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COMPARATIVE LEGAL ANALYSIS OF INCENTIVES FOR ELECTRIC VEHICLE ADOPTION IN INDONESIA AND MALAYSIA

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Abstract

Carbon emissions play an important role in the acceleration of climate change, which threatens the livelihoods of many people around the world. Electronic vehicles (EVs) serve as a solution to this problem by reducing the amount of pollution and enabling the use of renewable energy as a source. This research analyzes the incentives provided by countries that are trying to reduce their carbon emissions with EVs, namely Indonesia and Malaysia. The analysis is supported by a comparative legal research method and statutory approach. This research finds that Malaysia's framework of incentives is superior to that of Indonesia's, as incentives provided by Indonesia do not address the issue of carbon emissions entirely and are buried within a very fragmented legal framework. The research proposes a number of changes that need to be made in Indonesia to support the EV industry in all of the aspects that are relevant to its development, such as R&D, human resources, consumer support, and financial support for manufacturers.

Keywords: *Carbon Emission; Electric Vehicles; Climate Change; Sustainability; Legal Framework.*

A. INTRODUCTION

Sustainability is a concept formulated to promote a better way of living, with social awareness regarding the environmental impacts of human

activities.[1] It's also conceptualized as a response to the growing concerns of climate change and its global impacts, along with the poor climate policies to date, resulting in the acceleration of climate change and its impacts.[2] The global and widespread nature of climate change impacts has made sustainability a trend, with social awareness embedded within it and resilience being one of the main keywords.[3] Furthermore, sustainability is conceptualized within Sustainable Development Goals as a comprehensive framework of goals to ensure a sustainable future, which includes environmental sustainability.[4] Climate issues are relevant to Indonesia and Malaysia, as they are two members of the ASEAN, which has voiced its commitment to realizing SDGs, including environmental sustainability. As ASEAN's biggest economy, Indonesia has an important role in promoting sustainability, as the impacts of environmental issues in Indonesia can affect other ASEAN countries due to its massive territory.[5] Therefore, analyzing Indonesia's legal politics in promoting environmental sustainability is important, especially with a comparative analysis of neighboring countries, such as Malaysia, that are also a part of ASEAN.

Electric vehicles (EVs) emerge as a significant innovation in addressing sustainability challenges.[6] By transitioning from fossil fuel-based transportation to EVs, a society can substantially reduce carbon emissions, which can subsequently slow the acceleration of climate change.[7] EVs need to be supported in a way that enables them to be integrated into society while also ensuring they can help many people in their daily activities. The development and production of EVs require serious research and development (R&D) to ensure that they're affordable, durable, and also much safer for the environment, especially when compared with fossil fuel-based vehicles. As the impacts of climate change threaten the lives of many Indonesians, particularly those living on the outer islands, the transition to EVs can become a possible

[1] Satya Shah and Elmira Naghi Ganji, "Sustainability Adoption in Project Management Practices within a Social Enterprise Case," *Management of Environmental Quality: An International Journal* 30, no. 2 (2019): 346–67.

[2] Ross Gillard et al., "Transformational Responses to Climate Change: Beyond a Systems Perspective of Social Change in Mitigation and Adaptation," *Wiley Interdisciplinary Reviews: Climate Change* 7, no. 2 (2016): 251–65.

[3] Katrina Brown, "Global Environmental Change I: A Social Turn for Resilience?," *Progress in Human Geography* 38, no. 1 (2014): 107–17.

[4] David Griggs et al., "An Integrated Framework for Sustainable Development Goals," *Ecology and Society* 19, no. 4 (2014): 49–72.

[5] Viktor Pirmana et al., "Environmental Cost in Indonesia Spillover Effect Between Consumption and Production," *Frontiers in Sustainability* 2 (2021): 1–11.

[6] Jamie Morgan, "Electric Vehicles: The Future We Made and the Problem of Unmaking It," *Cambridge Journal of Economics* 44, no. 4 (2020): 953–77.

[7] Madalsa Singh et al., "Ensuring Greenhouse Gas Reductions from Electric Vehicles Compared to Hybrid Gasoline Vehicles Requires a Cleaner U.S. Electricity Grid," *Scientific Reports* 14, no. 1 (2024): 1639.

solution and also Indonesia's contribution to the global efforts of tackling climate change and its impacts. This transition can even help recover Indonesia's sustainability reputation on the international stage, which many deforestation issues have tainted.[8] Similar to Indonesia, Malaysia has also been criticized for its deforestation issue.[9] The similarities between Indonesia and Malaysia can present a unique angle of legal analysis to be explored, specifically about their legal politics of sustainability.

Like many aspects of the economy, the advancements produced by R&D require a subsequent amount of capital.[10] A lot of times, this financial necessity isn't always fulfilled by the actors behind the R&D itself, leading them to look for outside sources of financial support.[11] This is where investments play an important part in fostering innovations in an economy. In the context of EVs, investments have been one of the main drivers of constant efforts to innovate and, consequently, one of the key factors of success in producing quality EVs.[12] It's also been found that the lack of investment, particularly green investment, is associated with the lack of information and availability of green investments that are both beneficial for investors and the public interest.[13] Therefore, countries that are planning to further their sustainability agenda need to recontextualize their roles in managing the flow of investments to support the development of EVs. A government can create incentives to attract investments for the development and production of EVs, be it for domestic investments or foreign investments.

It is imperative to analyze the legal politics in investment incentives for the development and production of EVs in Indonesia, the biggest economy in ASEAN. As a country with a large economy and population, Indonesia's greenhouse gas emissions contribute significantly to the acceleration of

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8 Adi Wijayanto, Hatta Acarya Wiraraja, and Siti Aminah Idris, "Forest Fire and Environmental Damage: The Indonesian Legal Policy and Law Enforcement," *Unnes Law Journal* 8, no. 1 (2022): 105–32; Tiyas Vika Widyastuti, "The Model of Environmental Regulation Based on an Ecological Justice," *Jurnal Pembaharuan Hukum* 10, no. 1 (2023): 180-188.

9 Abdelnaser Omran and Odile Schwarz-Herion, "Deforestation in Malaysia: The Current Practice and the Way Forward," in *Sustaining Our Environment for Better Future: Challenges and Opportunities*, ed. Abdelnaser Omran and Odile Schwarz-Herion (Singapore: Springer Singapore, 2020), 175–93.

10 Thomas G Canace, Scott B Jackson, and Tao Ma, "R&D Investments, Capital Expenditures, and Earnings Thresholds," *Review of Accounting Studies* 23, no. 1 (2018): 265–95.

11 Di Guo, Yan Guo, and Kun Jiang, "Government R&D Support and Firms' Access to External Financing: Funding Effects, Certification Effects, or Both?," *Technovation* 115 (2022): 1–19.

12 Jun Rentschler and Florian Flachenecker, "Introduction: A Pragmatic Perspective on the Opportunities and Limits of Investing in Resource Efficiency," in *Investing in Resource Efficiency: The Economics and Politics of Financing the Resource Transition*, ed. Florian Flachenecker and Jun Rentschler (Cham: Springer International Publishing, 2018), 3–12.

13 Chengbo Fu, Lei Lu, and Mansoor Pirabi, "Advancing Green Finance: A Review of Climate Change and Decarbonization," *Digital Economy and Sustainable Development* 2, no. 1 (2024): 1–23.

climate change, forcing Indonesia to be more responsible and proactive in promoting environmental sustainability. Comparative analysis from Malaysia can provide a robust analysis regarding the legal politics of investment laws, which can be used to continue developing Indonesia's policies in promoting investment in EVs. Furthermore, the aspects extracted from the comparative analysis can be used to develop Indonesia's policies for EV investments and overall sustainability.

The literature around electric vehicles has been developing rapidly over the years, with its nuance being closely intertwined with many social aspects of sustainability as a concept, as analyzed by a study.[14] This study highlighted that the trend of transition to EVs is mostly affected by aspects such as acceptance, perception, impact, costs, welfare, and user experience. Perception and impact are found to be two of the biggest aspects of EV adoption, but the research did not explain how the development of EVs affects the emergence of these two aspects as the most dominant ones and how other aspects are affected as well. The development of EVs themselves is a monumental success in R&D, bringing a monumental shift to sustainable practices around the world, as underscored by another study.[15] However, the study didn't provide further analysis on policies that are related to investments or efforts to attract them, despite investment being a key part of R&D behind the development of EVs, as previously explained.

A study highlighted the rising interest in the adoption of EVs in the lives of many Malaysians.[16] The qualitative data of the study showed that the interests related to EVs are particularly popular in the younger demographic. The study also underscored that despite the increasing interest in EVs, their high price remains one of the biggest barriers, citing the lack of mass production, which significantly contributed to the high price itself. Interestingly, the study concluded that further development of EVs is much needed, as customers are looking to invest their money into things that are more financially justified, with features that can rival those of fossil fuel-based vehicles. However, the role of investments from the production side of EVs is not analyzed despite it being one of the key drivers. In the context of Indonesia, a study highlighted that big companies have been trying to dive

[14] Vasja Omahne, Matjaz Knez, and Matevz Obrecht, "Social Aspects of Electric Vehicles Research—Trends and Relations to Sustainable Development Goals," *World Electric Vehicle Journal* 12, no. 1 (2021): 1–13.

[15] Shikha Singh et al., "Electric Vehicles for Low-Emission Urban Mobility: Current Status and Policy Review for India," *International Journal of Sustainable Energy* 41, no. 9 (2022): 1323–59.

[16] Nur A Muzir et al., "Challenges of Electric Vehicles and Their Prospects in Malaysia: A Comprehensive Review," *Sustainability* 14, no. 14 (2022): 1–40.

into the Indonesian market with their EVs.[17] The study underscored the importance of push and pull between a big producer of EVs and the Indonesian government in the investment of EVs in the Indonesian market but didn't provide any analysis of the relevant policies regarding investments in Indonesia.

The existing research, as analyzed above, provides an important baseline for the continuation of academic exploration, particularly in the legal field, on the potentials and challenges of supporting the development of EVs. However, a gap exists in analyzing the investment policies specifically designed and tailored to attract investment in Indonesia's EVs. This research aims to fill this gap by using Malaysia as a comparison. Investment incentives are the central focus of this research, and they are to be analyzed in regard to how such a policy can have its own legal implications in accordance with the relevant laws and regulations in both countries. Ultimately, the comparative analysis is used to extract relevant track records of regulatory development regarding the lessons that can be taken into account to develop Indonesian policy further and advance the EV market.

B. RESEARCH METHODS

This research employs the normative legal research method with a comparative legal approach. The normative legal research method involves the analysis of legal norms,[18] while the comparative legal approach juxtaposes legal principles across different jurisdictions to analyze the policies in Indonesia and Malaysia regarding investment incentives for EVs. In practice, this involves reviewing relevant legislation to understand the legal frameworks within the context of a certain legal issue,[19] in both countries and comparing these frameworks to highlight differences, similarities, and the effectiveness of each approach. The analysis is also supported by a statutory approach, using secondary data in the form of primary law sources. The laws and regulations mentioned in this research are analyzed to assess how they collectively shape the regulatory framework governing EV investment in each country, as further explored in the discussion section. Data used in this research are Law No. 25 of 2007 on Investment, Law No. 3 of 2009 on Environmental Protection and Management, Government Regulation No. 14 of 2015 on National Industrial Development Master Plan 2015-2035, Presidential Regulation No. 79 of 2023

[17] Achmad Ismail, "Hyundai Investment On Electric Vehicles In Indonesia," *Intermestic: Journal of International Studies* 5, no. 2 (2021): 375–94.

[18] Hari Sutra Disemadi, "Lenses of Legal Research: A Descriptive Essay on Legal Research Methodologies," *Journal of Judicial Review* 24, no. 2 (2022): 289–304.

[19] David tan, "Metode Penelitian Hukum: Mengupas Dan Mengulas Metodologi Dalam Menyelenggarakan Penelitian Hukum," *NUSANTARA: Jurnal Ilmu Pengetahuan Sosial* 8, no. 5 (2021): 1332–36.

on the Amendment to Presidential Regulation No. 55 of 2019 on the Acceleration of Battery Electric Vehicle Program for Electric Transportation, Environmental Quality Act 1974, Renewable Energy Act 2011, the Malaysian Investment Development Authority's (MIDA) Guideline and Procedure for the Application of Tax Incentive for Manufacturer of Electric Vehicle Charging Equipment, and MIDA's Budget 2023.

C. RESULTS AND DISCUSSION

1. Importance of Incentives on the Development of EVs

Investments play a big part in the growth of research and development (R&D), as it requires financial support.[20] R&D requires a lot of financial support due to the fact that it involves many trials and errors in coming up with inventions and products that can be of high value to the market.[21] From the economic standpoint, it's unrealistic for the government to spend too much of its spending budget on R&D, not only because of the lack of certainty in results but due to the fact that resources allocated to R&D could potentially divert funds away from other critical areas such as healthcare, education, and infrastructure, which have immediate and tangible benefits for the population.[22] Therefore, investments, particularly those that come from the private sector, play an important part in the growth and success of R&D for a country.

However, this does not mean that the government can't provide much impact on the growth and success of R&D. The government is still responsible for the policies that can substantially affect investments and can even promote investments through incentives that can attract more capital to come into the country's many sectors that require intense R&D. One such sector is the automobile industry, which has now become heavily scrutinized due to its massive negative impacts on the environment.[23] Sustainability eventually became the trend and is now expected to become a strong driving factor in the future of R&D transportation technologies. Electric vehicles (EVs), the

[20] Elena Huergo and Lourdes Moreno, "Subsidies or Loans? Evaluating the Impact of R&D Support Programmes," *Research Policy* 46, no. 7 (2017): 1198–1214.

[21] Pablo E. Pinto, Peter Knights, and Damian Hine, "The Design of Publicly Funded R&D Consortia: Preliminary Learnings from a Longitudinal Field-Case Study," in *DRUID15 Conference on the Relevance of Innovation* (Rome: DRUID Society, 2015), 1–23.

[22] Lateef Shobowale et al., "Trends and Patterns of Human Capital Development and Economic Growth in Selected Sub-Saharan African Countries," *IIARD International Journal of Economics and Business Management* 9, no. 8 (2023): 100–113.

[23] Rozita Husain, Nor Shahariah Abdul Wahab, and Rosita Husain, "Awareness of CO2 Emission by Cars and Eco-Friendly Environment in the Malaysian Automotive Industry: A Study on Drivers' Perspectives," *International Journal of Academic Research in Business and Social Sciences* 13, no. 8 (2023): 463–82; Triono Eddy, "The Controversy of Environmental Law Policies from Regulation Perspective," *International Journal of Law Reconstruction* 7, no. 1 (2020): 64.

biggest trend in transportation R&D, are forecasted to be a significant sector in transportation R&D, especially because of the recent successes of many models. Therefore, investment incentives for the development of EVs, not only as a technology but also as a sustainability trend, needs to be supported by the Indonesian government through an adequate legal framework.

Indonesia's legal framework for sustainability itself is not particularly well-developed, with environment law still relying on a law made around the Millennium Development Goals (MDGs) era, which is Law No. 32 of 2009 on Environmental Protection and Management (Environmental Law). Environmental Law, through Article 2 letter b, stipulates that protection and management of the environment is done using the principle of preservation and sustainability. It also stipulates through Article 3 letter i that the ultimate goal of protection and management of the environment is to realize sustainable development.

The concrete form of implementation of this law, according to Article 5 letter c, is done according to the environmental protection and management plan (RPPLH), which, according to Article 10 paragraph (3), is designed for three levels of government (central, provincial, and district/city governments). However, Indonesia is still in the process of developing a new RPPLH, which is said to include a development plan for 2025-2055.[24] So far, RPPLH has been primarily made by local governments, despite the fact that national RPPLH was also mandated to be made by environmental law, specifically by the central government. Therefore, sustainable development plans in Indonesia are supported through a number of fragmented regulations, where sustainability issues are addressed separately.

When it comes to investment, Indonesia's main legal framework is Law No. 25 of 2007 on Investment (Investment Law).[25] This law defines investment as all forms of investment activities, both by domestic investors and foreign investors, to conduct business in the territory of the Republic of Indonesia. The law itself doesn't provide any provision regarding incentives and instead gives the authority to the government (central government) and local governments to create their own investment policies. This is done through coordination between the relevant government bodies, the government, and central governments, as stipulated in Article 27. However, despite using the

[24] Nunu Anugrah, "KLHK Susun Rencana Perlindungan Dan Pengelolaan Lingkungan Hidup Nasional 2025-2055," *Pejabat Pengelola Informasi dan Dokumentasi (PPID) Kementerian Lingkungan Hidup dan Kehutanan*, May 31, 2023, https://ppid.menlhk.go.id/berita/siaran-pers/7206/klhk-susun-rencana-perlindungan-dan-pengelolaan-lingkungan-hidup-nasional-2025-2055.

[25] Sayidin Abdullah, "Politik Hukum Penanaman Modal Asing Setelah Berlakunya Undang-Undang Penanaman Modal 2007 Dan Implikasinya Terhadap Pengusaha Kecil," *FIAT JUSTISIA: Jurnal Ilmu Hukum* 8, no. 4 (2015): 546–70.

term "incentive" in the explanation of the general provision, the Investment Law uses "investment facilities" to describe provisions regarding the creation of policies that can attract investments.

Investment facilities are described in Article 18 but without the support of a concrete definition. Article 18 paragraph (1) and (2) stipulates that the government provides facilities to investors who make investments, be it for investors who are expanding their business or those who are investing in new capital. The development of EVs can be fit into some of the categories provided by Article 18, particularly paragraph (3) letter a, d, e, g, regarding labor absorption, technology transfer, pioneer industry, and the ability to preserve the environment. This is also in line with Article 3, paragraph (1) letter g, which stipulates that investments in Indonesia must be conducted by following the principle of sustainability. Pioneer industry is described by Article 18 paragraph (5) as industries that have extensive linkages, provide high added value and externalities, introduce new technologies, and have strategic value to the national economy.[26]

The most relevant legal support for the development of EVs in Indonesia is the National Industrial Development Master Plan 2015-2035, which is highly motivated by Indonesia's plans for the development of the green economy.[27] The National Industrial Development Master Plan (RIPIN) 2015-2035 is stipulated by Government Regulation No. 14 of 2015 and was prepared as an implementation of the mandate of Law No. 3 of 2014 on Industry, as well as a guideline for the government and industry players in industrial planning and development.[28] Within Indonesia's RIPIN 2015-2035, the EV industry is explicitly listed as a priority. However, one of the EV components, the electric engine, is listed as a part of the priority industry throughout all stages (2015-2019, 2020-2024, 2025-2035). In the last stage (2025-2035), the electric engine is even listed as the only priority for the transportation industry. This indicates a serious commitment to realizing a sustainable future for Indonesia by moving towards EVs to lower carbon emissions.

The concrete manifestation of this development is Presidential Regulation No. 79 of 2023 on the Amendment to Presidential Regulation No. 55 of 2019 on the Acceleration of Battery Electric Vehicle Program for Electric Transportation (Presidential Regulation 79/2023). The regulation itself doesn't

[26] Annisha and Afrizal, "Dampak Kebijakan Pelayanan Perizinan Terpadu Dan Penanaman Modal Terhadap Daya Tarik Investasi Asing Di Provinsi Riau Tahun 2013-2016," *Jurnal Online Mahasiswa FISIP* 4, no. 2 (2017): 1–17.

[27] Dora Kusumastuti et al., "Green Industry Policy in Indonesia," *International Journal of Business, Economics and Law* 26, no. 2 (2022): 40–43.

[28] Jennifer Kayla Esfandiary et al., "Kebijakan Hukum Rencana Induk Pembangunan Industri Dalam Pemanfaatan Potensi Sumber Daya Industri Kehutanan Di Indonesia," *AHKAM* 2, no. 2 (2023): 252–66.

tout EVs as an answer to the continued rise of Indonesia's carbon emissions but provides many incentives for its development, particularly in Indonesia. R&D for EVs is mentioned in Article 7, with the emphasis on EV-related technologies being environmentally friendly in paragraph (3) letter e. There are two types of incentives provided by this regulation: non-fiscal and fiscal incentives. Article 17 of this regulation states that The Central Government and Local Governments provide incentives to accelerate the Battery-based KBL program for road transportation. The fiscal incentive that can support the development of EVs in Indonesia comes in the form of import duty incentives, which are covered by the government on the importation of raw and/or auxiliary materials used in the production process, as stipulated in Article 19 paragraph (1) letter f.

When it comes to investment, there is only one type of incentive given by Presidential Regulation 79/2023, which is import duty incentives on the importation of machinery, charcoal, and materials in the context of capital investment, as provisioned by Article 19A paragraph (2) letter d. There is no other provision regarding the development of EVs in Indonesia other than the ones already mentioned. One of the most significant missed opportunities in offering a comprehensive package of incentives for EV development is found in Article 7, which references research and development but lacks provisions regarding capital management and government facilitation to attract investors. Through this, the government could've explored many more options for incentives, such as tax incentives, investment matching policies, or grants. Furthermore, Indonesia also doesn't support the adoption of EVs from the customer standpoint, other than tax incentives for Motor Vehicle Tax *(Pajak Kendaraan Bermotor*) and Motor Vehicle Title Transfer Fee *(Bea Balik Nama Kendaraan Bermotor)*, or what is often referred to as PKB and BBNKB respectively.

The regulation regarding the support for the development of EVs is further fragmented using other regulations, mainly Minister of Finance Regulation (PMK) No. 38 of 2023 on Value Added Tax on Delivery of Certain Four-Wheeled Battery-Based Electric Motor Vehicles and Certain Bus Battery-Based Electric Motor Vehicles Covered by the Government for Fiscal Year 2023. However, the incentives introduced by this PMK are limited by the component level (TKDN) of EVs, favoring only EVs with a 40% domestic component level for four-wheelers and a 20-40% domestic component level for buses. The incentive comes in the form of value-added tax (TAX), which is covered by the government for 10% of the total. The tax incentives for PKB and BBNKB, despite being mentioned previously in Presidential Regulation 79/2023, have not been manifested by any PMK.

Overall, Indonesia has a very fragmented legal framework when it comes to supporting the transition to EVs and a more sustainable society. This can make it difficult for most people, particularly potential buyers of EVs, to understand, which can substantially reduce the interest in switching to EVs. Furthermore, the incentives are also considerably small, particularly with the promise of PKB and BBNKB tax incentives never fulfilled with the latest PMK. Not only that, the incentives also cover only four-wheelers and buses, while motorbikes remain the most popular vehicle utilized by Indonesians.[29] This means that the tax incentives were made with no clear goal of addressing sustainability issues within Indonesian society. This issue is coupled with the lack of clarity in the support for R&D, which can significantly slow the development of EVs in Indonesia even more. These issues, in turn, can turn potential investors away from investing in the development of EVs in Indonesia.

2. Comparison of Indonesia's and Malaysia's Investment Incentives for EVs

Malaysia is also a middle-income country, with its borders neighboring Indonesia's. However, unlike Indonesia, Malaysia has had better progress in R&D, making it more capable of adapting to new technologies and innovation, particularly because it has better tax incentives.[30] It also has much better resource management than Indonesia, particularly in terms of human resources. Malaysia is also a tough competitor and a key partner of Indonesia's digital economy, with many of its startups' influence reaching Indonesian society and affecting Indonesia's economic growth. Overall, Malaysia is very much open to new technologies and has had no significant problems adapting to the changes brought by scientific and technological advancements.

Malaysia is also a country deeply concerned about climate change's progress, which threatens its citizens' well-being and livelihoods. Similar to Indonesia, Malaysia has also been criticized for its high carbon emissions, particularly from the agriculture industry.[31] Another contributor to the high carbon emission in Malaysia is the transport sector, which has contributed to 28.8% of the country's total fossil fuel combustion.[32] Therefore, sustainability

[29] Siti Zulaikah, Wahyu Haykal Rahmanda, and Farid Triawan, "Foldable Front Child-Seat Design for Scooter Motorcycle: Strength Analysis Under Static and Dynamic Loading," *International Journal of Sustainable Transportation Technology* 3, no. 2 (2020): 37–44.

[30] Irwanto and Meilani, "Comparative Study of Tax Incentives in Indonesia, Malaysia, and the United States of America to Support Research and Development," *Journal of Accounting & Management Innovation* 6, no. 1 (2022): 182–206.

[31] Arief Suardi Nur Chairat et al., "Facilitating Greenhouse Gas Emission Reduction in Palm Oil Sector Using Marginal Abatement Cost Curve Methodology," *Journal of Sustainability Science and Management* 18, no. 1 (2023): 62–69.

[32] Saeed Solaymani, "CO2 Emissions and The Transport Sector in Malaysia," *Frontiers in Environmental Science* 9 (2022): 1–11.

has remained one of the key issues that lawmakers in Malaysia have been trying to analyze and solve. EVs came as a favorable solution to Malaysia's problems, leading to many of its citizens adopting the new transportation technology, to help contribute in creating a sustainable Malaysian society.[33] Furthermore, Malaysia has also developed a legal framework to support the preservation of the environment while promoting sustainable development.

Malaysia's main legal framework for environmental sustainability is based on the Environmental Quality Act 1974.[34] This law, through section 22, governs the importance of pollution of the atmosphere by stipulating in paragraph (1) that no individual is permitted to release or dispose of any substances harmful to the environment, pollutants, or waste into the air without a license, in violation of the standards allowed by law. Despite no further mention of the fight against environmental degradation, particularly through air pollution, this provision became the basis for the fight against carbon emissions in Malaysia. This provision is also used as one of the bases for the development of other laws regarding sustainability.

Another relevant legislation is the Renewable Energy Act 2011. Unfortunately, this legislation doesn't have any direct correlation with EVs. While EVs do not consist of renewable energies, as EV batteries are made using non-renewable sources, such as lithium, cobalt, and nickel,[35] EVs are still considered green technology due to the low pollution it generates. The link to renewable energy comes from the fact that the electricity used to charge EVs can come from renewable sources, such as solar or hydropower, which are both included in Malaysia's Renewable Energy Act 2011. To date, this remains one of the areas within the Malaysian legal system, particularly for sustainability, where the normative capabilities to support EVs are not fully synchronized.

Malaysia has introduced a package of incentives to support the rise of EVs, as explained by the Malaysian Investment Development Authority (MIDA) in a guideline (Table 1). Incentives may be available for newly established firms and existing businesses expanding or diversifying into the production of electric vehicle (EV) charging equipment. These incentives could take the form of various supports or benefits: 1) Companies investing early are granted a full exemption from income tax on statutory income from the assessment year 2023 to 2032 for up to 10 years. Investments made post-2023 qualify for the

[33] Ahmad Fakrul Ramli et al., "Carbon Emission Pinch Analysis: An Application to the Transportation Sector in Iskandar Malaysia for 2025," *Clean Technologies and Environmental Policy* 21, no. 10 (2019): 1899–1911.

[34] Ching Thoo Kim, *Malaysian Water Sector Reform*, 1st ed. (Wageningen: Wageningen Academic, 2012), 63.

[35] William E Gent, Grace M Busse, and Kurt Z House, "The Predicted Persistence of Cobalt in Lithium-Ion Batteries," *Nature Energy* 7, no. 12 (2022): 1132–43.

remaining exemption period. Losses not covered can be forwarded for seven consecutive assessment years; 2) An alternative is an Income Tax Exemption equal to a 100% Investment Tax Allowance on eligible capital expenditures within five years, set against the statutory income annually. Unused allowances can be carried over until they are fully utilized.

Table 1. EV Incentives

Criterion	Description
Company Incorporation	Must be registered under the Companies Act 2016.
Licensing	Possession of a Manufacturing License from the Ministry of International Trade and Industry (MITI) or an Exemption from Manufacturing License from MIDA, as applicable.
Investment and Expenditure	Should have sufficient investment and operational expenses for the intended project. Engagement with the Malaysian Investment Development Authority (MIDA) for discussion on commitment levels is recommended.
Local Workforce	At least 80% of full-time employees must be Malaysian.
Value Addition	Product(s) should have a minimum value addition of 20%.
Science and Technical (S&T) Staff Requirement	At least 15% of the full-time workforce must be in S&T roles.
Local Vendor Development	The aim should be to develop and collaborate with local vendors in technology, capabilities, certifications, and human resource development.
Internship and Collaboration	Must offer internships to Malaysian students at Technical and Vocational Education and Training (TVET) or at least diploma level, or collaborate with TVET/higher education institutions in relevant fields.

***Source**: MIDA's Guideline and Procedure for the Application of Tax Incentive for Manufacturers of Electric Vehicle Charging Equipment*

This package of incentives, along with the requirements, is more comprehensive for the development of EVs in comparison to Indonesia's as it's more realistic to be met and actually applied, which, in the end, can attract more investments in the EV sector in Malaysia. Not only that, the requirements even add an extra emphasis on the importance of R&D, while Indonesia only relies on already available results such as technology transfer. The requirements also involve the development of human resources, which is important for the future of EV development in Malaysia, while Indonesia doesn't have any incentive regarding such an issue.

Furthermore, despite the fact that four-wheelers are the most utilized type of vehicle in the country,[36] the Malaysian government also provides incentives for electric motorbikes, which makes Malaysia's approach to tackling sustainability issues more holistic. Malaysia's seriousness in tackling its high carbon emissions from the automobile industry also comes from the fact that

[36] Nuradzimmah Daim, "36.3 Million Vehicles in Malaysia," *New Straits Times*, December 6, 2023, https://www.nst.com.my/news/nation/2023/12/987062/363-million-vehicles-malaysia.

since 2022, Malaysia has had more vehicles than people.[37] Through Budget 2023, the Malaysian government provides up to RM2,400 rebates for buyers of e-bikes with an annual income below RM120,000 under the Electric Motorcycle Usage Incentive Scheme. This shows that Malaysia's approach to EV incentives is far superior not just because of the fact that it supports electric motorbikes but also the fact that it applies only to owners with annual income below RM120,000 to ensure that this policy doesn't only benefit the riches, but can also support the middle class. To support the development of EVs, incentives also come from the development of key infrastructures to support the utilization of EVs, such as charging stations, which, according to Malaysia's Budget 2023, will be supported with investment for more than RM170 million to install 180 charging stations. Not only that, the Malaysian government also provides further support with the extension on income tax relief (up to RM2,500) for charging facility expenses for four years and tax deduction for EV rental costs for two years.

Overall, Malaysia's support for EVs in the form of incentives is far less complicated than Indonesia's. Indonesia's framework of support for EVs is complicated by the unnecessarily fragmented legal framework, which, in the end, can't be fully delivered and has left many stones unturned. Malaysia, on the other hand, doesn't revolve its support for EVs around middle and long-term development plans like Indonesia, which doesn't really provide a roadmap for the development of EVs and instead forces other relevant issues to compete with EVs for priority. Malaysia's simple and direct approach has resulted in incentives that are far-reaching and more impactful while also covering many aspects of EV development, such as R&D, human resources, and consumer support.

3. Proposed Policy Model for Indonesia

From the previous analysis, it's been highlighted that Indonesia's legal framework for EV incentives is far more fragmented than Malaysia's, which can cause confusion, particularly among the relevant stakeholders. Furthermore, Malaysia has been found to have provided more support for consumers, while Indonesia mainly focuses on manufacturers. Indonesia's support through incentives for consumers of EVs is rather dubious as it's difficult to apply due to its component level (TKDN) policy. Malaysia, on the other hand, provides a more balanced approach where consumers are also given an adequate number of incentives to motivate them to switch to EVs. Furthermore, Indonesia's incentives, which only focus on four-wheelers and buses, are fundamentally flawed. This is because Indonesia's main mode of

[37] Dawn Chan, "Vehicles Outnumber People in Malaysia," *New Straits Times*, June 9, 2022, https://www.nst.com.my/news/nation/2022/06/803654/vehicles-outnumber-people-malaysia.

transportation is motorcycles, which conceptually defeats the purpose of providing incentives that also have a difficult requirement. Specifically for the incentives regarding electric motorcycles, Indonesia can learn from Malaysia's model by providing rebates, which can stimulate the will to purchase and interest from the Indonesian public.

The first lesson for Indonesia lies in the need for a strategic policy reorientation towards a more holistic and cohesive approach. Unlike Malaysia, which has a straightforward and comprehensive legal and incentive framework for EVs, Indonesia's current policy framework is fragmented and complex, making it less effective in promoting EV adoption. This can subsequently prevent potential EV adopters from understanding the benefits of owning EVs. Indonesia could benefit from simplifying and unifying its policies and incentives related to EVs. This involves consolidating various regulations under a single, coherent framework that provides clear guidance and support for manufacturers, investors, and consumers in the EV ecosystem. For this, Indonesia needs to stop relying on middle- and long-term development plans and focus solely on developing short-term incentives to make them easier to implement and easier to observe.

Malaysia's approach to incentives, covering income tax exemptions, investment tax allowances, and direct consumer rebates for e-bikes, demonstrates the effectiveness of targeted financial incentives in promoting EV adoption. Indonesia could enhance its incentive structures by introducing more attractive and accessible incentives for both manufacturers and consumers. This includes tax exemptions, rebates for purchasing EVs, and support for infrastructure development, such as charging stations across many locations in the country, which can all support the adoption of EVs in Indonesia. Additionally, focusing on incentives for a broader range of EVs, including electric motorbikes, could cater to a wider market, considering the popularity of two-wheelers in Indonesia. This is particularly relevant for Indonesia because of how disproportionately dominant motorcycles are compared to cars and other modes of transportation.[38] This allows for more effective implementation of a sustainable plan by addressing motorcycles as one of the biggest contributors to carbon emissions in Indonesia.

Malaysia's emphasis on research and development (R&D) and human resource development in its EV policy framework stands out as a critical factor for its success. Indonesia could strengthen its focus on these areas by providing incentives and support for R&D activities related to EVs and sustainable transportation technologies. This includes fostering collaborations between universities, research institutions, and the private sector to innovate

[38] Lucas Romero, "Number of Vehicles in Indonesia from 2018 to 2023, by Type," *Statista*, March 2023, https://www.statista.com/statistics/1239274/indonesia-number-of-vehicles-by-type/.

and develop new technologies. While this is normatively supported within Indonesia's legal framework, the lack of manifestation in the form of actual financial incentives makes the collaboration between these stakeholders and Indonesian human resources, in general, extremely difficult. These collaborations can be fostered by connecting the education system and the market for EVs to ensure the spread of knowledge and the pursuit of innovations in the relevant field of research. The government can play a significant role by providing grants, scholarships, or even tax incentives to stimulate the number of purchases and interest in EVs in the public eye. Moreover, investing in human resource development through training programs and education can ensure a skilled workforce ready to support the development of the EV industry and attract more capital.

The significant investment in EV infrastructure, such as charging stations, along with initiatives to increase public awareness in Malaysia, is key to accelerating EV adoption. Indonesia can learn from this by allocating more resources to develop the necessary EV infrastructure and launching public awareness campaigns. These campaigns could educate the public on the benefits of EVs, dispel myths, and address concerns about EV technology, thereby increasing consumer confidence and interest in electric vehicles. These campaigns can be integrated into the promotion events that are held by the relevant EV brands in collaboration with the government. Community engagements can also be stimulated through regular ads displayed in many parts of a city, where the advertisements regarding EVs and the government's support for them can be displayed. Furthermore, this can alleviate some of the burden that EV manufacturers face when marketing their products to the market, as the utilization of EVs without required infrastructures can be seen as unnecessarily bothersome.

D. CONCLUSION

The comparative analysis finds that Malaysia's incentives for the development of EVs are far superior to those of Indonesia in all aspects that can contribute to the flow of investments and growth in the EV industry. Stark contrasts are also common in this comparison, which shows the lack of effectiveness in policy design in Indonesia, whereas Malaysia's policies are constantly grounded by short-term goals, which are constantly observed and situated based on the development of EVs in its market. Therefore, it's safe to say that the incentives for EVs in Indonesia are adequate to address the country's lack of green investment. Significant changes are necessary to be made in Indonesia to show the commitment to supporting the EV industry. This study proposed a number of recommendations, mainly by eliminating normative constraints to incentives under the TKDN framework and placing

emphasis on the use of electric motorcycles so that Indonesia can catch up to Malaysia in EV development policies and gradually bring in more green investments. The limitation of this research comes from the fact that it's not supported by qualitative data, particularly regarding the perceived effects of the relevant incentives and how they affect the willingness of citizens of both countries to switch to EVs.

BIBLIOGRAPHY

Journal Articles:

Abdullah, Sayidin. "Politik Hukum Penanaman Modal Asing Setelah Berlakunya Undang-Undang Penanaman Modal 2007 Dan Implikasinya Terhadap Pengusaha Kecil." *Fiat Justisia: Jurnal Ilmu Hukum* 8, no. 4 (2015): 546–70.

Annisha, and Afrizal. "Dampak Kebijakan Pelayanan Perizinan Terpadu Dan Penanaman Modal Terhadap Daya Tarik Investasi Asing Di Provinsi Riau Tahun 2013-2016." *Jurnal Online Mahasiswa FISIP* 4, no. 2 (2017): 1–17.

Brown, Katrina. "Global Environmental Change I: A Social Turn for Resilience?" *Progress in Human Geography* 38, no. 1 (2014): 107–17.

Canace, Thomas G, Scott B Jackson, and Tao Ma. "R&D Investments, Capital Expenditures, and Earnings Thresholds." *Review of Accounting Studies* 23, no. 1 (2018): 265–95.

Chairat, Arief Suardi Nur, Lokman Abdullah, Mohd Nazmin Maslan, and Hakimul Batih. "Facilitating Greenhouse Gas Emission Reduction in Palm Oil Sector Using Marginal Abatement Cost Curve Methodology." *Journal of Sustainability Science and Management* 18, no. 1 (2023): 62–69.

David tan. "Metode Penelitian Hukum: Mengupas Dan Mengulas Metodologi Dalam Menyelenggarakan Penelitian Hukum." *Nusantara: Jurnal Ilmu Pengetahuan Sosial* 8, no. 5 (2021): 1332–36.

Disemadi, Hari Sutra. "Lenses of Legal Research: A Descriptive Essay on Legal Research Methodologies." *Journal of Judicial Review* 24, no. 2 (2022): 289–304.

Eddy, Triono. "The Controversy of Environmental Law Policies from Regulation Perspective." *International Journal of Law Reconstruction* 7, no. 1 (2020): 63-76.

Esfandiary, Jennifer Kayla, Fanny Liu, Salsa Putri Nabila, Ferdinandus Kaki Rangga, and Herli Antoni. "Kebijakan Hukum Rencana Induk Pembangunan Industri Dalam Pemanfaatan Potensi Sumber Daya Industri Kehutanan Di Indonesia." *AHKAM* 2, no. 2 (2023): 252–66.

Fu, Chengbo, Lei Lu, and Mansoor Pirabi. "Advancing Green Finance: A Review of Climate Change and Decarbonization." *Digital Economy and Sustainable Development* 2, no. 1 (2024): 1–23.

Gent, William E, Grace M Busse, and Kurt Z House. "The Predicted Persistence of Cobalt in Lithium-Ion Batteries." *Nature Energy* 7, no. 12 (2022): 1132–43.

Gillard, Ross, Andrew Gouldson, Jouni Paavola, and James Van Alstine. "Transformational Responses to Climate Change: Beyond a Systems Perspective of Social Change in Mitigation and Adaptation." *Wiley Interdisciplinary Reviews: Climate Change* 7, no. 2 (2016): 251–65.

Griggs, David, Mark Stafford Smith, Johan Rockström, Marcus C. Öhman, Owen Gaffney, Gisbert Glaser, Norichika Kanie, Ian Noble, Will Steffen, and Priya Shyamsundar. "An Integrated Framework for Sustainable Development Goals." *Ecology and Society* 19, no. 4 (2014): 49–72.

Guo, Di, Yan Guo, and Kun Jiang. "Government R&D Support and Firms' Access to External Financing: Funding Effects, Certification Effects, or Both?" *Technovation* 115 (2022): 1–19.

Huergo, Elena, and Lourdes Moreno. "Subsidies or Loans? Evaluating the Impact of R&D Support Programmes." *Research Policy* 46, no. 7 (2017): 1198–1214.

Husain, Rozita, Nor Shahariah Abdul Wahab, and Rosita Husain. "Awareness of CO2 Emission by Cars and Eco-Friendly Environment in the Malaysian Automotive Industry: A Study on Drivers' Perspectives." *International Journal of Academic Research in Business and Social Sciences* 13, no. 8 (2023): 463–82.

Irwanto, and Meilani. "Comparative Study of Tax Incentives in Indonesia, Malaysia, and the United States of America to Support Research and Development." *Journal of Accounting & Management Innovation* 6, no. 1 (2022): 182–206.

Ismail, Achmad. "Hyundai Investment On Electric Vehicles In Indonesia." *Intermestic: Journal of International Studies* 5, no. 2 (2021): 375–94.

Kusumastuti, Dora, Wibowo Murti Samadi, Sutiyo, and Supriyanta. "Green Industry Policy in Indonesia." *International Journal of Business, Economics and Law* 26, no. 2 (2022): 40–43.

Morgan, Jamie. "Electric Vehicles: The Future We Made and the Problem of Unmaking It." *Cambridge Journal of Economics* 44, no. 4 (2020): 953–77.

Muzir, Nur A, Md. R Mojumder, Md. Hasanuzzaman, and Jeyraj Selvaraj. "Challenges of Electric Vehicles and Their Prospects in Malaysia: A Comprehensive Review." *Sustainability* 14, no. 14 (2022): 1–40.

Omahne, Vasja, Matjaz Knez, and Matevz Obrecht. "Social Aspects of Electric Vehicles Research—Trends and Relations to Sustainable Development Goals." *World Electric Vehicle Journal* 12, no. 1 (2021): 1–13.

Pirmana, Viktor, Armida Salsiah Alisjahbana, Arief Anshory Yusuf, Rutger Hoekstra, and Arnold Tukker. "Environmental Cost in Indonesia Spillover Effect Between Consumption and Production." *Frontiers in Sustainability* 2 (2021): 1–11.

Ramli, Ahmad Fakrul, Zarina Ab Muis, Wai Shin Ho, Ahmad Muzammil Idris, and Aminullah Mohtar. "Carbon Emission Pinch Analysis: An Application to the Transportation Sector in Iskandar Malaysia for 2025." *Clean Technologies and Environmental Policy* 21, no. 10 (2019): 1899–1911.

Shah, Satya, and Elmira Naghi Ganji. "Sustainability Adoption in Project Management Practices within a Social Enterprise Case." *Management of Environmental Quality: An International Journal* 30, no. 2 (2019): 346–67.

Shobowale, Lateef, Bosede Comfort Olopade, Oluwasegun Shadrack Eseyin, and Oyeyemi Omodadepo Biyi. "Trends and Patterns of Human Capital Development and Economic Growth in Selected Sub-Saharan African Countries." *IIARD International Journal of Economics and Business Management* 9, no. 8 (2023): 100–113.

Singh, Madalsa, Tugce Yuksel, Jeremy J Michalek, and Inês M L Azevedo. "Ensuring Greenhouse Gas Reductions from Electric Vehicles Compared to Hybrid Gasoline Vehicles Requires a Cleaner U.S. Electricity Grid." *Scientific Reports* 14, no. 1 (2024): 1639.

Singh, Shikha, Jaishree Jindel, Vinay Anand Tikkiwal, Manasvini Verma, Ayushi Gupta, Akanksha Negi, and Aarushi Jain. "Electric Vehicles for Low-Emission Urban Mobility: Current Status and Policy Review for India." *International Journal of Sustainable Energy* 41, no. 9 (2022): 1323–59.

Solaymani, Saeed. "CO2 Emissions and The Transport Sector in Malaysia." *Frontiers in Environmental Science* 9 (2022): 1–11.

Widyastuti, Tiyas Vika. "The Model of Environmental Regulation Based on an Ecological Justice." *Jurnal Pembaharuan Hukum* 10, no. 1 (2023): 180-188.

Wijayanto, Adi, Hatta Acarya Wiraraja, and Siti Aminah Idris. "Forest Fire and Environmental Damage: The Indonesian Legal Policy and Law Enforcement." *Unnes Law Journal* 8, no. 1 (2022): 105–32.

Zulaikah, Siti, Wahyu Haykal Rahmanda, and Farid Triawan. "Foldable Front Child-Seat Design for Scooter Motorcycle: Strength Analysis Under Static and Dynamic Loading." *International Journal of Sustainable Transportation Technology* 3, no. 2 (2020): 37–44.

Books:

Kim, Ching Thoo. *Malaysian Water Sector Reform*. 1st ed. Wageningen: Wageningen Academic, 2012.

Book Section:

Omran, Abdelnaser, and Odile Schwarz-Herion. "Deforestation in Malaysia: The Current Practice and the Way Forward." In *Sustaining Our Environment for Better Future: Challenges and Opportunities*, edited by Abdelnaser Omran and Odile Schwarz-Herion, 175–93. Singapore: Springer Singapore, 2020.

Rentschler, Jun, and Florian Flachenecker. "Introduction: A Pragmatic Perspective on the Opportunities and Limits of Investing in Resource Efficiency." In *Investing in Resource Efficiency: The Economics and Politics of Financing the Resource Transition*, edited by Florian Flachenecker and Jun Rentschler, 3–12. Cham: Springer International Publishing, 2018.

Conference and proceedings:

Pinto, Pablo E., Peter Knights, and Damian Hine. "The Design of Publicly Funded R&D Consortia: Preliminary Learnings from a Longitudinal Field-Case Study." In *DRUID15 Conference on the Relevance of Innovation*, 1–23. Rome: DRUID Society, 2015. https://espace.library.uq.edu.au/view/UQ:381893.

Web page:

Anugrah, Nunu. "KLHK Susun Rencana Perlindungan Dan Pengelolaan Lingkungan Hidup Nasional 2025-2055." *Pejabat Pengelola Informasi dan Dokumentasi (PPID) Kementerian Lingkungan Hidup dan Kehutanan*, May 31, 2023. https://ppid.menlhk.go.id/berita/siaran-pers/7206/klhk-susun-rencana-perlindungan-dan-pengelolaan-lingkungan-hidup-nasional-2025-2055.

Chan, Dawn. "Vehicles Outnumber People in Malaysia." *New Straits Times*, June 9, 2022. https://www.nst.com.my/news/nation/2022/06/803654/vehicles-outnumber-people-malaysia.

Daim, Nuradzimmah. "36.3 Million Vehicles in Malaysia." *New Straits Times*, December 6, 2023. https://www.nst.com.my/news/nation/2023/12/987062/363-million-vehicles-malaysia.

Romero, Lucas. "Number of Vehicles in Indonesia from 2018 to 2023, by Type." *Statista*, March 2023.

https://www.statista.com/statistics/1239274/indonesia-number-of-vehicles-by-type/.