

## **Analysis of the Current State of Infrastructure and The Market of Electric and Hydrogen Vehicles - A Case Study of Selected Countries\***

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### **Abstract**

Motor vehicles are currently the most important means of transport, both for passenger and passenger transport. In the perspective of the coming years, this trend will remain unchanged. There are an estimated 7.3 billion people on Earth. In 2015, the number of cars exceeded 1.1 billion, which is one car for every 6.5 inhabitants of the Earth. However, the number of cars is growing dynamically every year, and in 2040 their sum may exceed 2 billion.

According to ECEA (European Center for Alternative Energy), 54.1% of European vehicles run on petrol, 40.97% on diesel and 4.94% on alternative fuels. The high percentage of internal combustion cars contributes significantly to the production of pollutants. The implementation of more stringent combustion emission standards forces car manufacturers to introduce serious changes and produce more ecological vehicles. This is done in two ways. The first is the improvement of existing vehicle drive techniques by: improving internal combustion engines and methods of exhaust gas purification, reducing aerodynamic and rolling resistance of vehicles, reducing vehicle weight. The second way is the development of new techniques for driving motor vehicles using electricity, hydrogen or even renewable energy carriers.

The article discusses the directions of development of drives in motor vehicles. The aim of the article is to define the current situation as well as an attempt to predict the directions of future use of both private and collective car transport.

**Keywords:** vehicle propulsion, hydrogen, electromobility, case study