

## **WHY ARE ELECTRIC CARS NOT THAT ENVIRONMENTALLY FRIENDLY?**

Polyvian K. V., student  
Paulouski T. A., student  
Scientific supervisor – Ladutska N. F., senior lecturer  
English language department №1  
Belarusian National University of Technology  
Minsk, Republic of Belarus

Year by year, the amount of electric cars on our roads increases. It is caused by the government which sets limits on emissions from vehicles with internal combustion engines, as well as on easier assembly of electric cars. The best example of this is China, where 40 million electric vehicles were produced during the last 3 years. As people usually think, the main advantage of electric cars is that they are “ecologically-friendly”, which makes no sense, and it will be explained below. To understand the whole situation, we need to make clear, how exactly they gain the electricity for the electric vehicles. Almost 85% of the world’s electricity produced by burning various kinds of fuel. So, the most of the electricity for these cars is gained from the same power plants.

It is worth noting, that the efficiency of an electric motor is about 90%, while for cars with internal combustion engines, it is only 30%. But, if we calculate all the costs of obtaining energy at power plants (usually it’s 68% at a thermal power plant and 90% at a hydroelectric power station, however, the amount of hydroelectric power stations is by far less), the cost of transporting this electricity to the city, then to the charging station and the electric vehicle itself, it turns out that on the way from the power station to the electric vehicle battery, in the best situation, only 15% of the energy will reach. In the case of internal combustion engine, the efficiency will be constant: about 30%, because the engine produces energy by itself [1].

The next problem with electric cars is their batteries, especially, their production and disposal. Most batteries on our planet are lithium-ion. Their main component is lithium, which is mined in poor African countries, because of cheap labour. Lithium mining also uses much fresh water, and there is already a giant problem with it in Afri-

ca. Besides, the lithium mining process itself is extremely toxic, as is the waste from it. And what do you think, how do they dispose of this waste? And the answer is that they just bury or merge them, so the quality of water in Africa is only decreasing, while there are already issues with it [2].

Battery recycling is also a challenge. Containers for collecting batteries are located in many places, for the batteries to be recycled or reused in future. But, eventually, these batteries are getting thrown away, buried or burned. Even if batteries are disassembled for recycling, there will be almost nothing useful in them, since a battery is essentially disposable, and a rechargeable battery is the same battery, but it can be recharged. However, a rechargeable battery also has an expiration date. And producing new batteries from recycled ones is just pointless and expensive. It will be by far better and cheaper just to buy the necessary materials for a new battery than to disassemble an already used one to try to find something, that might be useful for making new batteries [3].

In conclusion, modern Euro-standards have already made internal combustion engines so clean, that even if you lock yourself in a small room with the car running, nothing bad will happen to you. Now it is necessary to pay more attention not to the environmental friendliness of engines, but to other consumables in the car. For example, we can take tires or brake discs with pads. They will wear out during use, and there are much more solid particles from them, than from modern internal combustion engines. Therefore, now, it's better to look for new durable or safer materials for producing car consumables.

## References

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