Methods of development of electromobile charging power stations in Jizzakh city

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Abstract: In this article discussed the history of the automotive industry and the current role of electric vehicles in our country and in the world as well. In addition, in order to develop the operation of electric vehicles in Uzbekistan, there is given several ways to improve charging stations in the country.

Keywords: Automotive industry, electric vehicle, charging station, operation.

INTRODUCTION

The car, which is the product of human invention, is currently making a great contribution to the development of all fields. In today's era of globalization, the automotive industry is very important and has brought changes to human life. If we look at the history of the automobile industry, we will travel to the 18th century.

The first generations of automobiles were horse-drawn carriages with a steam engine to turn the front wheel. The car is the result of the inventors' development and improvement of the steam engine and continuous work on it for many years. Over the years, a number of self-propelled cars have been created based on the steam engine. The first perfectly moving steam car was created in 1769 by the French military engineer Nicole-Joseph Cugnot.

In this car, the steam engine was mounted on the front wheel, and the front wheel was both leading and steered. This arrangement of the steam engine created difficulties in steering the cart, because when the wheel turned to the right or left, the large steam boiler turned with it. Cunho's steam car was mainly designed for cargo transportation and was used more for military purposes (transporting artillery weapons and shells). The total weight of the car was 4 tons, and its speed was 2-4 km/h with a load of 3 tons. This steam car can be called the first freight car. The car was barely capable of producing two horsepower. The boiler had a large volume, and the pressure of it would soon decrease. To keep the pressure constant, it was necessary to stop and increase the fire every quarter of an hour. This procedure was performed by a "kochegar" and required a lot of time. [1]

LITERATURE ANALYSIS AND METHODS

During the analysis of this article, the methods of logic, historicity, consistency and objectivity of scientific knowledge were widely used. In this case, the creation of power stations for electric cars in our country and the popularization of electric cars

were taken as the main object. In the coverage of the article, the history of passenger cars, the structure and working principles of internal combustion engines, and the methods of popularization of electric cars in the country were analyzed from the point of view of promotion..

RESULTS

"Currently, the most common types of internal combustion engines in our country are types with an injection and carburetor supply system. That is, it runs on gasoline. Currently, methane and propane gases are used as an alternative fuel in our country, which certainly allows the driver to achieve economic efficiency. However, below we must list the negative aspects of methane gas:

The above-mentioned reasons lead to a sharp drop in the confidence of the car to run on methane gas fuel.

Gasoline fuel type is actually more comfortable to drive and the above situations do not occur, but it is currently an expensive type of fuel in terms of economic efficiency. Especially in 2021, in the post-pandemic period, the price of gasoline rose sharply, and compared to neighboring countries, there was a 2-fold price difference. (Table-1.)

BENZIN NARXI	O‘ZBEKNEFTGAZ	LUKOYL	MUSTANG	METAN
АИ-80	6890	8 490	6800	2800
АИ-91				
АИ-92	9400	9 990	9800	
АИ-95	10000	10790	10500	

Table-1. Currently prices for gasoline and methane gas fuel type **.

In the conditions of Uzbekistan, if the Chevrolet Spark car produced by Uzavtomotors runs on gasoline fuel type, for 100 km in urban conditions, 7 liters without air conditioning, and up to 10% with air conditioning, which means approximately 7.5 - consumes up to 7.7 liters of fuel.

If we relate these indicators to the above prices:

Gasoline consumption for a distance of 100 km is up to 70,500 soums (calculated from 9,400 soums for 7.5 liters of Ai-92 gasoline). If we look at this situation for methane, it is up to 21,000 soums (calculated from 2,800 soums). If we pay attention to the performance of the Xpeng G3 electric car produced in Khyot, the battery capacity is 57 kW, and with this battery capacity, it covers a distance of 460 km. If we calculate using these indicators for 100 km, it will be 3655 soums *.[8]

Safety - the cars introduced to this operation fully meet safety requirements during movement, and are also noiseless. This prevents the driver and passengers

from excessive noise during movement, thereby reducing the driver's fatigue on the road.

Environmental safety - the electric car is considered 100% environmentally friendly and fully meets the technical requirements of the European Union.. [3]

It is clear from the above calculations that the operating costs of electric cars are now much cheaper compared to other types of fuel. This means that there is a possibility that the number of electric cars will increase in the territory of our Republic in the near future.

***** *- that is, 1 kW of electricity was purchased here for 295 soums*

****** *- The information given above is for January-February 2022*

Based on the above facts, it is necessary to install the number of charging stations on the territory of our country with proper distribution throughout the Republic. If we look at the import of electric cars to our country over the past 4 years (Table 2).

Electric car Year of import	The number of imported electric cars
2018	13
2019	39
2020	131
2021	809

Table 2. The number of electric cars imported to the Republic of Uzbekistan over the past years

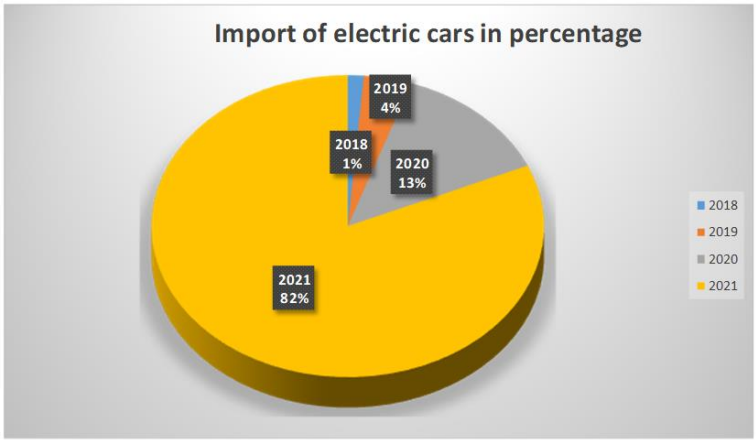

Diagram 1. Number of cars imported from 2018 to 2021 in percent.[7]

Based on the above table and diagram, we can see that 82% of the electric cars brought to the country so far correspond to the cars brought in 2021. Of course, taking into account these facts, it is necessary to design the number of electric charging stations proportionally to them. Currently, only in this case, design work is being carried out in the city of Tashkent on the scale of the Republic, and facilities for electric cars are being created.[4]

If we pay attention to the technical indicators provided by the factory, it is possible to charge electric cars at 220V and 380V, that is, slow and fast charging

devices are installed. We know that houses have a voltage of 220V, and in this case, it is possible to charge at home, but in this case, the time efficiency decreases, that is, it takes an average of 8-9 hours (Xpeng G3 at 220V) to fully charge. At 380V voltage, it is possible to get 80% power in 30 minutes.[9]

In November 2021, the first electric vehicle charging station was launched in the territory of the city of Jizzakh. The newly launched filling station for cars is being implemented in the territory of the UZNEFTIGAZ gas station located in the territory of the Amir Temur MFY. And these ongoing projects are an example of the foundation laid for the future.

CONCLUSION

Based on the above facts, we must say that the number of electric cars imported into the country starting from 2022 is expected to increase even more. In addition, according to the order of our president, the construction of factories producing electric cars has started in the territory of the Republic, and in the future our country will have its own electric car.

In conclusion, we should say that there are many design areas for the installation of newly built car charging stations. According to this project, it is desirable to establish electric charging stations in markets, supermarkets, car parks, amusement park parking areas, and shopping center parking areas. (Fig. 2.)

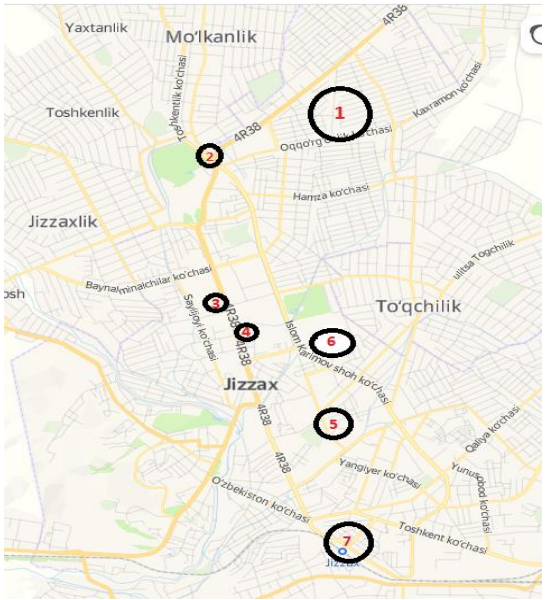

Figure 2. Map of possible charging stations for electric cars in the city of Jizzakh

1- "Eski Shahar" flea market parking lot.
2- "Orda ecological" park and "Coworking" center parking lot.
3- "Paradise" shopping center parking lot.
4- "Korzinka" supermarket parking lot.
5- Islam Karimov Shah street.
6- "Jizzakh Polytechnic Institute" Technopark Center (Project).
7- To the Blue Market parking lot

It is the establishment of charging stations in the above-mentioned places that will certainly increase the number of people visiting these places in the future and increase the possibility of achieving economic efficiency in these places. Of course, there are only a few places like this, but there is also a possibility that the project will expand according to the flow of cars.

It does not have a harmful effect on the aspects of utility, ecology, and also increases the possibilities of "parking" of cars. Minerals allow saving natural resources. And as mentioned above, it not only ensures the "stable" delivery of natural gas to all regions in the winter season, but also prevents price increases.

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