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The Great Automotive Industry Transformation Following the Immediate Era of Electric Vehicles in Indonesia

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Abstract: In 2030, more than 14 countries and 20 cities will prohibit the sale of fossil (diesel) vehicles. England begins as a figure of support for the Green Revolution in 2030, with the goal of reducing emissions by 2050. While Canada, Japan, and China respond in 2035, Germany goes even further, prohibiting the use and sale in 2035. The United States, China, Dubai, and India are all competing to announce that diesel cars will be banned beginning in 2035. As in this case, it will be fascinating to see how conflict resolution works between fossil car manufacturers (diesel) and electric car manufacturers such as Tesla. Even Toyota's founder, Akio Toyoda, who has yet to find a replacement, openly opposes government policies, Electric vehicles (EV), in his opinion, will harm the environment. a lot bigger than before President Jokowi's attitude and decision towards KBL (Electricity-Based Vehicles) in Indonesia is very clear and focuses on the fact that diesel-based vehicles must gradually be abandoned and replaced with electricity, given the impact of pollution, which is already difficult to control. President Jokowi's directive was delivered in 2020 in the grand ballroom of The Ritz Carlton Pacific Place (PP) Jakarta, as reported by CNN under the headline "Jokowi's Directions, the New Exclusive Capital for Autonomous Electric Vehicles." It will be interesting to see how the government and the automotive industry prepare to respond to the president's new policy to become a strong questioning force that will be the focus of this paper. From the assessment carried out, the country is of great to become one of EV leaders in the World due to skill labors advantages as well as abundant natural resources to support EV manufacturing in Indonesia.

Keywords: Car Transformation, Automotive Industry, EV

INTRODUCTION

President Jokowi reiterated in front of the directors of SOEs and participants of the PPSA XXIII National Resilience Institute at the State Palace on Wednesday (13/10/2021) that Indonesia is capable and independent of producing a national electric car within the next three or four years. As stated in his speech, "Integrating Krakatau Steel, lithium batteries, and nickel-derived industries with the automotive industry" Krakatau Steel can now produce

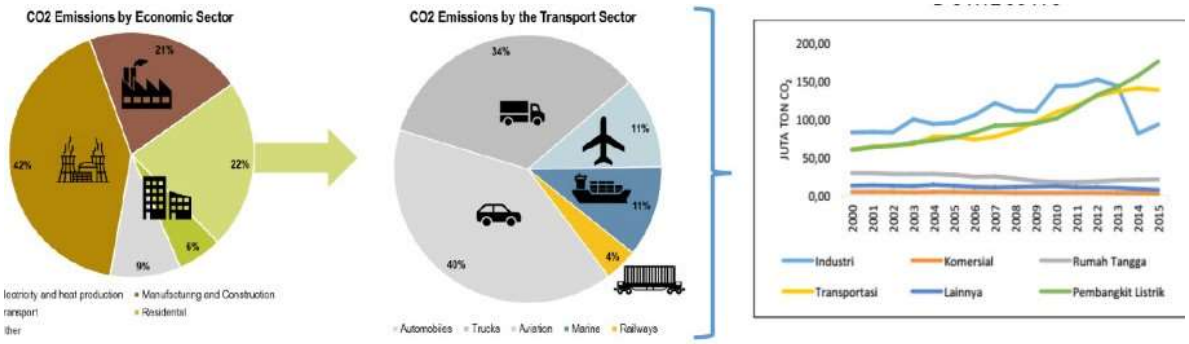
thin sheets for car bodies thanks to changes in the construction of a hot strip mill factory .Referring to Krakatau Steel's capacity, which has a steel industry of 1.5 million tons per year with a value of IDR. 7.5 trillion, we can see that it is capable of producing premium quality products. It's worth noting that there are only two capable factories, located in America and Indonesia. President Jokowi's decision to halt the export of nickel materials to other countries so that they can be consumed domestically is considered audacious and has far-reaching consequences

The European Union even filed a lawsuit against Indonesia to stop the importation of nickel ore, claiming that it violated Article XI paragraph 1 of the 1994 General Agreement on Tariffs and Trade. What President Jokowi is attempting is analogous to the One Minute Awareness formula, which is a starting point for becoming a great nation. According to the book One Minute Awareness, developed countries initially encountered problems, but their way of thinking (mindset) transformed them into opportunities, giving birth to dreams and real solutions for life with modern and best technological solutions, such as Singapore, which has an area of only 721.5 kilometers squared and a population of 5.61 million people. This limitation was used as a stepping stone toward becoming an Asian developed country. Dubai, which was originally only the world's largest desert, has succeeded in becoming the world's best tourism city. This is what Indonesia considers necessary, given that the country's growing pollution problem necessitates the government making a breakthrough in the world of transportation. Collaboration between technology and transportation results in the development of KBL (Electricity-based Vehicles) as a viable solution to the aforementioned issues (Naqoy: OMA: 2019).

In One Minute Awareness, Naqoy explains that enterprises or countries that will be above average (advanced and leading) have a formula that looks like this: PX D X B X C, which stands for Pressure X Dream X Believe X Consistent. America, China, India, Dubai, Japan, and even Korea are countries that are becoming stronger as a result of the present pressure; they have successfully used pressure as a new means to become a leader. Even the CEOs of the world's greatest firms, such as Microsoft, Dell, and Google, are of Indian heritage. America, as a technological leader that is now being overtaken by China, is similar to India, which has more advanced information technology skills than its bordering countries. After the bombings of Nagasaki and Hiroshima, Japan was able to resuscitate itself by economic warfare, exporting cars manufactured by Japanese companies such as Toyota, Honda, Mitsubishi, and others. Dubai is comparable in that it is the best city in the world while also creating world-class tourist attractions in a sweltering desert. This demonstrates that anyone who wants to progress must be prepared to deal with a variety of challenges. Indonesia is bold to stop exporting nickel and similar elements to Europe because it will be used solely as energy in the future, despite the European Union's insistence. When pressure is used as a motivator for huge aspirations, as it is in this case, electric automobiles are the future road of success for Indonesia in the eyes of the world, despite the pressures and problems they face on the inside and outside. The **Dream big** formula is the second formula. Indonesia's ability to become a player in its own country becomes obvious and reasonable. The President demonstrated his willingness to dream of having an electric automobile by promulgating presidential order No. 55/2019 about the Acceleration of the Battery-Based Electric Vehicle Program (Battery Elictiic Vehicle) on August 12, 2019.

The government's vision for Indonesia is being realized swiftly, but in order to see electric cars come in Indonesia over the next three years, it appears that the government has engaged into a collaboration and MOU with Hyundai Motor Group and LG Energy Solution (28/07/21). Hyundai and LG Energy Solution spent USD 1.1 billion, or 14.8 trillion, on a 33-hectare facility capable of producing MCNA lithium-ion battery cells with a total capacity of 10 GWh per year. battery (BEV) per year. Since the threat of pollution in Indonesia is growing till to date, this decision is critical and may possibly be considered an emergency. According to data from the Central Statistics Agency (BPS) issued in 2018, motorcyclists in Indonesia have reached 16.4 million units, with 16.4 million passenger cars dominating the market. It is even predicted that this trend will continue year after year, generating major pollution. It is impossible to halt it. Furthermore, according to Air Visual

(airvisual.com), Jakarta, Indonesia's capital city, is the second most polluted city in August 2019. A constant increase in CO2 content in the atmosphere to 400.26 ppm was reported in 2015, making it an emergency not only for the world, but also for our own country. The realm of transportation makes the greatest contribution to fossil fuel consumption.



- Globally, transportation is the second largest contributor for CO_2 emission after power generation
- Road transportation is the dominant contributor to CO_2 emissions both globally and domestically for urban areas, accounting for 78% of emissions in Jakarta

Source : IEA & IPCC

Figure 1. Transportation of fossil fuels is the biggest cause of pollution

Source : DKI Regional Government Ministry of Environment (2019)

Figure 2. Describing the Jakarta city which is included in a city that is not environmentally friendly because of pollution

The dream of owning an electric car in our own country can be realized if we follow the "One Minute Awareness" theory, which is self-confidence. Indonesia is considered capable of owning its own car because it has 30% natural resources (nickel) on a global scale, and the President's policy is a confident step towards advanced Indonesia in the next 5 years. Furthermore, these Natural Resources are backed up by the harmony and fighting power of superior Human Resources (above average). Collaboration between SDA and HR will help to achieve huge targets in the short term. This is where a state of awareness is required, beginning with the awareness of thinking that we are competent, the awareness of the heart for one Indonesia, and the awareness of the soul that owning an electric automobile is a sign of thanks. Although there is still a process and time that will test it, awareness of awakening and making Indonesia above average is Indonesia's future attraction in the eyes of the world. Technological leadership that is maintained with a clean heart will make us all feel proud in the future for this great achievement. This country's seriousness has its own electric vehicle.

The last formula (K), Consistency, is the most critical factor that becomes a weak point. The true and reasonable solution is for Indonesia to become a player in the automotive era, as indicated by President Jokowi, through the "Green economy and blue economy," as well as full awareness of all commodities, which will lead to down streaming. Preparing electric cars by integrating the use of natural resources with environmentally friendly technology and sound economic principles is something that must be done now and in the future.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

People are still waiting for the results of electric cars in their own country, despite the results of various surveys showing that 47 percent of Indonesians are interested in them. An electric car is a car (vehicle) that uses an electric motor as its propulsion and a battery as a storage of electricity. The problem that often arises is the concern of the battery as the electricity saving power, is it strong enough and long enough to store the electric power or vice versa, so people are still waiting for the results of electric. In fact, when it comes to electric cars, it all began in the 1980s, with a patent for electric bicycles being granted at the end of 1860. Anyos Jedlik, a Hungarian, was a pioneer of electric cars in the early period, creating an early prototype of an electric engine in 1928. Although taxis in New York didn't start using electricity until 1897, thanks to the Electric Carriage and the Philadelphia Wagon Company.

Source : https://id.wikipedia.org/wiki/Mobil_listrik

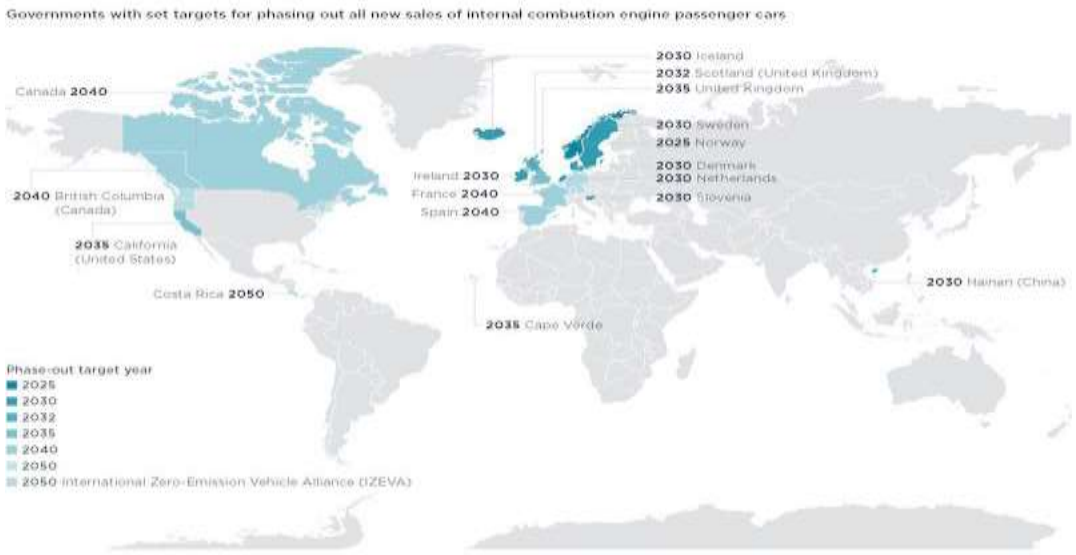
Figure 3. REVAi/G-Wizi electric car charging in London

Big firms like Anthony Electric, Stude-Bacer, Riker, Coumbia, and Milburn competed to develop electric cars in the early twentieth century. While Woods Motor Vehicle Co successfully manufactured the Phaeton in 1902, this electric automobile has a top speed of 14 miles per hour and a range of 18 miles. When comparing electric cars to fossil cars, it was discovered that the first known electric cars were electric cars. However, after the 1970s, electric cars began to fade as they became less popular than cars with internal combustion engines, especially because the mileage achieved by ICE (internal combustion engine) cars is much greater, allowing them to be mass-produced, making diesel cars much cheaper. The world is, indeed, a paradox, with ups and downs. There was an energy crisis in 1980, which caused car companies to abandon large car production with wasteful fuel. Small and eco-friendly cars were marketed by world car manufacturers such as Tesla and Mistubishi in the early 2000s. Mitsubishi Motors from Japan sold electric cars (i-MiEV) in Hong Kong in May 2010 and in Australia in July. Electric cars are an option that provides two

benefits: high comfort and environmental friendliness, especially as the world community moves toward Sociaty 5.0.

New world to welcoming electric car in 2035-2050

Currently, electric cars are becoming a common awareness to save the earth (common place), to the point where Europe officially prohibits the production of diesel-powered cars in 2030, citing the green revolution in 2050. California is at the forefront of commitments to phase out diesel engines, and by 2035, all passenger cars must be zero-emission. What California is doing is part of a larger global trend. The image below (Figure 4) shows that European countries are leading, including Norway and the Netherlands, which are the most stringent in this regulation.



Source : https://thedriven.io/2020/11/12/the-countries-and-states-leading-the-phase-out-of-fossil-fuel-cars/

Figure 4. National, provincial and state governments with targets set to completely phase out new car sales .

It could be even faster in the next five years. Norway will prohibit the sale of diesel cars, and the Netherlands will follow Norway's strict rules regarding diesel cars, requiring that cars operating in their country by 2025 be completely emission-free. The Netherlands' goal is to become a Non-Emission City by 2025-2030. Following the Netherlands and Norway in Europe are Iceland, Denmark, Ireland, Slovenia, and Sweden. While the UK will aim for 2035, even though the start date is 2040, there is a chance that the UK will be ahead of schedule. Furthermore, France began to prohibit the use of fossil fuel vehicles around 2040, while Spain began to draft legislation prohibiting the use of fossil fuel vehicles in 2040. Interestingly, the Canadian province of British Columbia has asked car companies to gradually adapt in the sale of electric vehicles beginning in July 2020. Sales will gradually increase to 10% by 2025, 30% by 2030, and 100% by 2040. There is also enthusiasm in Central and South America, specifically in Costa Rica and Colombia, to ensure that all are zero-emissions by 2050. Clearly, no less ambitious is China's Hainan province, which has determined that by 2030, all types of zero-emission vehicles with the following specifications will be available. An increase of 10% to 40% in 2019, an increase of 80% to 100% by 2025, and a total of 100% by the end of 2030. While the state of Cape Verde, located off the coast of northwest Africa, is the only African country that has committed to prohibiting the import of diesel-powered vehicles by 2030. As many as 18 countries, as shown the Table below, agreed in the International Zero Emission Vehicle Alliance (IZEVA) that all passenger vehicle

sales will be zero-emissions by 2050. The countries listed below have made a joint commitment to electric vehicles by 2050.

Table 1. Agreement of eighteen countries to the International zero emission Alliance (IZEVA)

Government	Year	Vehicle category*	Target vehicle types*	Policy document**
EUROPE				
Norway	2025	Passenger cars, light commercial vehicles, urban uses	New vehicle sales 100% zero-emission	National Transport Plan 2018–2029 (2017)
Netherlands	2025	Urban buses	New vehicle purchases 100% zero-emission	Mission Zero (2019)
	2030	Passenger cars	New vehicle sales 100% zero-emission	
Denmark	2030	Passenger cars	No new gasoline or diesel vehicle sales	Climate and Air Plan (2018)
	2035		No new gasoline, diesel, or plug-in hybrid vehicle sales	
Iceland	2030	Passenger cars	No new gasoline or diesel vehicle registrations	Iceland's Climate Action Plan for 2018–2030 (2018)
Ireland	2030	Passenger cars	No sales of new fossil fuel vehicles	Climate Action Plan 2019 (2019)
Slovenia	2030	Passenger cars, light commercial vehicles	No new registrations of vehicles with CO_2 emissions above 50 g/km	Market Development Strategy for the Establishment of Adequate Alternative Fuel Infrastructure in the Transport Sector in the Republic of Slovenia (2017)
Sweden	2030	Passenger cars	No sales of new gasoline or diesel vehicles	Climate Policy Action Plan (2019)
Scotland (United Kingdom)	2032	Passenger cars, light commercial vehicles	No sales of new gasoline or diesel vehicles	Climate Change Plan (2018)
United Kingdom	2035	Passenger cars, light commercial vehicles	No sales of new gasoline, diesel, or hybrid vehicles	Consulting on ending the sale of new petrol, diesel, and hybrid cars and vans (2020)
France	2040	Passenger cars, light commercial vehicles	No sales of new fossil fuel vehicles	Mobility Guidance Law (2019)
Spain	2040	Passenger cars, light commercial vehicles	New vehicle sales 100% zero-emission	Draft Law on Climate Change and Energy Transition (2020)
Germany, Baden-Wuerttemberg (Germany)	2050	Passenger cars	New vehicle sales 100% zero-emission	IZEVA commitment (2015), not yet reflected in national Climate

				Protection Plan
NORTH, CENTRAL, and SOUTH AMERICA				
California (United States)	2035	Passenger vehicles, light-duty trucks	New vehicle sales 100% zero-emission	Executive Order (2020)
Colombia	2035	Public transport	New purchases 100% electric or zero-emission	Law for the Promotion of Electric Vehicles in Columbia (2019)
British Columbia (Canada)	2040	Light-duty vehicles (passenger cars, light commercial vehicles)	New vehicle sales and leases 100% zero-emission	Zero-Emission Vehicles Act (2020) Canada's Federal Budget (2019)
Costa Rica	2050	Light vehicles (passenger cars, light commercial vehicles)	New vehicle sales 100% zero-emission	National Decarbonization Plan (2019)
Connecticut, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont, Washington (United States)	2050	Passenger cars	New vehicle sales 100% zero-emission	IZEVA commitment (2015), not yet reflected in official state or provincial-level strategic documents
California, Connecticut, Colorado, Hawaii, Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, District of Columbia (United States)	2050	Medium- and heavy-duty vehicles	New vehicle sales 100% zero-emission	Memorandum of understanding (2020), not yet reflected in official strategic documents
ASIA				
Hainan (China)	2020	Government and car-sharing vehicles, light-duty trucks	New vehicle sales 100% electric	Clean Energy Vehicle Development Plan (2019)
	2020	Buses, ride-hailing vehicles	No sales of new gasoline or diesel vehicles	
	2025	Coaches, rental cars	No sales of new gasoline or diesel vehicles	
	2030	Private cars	New vehicle sales 100% electric	
Israel	2030	Private vehicles	New vehicle sales 100% electric	Energy Economy Objectives for the Year 2030 (2018)
AFRICA				
Cape Verde	2035	Passenger cars, light commercial vehicles, buses, medium and heavy trucks, two-wheelers	No imports of internal combustion engine vehicles using fossil fuels (gasoline or diesel)	Electric Mobility Policy Charter (2019)

**Terminologies used in official policy documents*
***Publication date*

source : https://theicct.org/blog/staff/global-ice-phaseout-nov2020

Indonesia welcoming electric cars

According to a recent study, Indonesia and Southeast Asian countries have maintained their enthusiasm for the development of electric vehicles, owing to the need for a better and more sustainable future. According to the journal "The Future of Electrified Vehicles in Southeast Asia," a consumer survey conducted in Thailand, the Philippines, Indonesia, Malaysia, Vietnam, and Singapore revealed that nearly two-thirds (64 percent) of those polled intend to purchase an electric vehicle in the near future. close. In Indonesia, half of non-electric vehicle owners (diesel cars) said they would definitely consider owning an electric vehicle as a future car (Frost & Sullivian). Forty four (44) percents of respondents said electric cars were "cool," and 58 percent said the cost of maintaining electric cars was less expensive than before. In the future, the world industry will require battery materials that will be used for needs, there will be a 4X increase in EV batteries in 2030, this is an opportunity (opportunity) for Indonesia, some even say that Indonesia can become the king of nickel in the future, the need for oil will decrease, and this will have an impact on the pattern of business strategies on the global stage.

Meanwhile, Indonesia's strength is its existing natural resources, as well as its willingness to collaborate with international investors to build battery factories. According to data from the Ministry of Energy and Mineral Resources, the price of nickel reference mineral in February 2021 reached US$ 17,434 perdmt, a 24 percent increase over the price in February 2020, which was US$ 14,030 perdmt. Indonesia is said to hold 30% of the world's nickel reserves of 21 billion tons, as well as important battery components such as aluminum, copper, and manganese. Nickel resources totaling 21 billion tons, aluminum resources totaling 1.2 billion tons, copper resources totaling 51 billion tons, and manganese resources totaling 49 billion tons. Indonesia, with its abundant human resources, has the potential to take the lead in the global energy industry. Now that the world is waiting to see whether Indonesia can play the best role in the future as a leader or as a user, the Jokowi government recognizes that this is the best opportunity to make an aggressive move in order to become a player in its own country. Indonesia is ranked first among the world's ten largest producers, followed by the Philippines, Russia, New Caledonia, Australia, Canada, China, Brazil, Cuba, and the United States .

METHODS

According to David (2009), when analyzing the transformation of electric cars in Indonesia using SWOT analysis, the **SWOT** matrix is an important tool that helps develop four types of strategies: SO Strategy (strengths-opportunities), WO Strategy (weaknesses-opportunities), ST Strategy (strengths-strengths) (strengths-opportunities). Threats), as well as WT Strategy (weaknesses-threats). It is an electric car transformation strategy in Indonesia in this case. SWOT analysis is widely credited to Albert Humphrey, who led a project at Stanford University in the 1960s and 1970s. Based on the SWOT analysis, Indonesia is currently in a SO (Strength + Opportunities) position, as the world's largest producer of nickel, and opportunities abound in the domestic market, where more than half of Indonesians are interested in purchasing an electric car for the sake of comfort and concern for the environment, and opportunities also abound from neighboring countries (ASEAN) who are interested in motorizing.

RESULTS AND DISCUSSION

The development of the electric vehicle industry in Indonesia

Dahlan Iskan's name was in the media spotlight when he was Minister of State-Owned Enterprises because he conveyed his big vision that Indonesia could make its own electric

car, especially successfully cooperating with Danet Suryatama who designed an Indonesian-style Ferrari car called "Tucuxi," even a car with a speed of 3,500 cc was tested directly by Dahlan. Iskan, but on January 5, 2013, at an elevation of 1,305 meters above sea level in the Magetan area, an accident occurred, halting the development of the Tucuxi car [6]. Actually, prior to the Dahlan Iskan incident, many companies in Indonesia were selling electric vehicles (electric motorcycles), including:

Table 2. Development of the electric vehicle industry in Indonesia

No	COMPANY	ABTRAKSI	YEAR
1.	Betrix	Cooperation with Japan and Taiwan has produced electric motors even countries like Germany, Japan and China like it. The speed of this electric motor is 35 km/h	2007
2.	Yohanta	Assembled in Surabaya, East Java, this electric motor is the “Brushless” type with a power of 350 W 12 V.	2005
3.	Trekko	The area of Yogyakarta is , named Falcon, the speed can reach 35 Km / h with a distance of 50/60 km.	2009
4.	WimCycle	Scooter model electric motor, using 800 W. electric motor.	2008

This type of electric motor, GESITS, has even established assembly facilities in Senegal, as well as Algeria, Egypt, and Australia. Senegal has even ordered thousands of Gesits motorcycles, with a production facility capable of assembling 200 motorcycles per day. Gesits has set a sales target of 7000 units in Senegal.

Source : *https://automotif.com/read/20181107/273/857379/18-18-18-wheel-ges--presiden-jokowi-, read November 1, 2021*

Figure 6. President Jokowi uses the GESITS electric motor .

Meanwhile, LIPI (Indonesian Institute of Sciences) conducted research on conventional cars that replaced their engines with electric motors in 1997, specifically at the Center for Electric Power and Mechatronics.

SWOT Analysis for electric cars

In the era of President SBY, electric vehicles, both motorbikes and cars, were the starting point; in the era of President Jokowi, the opportunity to become a player in electric vehicle technology became clearer and more measurable; the president himself issued PP on electric cars No. 74 of 2021, and there are different regulations. Previously, PP No. 73 of 2019 emphasized that taxable goods classified as luxury are in the form of relatively high

motor vehicles, whereas the 2021 Government Regulation provides an opportunity by the government not providing levies for PPnBM or 0% for motorized vehicles that use battery electric vehicles (BEV) technology. The following is a SWOT analysis of the transformation of electric cars in Indonesia.

Strengths

The greatest power of a human being or a nation, according to the motivational expression The7Awareness, is the ability to choose. When Indonesia decides to become a player (producer) in the world of electric vehicles rather than a consumer, it is taking a strategic step that must be supported from all angles. The government demonstrated its seriousness by prohibiting the export of nickel materials abroad, prompting the European Union to file a lawsuit against the government for breach of the agreement, but the government maintained its enthusiasm to be a "leader future," with a target of 2.45 million electric motorcycles by 2030 and 600 electric cars. The government has prepared regulations that make it easier for the electric automotive world, which is welcomed with joy by automotive associations, particularly by lowering the luxury vehicle tax to 0%, which is a significant step toward creating an electric car ecosystem in Indonesia. Here are seven government regulations that will help accelerate the production of electric vehicles in 2023. The Ministries of Industry and Energy and Mineral Resources provide a detailed overview of the national electric car roadmap. According to the Road Map, Indonesia will become a major player in ASEAN's electric vehicle market by 2030.

Table 3. RoadMap industrial development KBL

Source:https://gatrik.esdm.go.id/assets/uploads/download_index/files/ab04d-road-map-pengembangan-infrastruktur-kendaraan-listrik-pln-.pdf

The Minister of Industry Regulation No. 27 of 2020 on technical specifications and local content levels established the government's roadmap for an environmentally friendly automotive industry. The most important aspect of this roadmap is that the government will create an ecosystem for electric vehicles in order to accelerate development. Manufacturers, battery manufacturers, pilot projects, consumers, and infrastructure such as charging stations are all part of the electric car ecosystem. As a future great power, Indonesia has two advantages: demographic advantages and an abundance of nickel fuel. As a major player in electric vehicles, we have two strengths: HR (Human Resources) and SDA (Natural Resources). Both of these forces are now in our hands, with Indonesia's demographic bonus expected in 2030. According to Bappenas, the number of productive-age people in question could reach 64 percent of the total population of around 297 million people that year. The meeting point will be in 2030, when Indonesia will have established itself as a global leader in the automotive industry. "Millennials" have C-I-E-L (Creative, Innovative, Entrepreneurship, and Leadership) abilities. Meanwhile, in the world of babies, Japan and China are experiencing a vacuum (children).

Opportunity

When Joe Biden attended the G-20 summit in Rome, Italy, as many as 100 cars accompanied the American President, netizens gave scornful comments by asking "how much is the emission amount released," the world public has seriously realized what a danger from fossil fuel vehicles, when the American President's promise will encourage social care for natural eco systems. President Jokowi, on the other hand, has received a new mandate as a world leader as the G20 Summit's chairman. The expression of the reason for President Jokowi's election is the Indonesian government's concern and seriousness in preparing electric vehicles, which have become a roadmap for 2030-2045, as stated by Prince Charles at the event. [8]. According to data from the **International Energy Agency (IEA),** electricity sales in 2018 more than doubled from the previous year's 5.1 million units, while the previous year's sales were only 3 million units. According to the data above, China is the largest user of electric vehicles, with 2.24 million units, followed by the United States (US) with 1.13 units. Meanwhile, the country with the most electric cars in Europe is Norway, with 296.2 million units. This is an excellent opportunity for Indonesia to establish itself as a major player in the national electric vehicle market. Indonesia's current position in the SWOT analysis is S + O (Strengths and Opportunity), indicating that the step taken is the courage to make a breakthrough (aggressive). President Jokowi's emergence as a world leader at the G20 Summit represents the greatest opportunity to capitalize on Indonesia's potential, which is preparing to become a major player in the national electric car market. The G20 Forum is made up of 20 countries: the United States, Argentina, Brazil, Australia, Canada, Mexico, Turkey, Indonesia, South Korea, Japan, China, Germany, the United Kingdom, India, Saudi Arabia, South Africa, Italy, Indonesia, France, Russia, and the European Union. Indonesia is also the only Southeast Asian country to be a member of the G20.

In general, the G20 represents the global economy and plays a strategic role. The G20 countries control 85 percent of the world's GDP, 80 percent of global investment, 75 percent of global trade, and 66 percent of the world's population. What is interesting is that Indonesia is being sued by the European Union for the termination of nickel cooperation, but on the other hand, the European Union is supporting President Jokowi's bid to chair the G20 Summit in Italy, confirming to the world that Indonesia does have a great opportunity to be the biggest and best in the automotive world. environmental friendliness.

Threats

In addition to great opportunities and strengths as a major player, Indonesia is thought to face a number of threats in the development of the national electric car, such as, a) foreign manufacturers who sell less expensive electric vehicles. SAIC-GM-Wuling Automobile Co., a joint venture between SAIC Motor Corp. and Guangxi Automobile Group Co., two state-backed automakers, and US giant General Motors Co., founded Hongguang Mini. Hongguang Mini, based in Liuzhou City, has sold approximately 270,000 vehicles in nine months, making it China's best-selling EV manufacturer. Despite the fact that this is only one model for 9 months. In comparison, Tesla produced 509,737 cars and sold 499,550 units across all of its models in 2020; b)The market share is still small. Not only Indonesia, but other countries faced the same threat when the market was still small and even empty. The government's role in creating an eco-friendly fuel automotive ecosystem is critical. When an electric car is not mass-produced, it affects the selling price, which is relatively high, but when it is mass-produced, it turns out that buyer interest is very low, for a variety of reasons, one of which is the price of the car, which is still high when compared to the price of existing cars; c) People's mindset "*diesel mindset"*. Mindset shifts from fossil fuel cars to electric cars are not as simple as turning a hand, especially in Indonesian villages. Other countries, such as Singapore, concentrate in cities because the area or country is small. The mindset about the importance of an electric car is still considered "complicated" because you have to do an electric charger every time you go on a trip, especially a mindset that is people's concern about the power of electric batteries that can't last long, there are fears such as "what if the car breaks down in run because the battery runs out?"

Weaknesses

The national electric car transformation, of course, has been well structured in the national "Roadmap," but there are still many weaknesses that must be improved. Firstly, investment in SPKLU development, particularly in DC Fast Charger, is still relatively high. The definition of SPKLU is a General Electric Vehicle Charging Station, which is a location where electric cars are "charged." However, they are still having development issues, so there are only a few locations that are used as SPKLU.Secondly, there is no government-regulated governance on SPKLU and this should be planned and prepared. Thirdly, the lack of available land and space for SPKLU and it is therefore, the Government should provide related rules to assure that space and land to bild the EV manufacture would be avaliable at due time. It is also noted that the price of EV is still relatively expensive and people still have misconceptions about EV products.

CONCLUSIONS

The national electric car is a shared goal nad based on the SWOT analysis, Indonesia was found to be in a S + O (Strength + Opportunity) position, so that this opportunity is used aggressively. The country should also be more active in communicating effectively to potential buyers in ASIA and Europe, particularly President Jokowi's position as the following year's Chair of the newly appointed G-20 Summit in Italy on October 31, 2021. Indeed, the country is lucky to have been given two advantages in becoming an environmentally friendly automotive world leader, namely demographic advantages and abundant natural resources, as the song KoesPlus "Iron thrown grows into a plant" reminds us. Once all related regulation available for the availability of EV very soon, it is very possibly that Indonesia will become one of the EV leaders in the world in the near future.

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