Timeline: History of the Electric Car, Trends and the Future Developments

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ABSTRACT

Today, the sale of electric cars in the world car market is growing rapidly. It is no secret that the world's largest car brands are replacing a significant part of their cars with electric cars. The main reason for this is the use of environmentally friendly fuels (electricity) as fuel for the car, which is one of the most renewable on the planet. It is no secret that the use of electricity for cars today is the biggest step taken to restore our polluted planet.

Keywords: Hybrid car, electric car, Immissionschutzgesetz Luft, green cars.

Introduction

Introduced more than 100 years ago, electric cars are seeing a rise in popularity today for many of the same reasons they were first popular. Whether it's a hybrid, plug-in hybrid or all-electric, the demand for electric drive vehicles will continue to climb as prices drop and consumers look for ways to save money at the pump. Currently, more than 3 per cent of new vehicle sales, electric vehicles sales could grow to nearly 7 per cent or 6.6 million per year - worldwide by 2020, according to a report by Navigant Research [1]. With this growing interest in electric vehicles, we are taking a look at where this technology has been and where it's going. Travel back in time with us as we explore the history of the electric car [2-5].

It's hard to pinpoint the invention of the electric car to one inventor or country. Instead, it was a series of breakthroughs -- from the battery to the electric motor -- in the 1800s that led to the first electric vehicle on the road. In the early part of the century, innovators in Hungary, the Netherlands and the United States -- including a blacksmith from Vermont -- began toying with the concept of a battery-powered vehicle and created some of the first small-scale electric cars. And while Robert Anderson, a British inventor, developed the first crude electric carriage around this same time, it wasn't until the second half of the 19th century that French and English inventors built some of the first practical electric cars. Here in the U.S., the first successful electric car made its debut around 1890 thanks to William Morrison, a chemist who lived in Des Moines, Iowa [6-11]. His six-passenger vehicle capable of a top speed of 14 miles per hour was little more than an electrified wagon, but it helped

spark interest in electric vehicles. Over the next few years, electric vehicles from different automakers began popping up across the U.S. New York City even had a fleet of more than 60 electric taxis. By 1900, electric cars were at their heyday, accounting for around a third of all vehicles on the road. During the next 10 years, they continued to show strong sales.

The main part

Well, there are a lot of questions about what features electric cars are conquering the world car market today for, what their history was and how effective the first electric cars were.

The history of electric cars dates back to the 30s of the XIX century. In 1828, the Hungarian Yedlik Anjos, who invented the first type of electric motor, created a miniature model of the car with a new engine. In 1834, the inventor of the first permanent electric motor, Thomas Davenport, a Vermont blacksmith, installed his motor on a small model car that was driven on an electrified ring road. In 1835, Sibrandus Stratin, a Dutch professor in Groningen, and his assistant, Christopher Becker, created a small electric machine that worked with non-rechargeable primary cells. In 1838, Robert Davidson (England) of Scotland developed an electric locomotive that reached a speed of 6 km (4 miles) per hour. In 1840, a patent was granted in England for the use of railroads as a conductor of electricity, and similar American patents were granted in 1847 to Lilley and Colten. About 1832-1839 (exact year unknown), English citizen of Scotland. Robert Anderson invented the first raw electric car driven by non-rechargeable stem cells [12-18].

For the same reason that the first electric car had the same characteristics, this electric car project did not develop. Its biggest drawback was that its batteries didn't recharge. But it is not surprising that this invention was the basis for the creation of electric cars.

Below we share information about the evolution of electric cars.

In 1900, 28 per cent of U.S.-made cars were powered by electric motors.

From 1912 onwards, with the advent of Henry Ford's new internal combustion engine and the conveyor assembly method, the demand for electric cars declined. In 1913, a car with an internal combustion engine cost $ 650, while an electric car cost $ 1,750.

Interest in electric cars re-emerged in the early 1970s. Sebring-Vanguard began manufacturing Citicar minivans. Its maximum speed was 60 kilometres per hour. With one charge, he was able to cover a distance of 65 kilometres. From 1974 to 1977, the company produced about 2,000 such machines [19-23].

Since 1990, the Norwegian government has provided many benefits to electric car owners. They have also been able to use free parking in cities since 1999. By the end of 2016, electric cars accounted for 5% of all cars on the country's roads [24-27]. A new wave of interest in electric cars began in the early 1990s when emissions increased in many countries. In late 1996, General Motors introduced the EV1. However, from 1996 to 1999, the concern produced only 1,100 copies of this type of electric car, and the program was closed.

In 1997, the Toyota Prius hybrid was introduced in Japan. The model cost around $ 18,000.

In 2008, Snake Mask's Tesla was the first company in the 21st century to mass-produce electric cars (Roadster).

In 2009, the Chinese government adopted a plan to turn its country into the world's largest electric car maker by 2020. The plan is to pay manufacturers $ 9.3 thousand for each electric car.

In 2009, Japan also adopted a second project to create and implement environmentally-friendly vehicles.

Germany only turned its attention to electric cars in 2010. By 2020, about 1 million electric cars were to appear on the country's roads. Today we will consider this topic for the territory of Uzbekistan. Today, economical, environmentally-friendly electric cars are increasingly occupying world markets. So, can they find their buyers in Uzbekistan, what do buyers think about electric cars? According to the State Statistics Committee, in January-July 2021, Uzbekistan imported 432 electric cars. Among the millions of cars that are filling these roads, it is like a drop in the ocean. However,

even gradually, the interest of consumers in electric cars is growing. The biggest problems with electric cars today are the lack of charging points and the cost of batteries, which are an integral part of electric cars. The cost of batteries is temporary, of course, because we all know that as a result of the serial production of something, its quality improves and its price decreases. For example, 10 years ago, a battery that could deliver one kilowatt of energy per hour cost around $ 1,000. Today, that price dropped to $ 100. And again, this would mean that you have to spend on these processes. In any case, today significant work is being done to create the future of electric vehicles. For example, the Chinese battery company CATL has introduced the first battery for cars with a service life of one million miles (1.6 million kilometres). This means that a car that travels 300 kilometres a day will have a battery life of 14.5 years. This marks the beginning of another revolution in the electric car industry [28-32].

Another question that concerns everyone today is what the future holds for electric cars. What tests and prospects await electric cars? Many automakers say critical thresholds have been crossed and that sales of electric cars will soon surpass those of cars running on gasoline and diesel. The big carmakers are of the same opinion. For example, Jaguar plans to sell only electric cars from 2025. This date is 2030 for Volvo and 2028 for Lotus. Those who make such a decision are not the only luxury brands. For example, General Motors will electrify all its cars by 2035, Ford will sell only electric cars in Europe from 2030, and Volkswagen says that by 2030, 70% of its sales will be electric production.

In addition, many automakers are continuing to research their electric cars. This will help speed up the process of popularizing green cars. At first glance, the cost of electric cars today is high (batteries and the like) and there are few charging stations. As mentioned above, batteries are not as expensive as they were decades ago. Now, when it comes to electric car charging stations when the first use of internal combustion engines began, there were only a few gas stations for them, and today electric cars in some countries are going through the same period. This is temporary because those support points are also rapidly gaining popularity.

Conclusion

The development of the electric car industry is on the verge of a new stage today, as many European countries and the United States are abandoning Russian oil products due to the difficult political situation. As a result, we can see a record rise in fuel prices in Europe and the United States, as Russia used to supply more than 30 per cent of its oil and fuel supplies. Perhaps this is why the demand for electric cars among the population of European countries and the United States may increase. Because no one can guarantee that prices will not rise as fuel supplies run out.

In addition, countries around the world are now creating more opportunities for electric car drivers to promote electric cars. While some countries are introducing free parking for electric cars, others have made it possible to walk on the public transport corridor. Below are some additional features created for electric cars in some countries. Work has begun in Uzbekistan to create conditions for electric cars. This is stated in the draft Presidential Decree "On measures to diversify tourism services in Uzbekistan". If the decision is made without changes, within two months, the service, public and business facilities must be equipped with the following conditions for electric vehicles:

- At least 5% of parking spaces should be set aside for electric vehicles and they should be equipped with chargers;
- The total capacity of electric car chargers in parking lots will be at least 11 kW.

In order to popularize electric cars, some governments are taking additional measures to encourage owners of environmentally friendly car models. Typically, such incentives include tax breaks, free parking spaces, and the right to walk on public transportation lanes. However, in Austria, and even more interesting option is to increase the speed. In order to popularize electric cars, the European government has

announced that it will allow its owners to use public transport lanes, free parking spaces and speeds on highways. In particular, drivers of electric vehicles are allowed to drive at a speed of 130 km per hour on roads with a total length of 440 km, while the speed limit for cars equipped with an internal combustion engine (IOC) (gasoline or diesel) is 100 km per hour. In Austria, the law "Immissionsschutzgesetz Luft" (IG-L, Air Pollution Control Act) applies. The document limits speed on certain sections of roads that may be severely damaged by the environment. Because the higher the speed, the higher the fuel consumption, which increases the emissions. So we can be sure that green energy consumers will have a brighter tomorrow. Because electric cars today are more advanced than before, we hope that tomorrow will be better than today.

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