

Implementation of Electric Vehicle Policy in DKI Jakarta to Realize Environmentally Friendly Mobility

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ABSTRACT

This study analyzes the implementation of electric vehicle policy in Jakarta Province using George C. Edward III's policy implementation theory and the Environmental, Social, and Governance (ESG) approach. A qualitative descriptive method was employed through interviews, observation, and document analysis. The findings indicate that policy implementation has not been fully effective. Major challenges include limited public awareness, uneven charging infrastructure, high vehicle prices, and insufficient institutional capacity. Although the government has demonstrated commitment through regulations and incentives, public adoption remains limited. Strengthening communication, expanding infrastructure, and ensuring policy consistency are essential to improve the effectiveness and sustainability of electric vehicle policy implementation.

INTRODUCTION

Climate change has become a global issue, prompting various countries to transition to more sustainable and low-emission transportation systems. The transportation sector is a major contributor to greenhouse gas emissions, which contribute to rising global temperatures, declining air quality, and various other environmental problems (Novi, 2020). In Indonesia, the transportation sector contributes significantly to carbon emissions, primarily due to the high use of fossil-fueled motorized vehicles. This situation also occurs in the DKI Jakarta Province, where the transportation sector contributes approximately 67.04% of total air pollution. The transportation sector's significant contribution to declining air quality makes controlling vehicle emissions a top priority for the government in realizing a healthier environment and supporting the development of environmentally friendly transportation (Nst et al., 2023).

The Ministry of Environment and Forestry (KLHK) also noted that the transportation sector contributes significantly to national carbon dioxide (CO₂) emissions. The annual increase in the number of fossil-fueled motor vehicles has led to a continuous increase in fuel consumption, worsening air quality, increasing dependence on fossil fuels, and increasing greenhouse gas emissions (Sudarti et al., 2022). Therefore, a transformation of the

transportation system is needed to reduce dependence on fossil-fueled vehicles through the use of cleaner and more sustainable technologies.

Rising emissions from the transportation sector have significantly impacted air quality in Jakarta Province. High levels of motorized vehicle activity, dominated by the use of fossil fuels, have led to a continuous increase in air pollutant concentrations. This not only impacts the environment but also increases the risk of public health problems, such as respiratory and cardiovascular diseases. Therefore, air quality is a key indicator in evaluating the effectiveness of emission control policies in the transportation sector. To provide an overview of air quality conditions in Jakarta Province, the following data presents the Air Quality Index (AQI) for the period 2022–2026.

Table 1. Air Quality in DKI Jakarta in the Last 5 Years

No	Year	Air Quality Index
1.	2022	74
2.	2023	148
3.	2024	120
4.	2025	113
5.	2026	92

Source: www.aqi.in

Based on Table 1, air quality in DKI Jakarta Province during the 2022–2026 period showed fluctuating conditions. In 2022, the AQI value was recorded at 74, categorized as moderate. However, in 2023, the AQI value increased to 148, which is categorized as unhealthy, thus indicating a significant decline in air quality. Entering 2024 to 2026, air quality experienced gradual improvements with AQI values of 120, 113, and 92, respectively. Nevertheless, these conditions still indicate that air quality in DKI Jakarta is not yet fully in the safe category. This fluctuation indicates that air pollution, particularly that originating from the transportation sector, remains a challenge that needs to be addressed through effective and sustainable policies.

To address these issues, the Indonesian government is encouraging the accelerated adoption of battery-based electric motor vehicles as part of its energy transition and carbon emission reduction efforts. This commitment is realized through the issuance of Presidential Regulation Number 55 of 2019 concerning the Battery-Based Electric Motor Vehicle Program for Road Transportation, which was later updated through Presidential Regulation Number 79 of 2023 concerning the Acceleration of the Battery-Based Electric Motor Vehicle Program. Both regulations outline various strategies to accelerate the adoption of electric vehicles, ranging from increasing the Domestic Component Level (TKDN), providing fiscal incentives, to the development of Public Electric Vehicle Charging Station (SPKLU) infrastructure.

In addition, the government also issued Presidential Instruction No. 7 of 2022 concerning the use of electric vehicles as operational official vehicles in government agencies. At the regional level, the Jakarta Provincial Government strengthened the implementation of

this policy through Gubernatorial Regulation No. 3 of 2020 concerning Tax Incentives. Motor Vehicle Tax (PKB) and Motor Vehicle Ownership Transfer Fee (BBNKB) for battery-powered electric vehicles. The Jakarta Provincial Government is also offering various other incentives, such as exemption from the odd-even traffic policy and accelerating public transportation electrification through the use of Transjakarta electric buses.

As a result of implementing these various policies, the development of electric vehicles in Jakarta Province continues to show a positive trend. The government has provided various incentives and expanded the development of supporting infrastructure to encourage the use of electric vehicles by the public. However, the effectiveness of policy implementation cannot be measured solely by the increasing number of electric vehicles but also by comparing it with the population and the availability of supporting infrastructure. Therefore, data on the population, the number of electric vehicles, and the number of Public Electric Vehicle Charging Stations (SPKLU) in Jakarta Province need to be analyzed to provide an overview of the achievements of policy implementation .

Table 2. Comparison of Population, Electric Vehicles, and SPKLU Infrastructure in DKI Jakarta Province in 2026

No	Criteria	Description
1.	Population of DKI Jakarta	10.66 million people
2.	Population density	16,129 people/km ²
3.	Electric Vehicles (Cars and Motorcycles)	358,205 units
4.	EV Usage Projection in DKI Jakarta	Up 9 times
5.	SPKLU in DKI Jakarta	1,396 – 1,405 units

Source : databoks.katadata.co.id

Based on the table above, DKI Jakarta is one of the regions with relatively rapid electric vehicle development, supported by a greater availability of charging stations (SPKLU) compared to other regions. However, compared to the population, electric vehicle adoption remains relatively low, so implementation of electric vehicle policies still requires strengthening through infrastructure improvements, outreach, and more effective incentives.

Another issue is the uneven development of charging stations (SPKLU) across Jakarta. Most SPKLUs are still concentrated in the city center, while outlying areas have relatively limited access. This situation raises public concerns about the availability of charging facilities, or *range anxiety*, which ultimately hinders public interest in switching to electric vehicles. In addition to limited infrastructure, the implementation of electric vehicle policies also faces obstacles in economic aspects and policy communication. The relatively high price

of electric vehicles means that government fiscal incentives have not been able to significantly increase public purchasing power.

In addition, the socialization of the electric vehicle policy is considered not to have run optimally so that many people are still not aware of the various forms of incentives or do not understand the substance of Presidential Regulation Number 55 of 2019 and the amendments in Presidential Regulation Number 79 of 2023. The implementation of the policy is also still more directed at the State Civil Apparatus through Presidential Instruction Number 7 of 2022 so that the benefits of the policy have not been fully felt by the wider community .

Extensive research on the implementation and adoption of electric vehicles has been conducted using various approaches. Setiawan et al. (2022) explained that the success of increasing electric vehicle adoption in Indonesia is influenced by the provision of fiscal incentives, such as electric vehicle tax reductions, and support for the development of electric vehicle technology. Meanwhile, Belgiawan et al. (2024) found that electric vehicle price subsidies, increased battery range, and the availability of charging infrastructure are the main factors influencing people's decisions to switch from conventional vehicles to electric vehicles. These research results indicate that the success of electric vehicle policies is influenced not only by government regulations but also by the readiness of the supporting ecosystem and the level of public acceptance.

Although various previous studies have examined the factors influencing electric vehicle adoption, most have focused on economic, technological, and consumer preferences in adopting electric vehicles. Research specifically analyzing the implementation of electric vehicle policies at the local government level, particularly in Jakarta Province, the region with the highest rate of electric vehicle adoption in Indonesia, is still relatively limited. Therefore, research is needed that not only examines the policy's outcomes but also identifies the factors influencing its successful implementation to understand the various obstacles the government faces in achieving its policy objectives.

This study uses George C. Edward III's policy implementation theory as the primary basis of analysis, as this theory explains that the success of a policy implementation is influenced by four factors: communication, resources, disposition, and bureaucratic structure. Furthermore, this study also uses the *Environmental, Social, and Governance* (ESG) approach as a supporting perspective to assess the extent to which the implementation of electric vehicle policies supports environmental sustainability, provides social benefits, and reflects effective governance. The combination of these two approaches is expected to provide a more comprehensive analysis of the implementation of electric vehicle policies in DKI Jakarta Province.

Based on these various issues, this study aims to analyze the implementation of electric vehicle policy in DKI Jakarta using George C. Edward III's implementation theory, which includes aspects of communication, resources, disposition, and bureaucratic structure. This research is expected to contribute to the development of more effective policy

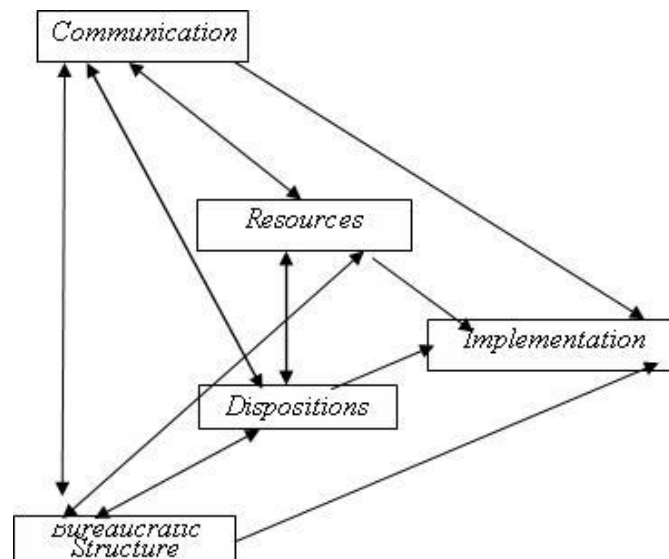
recommendations to accelerate the adoption of electric vehicles and achieve environmentally friendly mobility.

RESEARCH METHODS

This research uses a qualitative approach with a *literature review study method*. (library research). Data were collected from various sources such as academic journals, policy products listed in Presidential Regulation Number 79 of 2023 concerning the Acceleration of the Development of Battery Electric Motorized Vehicles (*Battery Electric Vehicles*), and official reports from related institutions published in the last five years (2021-2026). Data analysis used the Edward III policy implementation model which includes four indicators: communication, resources, disposition, and bureaucratic *structure*.

RESULTS AND DISCUSSION

Figure 1. Edward III Theory Indicators



Source: Processed by the author

Based on the identified problems, this study analyzes the implementation of electric vehicle policy in DKI Jakarta using George C. Edward III's implementation model, which encompasses four critical factors: communication, resources, disposition, and bureaucratic structure. The following discussion systematically links each identified problem to these four factors.

1. Communication

Communication is a fundamental factor in determining the success of public policy implementation. According to George C. Edward III, implementation effectiveness is greatly influenced by the government's ability to convey information accurately through aspects of transmission, clarity, and consistency. In the implementation of the electric vehicle policy in DKI Jakarta Province, these three aspects have not been optimally

implemented, affecting the level of public understanding and participation in the established policy.

In terms of information transmission, public awareness of various electric vehicle incentives remains relatively low. Hidayat (2022) showed that only around 25% of Jakarta residents are aware of electric vehicle incentives, while the majority are unfamiliar with or even show little interest in the policy. This situation suggests that information dissemination primarily reaches specific groups, such as the automotive community and digital media users, while those with limited access to information have not yet received optimal outreach.

In terms of information clarity, various regulations regarding electric vehicles still use technical terms, such as *Battery Electric Vehicle* (BEV), *Plug-in Hybrid Electric Vehicle* (PHEV), and Domestic Component Level (TKDN), making them relatively difficult for the general public to understand. The complexity of the regulations also means the public does not fully understand the various forms of incentives provided by the government through Presidential Regulation Number 55 of 2019 and its amendments in Presidential Regulation Number 79 of 2023.

Meanwhile, in terms of information consistency, government information delivery has not been able to keep pace with the growing number of negative issues surrounding electric vehicles, such as reports of battery fires and doubts about their safety. The lack of balanced information has resulted in public perception of electric vehicles being dominated by concerns rather than perceived benefits. This situation indicates that policy communication has not fully built public trust, resulting in policy implementation not achieving its intended goals. These findings demonstrate that successful implementation is determined not only by the existence of regulations, but also by the effectiveness of the government's communication strategy in building public understanding and trust.

2. Resources

In addition to communication, resource availability is a crucial factor in supporting the implementation of electric vehicle policies. Edward III explained that successful implementation depends not only on policy clarity but also on the adequacy of resources, including human resources, financial resources, and supporting facilities and infrastructure. In terms of financial resources, the DKI Jakarta Provincial Government has demonstrated its commitment by allocating a budget for electric vehicle procurement and providing incentives in the form of exemptions from Motor Vehicle Tax through Gubernatorial Regulation No. 38 of 2023. However, these incentives have not been able to address the high price of electric vehicles, which remains beyond the reach of most people. As a result, the policy's benefits are felt primarily by groups with relatively high purchasing power. In terms of material resources, DKI Jakarta does have the largest number of charging stations (SPKLU) in Indonesia. However, the distribution of this infrastructure is still concentrated in the city center, thus failing to provide equitable access to residents in outlying areas.

This inequality creates *range anxiety*, or the fear of running out of power during travel, which remains a factor inhibiting the adoption of electric vehicles.

Meanwhile, from a human resources perspective, implementing the electric vehicle policy requires competent personnel in planning, coordination, and policy oversight. Although the government has established collaboration with various stakeholders, human resource capacity building is still necessary for more effective policy implementation. Therefore, limited purchasing power, uneven infrastructure distribution, and the need for increased human resource capacity indicate that the resource aspect remains a major challenge in implementing the electric vehicle policy in Jakarta Province.

3. Disposition

Disposition reflects the commitment and willingness of policy implementers to implement a policy in accordance with its stated objectives. Edward III emphasized that implementation will be effective if implementers not only understand the policy's content but also have a commitment to consistently implement it. The Jakarta Provincial Government's commitment to electric vehicle development is reflected in various regulations, such as providing electric vehicle tax incentives, accelerating the electrification of public transportation, and collaborating with various government agencies and the private sector. These steps demonstrate strong support for accelerating the transition to low-emission transportation.

However, the success of policy implementation is not only determined by government commitment but also influenced by public acceptance as the policy's target. The high price of electric vehicles, limited infrastructure for electric vehicle service stations (SPKLU), and the growing negative perception of electric vehicle safety have resulted in relatively low public interest in switching from conventional vehicles. Furthermore, the odd-even traffic policy exemption for electric vehicles has also given rise to perceptions of injustice, as it is perceived to favor groups with higher economic means. These conditions indicate that policy implementation still requires a more inclusive incentive strategy to increase public acceptance and create a sense of fairness in policy implementation.

4. Bureaucratic Structure

Bureaucratic structure is a key factor in determining the effectiveness of inter-agency coordination in implementing public policy. The implementation of the electric vehicle policy in Jakarta Province has involved various stakeholders, including the central government, the Jakarta Provincial Government, PT PLN (State Electricity Company), and the private sector. This collaboration is evident in the provision of SPKLU (Storage and Distribution Service) infrastructure, regional tax incentives, and the acceleration of public transportation electrification through the operation of Transjakarta electric buses.

However, cross-sector coordination still faces various challenges. The licensing process for SPKLU construction, which involves multiple institutions, makes policy implementation less efficient. Furthermore, the lack of uniform standards for equitable

SPKLU construction has led to infrastructure provision being driven more by market demand than by equitable public services. Dynamic policy changes also have the potential to create uncertainty for businesses, thus impacting investment in the electric vehicle ecosystem.

When viewed through an *Environmental, Social, and Governance* (ESG) approach, the implementation of electric vehicle policies in DKI Jakarta has demonstrated a positive contribution to emission reduction through the development of electric-based public transportation. However, from a social perspective, challenges remain, such as unequal public access to electric vehicles and supporting infrastructure due to high vehicle prices and unequal distribution of charging stations (SPKLU). From a governance perspective, successful implementation still depends on policy consistency, information transparency, and effective inter-agency coordination. Therefore, strengthening communication, equitable distribution of infrastructure, and improving the quality of governance are crucial factors for a more effective and sustainable implementation of electric vehicle policies.

CONCLUSION AND SUGGESTIONS

The implementation of electric vehicle policy in DKI Jakarta shows a positive direction because it has been supported by regulations, fiscal incentives, and commitment of local government, but the results are not optimal due to obstacles in communication, resources, community disposition, and bureaucratic structure. Based on Edward III's theory, the biggest weakness lies in the socialization that has not reached all levels of society, limited SPKLU infrastructure, and slow inter-institutional coordination. From the ESG side, this policy has contributed to the environment, but the social and governance aspects still need to be strengthened so that the benefits are more evenly distributed and sustainable. The limitation of this research is the literature study method that does not involve field data, so the results are more analytical and do not fully describe the conditions of implementation at the community level.

The Jakarta Provincial Government needs to expand its outreach on electric vehicle policies using simpler language and more inclusive channels to ensure that incentive information is readily understood by the wider public. The development and distribution of electric vehicle service stations (SPKLU) must be accelerated, particularly in outlying areas, as infrastructure availability is crucial for reducing range anxiety and encouraging electric vehicle adoption. Fiscal incentives should be complemented by policies that better target lower-middle class groups, such as financing support or more affordable purchasing schemes, to ensure that the energy transition is not limited to a select group. Further research is recommended to employ field methods such as interviews or surveys to further empirically test these findings and enrich the analysis of policy implementation in Jakarta.

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