

## ADVANTAGES AND DISADVANTAGES OF ELECTRIC MACHINES

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### ANNOTATION

We know that the issue of ecology is in the first place at the present time. If we get to know the advantages and disadvantages of electric cars. We are once again convinced that the period of abandoning internal combustion engines has come.

**Key words:** electric car, electric battery, automotive industry, gasoline car, solar energy, cars of the future.

### INTRODUCTION

Environment - Deterioration of the environment and threat to nature is the consequence of the burning of gasoline, which is the basis of this industry. scientists and specialists are producing the cars of the future - electric cars.

### MATERIAL AND METHODS

An electric car is a vehicle powered by an electric battery. There are such types of car models that can be run on solar energy. Electric cars do not need gasoline, there is no gearbox. Google and other giant manufacturers are involved in the development of self-driving cars that work with computer data.



Pic 1.

## DISCUSSION

Billions of dollars are invested in the automotive industry every year. In some countries of Asia, Europe and the USA, electric cars have already started to be used. The infrastructure necessary for this is actively developing: lamps with the function of charging cars, etc. Electric vehicle production is developing in Russia. However, electric car models of well-known Russian brands are widely available in regional and world markets.[2]

In the era of steam engines, the creation of relatively compact vehicles powered by an electric motor was in the first place. However, the potential of electric cars is not fully revealed due to the shortcomings of this car. The electric car was not designed for long trips and almost always caused difficulties due to the need to charge.



**Pic 2.**

In the 70s, at the height of the global energy crisis, interest in alternative energy sources. Research in this area was actively conducted. But when the crisis was over, everyone happily forgot about it.

About electric cars again in the nineties and two thousand years, when the gas pollution of the world's largest cities reached its peak (and still). Then the government decided to introduce electric cars to stabilize the environmental situation.

### **Advantages of Electric Vehicles**

The main advantage of this machine is undoubtedly its relative environmental friendliness. It does not burn gasoline, it emits tons of hazardous substances and products into the atmosphere. Also, the owners of such cars can save gas: it is not known when the energy crisis will come again and the price of gas will rise. The absence of noise and smell while driving will be a pleasant bonus.

## Disadvantages of electric vehicles

Since these developments are only at their peak and are not yet intended for mass production, the price of these machines is very high. The infrastructure of any city, especially in Russia, is not designed to serve electric cars. In addition, the batteries cannot provide a long trip without charging, which in turn lasts more than eight hours.



**Pic 3.**

There is an opinion that all electric cars do not harm the environment. Absolutely, say scientists. What's the harm in a fuel-efficient car? First, they produce batteries for electricity from thermal power plants, nuclear power plants, etc. During production, these power plants emit a lot of harmful smoke. Second, at some point these batteries will fail and need to be disposed of.[1]

When discarded batteries are destroyed, substances and chemicals are released that are dangerous to nature due to their high toxicity. Thus, the statement that electric cars are absolutely safe for the environment is not true at all. However, this branch of automotive construction is still developing, and over time, scientists will be able to reduce all "costs".



**Pic 4.**

## CONCLUSION

Electric cars are actively used as a means of transportation in many cities of the world. Giant companies invest millions in the development of this industry. These types of cars have their drawbacks, but every year electric vehicles improve and do not harm the environment. Motorists around the world are talking about electric cars. Some consider them to be the cars of the future, while others do not consider them to be cars at all. So, electric cars can be said to be a good alternative to gasoline cars.

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