

Analysis of the Impact of Electric Vehicle Technology on Reducing Greenhouse Gas Emissions

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ABSTRACT

One of the causes of increasing temperatures throughout the earth is the environmental impact resulting from exhaust from vehicles. This exploration is expected to determine the impact of the seeding system caused by mechanical vehicles. This exploration was carried out using written survey research techniques as clarification that could increase public information regarding the impact system of motor vehicle seeding. The seeding impact is the retention and removal of radiant energy from electromagnetic waves by gasses in the climate. The impact of seeding can prevent energy from sunlight from being reflected outside the earth. The impact of seeding can occur due to exhaust gasses, one of which is produced by motorized vehicles. Increased use of motorized vehicles can cause a rapid increase in smoke emissions. Because every motorized vehicle will emit smoke or ignition gas from the motorbike's combustion chamber. Vehicle engine exhaust emissions do not depend on how new or how old the vehicle is, but very much depend on the quality and maintenance of the vehicle engine. The rapid number of motorized vehicles is a consequence of the needs and demands of human existence. The outflow of motorized vehicles is also a major source of environmental pollution because they contain air pollution which is not good for human health.

Keywords: greenhouse gasses; electric vehicles; motorized; human health.

INTRODUCTION

Greenhouse gases are one of the main causes of global climate change. Motorized vehicles that use fossil fuels are a significant source of greenhouse gas emissions. Therefore, developing electric vehicle technology is considered an environmentally friendly alternative to reduce greenhouse gas emissions (Sudjoko, 2021)(1). In Indonesia, vehicle use continues to increase, both two-wheeled and four-wheeled vehicles. To support energy security and reduce greenhouse gas emissions in the transportation sector, the Indonesian government supports the development of electric vehicles (Fitriana, Sugiyono, Adiarso, Akhmad, 2020).

As a non-industrial country, Indonesia has a fairly high economic growth rate and it is estimated that between 2006 - 2030, the normal growth rate is around 6% annually. To achieve this pace of financial development, energy requirements are expected to increase several-fold from 815 million BOE (a unit of energy based on the estimated energy released by burning a barrel of crude oil.) in 2005 to 3629 million BOE in 2030. Increasing energy power - Products' gross domestic product is very small and daily energy power - Indonesia's gross domestic product is much greater than the gross domestic product of developed countries. This is because as a non-industrial country, Indonesia's energy use productivity is still low. (Pramudiyanto, 2020).

Unnatural weather changes are a characteristic that is still the subject of hot debate on this planet. Various types of activities can cause unnatural weather changes, including vehicle engine exhaust gasses, power plant drills, and forest fires.

One of the most concerning problems in the world is dangerous atmospheric changes, which cause many changes on the planet and show that there are so many emissions or exhaust gasses in the air that hot air entering the earth is trapped by heat-trapping gases such as Co₂. Too large an environmental impact on the environment can cause global temperature changes. Globally, Indonesia is ranked 6th in distributing waste gas or exhaust gas at around 4.47%. (Pramudiyanto, 2020).

These emissions can increase the temperature of the earth's surface which is related to air pollution of around 75% resulting from exhaust gas from non-renewable energy sources in the transportation sector. The problem of expanding contamination and ecological destruction is outlined in the Natural Kuznet Bend hypothesis which shows how monetary improvements relate to ecological corruption. This hypothesis states that when a country has low wages, special consideration should be given to increasing those wages, so that creation and business will expand to the exclusion of natural issues. So an increase in state salaries will be accompanied by increased contamination and damage to nature. Ultimately, when access to normal assets becomes limited, wages will decrease as their value naturally decreases. Considering the EKC bend hypothesis, there is a relationship like a transformed U (Tisdell in Andarini, 2016).

Petroleum derivative 1 is a fuel containing hydrocarbons found in the deepest layers of the earth (Gunawan., Didik, E.B.S., and M, n.d.). Apart from that, it is also a source of toxins ranging from carbon dioxide (CO₂) exhaust gas and other waste. The problem of toxic expansion and ecological corruption is explained in the Natural Kuznet Bend hypothesis which states how there is consistent cooperation between financial development and certain districts. Based on this hypothesis, when a country's wages are still categorized as low wages, increasing wages is something that needs special consideration, so that creativity and speculation will be expanded while ignoring issues related to ecological quality. With the aim that paid development will increase due to contamination and natural damage. Ultimately, when accessibility to common assets becomes limited, wages will decrease as ecological value decreases. Considering the EKC bend hypothesis, there is such a transformed relationship. (Pramudiyanto, 2020).

To do this, the first thing that must be done is to raise the issues that exist in each individual by inspiring them that they play an important role in reducing substances that damage the ozone and one of them is dealing with the climate. Various levels of air pollution reduction and GHG emissions are shown in various directions in a two-layer coordinate framework related to pollution control efforts. (Rawung, 2015).

In this journal, an analysis of the impact of electric vehicle technology on reducing greenhouse gas emissions will be carried out. This article aims to provide a better understanding of the impact of electric vehicle technology on reducing greenhouse gas emissions. With this journal, it is hoped that it can contribute to the development of electric vehicles that are more sustainable and environmentally friendly.

RESEARCH METHODS

The method used in writing this article is a literature review. The databases used are Emerald Insight and Science Direct. In this chapter, we will discuss strategies for searching for journals used in literature reviews. The collection strategy is based on humans (population), electric vehicles (intervention), conventional vehicles (Comparison), and Greenhouse gas emissions (outcome). And for search keywords use electric car, electric vehicle, emissions, and greenhouse gases. The data taken includes information about the use of electric vehicles and conventional vehicles, the emissions produced by electric vehicles and conventional four-wheeled vehicles, and factors that influence the level of CO₂ emissions.

This journal selection was carried out by considering the relevance of the journal to the topic, the publication year of the journal used from 2018 to 2023 and looking at the quality of the journal. After narrowing it down, we got a total of 396 journals through Emerald Insight and 340 through ScienceDirect for a total of 734 journals. After obtaining all the journals, proceed with screening to look for duplicate data from the 2 databases using Rayyan and filter further in stages starting from scanning the title, and abstract, and reading the full text to determine whether a study meets the requirements. The selection is carried out by 2 reviewers A and E.

The Prism Diagram was created to summarize the process of selecting relevant journals and is depicted using the prism diagram model in Figure 1. From the 2 databases, a total of 734 journals were obtained and when checked, 4 journals were detected as duplicates. In the process of filtering data from titles and abstracts, there were 42 journals that were relevant to the topic. After doing full

reading, there were 5 journals that were very suitable to the topic and were used in the literature review.

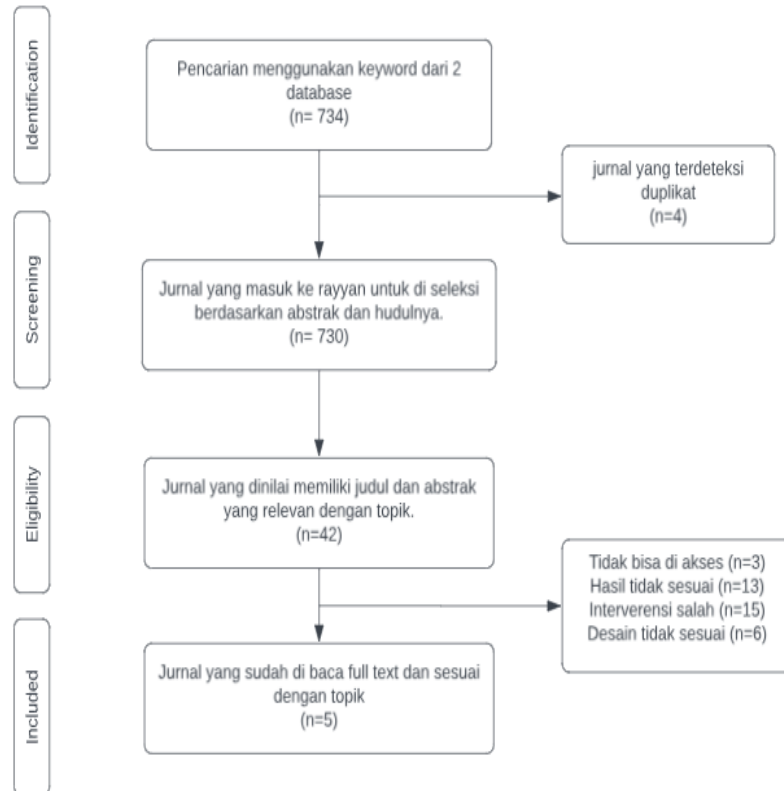


Figure 1. The process of selecting relevant journals

RESULT AND DISCUSSION

Production of substances that deplete ozone caused by air pollution caused by exhaust gasses. However, it is difficult to deny the idea that transportation is one way to support the mobility of human activities and is a very important factor in driving the economy for the smooth running of human government assistance. (Rawung, 2015).

The rapid progress of mechanical vehicles has caused the amount of exhaust gas produced to become increasingly greater. Moreover, this speed is simply a consequence of the demands and requirements of human lifestyle. Daily lifestyle demands require someone to use mechanical vehicles to complete daily activities. It is the greatest defender against air contamination problems. If someone breathes air that is polluted and contains dangerous substances and mixtures, this will greatly affect the body's health, especially the respiratory cycle, reduced ability to see and reduced ability to think and the worst thing is that. can cause death.

Imbalance of vehicle levels with the expected framework can also lead to increased emissions of ozone-depleting substances. For example, when there is a traffic jam because there is no traffic, the driver will move to another road so that passing through a location that has just been polluted by poor people becomes contaminated by vehicle exhaust gasses because the driver used that route. This is an unwarranted activity as it spreads air contamination. Apart from the transportation base, traffic planning is also needed because this is also an activity that can slow down the rate of outflow activities impacting the park.

The exhaust gas produced does not really depend on how new or old the vehicle is, but depends greatly on the quality and quality of the vehicle's engine. The main way to keep your vehicle from emitting smoke is to choose good fuel with an octane rating above 90 to provide ideal ignition to the

motorbike so that it does not harm the engine parts. Second, pay attention to the condition of the vehicle battery, especially the development of implantation, considering that the battery is the energy source used for the combustion initiation system. Third, change the oil regularly during working hours. Fourth, the normal assistance is completed, basically commensurate with the oil change period. Apart from that, the last and simplest thing is to pay attention to the fuel in the tank. As much as possible, don't let fuel in until the tank runs out while driving, because it can damage the injector system on the vehicle, especially on type IV motorbikes (Rawung, 2015).

The impact of electric vehicle technology on reducing greenhouse gas emissions includes: acidification of water and soil, forest destruction, and reduction of river and lake water quality. Apart from that, air pollution also adds to dangerous atmospheric damage through the introduction of ozone-depleting substances, which have an impact on global environmental change. Air contamination caused by motorized vehicles greatly affects human welfare. Long-term exposure to air toxins such as particulates, NO_x, and carbon monoxide can cause various medical conditions. These include respiratory diseases such as asthma, bronchitis, and persistent obstructive respiratory disease (COPD). In addition, air pollution is also linked to cardiovascular medical conditions, such as heart disease and stroke. Weaker groups, for example children, the elderly and people with weak health conditions, are more at risk of being affected by this pessimism.

Air contamination from motorized vehicles also has serious social and monetary impacts. Medical conditions arising from air contamination can result in high medical care costs for society and public authorities. Other monetary impacts include reduced performance due to physician absence due to illness, as well as reduced personal satisfaction due to medical conditions. Apart from that, air pollution can also affect modern areas and the travel industry, so that it can affect employment and financial development (Ismail, 2020).

The type of fuel used by a vehicle engine greatly influences the level of air contamination produced. Non-renewable energy sources such as gas and diesel produce greater emissions than alternative, more environmentally friendly energy sources such as electricity, combustible gas or hydrogen. Providing filler options that are less harmful to the ecosystem can help reduce harmful toxic emissions (Boedoyo, 2008).

The impact of air pollution on health caused by motorized vehicles is very large. Long-term exposure to this air contamination can cause a variety of medical conditions, including respiratory tract infections such as asthma, bronchitis, and chronic obstructive pneumonia (COPD). In addition, air contamination can cause coronary heart disease, stroke, and even cell damage in the lungs. The impact can also be more serious in vulnerable groups such as children, the elderly, and people who are already sick. (Parinduri, 2018).

One of the fundamental factors that influences the commitment of mechanical vehicles to air contamination is the number of working vehicles. In large, densely populated urban communities, high traffic causes widespread contamination. An excessive number of vehicles on metropolitan roads can cause congestion, thereby increasing travel time and fuel use. This means more exhaust gas escapes without being seen.

CONCLUSION

The impact of electric vehicle technology on reducing greenhouse gas emissions includes: acidification of water and soil, forest destruction, and reduction of river and lake water quality. Apart from that, air pollution also adds to dangerous atmospheric damage through the introduction of ozone-depleting substances, which have an impact on global environmental change. Air contamination caused by motorized vehicles greatly affects human welfare. Long-term exposure to air toxins such as particulates, NO_x, and carbon monoxide can cause various medical conditions. These include respiratory diseases such as asthma, bronchitis, and persistent obstructive respiratory disease (COPD). In addition, air pollution is also linked to cardiovascular medical conditions, such as heart disease and stroke. Weaker groups, for example children, the elderly and people with weak health conditions, are more at risk of being affected by this pessimism.

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