

Analysis of PT PLN's Innovative Strategy in Supporting Electric Vehicles in Indonesia

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Innovative Strategy

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ABSTRACT

Global transformation towards sustainable mobility, the electric vehicle (EV) industry plays an important role in creating a cleaner and environmentally friendly future with the journey towards sustainable mobility, PT PLN (Persero) plays an important role in supporting the electric vehicle ecosystem in Indonesia. With more than a thousand Public Electric Vehicle Charging Stations (SPKLU) operating by the end of 2023, PT PLN confirms its commitment to accelerate the transition to clean mobility. However, technical challenges, change management, and organizational culture are obstacles that must be overcome. This research method uses a qualitative approach to understand PT PLN's strategy in supporting the electric vehicle ecosystem in Indonesia. PT PLN's strategy in supporting clean mobility includes infrastructure development, strategic partnerships, home charging installation initiatives, and the application of digital technology. Through holistic analysis, it highlights the importance of effective change management and an inclusive organizational culture. The results of this research provide insight into best practices in supporting the electric vehicle ecosystem and provide input for designing more effective policies. By continuing to strengthen infrastructure, develop partnerships, empower communities, technological innovation and good change management, PT PLN can strengthen its role as a leader in clean mobility and contribute to global sustainable development goals.

Keywords: Clean Mobility, PT PLN, Electric Vehicles, Electric Charging Infrastructure, Change Management

ABSTRAK

Transformasi global menuju mobilitas berkelanjutan, industri kendaraan listrik (EV) memainkan peran penting dalam menciptakan masa depan yang lebih bersih dan ramah lingkungan dengan perjalanan menuju mobilitas berkelanjutan, PT PLN (Persero) memainkan peran penting dalam mendukung ekosistem kendaraan listrik di Indonesia. Dengan lebih dari seribu Stasiun Pengisian Kendaraan Listrik Umum (SPKLU) yang beroperasi pada akhir tahun 2023, PT PLN menegaskan komitmennya untuk mempercepat transisi menuju mobilitas bersih. Namun, tantangan teknis, manajemen perubahan, dan budaya organisasi menjadi hambatan yang harus diatasi. Metode Penelitian ini menggunakan metode pendekatan kualitatif untuk memahami strategi PT PLN dalam mendukung ekosistem kendaraan listrik di Indonesia. Strategi PT PLN dalam mendukung mobilitas bersih, meliputi pembangunan infrastruktur, kemitraan strategis, inisiatif pemasangan home charging, dan penerapan teknologi digital. Melalui analisis holistik, menyoroti pentingnya manajemen perubahan yang efektif dan budaya organisasi yang inklusif. Hasil penelitian ini memberikan wawasan tentang praktik terbaik dalam mendukung ekosistem kendaraan listrik dan memberikan masukan untuk merancang kebijakan yang lebih efektif. Dengan melanjutkan penguatan infrastruktur, pengembangan kemitraan, pemberdayaan masyarakat, inovasi teknologi, dan manajemen perubahan yang baik, PT PLN

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Kata kunci: *Mobilitas Bersih, PT PLN, Kendaraan Listrik, Infrastruktur Pengisian Listrik, Manajemen Perubahan*

INTRODUCTION

The era global transformation towards sustainable mobility, the Electric Vehicle (EV) industry plays a crucial role in creating a cleaner and more environmentally friendly future (Skeete et al., 2020; Martins et al., 2021). This phenomenon is not only in the spotlight in Indonesia but has also spread to all corners of the world, inspiring a paradigm shift from fossil fuel-based vehicles to renewable energy-based vehicles (Asfani et al., 2020). A country with significant levels of air pollution, Indonesia is faced with a great responsibility to actively contribute to this global movement. In this increasingly urgent context, the role of PT PLN (Persero) as the main pioneer in providing electricity services is becoming increasingly vital. Not only is it a supplier of energy to society in general, but PT PLN has also become the front guard in supporting the development of the electric vehicle ecosystem in the country (Haerudina et al., 2022). With the success of more than a thousand units of Public Electric Vehicle Charging Stations (*Stasiun Pengisian Kendaraan Listrik Umum/SPKLU*) operating by the end of 2023, PT PLN has confirmed its high commitment to encouraging the transition towards clean mobility in Indonesia (Tirtayasa et al., 2024).

Behind this success there are several strategies that are not without obstacles. PT PLN is faced with a series of challenges covering technical aspects to cultural changes and organizational management. Significant transformation of infrastructure and work processes, as well as adaptation to changes in mindset and company culture are an integral part of PT PLN's journey in supporting the electric vehicle ecosystem in Indonesia. This research seeks to explore in depth the strategies implemented by PT PLN to support the electric vehicle ecosystem in Indonesia. With a holistic approach, researchers will examine various aspects of PT PLN's strategy, starting from SPKLU infrastructure development, partnerships with the private sector, homecharging installation initiatives, to the application of digital technology. Therefore, the researcher will also explore how change management and organizational culture at PT PLN influence the effectiveness of implementing this strategy.

This research combines data from various relevant sources, including official reports, news, interviews with relevant stakeholders, and related research. This research aims to provide a deeper understanding of PT PLN's role in accelerating clean mobility in Indonesia. Researchers will consider various points of view, both internal and external to the company, to gain a holistic understanding of PT PLN's strategies and their impact on the development of the electric vehicle industry in Indonesia. It is hoped that the results of this research can provide significant contributions to various parties, including the government, industry stakeholders and society at large. Apart from providing deeper insight into best practices in supporting the electric vehicle ecosystem, this research is also expected to provide valuable input for decision makers in designing more effective policies and strategies in accelerating the transition to clean mobility in Indonesia. Thus, this research also has the potential to make an important contribution to achieving global goals to reduce greenhouse gas emissions and improve the quality of the environment, thereby creating a more sustainable future and improving the quality of life for the people of Indonesia and the world at large.

LITERATURE REVIEW

The shift towards sustainable mobility is not only a regional phenomenon but also a global response to increasingly pressing environmental problems such as increasingly pronounced climate change and high levels of air pollution in many large cities around

the world (Cantarero, 2020). This international initiative, in the priority contained in the Paris Agreement in 2015, emphasizes the importance of reducing greenhouse gas emissions from the transportation sector as an important step to combat climate change. (Liu et al., 2020; Siriwardana & Nong, 2021). Motorized vehicles especially those using fossil fuels, have long been one of the main contributors to greenhouse gas emissions and air pollution. (Irfani et al., 2019; Dewi et al., 2022; Saputra et al., 2024). Electric vehicles emerge as a promising solution to reduce the negative impact of transportation on the environment (Zhao et al., 2021). With increasingly advanced battery technology and rapidly developing charging infrastructure, electric vehicles offer a more environmentally friendly alternative and have the potential to shift the global transportation paradigm towards more sustainable mobility (Patil, 2021; Sathyan et al., 2024).

Indonesia, as an archipelago with more than 17,000 islands and a growing population, has unique challenges regarding mobility and the environment. With rapid population growth and continuing urbanization, the number of motorized vehicles in Indonesia is increasing rapidly from year to year (Kaledi et al., 2019). This phenomenon produces serious impacts on the environment, including high levels of air pollution in many large cities. Jakarta, for example, has long been one of the cities with the highest levels of air pollution in the world caused by motorized vehicles, industry and other urban activities (Lahu & Mumbunan, 2023). This high level of pollution threatens public health and reduces air quality which is vital for life. Apart from that, the level of greenhouse gas emissions from the transportation sector is also a major concern, because of Indonesia's large contribution to global emissions (Dianjaya & Epira, 2020). As a country with great potential for economic growth and infrastructure development, concrete steps are needed to reduce the negative impact of transportation on the environment. This change requires cross-sector collaboration, technological innovation, and appropriate policies to create cleaner and more sustainable mobility in Indonesia (Dzhengiz, 2020; Murphy & Stott, 2021).

The main electricity service provider in Indonesia, PT PLN (Persero) has a crucial role in supporting the transition towards clean mobility in this country. The electricity infrastructure owned by PT PLN, which is spread throughout the Indonesian archipelago, provides a solid foundation to support the development of electric vehicles (Wicaksono et al., 2024). Through an extensive transmission and distribution network, PT PLN can provide a stable and reliable electricity supply to support electric vehicle operations, both in urban and rural areas. Adequate charging infrastructure is key to accelerating the adoption of electric vehicles, and PT PLN has made significant investments in the construction of Public Electric Vehicle Charging Stations (*Stasiun Pengisian Kendaraan Listrik Umum/SPKLU*) in various strategic locations throughout Indonesia (Nugroho et al., 2022; Setiartiti & Rachmawatie, 2022). With more than a thousand SPKLU units operating by the end of 2023, PT PLN has demonstrated its commitment to facilitating the transition to clean mobility in Indonesia (Tirtayasa et al., 2024). Apart from charging infrastructure, PT PLN also establishes strategic partnerships with various stakeholders, including local governments, the automotive industry and private companies (Erlistyarini, 2022; Cantika et al., 2024). This collaboration covers various aspects, from infrastructure development to providing services related to electric vehicles. Partnerships with local governments assist PT PLN in identifying strategic locations for SPKLU construction, while partnerships with the automotive industry enable the exchange of information and knowledge about the latest trends and technologies in the electric vehicle industry. Apart from that, PT PLN is also collaborating with private companies to develop innovations in charging and energy management services that are more efficient and environmentally friendly. With a comprehensive and collaborative approach, PT PLN continues to strive to be a leader in supporting the transition to clean mobility in Indonesia.

Implementation of strategies to support clean mobility presents PT PLN with a series of significant changes, not only in terms of infrastructure and work processes, but also in

terms of organizational culture. Appropriate adjustments are needed to ensure that PT PLN can respond to these challenges effectively and optimize its operations. One of the significant technical changes is in infrastructure, where PT PLN must ensure that its electricity network can handle the increasing power demand from electric vehicles without experiencing disruption or system failure. This requires investment in adequate equipment and technology as well as regular maintenance to ensure the availability and reliability of electricity supply. Apart from that, adjustments to work processes are also needed to integrate SPKLU operations with the existing electricity distribution system and ensure good coordination between various departments and related partners. Changes not only occur in technical aspects, but also in organizational culture. PT PLN is faced with demands to adopt an inclusive, collaborative and innovative culture in order to be successful in supporting the transformation towards clean mobility. This involves creating cross-functional teams capable of working together effectively, exchanging ideas and knowledge between various divisions, and building a work environment that supports innovation and planned risk-taking. By ensuring that the organizational culture supports the company's vision and goals in supporting clean mobility, PT PLN can create an environment that allows employees to adapt and develop in the face of continuous change.

Effective change management is key in facing the complex challenges faced by PT PLN in supporting the transition to clean mobility (Damayanti, 2014). Strong leadership with a clear vision of the desired change, plays a crucial role in inspiring and guiding the entire organization towards a common goal. In addition, open and clear communication is an important aspect in ensuring that every member of the organization understands the importance of change, its goals, and their role in the process. Steps such as holding regular meetings, conveying information transparently, and listening to feedback from employees are important strategies in building strong understanding and high involvement from all stakeholders. Active participation from all stakeholders, both internal and external to the company, is also an important factor in ensuring the success of the transition. Involving employees from various levels and departments in the process of planning, implementing, and evaluating change can increase a sense of ownership and commitment to shared goals. Apart from that, collaboration with external parties such as local governments, private companies and the community is also needed to ensure that the steps taken are in line with the needs and expectations of society at large.

PT PLN's efforts to support clean mobility in Indonesia have a broad impact, not only for local communities, but also for the environment as a whole. Reducing greenhouse gas emissions and improving air quality are some examples of positive impacts directly felt by local communities. By reducing dependence on fossil fuels and switching to clean energy, PT PLN plays a role in minimizing negative impacts on the environment and improving air quality which is vital for people's health and welfare. Apart from providing a positive impact locally, PT PLN's contribution in supporting clean mobility is also in line with the global goal of reducing greenhouse gas emissions and creating a cleaner and healthier environment. These measures not only support the global agenda to achieve environmental sustainability, but also provide impetus for inclusive economic development, by creating new jobs in renewable energy and green technology industries. Thus, PT PLN's efforts to support clean mobility not only provide significant local benefits, but also have a positive impact on a wider scale, supporting sustainable development goals at both the national and global levels.

METHOD

This research takes a qualitative approach to understand PT PLN's strategy in supporting the electric vehicle ecosystem in Indonesia. In facing the complexity of the electric vehicle industry and global environmental changes, a qualitative approach provides a basis for exploring PT PLN's strategy. The research aims to understand the role of PT PLN in facilitating the transition to clean mobility and the factors that

influence this strategy. This approach provides flexibility in capturing PT PLN's operational context. Data will be collected from white papers, industry publications, news portals and academic literature. This approach allows combining data to understand PT PLN's response to changes in the environment and the electric vehicle industry. The data collected will be analyzed thematically to identify patterns and trends. The research will focus on PT PLN's strategies such as charging infrastructure, strategic partnerships, installing home charging, and using digital technology. In addition, the research will explore how change management and organizational culture at PT PLN influence strategy implementation. Through this qualitative approach, the research aims to provide an understanding of the role of PT PLN in clean mobility in Indonesia. The results are expected to provide insights for stakeholders in developing effective policies to accelerate the transition to clean mobility. This research is also expected to make a theoretical contribution by exploring the dynamics of change management and organizational culture in a rapidly changing industrial context.

RESULTS

The important role in supporting the electric vehicle ecosystem in Indonesia is an important part of responding to PT PLN's global environmental challenges. In this context, it is important to explore more deeply how the steps taken by PT PLN actually influence the transition towards clean mobility in Indonesia. One aspect that needs to be considered is the impact of the electric vehicle charging infrastructure built by PT PLN. The impact of the electric vehicle charging infrastructure built by PT PLN is not only limited to easy access to charging for electric vehicle owners, but also has much broader implications in changing the transportation paradigm in Indonesia. With extensive and affordable charging infrastructure, people will feel more confident in switching to electric vehicles, reducing dependence on fossil fuels and reducing greenhouse gas emissions that are detrimental to the environment. In addition, by building charging infrastructure that is integrated with the national electricity grid, PT PLN helps optimize the use of renewable energy resources, such as solar and wind power, which will support Indonesia's goal of achieving clean energy targets.

The data obtained shows that PT PLN has succeeded in building more than a thousand units of Public Electric Vehicle Charging Stations (*Stasiun Pengisian Kendaraan Listrik Umum/SPKLU*) by the end of 2023. Although this figure is promising, it is important to dig deeper to understand the true implications of the infrastructure that has been built. First of all, it is necessary to analyze how wide the reach of this SPKLU is and how evenly distributed it is throughout Indonesia. The even availability of SPKLU throughout the country will ensure accessibility for electric vehicle users from various geographical backgrounds (Barizi & Triarda, 2023). Furthermore, it is also important to evaluate the operational efficiency and reliability of each SPKLU. Factors such as charging speed, power availability and payment system reliability will influence the user experience and public trust in electric vehicles. In addition, it is also necessary to pay attention to how this infrastructure influences the behavior of electric vehicle users. An in-depth analysis of these factors will provide a more comprehensive understanding of the impact of the electric vehicle charging infrastructure built by PT PLN.

The very important to dig deeper into PT PLN's strategic partnerships with private companies, as is the case with Utomo Chargeplus Indonesia. The data obtained shows that this collaboration has succeeded in expanding the network of SPKLU in Indonesia. However, to understand the true contribution of such partnerships, a more detailed analysis is necessary. First of all, it is necessary to evaluate the extent to which this partnership has expanded the accessibility of electric vehicle charging infrastructure. This includes consideration of the locations where SPKLU has been built, whether it covers areas previously not covered by similar infrastructure. Apart from that, it is important to pay attention to the availability of SPKLU at important points such as shopping centers, offices or other public areas, which can increase the comfort of electric vehicle users (Jaya & Hidayat, 2024). Therefore, the analysis should look at the quality

of the infrastructure built through these partnerships, including charging speed, system reliability, and ease of use. Reliable and efficient infrastructure will improve user experience and encourage more people to choose electric vehicles as their transportation choice. The economic impact also needs to be considered, taking into account the investment required and the impact on local economic growth and the resulting jobs. In addition, sustainability aspects must be a focus, including choosing the right location and using renewable energy for SPKLU operations. By conducting an in-depth analysis of this strategic partnership, it will be possible to better understand its true contribution to expanding electric vehicle charging infrastructure in Indonesia and its impact on the transition to clean mobility in the future.

Apart from improving infrastructure for charging electric vehicles on the streets, attention to home charging services is also an important point in accelerating the adoption of electric vehicles in Indonesia. However, there is not yet sufficient data to describe the extent to which this home charging service has improved comfort and accessibility for electric vehicle users in Indonesia. Therefore, further analysis is needed involving factors that influence the adoption of charging services at home, such as the availability of household infrastructure, user needs, costs, and safety factors. This analysis needs to include a study of how people perceive home charging services, how easy it is to access, and the extent of the reliability and quality of the service. Additionally, it is also important to understand the impact of this increase in home charging services on overall electric vehicle use, including the potential for increasing the number of electric vehicles sold, reduced carbon emissions, and other environmental benefits. With a deeper understanding of these dynamics, more effective strategic steps can be designed to accelerate the adoption of electric vehicles in Indonesia.

Apart from focusing on technical aspects, it is also important to pay in-depth attention to change management and organizational culture at PT PLN. Although the data shows the company's commitment to building an inclusive and innovative corporate culture, to fully understand its impact on the implementation of strategies that support clean mobility, a more in-depth analysis is needed. First of all, a thorough understanding of how this change in organizational culture impacts PT PLN's operational effectiveness is needed. This includes an evaluation of the extent to which this inclusive and innovative culture is reflected in the company's daily work processes, policies and decisions. Furthermore, the analysis must also consider PT PLN's ability to adapt to changes in the external environment. This includes an evaluation of the extent to which the organizational culture allows the company's flexibility and responsiveness to changing industry developments, technology, and regulatory policies. In the context of clean mobility, this could include the extent to which PT PLN can integrate with renewable energy solutions and the rapidly developing electric vehicle charging infrastructure.

This analysis must look at how change management at PT PLN has encouraged the implementation of best practices in supporting clean mobility. This can include communication and training strategies implemented to strengthen employee understanding and support of the company's goals in addressing clean mobility challenges. With a deeper understanding of the role of change management and organizational culture, PT PLN can better prepare itself to face the challenges and opportunities in supporting clean mobility in Indonesia. It will also enable the company to identify areas where further improvements are needed to achieve its strategic goals in terms of clean mobility.

CONCLUSION

The context of transformation towards sustainable mobility, PT PLN (Persero) has demonstrated a strong and proactive commitment to supporting the electric vehicle ecosystem in Indonesia. Through the development of extensive Public Electric Vehicle Charging Stations (*Stasiun Pengisian Kendaraan Listrik Umum/SPKLU*) infrastructure, strategic partnerships with the private sector, initiatives to install home charging, and the

application of digital technology, PT PLN has succeeded in becoming one of the key players in facilitating the transition to clean mobility in this country. However, the journey towards clean mobility is not easy. PT PLN is faced with a number of challenges, including technical aspects in developing charging infrastructure, organizational readiness in managing cultural change, and cross-sector coordination to support the implementation of established strategies. In facing these challenges, effective change management and an inclusive and innovative organizational culture are key. Strong leadership, open communication, and active participation from all stakeholders are needed to ensure a successful transition to clean mobility. Thus, it is important for PT PLN to continue to develop responsive and adaptive strategies, as well as strengthen internal capacity in facing emerging challenges. By maintaining its commitment to clean mobility and actively collaborating with all relevant stakeholders, PT PLN can play an increasingly crucial role in bringing Indonesia towards a cleaner, more sustainable and highly competitive future in the global electric vehicle industry.

Based on the findings and conclusions of this research, several suggestions are put forward to increase PT PLN's role in supporting clean mobility in Indonesia. PT PLN needs to continue to strengthen its electric vehicle charging infrastructure, including increasing the number of SPKLU and improving the quality of services provided. Increase cooperation with local governments, private companies and non-governmental organizations to expand the reach of electric vehicle charging infrastructure. Adopt public education and awareness programs about the benefits of electric vehicles and how to use them. PT PLN needs to continue to develop and apply the latest technology to increase the efficiency of its charging infrastructure and reduce environmental impacts. It is important for PT PLN to continue to improve its internal change management capabilities, including employee training and development as well as the promotion of an inclusive and innovative work culture. By implementing these suggestions holistically and sustainably, PT PLN can strengthen its role as a leader in supporting clean mobility in Indonesia, as well as contribute significantly to achieving sustainable development goals at the national and global levels.

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