication networks are various relationships and connections between individuals or groups that affect the way in which information is transmitted, received, interpreted and by people. The communication networks have a direct effect on the communication efficiency, collaboration dynamics. and the decision-making process of the organization. The theory focuses on the network structures as the ones that define the pathways of communication, speed of interaction as well as the levels of connectivity that in turn determine flexibility and organizational effectiveness. By examining these communication networks. the theory highlights power dynamics, key influencers, and potential barriers to effective information flow, making it a valuable tool for assessing and enhancing internal communication strategies.

RESEARCH METHOD

This type of research is qualitative descriptive research involving data collection approaches such as case studies and interviews. This qualitative study involves considerable efforts like posing questions and following procedures,

gathering specific data, analyzing data inductively starting with general themes, and interpreting the importance of the results. This research approach starts by observing examining and the subject of the phenomenon under study while also considering the subjective elements of the object's actions. Researchers subsequently seek out information that is significant or provides meaning to the phenomenon under investigation. The core of this method lies in the experiences and interpretations of the research subject concerning specific events, which are subsequently analyzed by the researcher. The final report for this research has a flexible structure or framework (Creswell, 2010). A qualitative approach was chosen because in this research the researcher wanted to conduct an in-depth study of social phenomena in society which are complex, dynamic and cannot be measured using numbers alone.

RESEARCH SUBJECT

This study will involve two primary types of subjects to provide a comprehensive overview of the communication dynamics within the organization. The first subject would be from the corporate communication division at PT Perusahaan Gas Negara (PGN) who is responsible for designing and implementing communication strategies related to the Net Zero Emissions (NZE) policy. The second type comprises PGN employees from various divisions as the recipients of the NZE policy information. Data collection from employees seeks to understand how the messages are received, understood, and interpreted at various organizational levels.

RESEARCH RESULTS AND ANALYSIS

A. Organizational Communication Strategies in Delivering the Net Zero Emissions (NZE) Policy to Employees

PT Perusahaan Gas Negara (PGN) employs a structured organizational communication strategy to effectively disseminate the Net Zero Emissions (NZE) policy to employees. The company balances formal and informal communication approaches to ensure policy clarity, accessibility, and employee Formal communication engagement. channels, including email blasts, town hall meetings, company news portals, and interdepartmental meetings, serve as the of structured primary means policy dissemination. Among these, email blasts are the most widely used, providing consistent and timely updates on policy

sustainability initiatives. changes, and objectives. While town strategic hall meetings enable interactive discussions and allow employees to voice concerns directly, their inconsistent scheduling reduces their overall effectiveness. Similarly, PGN News, monthly communication outlet. а strengthens corporate messaging but is less suitable for delivering real-time updates. Alongside formal communication, PGN integrates informal communication channels such as WhatsApp groups, casual discussions. daily workplace and interactions to reinforce policy messaging. Employees directly involved in sustainability efforts are more likely to engage in informal discussions, whereas those in non-sustainability divisions tend to rely more on formal communication channels. The coexistence of both formal informal and communication fosters collaboration, engagement, and adaptability, ensuring that NZE policies are understood and adopted effectively across all organizational levels.

In addition to balancing communication approaches, PGN's communication strategy is structured around four key functions: command, integration, persuasion, and network connectivity. The command function ensures that policies and directives from the government and Pertamina are clearly communicated and implemented through hierarchical structures. The integration function fosters collaboration across divisions, notably through the NZE acceleration team. which consists of members from engineering, operations, finance, investor relations, and corporate communication. However, integration success varies, as employees engaged in cross-divisional teamwork tend to have a stronger understanding of NZE initiatives compared to those in unrelated divisions. The persuasive function aims to increase voluntary employee engagement through digital campaigns, mentoring sessions, and sustainability incentives. However, in the absence of formal KPIs, engagement levels remain inconsistent across departments. Lastly, network connectivity supports informal knowledge sharing, strengthening internal collaboration. However, its impact is not evenly distributed among all teams, leading to gaps in employee understanding and involvement. By adopting а multi-faceted communication approach, PGN ensures effective policy dissemination, enhances employee participation, and fosters culture of sustainability, ultimately a supporting the company's commitment to achieving Net Zero Emissions (NZE).

B. Communication Barriers in the Dissemination of the NZE Policy at PGN

dissemination of the Net Zero The Emissions (NZE) policy at PT Perusahaan Gas Negara (PGN) encountered several communication challenges, stemming from divisional differences, employee engagement levels. and organizational structure. One of the primary obstacles is ensuring message accuracy and consistency across all levels of the company. Given the complexity of the NZE policy and its varying relevance to different divisions, there is a risk of misinterpretation or information dilution as it travels through hierarchical communication networks. hurdle Another major is employee engagement. Research findings indicate that not all employees actively seek information on the NZE policy, particularly those in non-sustainability-related roles. Employees who do not perceive a direct connection between the policy and their daily responsibilities may show less interest and participation in discussions, affecting overall engagement. This highlights the need for targeted communication strategies that make the policy more accessible and applicable across all departments, ensuring that

sustainability initiatives resonate with employees at every level.

C. The Communication Flexibility Within The Organization

The communication PT system at Perusahaan Gas Negara (PGN) is designed to be structured yet adaptable, ensuring that the Net Zero Emissions (NZE) policy is effectively communicated while remaining responsive to changing circumstances. PGN integrates organized feedback mechanisms, including annual employee surveys, direct feedback sessions, and monthly assessments, effectiveness evaluate the of to its communication strategies. These systems help identify challenges, refine messaging, and adjust communication methods based on employee input. One significant outcome of these assessments has been the adoption of WhatsApp as а primary internal communication tool, enabling faster and accessible information sharing. more Additionally, employee feedback has encouraged a shift toward a more engaging communication style, simplifying policy-related messages for better comprehension and practical application. To maintain communication responsiveness, PGN adopts a flexible communication framework that allows for adjustments based

on the urgency and impact of policy changes. For major policy updates, PGN utilizes monthly email communications, social media posts, and targeted reminders, communication adjusting frequency depending on the significance of new developments. When policy shifts affect significantly company-wide operations, the corporate communication division ensures widespread distribution, whereas minor updates are communicated internally without disrupting workflows. In response to emerging challenges in NZE demonstrates implementation, PGN proactive communication strategies by regularly reassessing messaging techniques, modifying communication platforms, and ensuring strategic alignment with corporate collaboration goals. The between management and relevant departments ensures that messages are updated in real-time to address new issues. Circular letters and internal emails are dispatched swiftly, enabling employees to adapt work plans efficiently. Furthermore, PGN remains attentive to employee feedback, adjusting its communication methods based on identified gaps or difficulties. Research findings indicate that while sustainability-focused employees perceive prompt and efficient communication, those in non-sustainability

roles occasionally experience challenges in accessing comprehensive policy updates.

CONCLUSION

Based on the findings obtained through a case study approach and the data analysis process using thematic analysis, this study examines the dynamics in the corporate communication division which utilizes a balanced approach between formal and informal communication with several communication channels to ensure that policy-related information is both comprehensive and accessible across different levels of the organization. PGN's communication strategy is also structured around four key organizational functions: integration, persuasion, command, and network connectivity. То improve adaptability, PGN adopts versatile communication methods, leveraging digital tools, organized feedback systems, and interdepartmental dialogues to fine-tune its strategies. Enhancing two-way communication and increasing access to sustainability information throughout all departments would boost engagement and lead successful NZE to more implementation.

RECOMMENDATION

To enhance the effectiveness of NZE policy communication, PT Perusahaan Gas Negara (PGN) should adopt a more interactive incorporating approach by two-way communication methods. Establishing interactive platforms, such as discussion forums or digital feedback tools, would encourage greater employee involvement and facilitate immediate responses to concerns regarding policy implementation. Additionally, to bridge engagement gaps, PGN should expand training programs and awareness initiatives, particularly targeting non-technical divisions. This would ensure that employees outside of sustainability-focused roles understand their contributions to achieving the Net Zero Emissions (NZE) target. Finally, optimizing communication approval workflows and leveraging digital automation tools can streamline the dissemination of policy updates, enabling faster and more efficient information sharing across all levels of the organization. By implementing these recommendations, PGN can create a more inclusive. responsive, and effective communication strategy, fostering stronger employee engagement and better alignment with sustainability objectives.

BIBLIOGRAPHY

- Denzin, N.K., & Lincoln, Y.S. (2018). The SAGE Handbook of Qualitative research (5th ed.). Thousand Oaks, CA: SAGE Publications
- PT Perusahaan Gas Negara Tbk. (2023). *Annual report 2023*. Jakarta: PT Perusahaan Gas Negara Tbk.
- Direktorat Jenderal Kementerian Energi dan Sumber Daya Mineral. (2023). *Laporan tahunan Direktorat Jenderal Kementerian ESDM* 2023. Jakarta: Kementerian Energi dan Sumber Daya Mineral.
- Robbins, S. P., & Judge, T. A. (2013). Organizational behavior (15th ed.). Pearson.
- Katz, D., & Kahn, R. L. (1978). The social psychology of organizations (2nd ed.). Wiley.
- Kreps, G. L. (2011). Organizational communication: Theory and practice (2nd ed.). Longman.

- Luthans, F. (2011). Organizational behavior (12th ed.). McGraw-Hill Education.
- Redding,W.Charles.(1972).CommunicationwithinOrganizations:An InterpretiveReviewofTheoryResearch.IndustrialCommunication Council.
- Keyton, Joann. (2005). Communication and Organizational Culture: A Key to Understanding Work Experiences. Sage Publications.
- Rahmawati, W., & Rasyid, E. (2020). Organizational Communication Dynamics in the Process of Integrated Information System in Muhammadiyah Healthcare Charity Venture. Universitas Muhammadiyah Yogyakarta.
- Cahya, M. (2023). Dinamika Komunikasi Organisasi Pada Lumicos Dalam Mencapai Tujuan Perusahaan. Universitas Atma Jaya Yogyakarta.
- Amalina, F., et al. (2024). Komunikasi Organisasi Antara Pimpinan

Asing dan Karyawan Lokal di PT Sunwood Timber Industries. Jurnal Ilmu Komunikasi dan Sosial.

- Zamrudtin, D. (2021). Dinamika Komunikasi Pemerintahan Kabupaten Klaten dalam Implementasi Kebijakan Keterbukaan Informasi Publik. UPN Veteran Yogyakarta.
- Fikri, R., et al. (2024). Dinamika Komunikasi Korporasi dalam Meningkatkan Keterlibatan Karyawan Generasi Z. Universitas Bina Bangsa.
- Heriyanto. (2018). Teknik Analisis Tematik sebagai Metode Menganalisa Data untuk Penelitian Kualitatif. Program Studi Ilmu Perpustakaan, Fakultas Ilmu Budaya, Universitas Diponegoro.
- Redding, W. C. (1972). Communication Within the Organization: An Interpretive Review of Theory and Research. New York: Industrial Communication Council

Barrett, D. J. (2002). Change communication: Using strategic

employee communication to facilitate major change.Corporate Communications: An International Journal, 7(4), 219-231.

- Papa, M. J., Daniels, T. D., & Spiker, B. K. (2007). Organizational Communication: Perspectives and Trends. SAGE
- Miller, K. (2015). Organizational Communication: Approaches and Processes. Cengage Learning.
- Shockley-Zalabak, P. S. (2015). *Fundamentals of Organizational Communication*. Pearson.
- Mishra, K., Boynton, L., & Mishra, A. (2014).Driving employee engagement: The expanded role of internal communications. International of **Business** Journal Communication, 51(2), 183-202.
- Ruck, K., & Welch, M. (2012). Valuing internal communication; management and employee

perspectives. Public Relations Review, 38(2), 294-302.

- March, James G., & Simon, Herbert A. (1958). Organizations. New York, NY: Wiley
- Sanders, K., Nguyen, P. T., Bouckenooghe,
 D., Rafferty, A., & Schwarz, G. (2020).
 "Unraveling the What and How of Organizational Communication to Employees During COVID-19
 Pandemic: Adopting an Attributional Lens." *The Journal of Applied Behavioral Science*
- Mazzei, A. (2010). Promoting active communication behaviours through internal communication. Corporate Communications: An International Journal, 15(3), 221-234.
- Pertamina. (2023). PGN berhasil turunkan emisi 598,39 ton CO2 eq sepanjang 2023. Retrieved from https://www.pertamina.com/id/

news-room/energia-news/pgn-b erhasil-turunkan-emisi-598,39-t on-co2-eq-sepanjang-2023

- Ruang Energi. (2023, April 22). Peringati Hari Bumi, PGN tingkatkan awareness dengan campaign ramah lingkungan.Ruang Energi. https://www.ruangenergi.com/p eringati-hari-bumi-pgn-tingkat kan-awareness-dengan-campai gn-ramah-lingkungan/
- Migas ESDM. (n.d.). *Buku Referensi*. Kementerian Energi dan Sumber Daya Mineral Republik Indonesia.

Migas ESDM. (2024). Atlas Vol. 5 2024.

Kementerian Energi dan Sumber Daya Mineral Republik Indonesia.