Published: May 10, 2023 | Pages: 75-78

ADVANTAGES OF USING HUB ELECTRIC MOTORS (ANALYSIS)

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ABSTRACT: As the number of vehicles available to the population is increasing, so is the demand for fuel products. Taking gasoline as an example, in 2021 domestic producers produced 1.0 billion liters of gasoline worth a total of US$575 million, and in 2022 this figure was equal to 1.2 billion liters worth US$690 million, or a growth rate of 20%. organized. In 2021, 190 million liters of gasoline with a total value of 68.75 million US dollars were imported, and in 2022, the import increased by 90% to 361 million liters of gasoline products with a value of 130 million US dollars. Also, 65% of existing vehicles in our country are equipped with compressed natural gas devices and consume natural gas fuel.

KEYWORDS: Voltage battery, voltage control panel, integrated chip, start and stop control, electric vehicle, hybrid electric car, battery, fuel, greenhouse gases.

INTRODUCTION

As consumer demand increases, so do fuel prices. The growth dynamics of automobile fuel prices in the Republic of Uzbekistan in 2017-2023 is presented in Figure 1.

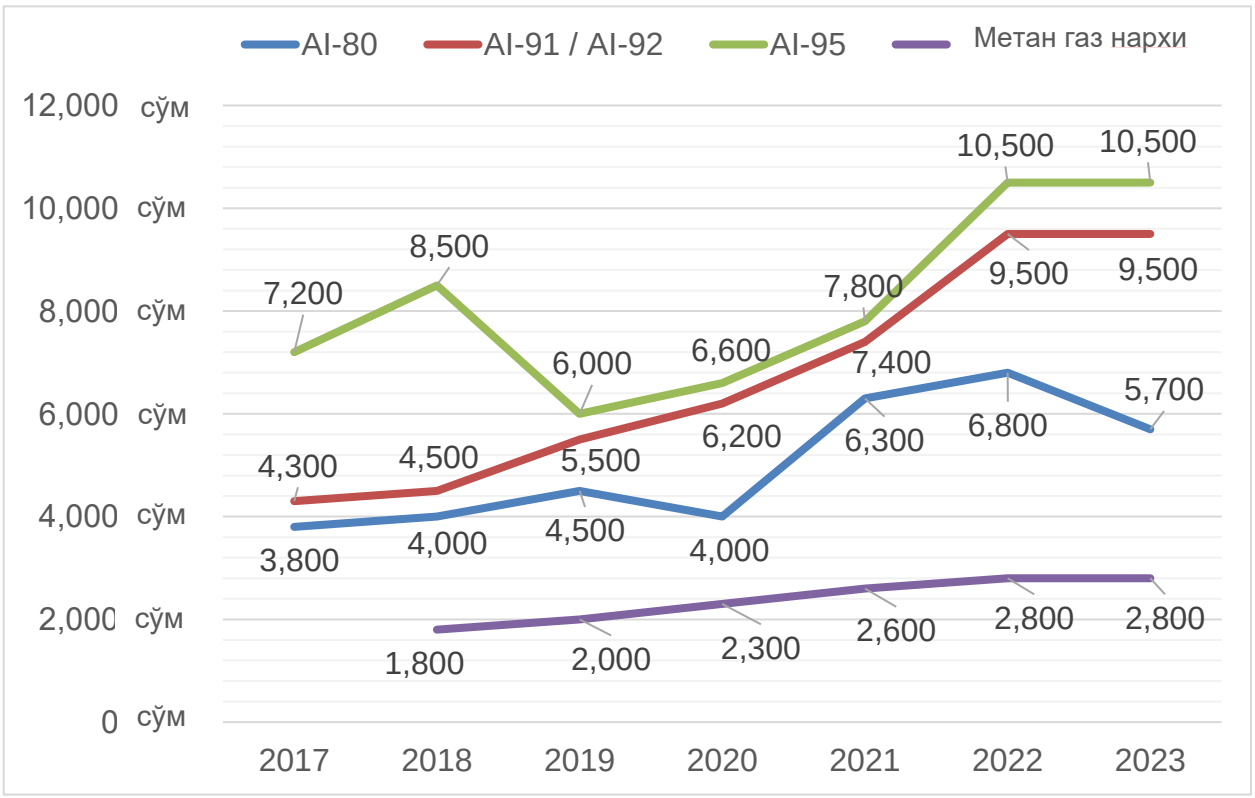

Figure 1. The dynamics of changes in automobile fuel prices in the Republic of Uzbekistan in 2017-2023

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In addition to the economic aspects, the use of vehicles running on internal combustion engines also causes a lot of damage from an ecological point of view.

The main harmful emissions of automobiles, currently, it has been found that there are more than 200 toxic emissions in the gas produced from fuel combustion. The most toxic include: carbon monoxide - SO, unburned hydrocarbons - CH, nitrogen oxide - NOx.

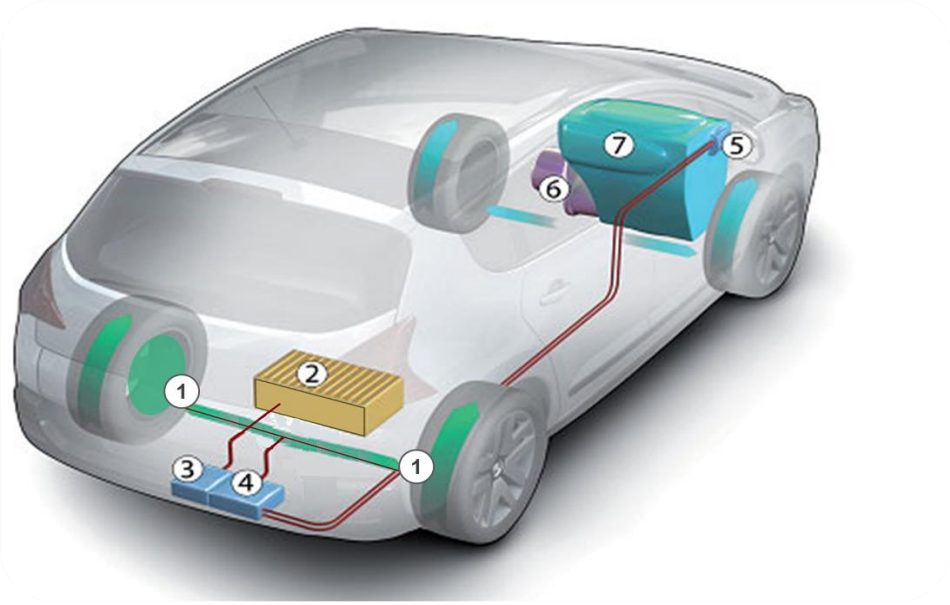
According to estimates, 1 passenger car emits up to 1 kilogram of various harmful gases into the air during the day. They contain about 3% of carbon monoxide, 0.6% of nitrogen oxides, 0.5% of hydrocarbons, and 0.006% of sulfur oxides. Car fuel contains lead compounds. It also takes off.

Based on information from the Information Service of the State Statistics Committee, there are about 600,000 cars in Tashkent.

In conclusion, the city of Tashkent emits 600 tons of various harmful gases per day, 15,600 tons per month and 187,200 tons per year.

Based on the above factors, the research of new hybridization technologies in the world automotive industry and the advantages of hybridization (electrification) of existing cars, taking into account the standard of living of the population, were studied. In the course of the research, information on the preliminary indicators, the step-by-step conversion of traditional vehicles to the hybrid system with the help of innovative and advanced technologies, potential manufacturers, and the experience of developed countries was analyzed.

The researched innovative technology includes XAB electric motor, constant voltage battery, voltage control panel, integrated chip, start and stop control system, and the estimated scheme is shown in Figure 2.



1. HAB electric motors
2. Constant voltage battery
3. Voltage control panel
4. Integration chip
5. Start and Stop management
6. Transmission box
7. Internal combustion engine

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Figure 3. An additional driving electric motor for the conversion of vehicles to a hybrid system

In general, the research, in order to introduce this innovative technology, requires a comprehensive study of the parameters of the existing vehicles, to eliminate the problems that arise during the conversion process. In this case, it is necessary to fully take into account the additional load, dynamics, transmission and control changes that the car will receive during the hybridization process, and make technical calculations.

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