



Reshaping Indonesia’s Policy on Electric Vehicles: From Nickel to Electric Cars? A Case Study of Vietnam’s Vinfast Electric Cars

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ABSTRACT

Indonesia has ratified the Paris Agreement to support its goal of achieving net zero emissions (NZE) by 2060. As the automotive industry shifts from fossil fuels to electric vehicles (EV), many countries are setting new strategies in their transportation sector. To face this challenge, Indonesia has put an export ban on nickel ore effective from 2020. This strategy was intended to initiate the domestic EV industry and encourage foreign investors to drive their manufacturing activities into Indonesia. However, Indonesia’s technology has yet established for producing EVs and distributing them to the global market. This study examines Indonesia’s EV policy within the broader context of its commitment to the Paris Agreement and its goal of achieving NZE by 2060. As one of the world’s largest producers of nickel, a key component in EV batteries, Indonesia is leveraging its natural resources to attract foreign investment and develop a domestic EV industry. Using a qualitative approach through literature review, this study explores how Indonesia’s policy aligns with its environmental goals and ambition to become a global hub for EV production, drawing comparison with Vietnam’s successful development of Vinfast, an emerging global player in the EV market. The analysis highlights the strategic importance of EVs in reducing carbon emissions and transforming the automotive industry, as well as the role of international cooperation in achieving these objectives. This research concludes by assessing the challenges and opportunities for Indonesia in positioning itself in the EV market, while contributing to global efforts to combat climate change.

Keywords: *Electric Car (EC), Electric Vehicle (EV), Nickel, The Paris Agreement, Vinfast.*

INTRODUCTION

Indonesia has officially committed to addressing the climate crisis through cooperative international effort, as outlined in its Nationally Determined Contribution (NDC) under the Paris Agreement. This commitment was solidified with the passing of Law No. 16 of 2016, which ratified the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC). Established in 1992, the UNFCCC provides a global framework for governments to work together in combating climate change driven by greenhouse gas (GHG) emissions (Pambudi&Juwono, 2023). The overarching goal of this initiative is to stabilize GHG concentrations in the atmosphere at levels that prevent dangerous human interference with the climate system. This approach is designed to allow ecosystems sufficient time to adapt naturally while promoting sustainable development across nations (Harrould-Kolieb, 2016).

Indonesia’s Nationally Determined Contribution (NDC) reflects a strong dedication to reducing carbon dioxide (CO₂) emissions and curbing the effects of greenhouse gas

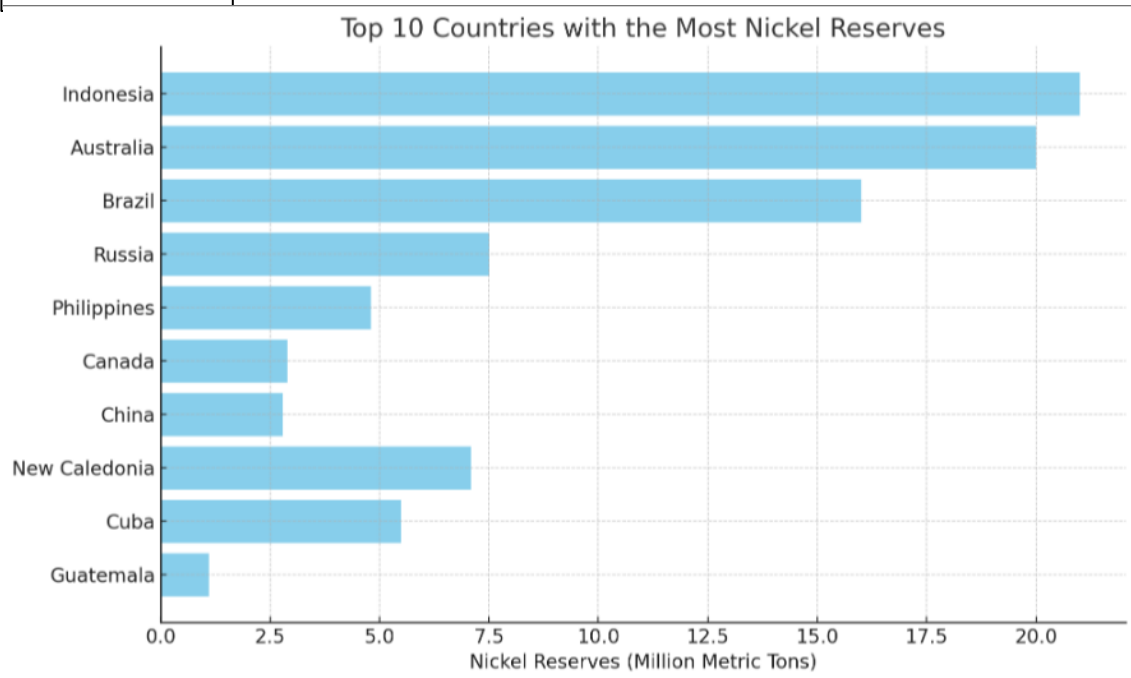


emissions (GHG). The country aims to achieve a 29% reduction through its initiative of international stakeholders (Suroso et al., 2022). The integration of electric vehicles (EVs) in Indonesia serves as a concrete step toward fulfilling the Paris Agreement, aimed at improving energy efficiency and strengthening energy security. Additionally, it acts as a forward-looking strategy to reduce the rising carbon emissions driving climate change.

The Indonesian government is strongly dedicated to advancing and promoting local electric vehicles, aiming to replace conventional fuel-powered vehicles with energy-efficient alternatives. The country has set a goal of achieving 2 million electric vehicles (EVs) on its roads by 2025 (Ministry of Industry, 2021). To attain this objective, the Indonesian government has implemented a legal framework supported by various regulations. For example, Presidential Regulation (Keppres) No. 55 of 2019 about accelerating the battery-based electric vehicle program for land transportation. This regulation contains four (4) aspects: 1) utilization of domestically manufactured components, 2) provision of government incentives, 3) development of necessary infrastructure, 4) registration and identification procedures (Pambudi & Juwono, 2023). Another is regulation of Minister of Energy and Mineral Resources No. 13 of 2020 about provision of electric charging infrastructure for battery-based electric vehicles (EVs) to improve the ecosystem and raise market appeal to EVs by ensuring the completion of supporting facilities for public usage. This regulation includes the implementation of mechanism for payment in parking spaces and recharging stations (Robinson et al, 2013, p. 348). The government also issued Government Regulation (PP/ *Peraturan Pemerintah*) No. 73 of 2019 about taxable goods classified as luxury in the form of Electric Cars (EC) to sales tax on luxury goods. It basically means the rates of PPnBM (*Pajak Penjualan atas Barang Mewah/ Sales Tax on Luxury Goods*) is based on exhaust emissions rather than vehicle's type.

However, the boldest regulation might be regarding the country's ban on nickel ore. As the holder of the world's largest nickel reserves, Indonesia's ban on nickel ore has reshaped the global market and is pivotal move in the country's broader industrial strategy. Enforced in January 2020, the ban prohibits the export of unprocessed nickel ore, a key raw material used in the production of stainless steel and electric vehicle (EV) batteries. This policy shift is part of Indonesia's efforts to transition from being an mere exporter of raw materials to becoming a major player in the global electric vehicle supply chain by fostering domestic processing industries. By banning raw ore exports, the government aims to push foreign companies to invest in domestic nickel refining and battery manufacturing facilities. This aligns with Indonesia's goal of becoming a key hub for the production of batteries and electric vehicles (EV), which are critical in the global shift toward cleaner energy.

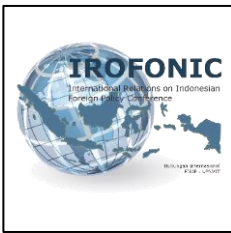
Graph 1: The countries with the most nickel reserves (in million tons)



The main goal of export ban on nickel ore is to push the domestic EV industry. Eventhough national regulation uncertainty is usually a significant turn-off for investors as it adds risk to an investment sustainability. However, multinational corporations (MNC) such as the German BASF and the Japanese Mitsui Sumitomo established nickel processing facilities in Indonesia. Indonesia also recently established the Indonesia Battery Corporation (IBC), in March 2021, with shareholders from four state-owned enterprise (BUMN) operating in aluminium smelting, mining, oil and gas, and electricity (PT Indonesia Asahan Aluminium/Inalum), PT Anyam Tbk (ANTM), PT Pertamina, and PT PLN). IBC has also signed a MoU (memorandum of understanding) with Hyundai Motor Group and LG Energy Solutions in July 2021 to establish an EV battery cell plant. Indonesia aims to be the new hubs for EVs, especially for the Southeast Asian Region.

In terms of electric vehicle (EV) ecosystem, data from the Institute for Essential Services Reform (IESR) highlights that the adoption of electric vehicles is seen as an effective way to reduce emissions un the transportation sector, replacing vehicles that rely on fossil fuels (Humayro et al, 2024). EVs, known for their higher efficiency, consume significantly less energy than traditional vehicles. As a result, they emit considerably lower levels of greenhouse gases (GHG). Moreover, if EV deployment is coupled with the use of renewable energy sources in the electricity grid, it could serve as a powerful tool for decarbonizing transportation. Additionally, transitioning to EVs can positively impact Indonesia’s economy by reducing the reliance on fuel imports and fostering the growth of the domestic electric vehicle industry.

As the world’s largest producer of nickel, Indonesia is in a strategically advantageous position to supply materials critical to the EV industry. In recent years, the Indonesian government has introduced several policies to capitalize on this resource, including export bans on raw nickel ore to encourage domestic refining and battery production.



However, the country’s progress towards establishing a competitive EV manufacturing sector has been slow. While it has attracted significant investment from multinational battery producers, Indonesia’s domestic automotive industry has not yet made a substantial move towards electric vehicle production.

This paper examines Indonesia’s evolving policy on electric vehicles (EVs), with a focus on the country’s position as a global supplier of nickel, a critical material in EV battery production. The analysis compares Indonesia’s approach with Vietnam’s Vinfast, a homegrown electric car manufacturer, highlighting the opportunities and challenges Indonesia faces in transitioning from raw material supplier to a key player in the global EV market. By analyzing Vinfast’s strategies, this paper explores lessons for Indonesia to leverage its resources and promote domestic EV production.

METHODS

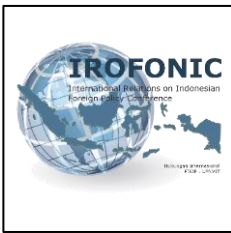
This study adopts a qualitative research approach, using a comprehensive literature review to analyze Indonesia’s electric vehicle (EV) policy in relation to its environmental goals and economic ambitions. The key themes explored in the literature review include: Indonesia’s resource-based approach to building its EV industry, leveraging its nickel production, the role of government policies in fostering foreign investment and domestic production of EVs. Using Vietnam’s Vinfast as a comparative case study of a rapidly growing EV producer in Southeast Asia, the role of international cooperation and partnership in advancing EV technology and market integration, this study aims to provide a clear understanding of Indonesia’s current EV policy, the gaps in technology and infrastructure, and the opportunities for future growth.

RESULT AND DISCUSSION

Vietnam’s Vinfast: A Case Study

On September 2017, Vinfast, a private automobile manufacturing company founded by Vietnam’s largest conglomerate Vingroup, established on the 335 Ha production factory in an industrial park on Cat Hai Island – a rural district of Hai Phong, the 3rd largest city in Vietnam. With the help of Germany’s MNC, Siemens, the first fully digital automotive factory in Southeast Asia was built in only 21 months. Today, Vinfast has become the face of Vietnam’s burgeoning automotive industry, particularly in the electric vehicle (EV) sector. Since 2018, Vinfast has made a remarkable entry into the global automotive market, gaining attention with its bold ambition to become a major player in the electric vehicle industry. Within a few short years, Vinfast has expanded its footprint, not only in Vietnam but also in international markets such as the United States, Europe, and Canada.

Vinfast’s entry into the automotive industry was swift and decisive. Initially launching with gasoline-powered cars, Vinfast soon pivoted toward electric vehicles as the global market moved towards sustainable transportation. The company’s first models,



including the Lux A2.0 and Lux SA2.0 were produced in collaboration with international partners such as Pininfarina, BMW, and Bosch. This collaboration allowed Vinfast to quickly gain credibility and produce high-quality vehicles.

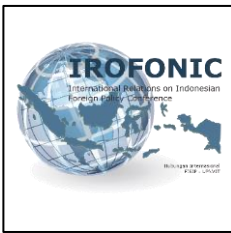
However, it was in 2021 that Vinfast made its most significant leap into the future by announcing a full transition to electric vehicles, aligning itself with global trends toward decarbonization. The company’s strategic decision to focus exclusively on EVs not only positioned it as a leader in Southeast Asia but also showcased Vietnam’s potential to become a hub for electric vehicle manufacturing. The following accomplishments can summarize the extraordinary expansion of Vinfast into global automobile market:

- In the 2018 Paris Motor Show, Vinfast unveiled 2 prototype cars—LUX SA 2.0 and LUX A.2.0 designed with the help of world-leading car design firm Pininfarina (Aircar, 2018)
- In November 2018, Vinfast launched Klara, its first electronic motorcycle (An, 2018)
- On March 2019, Vinfast sent out the first batch of 155 cars to Europe, Asia, Australia, Africa, and Vietnam for field testing and qualification for a 5-star ASEAN New Car Assessment Program for Southeast Asian countries rating (Lee, 2020)
- Within only 3 years after its establishment, Vinfast was reported to be the 5th best selling brand of automobile in Vietnam for the first quarter of 2020 (Lee, 2020)
- On December 2021, Vinfast delivered the first batch of its electric vehicle (EV) – VF e34 to Vietnamese consumers (Doll, 2021). VF e34 is the first EV manufactured and sold in Vietnam and it signals Vinfast leapfrogging strategy of jumping into the most advanced technologies
- In July 2022, Vinfast has decided to go all electric and depreciated its costly BMW combustion engine technology completely (ZoZoGo, 2022)
- Simultaneously with developing EV, Vinfast is expanding its production of electric motorbikes and scooters (ZoZoGo, 2022)

Vinfast’s Key Strategies for Global Expansion

Vinfast’s rapid ascent to global market can be attributed to a number of strategic moves that differentiate it from other EV startups. First is Vertical Integration and Domestic Production. One of Vinfast’s most significant advantages is its vertically integrated manufacturing ecosystem. Located in Hai Phong, Vietnam, Vinfast’s 335-hectare manufacturing complex is one of the most modern in the region. The plant is designed to handle multiple stages of production, from battery assembly to final vehicle assembly, allowing Vinfast to control costs and ensure quality. Second is Partnership with Global Technology Leaders. Vinfast has strategically aligned itself with leading technology providers, including Bosch, Pininfarina, and Siemens, to incorporate cutting-edge technologies in its EVs. Additionally, the company has partnered with global battery manufacturers to ensure a reliable supply of battery technology, which is critical for the success of its electric vehicle lineup.

Third is Aggressive Global Expansion Plans. Vinfast is one of the few Southeast Asian automakers with serious ambitions to enter major global markets. In 2022, the company



officially launched its first sales office in the United States, and it has plans to establish a factory in North America. The company also aims to expand into European markets, with a particular focus on eco-conscious consumers in countries like Germany, France, and the Netherlands. Fourth is Innovative Sales Model. Vinfast has adopted a direct-to-consumer sales model, which is increasingly popular among EV manufacturers. This approach allows the company to sell its cars directly through online platforms and Vinfast showrooms, reducing costs associated with traditional dealership networks. This model has been particularly effective in markets like the United States, where Tesla has pioneered a similar approach.

Comparative Analysis: Policy Approaches and Market Strategies

A comparison between Indonesia and Vietnam reveals divergent policy approaches to the EV industry. Indonesia’s policy emphasizes resource control, particularly through its nickel reserves, while Vietnam has focused on fostering technological innovation and production capabilities within the country.

<p>Indonesia’s Strategy: Resource-Centric Approach</p>	<p>Vietnam’s Strategy: End-to-End Value Chain</p>
<p>Indonesia has opted to leverage its natural resources by restricting raw material exports and pushing for domestic battery production. While this has attracted investment from companies such as LG and CATL, Indonesia has yet to develop a local EV brand or manufacture vehicles at scale</p>	<p>Vietnam, on the other hand, has built a complete EV value chain, from R&D and design to manufacturing and distribution. Vinfast’s success is partly due to strong state intervention, creating an environment conducive to domestic production.</p>

The analysis of Indonesia’s EV policy reveals both strengths and weakness in its current strategy. The decision to ban the export of nickel ore is a strategic move to create value-added industries within Indonesia. By encouraging foreign investors to establish battery manufacturing plants and EV production facilities, Indonesia aims to position itself as a key player in the global EV market. However, the research highlights several challenges that Indonesia faces in achieving its goals:

- Technological and infrastructure deficiencies: Indonesia lacks the necessary technological base to produce EVs domestically at scale. Unlike Vietnam’s Vinfast, which has developed a vertically integrated EV supply chain, Indonesia remains reliant on foreign technology and expertise.
- Policy gaps: While the nickel export ban has attracted some investment, the government needs to implement more comprehensive policies, such as fiscal incentives, Research and Development (R&D) support, and infrastructure development, to facilitate the growth of its EV industry.
- Global competition: Indonesia is entering a competitive global EV market, with established players like Tesla, Chinese manufacturers, and emerging regional



competitors like Vinfast. To compete, Indonesia must not only focus on resource-based advantages but also invest in innovation and manufacturing capabilities.

On the other hand, this study also identifies significant opportunities for Indonesia. 1) Resource endowment: Indonesia’s vast nickel reserve position the country as a critical supplier in the global EV battery market. This gives Indonesia a strategic advantage, as the demand for nickel is projected to rise with the global transition to EVs. 2) International cooperation: Indonesia has the potential to leverage international partnerships, especially with technologically advanced countries and companies, to accelerate its EV ambitions. Collaboration on technology transfer, joint ventures, and R&D can help Indonesia overcome its technological limitations.

The comparison with Vietnam’s Vinfast highlights key lessons for Indonesia. Vinfast’s rapid success was driven by strong government support, aggressive investments in technology, and partnerships with global firms. Indonesia could benefit from adopting similar strategies to strengthen its EV industry and attract global attention. Unlike Indonesia, which focuses primarily on raw materials, Vietnam has prioritized developing an entire EV manufacturing ecosystem. The Vietnamese government played a pivotal role in Vinfast’s success by providing incentives, including tax breaks, infrastructure development, and favorable regulations.

To capitalize on its natural resources and follow Vietnam’s example, Indonesia needs to adopt a comprehensive strategy that promotes domestic EV production. Recommendations include: a) Developing a National EV Industry Roadmap: Clearly outlining goals, timelines, and support mechanism for domestic production, b) Providing Fiscal Incentives: Offering tax breaks and subsidies to domestic EV manufacturers, c) Strengthening International Partnerships: Collaborating with global EV leaders for technology transfer and market access, d) Fostering Innovation and R&D: Supporting the development of research institutions focused on EV technologies

CONCLUSION

Indonesia’s commitment to achieving net zero emissions (NZE) by 2060 requires bold and innovative strategies in its transportation sector. While the export ban on nickel ore is a positive step toward building a domestic EV industry, Indonesia must address its technological, infrastructural, and policy gaps to become a key hub in EV production. The comparison with Vietnam’s Vinfast illustrates the importance of a comprehensive policy framework that goes beyond resources-based advantages. To position itself in the global EV market, Indonesia needs to invest heavily in Research and Development (R&D) in technology, strengthen international partnership, and create a supportive environment for domestic and foreign manufacturers. By aligning its EV policy with its environmental and economic goals, Indonesia can contribute to global efforts to combat climate change while securing its place in the growing EV industry. Indonesia’s potential to transition from a major nickel supplier to a prominent EV manufacture is evident, but requires strong political will, technological investments, and strategic international



partnerships. The success of Vietnam’s Vinfast demonstrates that with the right mix of policy incentives, technological innovation, and global cooperation, Southeast Asian countries can become a competitive player in the global EV market.

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