Available online at: http://journal.uinsgd.ac.id/index.php/ministrate
Ministrate, Vol. 7 No. 3:198-218
DOI: 10.15575/jpbd.v7i3.43843

Implementation of Electric Vehicle Policies in Reducing Carbon Emissions in the Special Capital Region of Jakarta

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Abstract

Climate change remains a pressing global issue, particularly in developing countries such as Indonesia, and is especially evident in major urban areas like the Special Capital Region of Jakarta (DKI Jakarta). In response, the Jakarta government has implemented electric vehicle (EV) policies as a strategy to reduce carbon emissions from the transportation sector. This study aims to analyze the effectiveness of these policies in curbing vehicular carbon emissions. Using a literature review approach, data were collected from various sources to evaluate existing regulations, identify challenges, and assess the potential of EVs in supporting a sustainable energy transition. The findings indicate that although there is regulatory support and government incentives, the adoption of electric vehicles continues to face significant obstacles, including high upfront costs, limited charging infrastructure, and inconsistencies in policy implementation. This study recommends strengthening coordination among government entities, the private sector, and the public to enhance accessibility and accelerate the adoption of environmentally friendly transportation solutions.

Keywords: Policy, Carbon Emissions, Electric Vehicles.

INTRODUCTION

Climate change is a major issue and a major concern for the whole world. In this effort, several countries are trying to ensure that climate change is a top priority for world issues, this is stated in the Paris Agreement where the G20 functions as a global platform that has a crucial position in dealing with international environmental polemics, including the climate crisis and sustainability. This forum plays a role in accelerating energy transformation, promoting a green economy, and maintaining ecosystem preservation. In addition, the G20 also focuses on the management of public resources and government finances globally to support these initiatives. (Rahman, 2019). The Paris Agreement itself aims to reduce the average increase in world temperature which reached in the 21st century which could reach more than 1.5C.

Received: January 13, 2025; Revised: April 19, 2025; Accepted: April 24, 2025

Meanwhile, this assessment is oriented towards minimizing greenhouse gas pollution, increasing modification capabilities for climate change, and optimizing global efforts in dealing with the effects caused by the environmental crisis (Wendra & Sutrisno, 2023). In this context, climate transformation occurs due to greenhouse gas emissions (Greenhouse effect) which is a significant phenomenon in the context of climate change. The Ministry of Environment of the Republic of Indonesia (KLHK RI) explains that Greenhouse Gases (GHG) are composed of various types of gases, including CO2, CH4, N2O, HFCs, PFCs, and SF6, with the most dominant being CO2, CH4, and N2O. Of these dominant gases, carbon dioxide (CO2) has the highest concentration in the atmosphere (Suciati & B Aviantara, 2019). The use of renewable energy in this era of globalization is very important to reduce exhaust emissions and as an effort to support the stability of sustainable energy transitions, both for the present and in the future. Dependence on conventional energy sources can cause various threats, including energy crises and environmental degradation due to carbon gas emissions, which are one of the main causes of climate change. According to a report compiled from the IPCC (Intergovernmental Panel on Climate Change), human activities have accelerated the increase in greenhouse gas concentrations in the air environment. The accumulation of these gases causes excess heat to be trapped, which in turn increases the earth's temperature. (Sudjoko, 2021). On the other hand, human activities, such as the use of fossil fuels for vehicle transportation operations have caused significant release of carbon dioxide into the atmosphere which disrupts the global carbon cycle and causes global warming (Nazaripouya et al., 2019). One of them is emissions from motor vehicles that cause air pollution which has a negative impact on the environment. Pollutants produced by vehicles can cause serious problems in air, water, and soil, as well as disrupt the balance of the ecosystem (Monrihardi et al., 2014). Of course, in this case, the government's seriousness in reducing the rate of effects of carbon gas emissions is supported by introducing electric vehicles which are free from vehicle carbon emissions.

The introduction of electric vehicles is carried out as an effort to minimize dependence on vehicles that use fossil fuels, so that it can reduce exhaust emissions released into the air (Dwi Romadhon & Subekti, 2023). Electric vehicles are a type of vehicle that greatly supports environmental sustainability. The engine in this vehicle works by utilizing electrical energy stored through batteries as its main resource. As a form of support for this effort, the Indonesian

government has strengthened it in Presidential Regulation (Perpres) Number 55 of 2019 as amended by Presidential Regulation (Perpres) No. 79 of 2023 concerning the Acceleration of the Development of Battery-Based Electric Motor Vehicles (Battery Electric Vehicles) on highways (Nuarta & Sukedi, 2024; Nugraha et al., 2024). According to data from the Ministry of Industry, currently sales of electric vehicles have reached 144,547 units, consisting of buses, trucks, two- and three-wheeled motorcycles, and passenger vehicles (Kurniawan & Ferdian, 2024). Therefore, with sustainable development, the development aspect must involve environmental protection and social development which must be in line with the economic development aspect. Moreover, currently Indonesia is innovating the development of transportation facilities from developing electrical components which will be useful as public interest infrastructure for a better life (Puspa Rini et al., 2024). The use of sustainable transportation has a positive impact on air quality, as indicated by a decrease in pollutant levels such as particles and carbon monoxide. In addition, the quality of life of the community has also increased, which can be seen from the decrease in cases of respiratory health problems and the increase in population flexibility (Rahmawati & Nusamuda Pratama, 2023). In Thailand, government policies have been effective in improving electric vehicle infrastructure and have succeeded in influencing public awareness in using electric vehicles (Chonsalasin et al., 2024). In Romania, the government's Rabla Plus (RP) program, which is a policy to phase out old vehicles, has shown that during its 5-year implementation it has succeeded in reducing 9746.15 tons of CO2 emissions by increasing the number of low-emission vehicles and electric vehicles in circulation (C. Sechel & Mariasiu, 2022). Meanwhile, India has adopted a policy of phase out old vehicles from other countries and the government has formulated policies regarding electric vehicles such as the National Electic Mobility Mission Plan (NEMMP) 2020, Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles In India (FAME-I) and Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles In India (FAME-II), these policies facilitate various types of incentives, infrastructure development, fund allocation, research, development, production, and sales (Kumar Das & Younus Bhat, 2022). In 2013, Indonesia began developing electric vehicles through local activists, until 2019 through the strengthening of the regulation of Presidential Regulation (Perpres) Number 55 of 2019 concerning the Acceleration of the Battery-Based Electric Motor Vehicle Program in an effort to support local production, as well as an effort to reduce gas emissions from air pollution

ISSN 2714-8130 (Online)

(Ramadhina & Ulfatun Najicha, 2022). In the city of Solo, the policy of implementing electric vehicles has been implemented through electric vehicle subsidies and the Regional Government has also provided electric vehicles for local village officials (Tim Solopos, 2023). Meanwhile, in the city of Banjarmasin in supporting the policy of Presidential Regulation No. 55 of 2019, the Banjarmasin Regional Government allocated 52 electric cars through PT PLN (Persero) South Kalimantan Regional Main Unit (UIW) (Dhoni, 2021).

The implementation of electric vehicles in Jakarta has been strengthened through the Governor's Regulation (Pergub) No. 3 of 2020 concerning Motor Vehicle Transfer Tax Incentives for Battery-Based Electric Motor Vehicles (Battery Electric Vehicles) for road transportation. This is related to the policy that battery-based electric motor vehicles are not subject to Motor Vehicle Transfer Tax (BBN-KB), of course this is a commitment of the regional government in supporting the sustainability of renewable energy (Zainal Ibad et al., 2022). In this context, the DKI Jakarta Provincial Government also supports the implementation of electric vehicles through the acceleration of public transportation electrification which is stated in the Governor's Decree Number 1053 of 2022 which regulates guidelines for accelerating the use of battery-based electric motor vehicles in Transjakarta transportation services (Sofa, 2022). However, the implementation of the electric vehicle policy still faces several challenges. First, the initial cost of electric vehicles is still much higher than traditional vehicles, thus hindering potential buyers (Krisdiyanto & Dewi, 2023). Second, government incentives are important but often not enough to offset these costs, so EV adoption remains limited (Belgiawan et al., 2024). Third, the lack of easily accessible and reliable charging stations is a major barrier, as many consumers have expressed concerns about the feasibility of owning an EV without adequate charging options (Krisdiyanto & Dewi, 2023). Fourth, collaboration between the public and private sectors plays a crucial role in developing this infrastructure (Hidayat, 2024). Fifth, current policies may not effectively support the transition to EVs, due to gaps in implementation and enforcement (Pambudi & Juwono, 2023). These issues suggest that while there is great potential for EV growth in Indonesia, collaborative efforts between the government, automotive industry, and the public are needed to address these challenges.

Investment in charging infrastructure, better incentive policies, and public education about the benefits of EVs are critical to driving widespread adoption of EVs in Indonesia. This study has a very important significance in the context of DKI Jakarta's efforts to overcome

environmental problems and achieve carbon emission reduction targets using the utilization of green energy transitions and technology. Meanwhile, the application of electric vehicles as a means of mobilizing community activities can help minimize the negative impacts of exhaust emissions by reducing air pollution. By analyzing the impact of electric vehicle policies, we can measure how effective this policy is in improving air quality and reducing dependence on fossil fuels. In addition, this study focuses on providing better policy recommendations to encourage the adoption of electric vehicles in the community, as well as opening up opportunities for more sustainable economic growth. Several previous studies on Electric Vehicles have been conducted, for example those that examine the strategic prospects for developing zero-emission vehicles in Indonesia: 1) Implementation of Electric Vehicle Policies in Indonesia in Supporting National Energy Security (Sasongko, 2024). 2) There is also research that examines Indonesia's State Innovation in developing electric vehicles as a step to encourage and improve the sustainability of the green economic transition environment (Zola et al., 2023). And, 3) Analysis of the Perspective of Regulation and Control of Sustainable Climate Change Impacts (Nur & Kurniawan, 2021). This study contains the following novelties: 1. Analysis of Electric Vehicle Policy on Greenhouse Gas Releases in the Special Region of Jakarta (DKJ), 2. Evaluation of the Role of Local Government in Supporting the Transition. Therefore, there are two formulations of the problem with the focus of this study being to answer the questions regarding: 1) How is the implementation of policies related to electric vehicles in the Special Capital Region of Jakarta?, 2) What is the influence of inhibiting and supporting factors on the implementation of electric vehicle policies, especially in the Special Capital Region of Jakarta?.

RESEARCH METHOD

This study adapts the literature study method for data collection where the acquisition of this information uses a data retrieval process such as national and international articles/journals that can be downloaded from several electronic databases such as Google Scholar, academia, or researchgate, books, internet sources, images, and policy products listed in (Presidential Regulation) Number 79 of 2023 concerning the Acceleration of the Development of Battery-Based Electric Motor Vehicles (Battery Electric Vehicles), as well as various other supporting data references which are important elements as data sources in this paper.

ISSN 2714-8130 (Online)

The data analysis technique used is a descriptive approach, where this analysis technique aims to describe and analyze the research object through data collected from secondary data such as previous journals, books, and magazines that are in accordance with the research objectives (Dewi, 2019).

The initial discussion of the results will present a general description of the Implementation of Electric Vehicle Policies in Reducing Carbon Emissions. Where specifically the analysis is carried out regarding: 1) Analyzing policies related to carbon gas emissions and electric vehicle policies, 2) Implementation of electric vehicles in the Special Region of Jakarta. Then, in this case, from the relevant data sources, a qualitative analysis was carried out using Edward III's theory (1980), in the form of four indicators to measure the success of implementing a policy, namely the following indicators: (i) communication; (ii) resources; (iii) disposition and (iv) bureaucratic structure (Amjah et al., 2022).

RESULT AND DISCUSSION

Policy Analysis Related to Carbon Gas Emissions and Electric Vehicle Policy in the Special Region of Jakarta

George Edward III emphasized (in Nugroho, 2014:636) that the basic problem in the scope of public administration is the lack of attention to the implementation aspect. In this case, Edward III emphasized that if the policy decision from the policy maker is not accompanied by effective implementation, the policy will not be successful or not optimal. Therefore, Edward III provides an understanding of a good implementation model by measuring four indicators as the main problems of policy implementation, namely: communication, resources, disposition or compliance of implementers (disposition or attitudes) and bureaucratic structures.

Figure 1 Referring to the perspective put forward by Edward III, the theoretical approach used in this study is to analyze the four indicators in order to determine, define, and describe the policy of the Jakarta Special Region government in its seriousness in tackling air pollution from carbon gas emissions through the electric vehicle procurement policy.

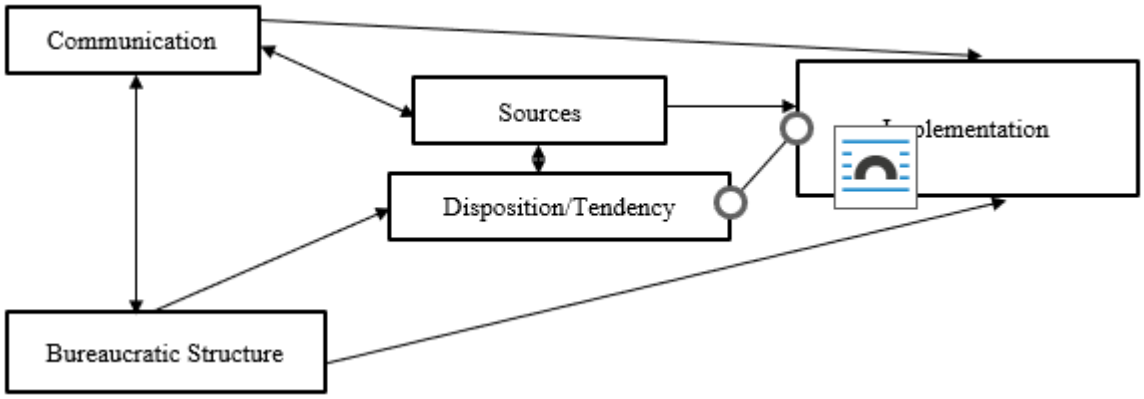

Figure 1. Indicators of Edward III's Theory

Communication

Effective communication in implementing electric vehicle policies is an important factor in realizing the success of a policy in DKI Jakarta. In an effort to increase public awareness of the benefits of electric vehicles and the incentives offered, the DKI Jakarta government has conducted socialization through various accesses such as social media channels, workshops, and seminars (Sari, 2021). Policies related to electric vehicles, including subsidies and tariff adjustments, have a complex impact on the community. On the one hand, this policy can encourage efficient energy use and reduce dependence on subsidies, which can ultimately lead to the development of alternative energy sources. On the other hand, there are still challenges that cannot be ignored. The adoption of electric vehicles in DKI Jakarta faces a number of significant communication barriers. First, limited public understanding of the benefits and advantages of environmentally friendly vehicles over traditional fossil-fueled vehicles is a major challenge, indicating that the information conveyed has not fully reached all levels of society. In addition, the charging infrastructure is still inadequate, such as the number of Public Electric Vehicle Charging Stations (SPKLU), adding to the public's hesitation to switch. The relatively high price of electric vehicles is also a barrier, even though the government has provided incentives to encourage use. On the other hand, unclear regulations and policies related to the use and development of electric vehicle infrastructure create uncertainty among potential users. Ineffective public communication, despite campaign efforts through various channels, often does not reach certain segments of society. Finally, negative perceptions of new technologies, including concerns about the performance and reliability of electric

ISSN 2714-8130 (Online)

vehicles, further slow down public interest in switching. By addressing these communication factors, it is hoped that the adoption of electric vehicles can increase, supporting the government's efforts to reduce air pollution and achieve environmental sustainability. The DKI Jakarta Provincial Government is targeting the use of electric vehicles to reach 15% of the total vehicles in Jakarta by 2030. The total number of vehicles operating in the capital city reaches around 24.3 million units in DKI Jakarta. In this case, it is noted that the number of electric vehicles that have been used by the community in DKI Jakarta has reached a total of 132,814 units, consisting of around 109,576 electric motorbikes and 23,238 electric cars. This figure shows a significant increase in the adoption of electric vehicles among DKI Jakarta residents, reflecting a positive trend towards the use of more environmentally friendly modes of transportation. (baketrans.kemenhub.go.id 2023).

The DKI Jakarta Provincial Government is actively conducting socialization regarding the benefits of using electric vehicles as part of an effort to support the public in switching to non-polluting vehicles. One of the latest efforts is to involve the State Civil Apparatus (ASN) in the DKI DPRD in activities aimed at supporting the acceptance of electric vehicles among the public. To support this transition, the government has also implemented attractive tax and incentive policies, such as the elimination of Motor Vehicle Tax (PKB) for Electric Vehicles or Battery-Based Electric Motor Vehicles (Battery-Based KBL), as well as the exemption of Motor Vehicle Transfer Fees (BBNKB) in electric vehicle trading transactions. Furthermore, owners of Battery-Based KBL who have several vehicles will not be subject to progressive tax rates, thus providing convenience for them. Through this socialization, the DKI Jakarta Provincial Government aims to increase public understanding of the benefits of electric vehicles, both from an environmental and economic perspective, as well as support government policies in reducing air pollution. (antaranews.com 2023)

In addition, the PERIKLINDO Electric Vehicle Show (PEVS) 2025 is a collaborative effort between the Indonesian Electric Vehicle Industry Association (PERIKLINDO), Dyandra Promosindo, and Asiabike Jakarta (ABJ) in supporting the acceleration of vehicle electrification in Indonesia. This electric vehicle exhibition carries three main concepts, namely E-mobility, E-evolution, and Lifestyle Cycling. E-mobility will focus on the latest innovations and technologies in two- and three-wheeled electric vehicles. aims to be an effective platform in promoting the

electric vehicle industry, increasing public awareness, and encouraging transactions between industry players and consumers. (periklindo.com 2024)

It can be concluded that the success of implementing the electric vehicle policy in DKI Jakarta is greatly influenced by the effectiveness of communication between the government and the public. Although the government has made several efforts to provide communication through socialization in order to increase understanding of the advantages of using emission-free vehicles and available incentives, there are still significant challenges, such as limited understanding, inadequate charging infrastructure, and negative perceptions of new technologies. However, there is a positive trend in the adoption of electric vehicles, with the government targeting to achieve 15% electric vehicle use by 2030. Therefore, it is necessary to optimize the incentive policies implemented, such as tax elimination and fee exemptions, so as to increase public awareness of the importance of environmentally friendly transportation, as well as support efforts to reduce air pollution in DKI Jakarta.

Resources

Referring to the understanding of Van Matter and Van Horn (in Nugroho, 2014:628) that policy implementation requires encouragement of human resources, material resources and method resources. In relation to this, human resources and material resources are the main indicators in strengthening. Policy effectiveness, of course, is related to human resources as the subject of policy implementation as well as playing a role as the object of policy. In addition, material resources are also the main factor in supporting policy implementation so that the policy can be implemented optimally.

Human resources and material resources play an important role in implementing electric vehicle policies in an effort to minimize pollution due to carbon gas emissions. The success of implementing the policy itself depends on the aspect of optimizing the resources owned, both from the government and in collaboration with the private sector. However, the main challenge is ensuring the capacity of resources who have expertise in planning, managing, and monitoring this policy (Harris et al., 2022). Likewise, what is implemented by the DKI Jakarta government. The DKI Jakarta regional government in this case is collaborating with several parties in reviewing policies regarding electric vehicles as a step to reduce air pollution. The human resources involved in the study include automotive companies, educational institutions, and civil society to encourage the transition to electric vehicles. Through the

ISSN 2714-8130 (Online)

implementation of the socialization of electric vehicle policies, several parties have taken part in providing training and providing information about electric vehicles, both for users and for industry players. However, the human resources involved are still an obstacle because their existence is not optimally skilled in managing or creating, either electric vehicles or their infrastructure (Robertua et al., 2024). In addition to human resources, the most crucial thing is material resources, especially in the financial aspect in making the implementation of the policy a success. In this regard, the DKI Jakarta Government has implemented incentives to support the procurement of electric vehicles for the community. These incentives are in the form of motor vehicle tax reductions and electric vehicle purchase subsidies. Meanwhile, the existence of these incentives is expected to reduce the community's capital in switching to electric vehicles (Sudjoko, 2021). Also, in supporting the successful implementation of the electric vehicle policy, the DKI Jakarta Government also coordinates with the private sector in terms of funding for the construction of charging infrastructure (charging stations) in several locations in Jakarta. The cooperation carried out by the local government is crucial because building and developing facilities for environmentally friendly vehicles requires quite a large cost. The Ministry of Industry has designed a program to provide benefits for both consumers and producers. For consumers, incentives such as tax reductions are expected to increase purchasing power and attract their attention. On the other hand, for producers, this program is expected to be an encouragement to not only increase marketing and sales, but also create opportunities, especially for new investments. The following are 10 special incentives that the government has set for KLBB: see table 1.

In the DKI Jakarta area, the Provincial Government has stipulated DKI Jakarta Governor Regulation Number 38 of 2023 concerning the Basis for Imposing Motor Vehicle Tax and Motor Vehicle Transfer Fees in 2023. One of the things regulated in this regulation is the tax policy for electric vehicles or Battery-Based Electric Motor Vehicles (Battery-Based KBL). This regulation distributes various important incentives for electric vehicle users, especially in the form of Motor Vehicle Tax (PKB) and Motor Vehicle Transfer Fee (BBNKB). These provisions are regulated in detail in Article 10 of DKI Jakarta Governor Regulation Number 38 of 2023:

1. Motor Vehicle Tax (PKB) for Battery-Based Electric Motor Vehicles (Battery-Based KBL) used for transporting people or goods is determined at 0% of the PKB tax base.
2. Battery-Based KBL PKB for public passenger transportation is also determined at 0% of the PKB tax base.

3. Battery-Based KBL PKB for public goods transportation is imposed at a rate of 0% of the PKB tax base.
4. The provisions of the Battery-Based KBL PKB as explained in points (1) to (3) do not apply to vehicles converted from fossil fuels to battery-based.
5. Owners of the second and subsequent Battery-Based KBL vehicles receive incentives in the form of exemption from progressive tax rates.
6. Granting ownership of Battery-Based KBL receives incentives in the form of exemption from Motor Vehicle Transfer Fees (BBNKB), which are implemented in accordance with the laws and regulations that have been implemented (dpp.Jakarta.go.id, 2024).

In relation to financial resources, the DKI Jakarta Provincial Government has allocated funds of IDR 20.3 billion for the procurement of electric vehicles in 2023. The car to be purchased is the Hyundai IONIQ 5 EV Signature, the procurement of which is recorded with the RUP code 38861396 and is named the "Ionic 5 EV Passenger Motor Vehicle Capital Expenditure" package. This process is regulated by the Regional Goods Storage Center work unit using the 2023 APBD. The selection of providers is scheduled to take place starting in October 2023, with the target of vehicles being usable in November 2023. Previously, the DKI Jakarta Provincial Government had announced plans to purchase 21 electric cars this year. In the initial launch stage, electric cars will be prioritized for the Acting Governor of DKI Jakarta, the Regional Secretary (Sekda), and the DKI Regional Secretariat Assistants. To realize this, the Regional Asset Management Agency (BPAD) has revised the Regional Head Regulation (Perkada) regarding the procurement of operational official vehicles (KDO), including granting permits for the procurement of electric cars. Although the DKI Provincial Government did not provide details of the total budget for the procurement of electric-based KDO, the price of one electric car unit is estimated at around IDR 800 million. BPAD also plans to eliminate regional assets in the form of unused vehicles, with plans to auction these assets (news.detik.com, 2022)

The government also provides various additional incentives to encourage the transition to the use of electric vehicles, including electric cars, as a form of global commitment in efforts to reduce carbon gas emissions. This effort is carried out through the implementation of a number of policies, such as:

1. Subsidies for purchasing electric cars
   This subsidy is designed to suppress the selling price of electric cars in the market, making them more affordable for the wider community. With a more competitive price offer, it is hoped that public interest in switching from fossil fuel vehicles to environmentally friendly electric vehicles will increase. However, there are certain terms and conditions that must be met so that buyers can enjoy this subsidy.
2. Value Added Tax (VAT) borne by the Government (DTP)

ISSN 2714-8130 (Online)

This policy is applied to products that meet the Domestic Component Level (TKDN) requirements. For electric cars, DTP VAT is set at 10% for products produced locally with a minimum TKDN of 40%. This incentive reduces VAT from 11% to only 1% to be paid.

3. Free Import Duty and Luxury Goods Sales Tax (PPnBM)
   This policy applies to cars imported in the form of complete components but not yet assembled (completely knocked down/CKD), as well as to cars imported in complete condition (completely built up/CBU). This import incentive for electric cars is only valid until 2025 with a number of conditions. One of the conditions is that the company must commit to establishing a factory or increasing production capacity in Indonesia, and the amount of production must be comparable to the amount they import until 2027 (mgmotor.id, 2024; astraotoshop, 2024).
4. Regulations that support the development of charging infrastructure:A. Peraturan Menteri ESDM Nomor 13 Tahun 2020
   This regulation designs the implementation of electric battery charging stations in Indonesia, including aspects of electrical safety, electricity tariffs, and cooperation patterns with PT PLN.
5. Regulation of the Minister of Energy and Mineral Resources Number 1 of 2023
   This regulation drafts provisions regarding the type of recharging system technology used at Public Electric Vehicle Charging Stations (SPKLU) (Ministry of Energy and Mineral Resources of the Republic of Indonesia, 2020).

In April 2024, it was recorded that there were around 1,566 units of total charging stations available, while the number of swap battery units reached 1,772 units. The government has set an addition of up to 48,118 charging stations and 196,179 swap stations in 2030 (lestari.kompas.com, 2024).

Analysis of human resource and financial resource indicators in implementing policies in DKI Jakarta has initiated positive steps in implementing electric vehicle policies. However, there are still a number of challenges that need to be overcome. Improving the quality of human resources, adequacy of financial resources, and improvements in terms of incentives and communication with the community are things that need to be considered to ensure the success of this policy in the future.

Disposition or Attitudes of the Executor

Disposition is one of the factors used to ensure the success of policy implementation, including the policy of using electric vehicles. Although the DKI Jakarta government has set policies and incentives to support the use of electric vehicles, in reality there are still many people who are not willing to switch to electric vehicles. This is in line with research conducted by Rizqullah (2024). The study stated that despite various efforts by the government in

providing electric vehicle charging infrastructure, such as Public Electric Vehicle Charging Stations (SPKLU), the number of electric vehicles registered in Jakarta is still far from the expected target. In 2023, only around 0.1% of the total vehicles registered in DKI Jakarta were electric vehicles (Rizqullah, 2024). Meanwhile, the total number of vehicles in Jakarta reached more than 18 million units (Utami, Yoesgiantoro, & Sasongko, 2022), which shows that electric vehicles are still very rarely used. purchase of electric vehicles, aims to encourage people to switch to electric vehicles, there are several factors that cause low public compliance. One of the main factors is the relatively high initial cost of buying an electric vehicle compared to conventional vehicles. This is a significant obstacle for people with economic limitations. In a study conducted by Hidayat (2022), it was found that only around 25% of DKI Jakarta residents are aware of the incentives offered by the government for electric vehicles, while the other 75% do not understand or are not even interested in this policy. In addition to economic factors and knowledge, the lack of electric vehicle charging infrastructure is also an obstacle to the implementation of this policy.

Although the number of Public Electric Vehicle Charging Stations (SPKLU) has increased, their uneven distribution throughout Jakarta still makes people hesitate to switch to electric vehicles. The limited number of SPKLUs, especially in densely populated areas, is one of the main obstacles. Interest in electric bicycles also varies across regions, with around 26.3 percent coming from Java. Although electric vehicle products are increasingly diverse and their brands are increasingly present in the Indonesian market, their popularity is still far from what was expected. According to information from the Electronic Registration and Identification (ERI) of the Indonesian Police Traffic Corps (Korlantas Polri) until November 2024, the total number of motorized vehicles in the Jabodetabek area reached 19.4 million motorcycles and 3.9 million cars. Furthermore, 19.9% of respondents stated that they wanted to buy an electric motorbike, 13.9% were interested in buying a motorbike, and 5.5% were interested in an electric scooter. The survey, which took place from May 27 to June 2, 2024, involved 1,200 respondents from 38 provinces in Indonesia, consisting of various social groups and ages ranging from 17 to 56 years. On the other hand, the number of electric vehicles in Jakarta is still far from the expected target. The DKI Jakarta government is targeting up to 10% of the total registered vehicles by 2030 to switch to electric vehicles (Utami et al., 2022). Thus, further efforts are needed to increase public understanding, improve electric vehicle charging infrastructure, and provide

ISSN 2714-8130 (Online)

more attractive incentives for the public. It can be concluded that although the DKI Jakarta government's policy on electric vehicles has been well designed, public compliance with this policy is still very low. Therefore, the role of policy implementers is very important to encourage changes in public behavior in a more effective way, through a more personal approach and more intensive counseling. Policies and incentives offered by the government, such as tax reductions and subsidies.

Bureaucratic Structure

The analysis of the bureaucratic hierarchy can be understood as a model of the connection of authority and synchronization between institutions related to policy implementation. This bureaucratic hierarchy is designed to be responsive to the needs of implementing this policy. Regarding the bureaucratic structure in the implementation of the electric vehicle policy in reducing carbon gas emissions in the Special Capital Region of Jakarta, it can be analyzed that optimal cooperation and coordination have been established in each element of the institution, both from the local government, central government, or from the private sector. This can be seen from the implementation of the policy regarding regional taxes run by the Jakarta Regional Tax Service Agency (Bapenda Jakarta), the regional financial institution has regulated the basis for imposing taxes on motorized vehicles through the DKI Jakarta Governor Regulation (Pergub) No. 38 of 2023 concerning the basis for determination, especially in article 10 of the imposition of 0% tax for Electric-Based Motorized Vehicles (KBL) or Battery-Based Electric Motorized Vehicles (Battery-Based KBL) (Bapenda Jakarta, 2024). In 2023, the DKI Jakarta Provincial Government as the main stakeholder will also electrify transportation to overcome air pollution by implementing Operational Service Vehicles (KDO) for field officers of the Transportation Service, both in the Jakarta City Administration area and the provincial environment with electric-based vehicles, through follow-up efforts from Presidential Instruction (Inpres) No. 7 of 2022 concerning the use of Battery-Based Motorized Vehicles (Battery Electric Vehicles) which are intended for Operational Service Vehicles or Individual Service Vehicles in Government Agencies. The DKI Jakarta Provincial Government handed over to the DKI Jakarta Provincial Transportation Service 186 units of Operational Service Vehicles (KDO) from the total planned procurement of 800 vehicles where the electric vehicles were made by the domestic industry. In addition, the DKI Jakarta Provincial Government has also operated 100 Transjakarta electric buses as public transportation from

the target of 300 electric buses and has reached around 4 million people or 18.86 percent (BPK DKI Jakarta, 2023). At the end of 2024, Transjakarta as the main Bus Rapid Transit (BRT) provider in Jakarta relaunched around 200 electric buses, of course this has achieved the target of procuring 300 electric buses. Furthermore, the 200 electric buses are a form of cooperation between PT Transjakarta and several operators including private companies, namely Perum Damri as a transportation company owned by BUMN, PT Bianglala Metropolitan as an operator owned by BUMD DKI Jakarta, and PT Sinar Jaya, a private company engaged in transportation. The details of the collaborative procurement of electric buses carried out are:

1. 90 electric buses with 60 electric buses from Skywell and 30 electric buses from Zhongtong. Procurement is carried out by Perum Damri
2. 90 units of SAG (Golden Dragon) buses initiated by PT Bianglala Metropolitan
3. 20 units of locally assembled buses through Laksana bodywork and Trisaksi bodywork through PT Sinar Jaya

The synergy is carried out to realize modern, sustainable and environmentally friendly transportation in the future. As well as, creating public services that provide comfort to the public who use the Transjakarta mode with a multimodal concept. In addition, the operation of electric vehicles as public transportation in DKI Jakarta is a pioneer in presenting an environmentally friendly public transportation system. DKI Jakarta is determined to coordinate efforts to minimize carbon gas emissions nationally by achieving the target in 2050 with Net Zero Carbon (NZC) and achieving 100% electrification of public vehicles in 2030. The use of this electric bus also increases the potential for reducing carbon emissions by up to 422 thousand tons of CO2e which is the same as planting 1.5 million trees or managing 32 tons of waste. Then, Public Transportation in DKI Jakarta can also save operational costs of up to 5 - 10% (Transjakarta, 2024)

Meanwhile, as a central government agency, the Ministry of Transportation of the Republic of Indonesia (Kemenhub RI) also took part in inviting and supporting the people of Jakarta to transform to environmentally friendly vehicles as an effort to reduce air pollution in DKI Jakarta through the Regulation of the Ministry of Transportation Number PM 39 of 2023 concerning the Conversion of Motorcycles with Combustion Engines into Battery-Based Electric Motorcycles. In supporting the existence of converted electric two-wheeled vehicles and maintaining safety aspects, this policy is an important part as a strategic step in increasing the acceleration of electric motor vehicle ecosystem services as a test of the type of converted

ISSN 2714-8130 (Online)

motorcycle. Furthermore, the Minister of Transportation also provided recommendations to the electric vehicle industry to use batteries with standard specifications to make it easier for the public through affordable prices. In this context, looking at the total Type Test Certification and Type Test Registration Certificate issued for converted motorcycles, there are 183 units and 59,388 new electric motorcycles in Indonesia (Bureau of Communication and Public Information, 2023). In 2024, electric vehicles operating in Indonesia have mushroomed to 133,225 thousand units with calculations in the DKI Jakarta area of 20,734 thousand units, with a target achievement in 2030 of 15 million units (Cahyono Adi, 2024). In addition, in supporting the existence of electric vehicle policies, especially in the DKI Jakarta Province, the Ministry of Energy and Mineral Resources of the Republic of Indonesia (Ministry of Energy and Mineral Resources of the Republic of Indonesia) is also encouraging efforts to accelerate the development of Public Electric Vehicle Charging Station (SPKLU) facilities by providing convenience through incentives and permits for parties who want to start the SPKLU business. In relation to this, private parties such as PT Listrik Anugerah Divina and PT Exelly Elektrik Indonesia (Voltron) through coordination with PT PLN UID Jakarta to build Public Electric Vehicle Charging Stations (SPKLU) are committed to developing 5 SPKLU units to assist and contribute to the government in providing adequate infrastructure. A total of 126 SPKLU units have been allocated in strategic locations, such as malls, terminals, government offices, public parking lots in 2024 (CNN Indonesia, 2024)

Looking at the coordination and synergy between various parties through their respective functions and responsibilities, it can be concluded that the implementation of the electric vehicle policy in DKI Jakarta has been carried out well, this is certainly related to how the cooperation is carried out by each of these government institutions. So with this, the implementation that has been carried out has been in line with Government Regulation Number 55 of 2019 and the Regulation of the Governor of DKI Jakarta Province Number 66 of 2020 concerning Motor Vehicle Exhaust Emissions. On the other hand, the policies that have been implemented have not all been effective due to the inadequate SPKLU infrastructure in various regions, this is related to the uneven distribution of SPKLU facilities. In this case, the regional government and the private sector as well as the central government should coordinate optimally to realize the implementation of the electric vehicle policy through the distribution of effective Public Electric Vehicle Charging Station (SPKLU) facilities.

Supporting Factors for the Implementation of Electric Vehicle Policy in the Special Capital Region of Jakarta

Supporting factors for the implementation of electric vehicle policies in DKI Jakarta are the support, recommendations, education, cooperation, awareness, willingness to be responsible and a sense of attachment that arises from the DKI Jakarta government environment related to awareness of carbon gas emission issues and achievements in modern, environmentally friendly cities. These supporting factors can be described as follows:

1. First, the presence of regulations as a fundamental principle in the implementation of electric vehicle policies in DKI Jakarta, which is one of the main supporting factors in realizing an environmentally friendly city. The Law on Exhaust Gas Emissions is actually a commitment of the DKI Jakarta Provincial Government through these policies in supporting Indonesia Net Zero Emissions in 2060.
2. Second, Multi-stakeholder collaboration between the government, private sector and the community also plays an important role. Various joint innovations, such as the 0% tax program for electric vehicles, education through campaigns carried out by various government agencies. So, this is able to provide awareness and increase public understanding of the advantages of using electric vehicles. Also, collaboration with the private sector, both bus operators and SPKLU infrastructure providers, accelerates the realization of the green energy transition.
3. Third, there is increasing public awareness of environmental issues, especially related to air pollution and climate change. This is related to the large number of people in DKI Jakarta who understand and have now switched to electric vehicles or use public transportation.

Supporting Factors for the Implementation of Electric Vehicle Policy in the Special Capital Region of Jakarta

1. Inhibiting factors for the implementation of electric vehicle policies in DKI Jakarta are related to the challenges faced in implementing this policy, including:
2. The first inhibiting factor, the cost constraints of electric vehicles which are still less affordable compared to public transportation.
3. The second inhibiting factor, the charging infrastructure is still limited. Although there are efforts to optimize Public Electric Vehicle Charging Stations (SPKLU), many users find it difficult to find adequate charging locations. In addition, it is also related to technical challenges such as battery capacity, natural charging time and battery recycling problems.
4. The third inhibiting factor, the lack of in-depth understanding and public awareness of the benefits of electric vehicles is also still a challenge in implementing the implementation of electric vehicle policies in DKI Jakarta. People tend to hesitate to switch to electric vehicles due to the lack of information regarding efficiency, operational costs, and positive impacts on the environment. This is also exacerbated by the issue that electric vehicles have quite expensive prices and maintenance and there have been several cases of explosions caused by electric vehicles.

ISSN 2714-8130 (Online)

The fourth inhibiting factor, the uncertainty of policies and regulations that continue to change make manufacturers reluctant to invest in this policy. In addition, the role of the private sector in developing the electric vehicle ecosystem is still limited, thus hampering the growth of innovation and wider adoption.

CONCLUSION

From several descriptions of the problems above, namely, 1) related to how the implementation of policies related to electric vehicles in the Special Capital Region of Jakarta, 2) several influences of inhibiting and supporting factors in the implementation of electric vehicle policies, especially in the Special Capital Region of Jakarta. implementation of electric vehicle policies in DKI Jakarta using Edward III's theory, namely communication factors, resources, disposition and bureaucratic structure in electric vehicle policies. In the communication indicator The effectiveness of communication in the implementation of electric vehicle policies in DKI Jakarta is very important to increase public awareness of the benefits of electric vehicles. Although the government has conducted socialization through various channels, such as social media and seminars, there are still challenges in conveying clear and adequate information to the public. Based on the indicator The resources available to support the implementation of electric vehicle policies in Jakarta show progress, but are still limited. Despite government incentives, the high initial cost of electric vehicles is a barrier to wider adoption. Therefore, an increase in resource allocation is needed, both in the form of finance and infrastructure, to ensure the success of the implementation of this policy. Based on the disposition or attitude indicators of the implementers, the implementation of the electric vehicle policy in DKI Jakarta has been carried out well, however, public compliance with the electric vehicle policy is still ineffective, the public is still apathetic towards the benefits of electric vehicles. In the bureaucratic structure indicator, it can be concluded that the implementation of the Electric Vehicle Policy has been carried out quite well through optimization of coordination carried out by the central government, local governments and the private sector. However, the uneven distribution of electric vehicle charging station facilities has made the policy ineffective. In addition, the inhibiting factors for the implementation of the electric vehicle policy in DKI Jakarta show that there are several significant challenges that need to be overcome to encourage wider adoption of electric vehicles. First, the high cost constraint

is a barrier for people to switch from conventional vehicles. Second, limited charging infrastructure and technical challenges related to batteries also hinder user comfort. Third, the lack of public understanding and awareness of the benefits of electric vehicles adds to the doubt in switching to this technology. Finally, uncertainty in policies and regulations and the limited role of the private sector in developing the electric vehicle ecosystem hinder investment and innovation. To overcome these challenges, collaborative efforts are needed between the government, private sector, and the community to create an environment that supports the transition to more sustainable electric vehicles.

BIBLIOGRAPHY

Amjah, A., Agustino, L., & Arenawati, A. (2022). Implementasi Kebijakan Pengelolaan Sampah Berdasarkan Peraturan Daerah Kabupaten Lebak Nomor 4 Tahun 2018 Tentang Pengelolaan Sampah. *JIPAGS (Journal of Indonesian Public Administration and Governance Studies)*, *6*(1), 55–60. https://doi.org/10.31506/jipags.v6i1.12458

Bapenda Jakarta. (2024). Kebijakan Pajak Terhadap Kendaraan Listrik di Provinsi DKI Jakarta. *Bapenda.Jakarta.Go.Id*.
https://bapenda.jakarta.go.id/artikel/kebijakan-pajak-terhadap-kendaraan-listrik-di-provinsi-dki-jakarta#:~:text=Badan Pendapatan Daerah Provinsi DKI Jakarta

Biro Komunikasi dan Informasi Publik. (2023). Turunkan Polusi Udara di Jakarta, Menhub Ajak Masyarakat Beralih ke Kendaraan Listrik. *Dephub.Go.Id*. https://dephub.go.id/post/read/turunkan-polusi-udara-di-jakarta,-menhub-ajak-masyarakat-beralih-ke-kendaraan-listrik@:~:text=Turunkan Polusi Udara Jakarta,Listrik Kementerian Perhubungan Republik Indonesia

BPK DKI Jakarta. (2023). Pemprov DKI Jakarta Elektrifikasi Transportasi untuk Atasi Polusi Udara. *Jakarta.Bpk.Go.Id*.
https://jakarta.bpk.go.id/pemprov-dki-jakarta-elektrifikasi-transportasi-untuk-atasi-polusi-udara/#:~:text=Pemprov%2520Jakarta%2520Elektrifikasi%2520Transportasi,BPK%25Perwakilan%2520Provinsi%2520DKI%2520Jakarta

C. Sechel, L., & Mariasiu, F. (2022). Efficiency of Government Policy and Programs to Stimulate the Use of Low-Emission and Electric Vehicles: The Case of Romania. *Sustainability*, *14*(1), 45. https://doi.org/https://doi.org/10.3390/su14010045

Cahyono Adi, A. (2024). Ini target Pemerintah untuk Populasi Kendaraan Listrik di Tahun 2030. *Esdm.Com*.

Chonsalasin, D., Champahom, T., Sajjakaj, J., Karoonsoontawong, A., & Ratanavaraha, V. (2024). Exploring the Influence of Thai Government Policy Perceptions on Electric Vehicle Adoption: A Measurement Model and Empirical Analysis. *Smart Cities*, *7*(4), 2258–2282. https://doi.org/https://doi.org/10.3390/smartcities7040089

CNN Indonesia. (2024). Perluas Ekosistem Kendaraan Listrik, PLN Gandeng Swasta Bangun SPKLU. *Cnnindonesia.Com*.

Dewi. (2019). Studi Literature: Peran Teknologi Pendidikan Dalam Pendidikan 4.0. *Surani: Prosiding Seminar Nasional Pendidikan FKIP*.

Dhoni. (2021). *PLN Pasang Stasiun Charger, Pemko Banjarmasin Beli 52 Motor Listrik*. Poroskalimantan.Com.

Dwi Romadhon, F., & Subekti, R. (2023). Analisis Pengaturan Energi Terbarukan Dalam Kendaraan Berbasis Elektrik Untuk Mendukung Perlindungan Lingkungan (Analisis Komparatif Antara Indonesia, Brazil, dan Pakistan). *Jurnal: Pacta Sunt Servada*, *4*(1), 177–190.

Kumar Das, P., & Younus Bhat, M. (2022). Global electric vehicle adoption: implementation and policy implications for India. *Environmental Science and Pollution Research*, *29*, 40612–40622. https://doi.org/https://doi.org/10.1007/s11356-021-18211-w

Kurniawan, R., & Ferdian, A. (2024). Kendaran Listrik di Indonesia Saat Ini Capai 144.547 Unit. *Kompas.Com*.

Monrihardi, A., Ismet, F., & Martias, M. (2014). erbandingan Penggunaan Bahan Bakar Premium dengan Pertamax terhadap Konsumsi Bahan Bakar dan Emisi Gas Buang pada Sepeda Motor Honda Supra X 125 Tahun 2007. *Automotive Engineering Education Journals*, *3*(2). https://doi.org/https://doi.org/10.55809/tora.v8i2.126

Nazaripouya, H., Wang, B., & Black, D. (2019). Electric Vehicles and Climate Change: Additional Contribution and Improved Economic Justification. *IEEE: Electrification Magazine*, *7*(2), 33–39. https://doi.org/10.1109/MELE.2019.2908792

Nuarta, I. N., & Sukedi, M. (2024). Kebijakan Hukum Pengaturan Penggunaan Kendaraan Listrik Dalam Penguatan Ketahanan Energi Nasional. *Jurnal Preferensi Hukum*, *5*(2), 145–154. https://doi.org/10.22225/jph.5.2.10413.145-154

Nugraha, C., Permadi, G. S., Artiwi, & Ruslina, E. (2024). Telaah kebijakan pemerintah tentang pertambangan dan percepatan kendaraan listrik. *Green Governance: Exploring Politics, Social Justice, and the Environment*, *1*(1), 24–31. https://doi.org/10.61511/gg.v1i1.2024.697

Nur, A. I., & Kurniawan, A. D. (2021). Proyeksi Masa Depan Kendaraan Listrik di Indonesia: Analisis Perspektif Regulasi dan Pengendalian Dampak Perubahan Iklim yang Berkelanjutan. *Jurnal Hukum Lingkungan Indonesia*, *7*(2), 197–220. https://doi.org/10.38011/jhli.v7i2.260

Puspa Rini, A., Asya Shafira, D., Aisha Fakhirah, L., Triana Putri, E., & Sadiawati, D. (2024). Optimalisasi Upaya Penyediaan Public Transport dalam Pembangunan Infrastruktur Guna Tercapainya Perekonomian Berkelanjutan. *In: National Conference on Law Studies (NCOLS)*, *6*(1), 230–243.

Rahman, V. S. P. (2019). Strategi Indonesia Dalam Mengatasi Perubahan Iklim Melalui Kerjasama Internasional. *Mimbar: Jurnal Penelitian Sosial Dan Politik*, *11*(1), 98–103.

Rahmawati, S., & Nusamuda Pratama, I. (2023). Pengaruh Penggunaan Transportasi Berkelanjutan Terhadap Kualitas Udara dan Kesejahteraan Masyarakat. *Journal of Environmental Policy and Technology*, *1*(2), 90–99. https://doi.org/https://doi.org/10.31764/jeptec.v1i2.17349

Ramadhina, A., & Ulfatun Najicha, F. (2022). Regulation of Electric Vehicles in Indonesia as an Attempt to Reduce Gas Emissions. *Jurnal Hukum To-Ra: Hukum Untuk Mengatur Dan Melindungi Masyarakat*, *8*(2), 201–208. https://doi.org/https://doi.org/10.55809/tora.v8i2.126

Sasongko, N. A. (2024). *Mendukung Ketahanan Energi Nasional Implementation Of Battery-Based Electric Motor Vehicle Policies*. *June 2022*.

Sofa, A. (2022). JSC Talks Vol. 22: Mengintip Inovasi Kendaraan Listrik di Jakarta. *Smart Mobility*.

Suciati, F., & B Aviantara, D. (2019). Green Technology Untuk Green Company Dengan Penerapan Sistem Fotobioreaktor Penyebab Karbon Dioksida. *Jurnal Rekayasa Lingkungan*, *12*(1), 15–40.

Sudjoko, C. (2021). Strategi Pemanfaatan Kendaraan Listrik Berkelanjutan Sebagai Solusi Untuk Mengurangi Emisi Karbon", Jurnal Paradigma: Jurnal Multidisipliner Mahasiswa Pascasarjana Indonesia,. *Jurnal Paradigma: Jurnal Multidisipliner Mahasiswa Pascasarjana Indonesia*, *2*(2), 54–68. https://doi.org/https://doi.org/10.22146/jpmmpi.v2i2.70354

Tim Solopos. (2023). Solo Serius Bangun Ekosistem Kendaraan Listrik Mulai dari Lurah, Ini Ulasannya. *Solopos.Com*.

transjakarta. (2024). Mendukung Jakarta Menjadi Kota Global yang Bebas Polusi, Transjakarta Luncurkan 200 Bus Listrik High Deck (BRT). *Transjakarta.Co.Id*. https://transjakarta.co.id/berita/mendukung-jakarta-menjadi-kota-global-yg-bebas-polusi-transjakarta-luncurkan-200-bus-listrik-high-deck-brt#:~:text=Peluncuran 200 unit bus listrik,Transjakarta hingga penghujung tahun 2024

Wendra, M., & Sutrisno, A. (2023). Penerapan Hukum Internasional Terkait United Nation Framework Convention on Climate Change Dalam Menghadapi Perubahan Iklim. *Journal Evidence Of Law*, *2*(2), 265–275. https://doi.org/10.59066/jel.v2i2.563

Zainal Ibad, M., Hudalah, D., Nabila Antiqasar, S., & Dirgahayani, P. (2022). Transisi Energi Terbarukan di Indonesia: Dinamika Kendaraan listrik dengan Pendekatan Self - Organization di Kota Jakarta. *Jurnal Teknik Sipil*, *29*(2), 161–170. https://doi.org/10.5614/jts.2022.29.2.7

Zola, G., Siska, ;, Nugraheni, D., Andhien, ;, Rosiana, A., Dzamar, ;, Pambudy, A., & Agustanta, N. (2023). Inovasi kendaraan listrik sebagai upaya meningkatkan kelestarian lingkungan dan mendorong pertumbuhan ekonomi hijau di Indonesia. *Ekonomi Sumberdaya Dan Lingkungan*, *11*(3), 2303–1220.

ISSN 2714-8130 (Online)