

The Impact of Electric Cars on the Indonesian Automotive Industry

Pudji Astuty¹, Soni Suardi²
pudji_astuty@borobudur.ac.id¹, sonisuardi@gmail.com²

Universitas Borobudur^{1,2}

Abstract. The electric vehicle industry has caused quite a shock to the world automotive industry. China, for example, as one of the electric vehicle producers, has been blessed by changes in the trend of electric vehicles. This article analyzes forecasting policies by predicting the electric vehicle industry in the next few years. The electric vehicle trend disrupts the supply chain, workforce, business processes, and government policies toward the automotive industry. Overall, it does not massively change the supply chain, workforce, business processes, and procedures. Still, there needs to be accelerated policies from the industrial and economic side that are flexible to implement EVs in transportation policy in Indonesia.

Keywords: Electric Vehicles; Automotive Industry; Impact.

1 Introduction

Indonesia, one of the countries with a rapidly developing automotive industry, is facing significant changes in the world of transportation. Electric cars, a global trend, are starting to significantly impact the Indonesian automotive sector. This article will discuss some of the main implications of the switch to electric cars on the Indonesian automotive industry.

The transition from oil-fueled internal combustion engine (ICE) cars to battery-based electric vehicles (BEV) impacts reducing the number of components used in cars. In line with this, the component industry must adapt to the era of electric vehicles. Using electric cars is a big challenge. The generation of electric cars is something new. So, related industries also have to adapt.

Based on a report from the ADB, around 47 percent of component companies that are members of the association will be affected by the transition to electric cars on a rapid scale.[1] From the components industry side, there will be automotive components that will not be used. Some will remain in use, as well as components that are used but must be adjusted. This is mainly companies that produce engines with thousands of ingredients, and then transmission manufacturers will also be affected.[2]

2 Methods

This article uses a policy analysis method with a touch of forecasting analysis.[3] Forecasting analysis is an essential analytical tool in formulating public policy. By using forecasting analysis, the resulting public policies will have clear objectives.

This forecast examines policies regarding electric vehicles that have not been fully implemented and the possible impacts that will occur. This article discusses the impact of the value chain, workforce in the automotive sector, policy and industry business models, and government policy regarding electric vehicles.

3 Discussion

3.1. Impact on the Automotive Supply Chain

For a long time, Indonesia has been known as one of the largest producers of cars with conventional engines in Southeast Asia. However, the switch to electric vehicles has forced automotive manufacturers in Indonesia to change their production paradigm. Local manufacturers, such as Toyota, Honda, and Mitsubishi, have started marketing electric cars domestically or plan to do so shortly. This encourages Indonesian automotive manufacturers to design and produce electric vehicles locally to remain competitive in the domestic market.[4]

In Southeast Asia, Indonesia is predicted to become the top EV supplier because Indonesia has advantages in its supply chain. However, to achieve this, many things still need to be done. The EV battery & EV industry has even been made a national priority program through Presidential Regulation 55/2019, aiming to stimulate the EV market. The target from the Indonesian Ministry of Industry is that by 2030, around 30% of oil-fueled vehicles have been converted into EVs.

Suppose Indonesia can achieve production of 600 thousand vehicles per year (equivalent to 30% of all current cars). In that case, we will save significantly on fuel imports because we still import around 400 thousand barrels of gasoline. If we can convert this into EVs, Of course, for EVs produced in Indonesia, the savings value from imports can reach 1-2 billion USD per year.[5]

The total estimated investment costs reached 15.3 billion USD to develop this industry. The part that costs the most is making the cathode and cell because it requires an exact level of accuracy.

The automotive components most affected by this electrification transition are the engine, transmission, and oil supply, including the gas tank and exhaust valve system. Electric cars will still use brake components, electronic systems, drive train, AC and compressors, and tires.

3.2. The Impact of Electric Cars on the Workforce

The shift in the automotive industry towards EVs does not affect the workforce too much. This is because, in basic terms, there is no significant difference between the conventional automotive and EV industries, like Tesla, which is the EV industry in the US. It is classified as a digital or computing industry because it is focused on Silicon Valley.

The workers who will be affected consist of workers making groups of products that depend directly or indirectly on combustion engines, with 137,000 employed now by the automotive industry.[6]

It can be described that the transition to electromobility is a big challenge, especially for automotive suppliers, where medium-sized companies are dominant.[7] Maintaining highly

skilled jobs in remaining combustion engine and electric vehicle production is critical without putting a brake on structural change.[6]

According to the International Energy Agency, around 3 million new electric cars were registered last year, a record number and up 41% compared to 2019. Developments in production figures have shown us that very different parts are needed for electric cars than for combustion engines.

3.3. Changes in Automotive Business Models in Response to Electric Vehicle Policy

With the entry of electric cars into the Indonesian market, local automotive manufacturers face new challenges in product portfolio diversification.[8] They must ensure that they have a variety of electric cars that can meet the needs of different consumers, including small electric vehicles for urban use and large electric cars for long-distance service. This diversification will help Indonesian automotive manufacturers to remain relevant in an increasingly changing market.

The development of electric cars also opens up new business opportunities in Indonesia. The electric charging infrastructure industry, such as charging stations, has snowballed. Private companies and local governments are starting to invest in developing this infrastructure to support the growth of electric cars. Apart from that, local companies operating in the automotive components sector can also use this opportunity to produce particular components for electric vehicles.

For example, PT Industri Batteries Indonesia's work plan is to develop the Indonesian battery electric vehicle (EV) ecosystem. In his presentation, Toto said that EVs are inevitable and have extraordinary potential. "Demand for batteries in Indonesia and even the world is growing very fast," he said. "It is estimated that by 2035, battery demand will reach 29 GWh based on the growth of energy storage systems (ESS) and EVs.

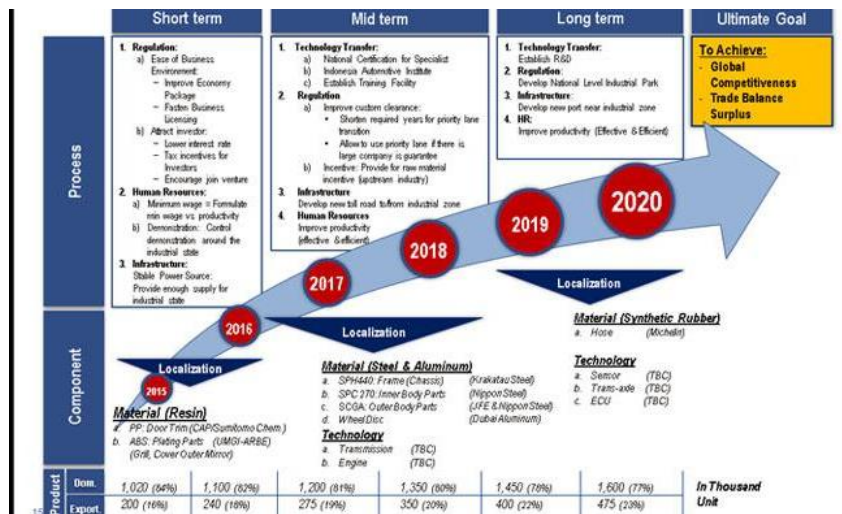
To develop the EV industry, vehicles in the new capital will take around 6-7 years to become 100% EV. In 2020, PT Industri Batteries Indonesia selected potential partners for EV development, followed by a joint study with potential partners in 2021. Furthermore, it is planned that in 2022, construction of a production factory will begin, which can start operating in 2024, so that by 2026, if the new capital city is formed, it will have adopted 100 %EV.

Based on this case study, business processes are needed to support the sustainability of the EV industry in Indonesia. Of course, these business processes must consider changes in innovation that occur due to unpredictable business trends.

3.4. Government Policy towards the Automotive Industry

Although electric cars promise many benefits, Indonesia faces many challenges regarding charging infrastructure and supporting policies.[9] The government must work with automotive manufacturers and the private sector to build sufficient and easily accessible charging infrastructure nationwide. Additionally, tax policies and incentives for electric cars need to be considered to encourage faster adoption.

Even though the aim is good, namely to reduce carbon emissions, this transition also has negative impacts.[10] The switch to electric cars will result in thousands of unemployed workers. The electric vehicle transition is expected to reduce hundreds of thousands of jobs in Germany in the next few years.



Picture 1 Roadmap for the Indonesian electric vehicle industry

With this program (electric vehicles), it is hoped that it can address economic issues due to high subsidies for fuel oil (BBM) and negative environmental impacts. The government's concern is how we can develop sustainable transportation.

The government needs support from all parties related to the energy transition and transportation transition from carbon to green energy. The government needs to pay attention to several things, including building an EV industrial ecosystem: industrial sustainability, EV raw materials, workforce readiness, regulations on EVs, EV industry infrastructure, and so on.

4 Conclusion

Overall, the impact of electric cars on the Indonesian automotive industry is a significant change that creates new opportunities and challenges. The government, automotive manufacturers, and the private sector must work together to ensure this transition goes smoothly and benefits the Indonesian automotive industry and its people positively.

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