

## Solar Vehicles From Environmental Law Perspective

Joejoen Tjahjani<sup>1</sup>, Hadziqotun Nahdliyah<sup>2</sup>, Dinda Ayu Dwi Eratri<sup>3</sup>, Eka Acnes Meidita Sari<sup>4</sup>

[joejoen668@unisla.ac.id](mailto:joejoen668@unisla.ac.id), [hadziqotunnahdliyah89@gmail.com](mailto:hadziqotunnahdliyah89@gmail.com)

Law Faculty University Of Islam Lamongan

### ABSTRACT

Solar powered vehicles are important as a form of protection for the environment, apart from being a solution to the problem of vehicle exhaust pollution, they are also an innovation in the use of environmentally friendly new and renewable energy (EBT). The use of solar power in vehicles from an environmental law perspective still requires consistency and legal certainty so that there is a clearer footing for investors, as well as the ability to compete with other countries, as expected in the EBT Bill.

### INTRODUCTION

Solar power is one of the new and renewable energies commonly referred to as EBT, based on article 1 number 2 of the Minister of Energy and Mineral Resources Regulation Number 12 of 2017 concerning Utilization of Renewable Energy Sources for the Provision of Electric Power, renewable energy sources are energy sources that are produced from sustainable energy resources if managed properly, including geothermal, wind, bioenergy, sunlight, water flows and falls, and the movement and temperature differences of the ocean layers.

The development of environmentally friendly NRE utilization is seen as bioenergy, sunlight, water flows and falls, and the movement and temperature differences of the ocean layers. The development of environmentally friendly EBT utilization is taken seriously in Indonesia so that it has increased from year to year to replace the declining production of fossil energy (non-renewable). This is in line with the large potential of EBT in Indonesia which reaches 417.8 GW and its utilization has only reached 10.4 GW. For this reason, the development of EBT continues to be carried out in accordance with the target of the EBT mix in 2025 which reaches 23% as stipulated in PP No. 79 Translated from Indonesian to English - [www.onlinedoctranslator.com](http://www.onlinedoctranslator.com) 2014 concerning the National Energy Policy. The use of solar power is not only limited as a source of electricity but is also a source of energy in the automotive industry 4.0 as a form of Indonesia's commitment to reducing carbon emissions in the automotive sector.

Quoting Dhanny Jauhar, SH, LL.M., Senior Legal Advisor in Kuwait Foreign Petroleum Exploration Company (KUFPEC) (at the national webinar of FH UNAIR in collaboration with the Alumni Association of the Faculty of Law, Universitas Airlangga (IKA FH UNAIR))

JABODETABEK with the theme "Legal Certainty and Its Influence on the Development of New and Renewable Energy" which was held on March 20 2021), that NRE development in Indonesia does more than comply with commitmentsParis Agreement.

Furthermore, Indonesia needs energy security. This is because the level of oil production, which ranges from 700,000-800,000 barrels per day, is estimated to last only the next 8-9 years. So if you do not find other alternative energy, then Indonesia will need energy imports, which will make Indonesia lose its energy security. In addition, the potential for EBT in Indonesia is very large, with the spread of EBT being almost evenly distributed throughout Indonesia. Talking about fossil energy, this legal practitioner who has experience in the Middle East said that apart from producing energy, the fossil energy industry also produces derivative products such as plastic and asphalt which cannot be replaced by EBT. Thus, in developing EBT in Indonesia, it is hoped that the government can focus on absolute advantages such as solar, geothermal and hydro power. In addition, consistency and legal certainty are needed so that there is a clear footing for investors, as well as the ability to compete with other countries.

## **METHOD**

The type of legal research conducted is normative juridical. The normative legal research method is a scientific research procedure to find the truth based on the scientific logic of law from its normative side. The refore this legal research is focused on examining legal research on the norms of positive law, namely legal norms related to environmental law. While the legal approach used is the statutory approach(statute approach).The approach does or aspect review of laws and regulations related to the subject matter.

## **CONCLUSION**

Solar powered vehicles are a combination of the automotive industry and renewable energy technology, both of which produce an environmentally friendly concept while still prioritizing the function of its use. Environmental problems are indeed a serious challenge for the automotive industry. For example, the problem of vehicle exhaust pollution threatens the world's air quality. The emissions released "poison" the air quality which is harmful to humans and other living things. In fact, the potential for damage to the ozone layer also occurs due to vehicle fumes. Because of that the role of technology appears to provide solutions to these problems.

Solar power comes from solar energy which is very environmentally friendly because does not produce pollution in any form, nor does it generate physical waste which has the potential to damage the environment. So it can be a new and renewable energy (EBT) because the sun will still shine. The form of solar powered vehicles that have started to be launched is a solar powered car which is similar to the type of electric car. Both rely on electricity to operate the vehicle. It's just that, solar powered cars are more specific in utilizing solar energy as a source of energy. Installed solar panels are able to convert sunlight into the required electrical

power. The energy is stored as a reserve for further operational needs. This is useful as anticipation when the intensity of sunlight decreases due to unfavorable weather.

The launch of this solar powered car was carried out by the Faculty of Engineering at the Islamic University of Lamongan (Unisla) on the 77th Indonesian Independence Day. This solar electric car assembled by Unisla has a battery capacity of 600 watts and is capable of driving up to speeds of 100 kilometers per hour. This vehicle is able to survive with a distance of between 85 to 100 kilometers. It is hoped that later it can become the main mode of transportation in the country. Including being the foundation for environmentally friendly transportation developed by the Government of Indonesia.

1. Some of the advantages of solar powered vehicles are: unlimited energy, environmentally friendly, long term efficiency, more sophisticated, space saving, saving natural resources. Because solar powered vehicles are important as a form of environmental protection, from an environmental law perspective solar powered vehicles are in harmony with several environmental law instruments. According to the EBT Bill, they include: Law Number 16 of 2016 Concerning Ratification of the Paris Agreement To The United Nations Framework Convention On Climate Change (Paris Agreement). The Paris Agreement is legally binding and is implemented by all countries with the principle of shared responsibility based on the capabilities of each country and provides responsibility to developed countries to provide funds, capacity building, and transfer of technology to developing countries. Some of the main materials regulated in the Paris Agreement include limiting global temperature rise to below 2°C from pre-industrial levels and making efforts to limit it to below 1.5°C; the obligation of each country to submit Nationally Determined Contributions (NDC). In the General Explanation of Law Number 16 of 2016 it is stated that in line with the provisions of the Paris Agreement, Indonesia's NDC needs to be stipulated periodically. In the first period, Indonesia's NDC target is to reduce emissions by 29% on their own and to 41% if there is international cooperation from conditions without action (business as usual) in 2030, which will be achieved, among others, through the forestry sector, energy including transportation, waste, industrial process and product use, and agriculture.
2. Law no. 32 of 2009 concerning Protection and Management of the Environment. As explained in article 13 paragraph (1) that control of environmental pollution and/or damage includes prevention, mitigation and recovery activities. Whereas in Chapter V it is explained that each prevention, mitigation and recovery activity has different instruments and is required to be fulfilled by all industries or exploitation of natural resources and energy resources. From the explanation above, it can be seen that the formation of the EBT Bill as a legal umbrella in encouraging the use of renewable energy sources and providing legal certainty in the industry and its exploitation.
3. Law No. 21 of 2014 concerning Geothermal Energy. Article 3 states that one of the objectives of implementing geothermal activities is to increase the utilization of renewable

energy in the form of geothermal energy to meet energy needs Article 4 paragraph (2) states that control of geothermal by the state is carried out by the government, provincial governments and regency/city governments in accordance with their authority and based on the principle of utilization. Furthermore, it also regulates geothermal exploitation for direct use and indirect use.

4. Government Regulation Number 79 of 2014 concerning National Energy Policy (PP concerning KEN). Regulate the National Energy Policy (KEN) which is an energy management policy based on the principles of justice, sustainability and environmental insight in order to create energy independence and national energy security.
5. Presidential Regulation Number 22 of 2017 concerning the National Energy General Plan (Perpres concerning RUEN). In order to accelerate the development and increase in the utilization of renewable energy, it is necessary to regulate it at the level of law, so that renewable energy can become part of the RUEN which needs to be managed and developed as well as increased utilization properly and sustainably.

In developing EBT in Indonesia, it is hoped that the government can focus on absolute advantages such as solar, geothermal and hydro power. Solar powered vehicles are important as a form of environmental protection, as well as one of the innovations to replace fossil fuels with fuels that are more environmentally friendly. In addition, there is still a need for consistency and legal certainty so that there is a clearer footing for investors, as well as the ability to compete with other countries.

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