A futuristic white electric car is shown driving on a snowy mountain road. The car is sleek and aerodynamic, with large wheels and a prominent front grille. The background features rugged, snow-covered mountains under a clear blue sky. The car is moving towards the right, leaving a trail of snow behind it.

Kyrgyzstan on the Path to an Electric Mobility Revolution: Market Research, Challenges, and Development Strategies

Rahat Sabyrbekov, Bishkek 2023

Policy brief

Kyrgyzstan on the Path to an Electric Mobility Revolution: Market Research, Challenges, and Development Strategies

Executive Summary

*Due to an unprecedented level of air pollution, the government has announced a policy **to promote electric vehicles (EVs)** in the country. However, despite the declared state policy, the number of EVs remains very low. The existing policy does not take into account the market trends of EVs in the country and is limited to formal support measures that fail to achieve the set goals.*

***The objective of this analytical review is to study the EV market to improve the policy in this area.** The study employed a wide range of tools, including interviews with EV suppliers' executives, surveys of the population, and focus groups involving all stakeholders.*

*The results showed that **fuel savings, environmental concerns, low maintenance costs of EVs,** and the ability to charge at home are the key advantages of electric vehicles. The main barriers identified were **the underdeveloped charging infrastructure,** the lack of government programs providing financial support, a shortage of service technicians, high costs of electric vehicles, and **low public awareness.***

*Based on this analytical review, **the implementation of a comprehensive policy and specific regulatory measures** is recommended. Changes should be made to urban transportation infrastructure plans to accommodate the future growth of the EV fleet. Investment should be attracted **to develop the charging infrastructure and train service technicians,** taking into account economic feasibility and long-term sustainability. It is also important to consider social equity to ensure accessibility for all population groups. The new policy should also **promote environmental sustainability and diversification of the energy sector by developing renewable energy sources.** Additionally, raising public awareness and implementing information campaigns will play a crucial role in the sector's development.*

1. Introduction

Bishkek has topped the list of the most polluted cities in the world in terms of air quality in recent years. One of the main causes of this pollution is emissions from vehicles. Air pollution caused by automotive transport is becoming an increasingly serious environmental problem, negatively impacting people's health and the country's economy. Cars emit harmful substances such as nitrogen oxides and carbon dioxide, which contribute to respiratory and cardiovascular diseases, as well as cancer (Hagem et al., 2023).

Government authorities are taking measures to combat air pollution from automotive transport, including mandatory vehicle inspections, catalytic converter checks, and promoting electric vehicles. The government is also striving to develop public transportation.

Among all possible solutions, increasing the share of electric vehicles is the most promising means of reducing emissions from private cars (Kondev et al., 2023). The Government of Kyrgyzstan formally supports the proliferation of electric vehicles in the country. Under the Paris Climate Agreement, Kyrgyzstan has committed to significantly reducing transport emissions in its nationally determined contribution (NDC), and electric vehicles are expected to be a key instrument in achieving this goal (Government of Kyrgyzstan, 2021).

According to data from the National Statistical Committee, the number of imported electric vehicles has significantly increased from 5 units in 2019 to 209 units in 2021. Furthermore, during the period from January to August 2022, the import of electric vehicles reached 844 units from 14 countries (Table 1). A significant portion of the imports came from China, accounting for 89 units valued at 1.9 million US dollars in 2021 and 687 units valued at 14 million US dollars from January to August 2022, respectively. At the time of the study, according to these data, there were approximately 1100 electric vehicles in Kyrgyzstan.

Table 1 - Import of Electric Vehicles from 2018 to 2022. Source: National Statistical Committee (NSC) of Kyrgyzstan.

	2018	2019	2020	2021	2022
China	5	4	10	89	687
Georgia	-	-	2	12	7
Germany	-	-	-	4	17
Japan	-	-	12	2	5
Korea	-	-	1	21	35
Lithuania	-	-	4	42	39
USA	-	1	5	30	39
Other	-	-	-	9	15
TOTAL	5	5	34	209	844

At the time of the study, there were 10 charging stations in the country, primarily located in shopping centers in Bishkek (Kaktus Media, 2021). Currently, charging stations are only available in the city of Bishkek, with the exception of one charging station installed in the Boom Gorge of the Issyk-Kul region.

However, efforts are being made to develop the charging infrastructure along the country's tourist routes.

Thus, at present, the number of electric vehicles in the country remains low despite the declared state policy. The share of electric vehicles in the overall vehicle fleet is less than one thousandth. Without active government participation, it is unlikely that Kyrgyzstan will be able to electrify transportation and achieve the stated goals of reducing greenhouse gas emissions from automotive transport.

The goal of this study is to examine the state of the electric vehicle market in Kyrgyzstan, identify obstacles, and propose specific measures and recommendations to create a favorable environment for the development of the electric vehicle market in the country.

2. Methodology

This study is based on data collected by a research team from the OSCE Academy in Bishkek (Sabyrbekov and Badilbek uulu, 2023). The research utilized a combination of three methods:

1. Interviews with electric vehicle suppliers' executives:

Interviews were conducted with executives of electric vehicle suppliers in August 2022. The interviews aimed to gather information about the current state of the electric vehicle market, barriers to its development, and expectations regarding government policies.

2. Online survey of Bishkek residents:

An online survey was conducted in Kyrgyz and Russian languages to study the preferences, expectations, and awareness of Bishkek residents regarding electric vehicles. The survey questionnaire was distributed among organizations, suppliers, individuals, and various social media groups. A total of 317 respondents participated in the survey.

3. Focus group with stakeholders:

A focus group was organized to discuss the current state and prospects of electric vehicles in Kyrgyzstan. The group included representatives from government agencies, including the Ministry of Transport and Communications and the Ministry of Natural Resources, Environmental Protection, and Technical Supervision, as well as electric vehicle suppliers, taxi services, and private electric vehicle owners. The focus group took place on October 24, 2022.

Audio recordings of the interviews and focus group sessions were transcribed. The survey results and insights from the focus group were systematically analyzed and utilized to formulate recommendations and suggestions in this analytical review.

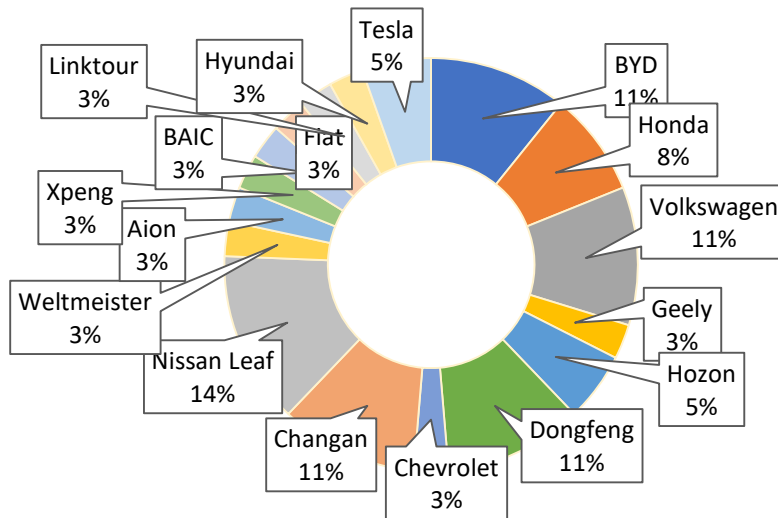
3. Research Results

3.1 Survey Results from Electric Vehicle Suppliers

The survey involved directors from 11 companies, most of which were founded and have been operating for less than 2 years. The number of companies supplying electric vehicles and installing charging stations, both in the private and public sectors, does not exceed 15.

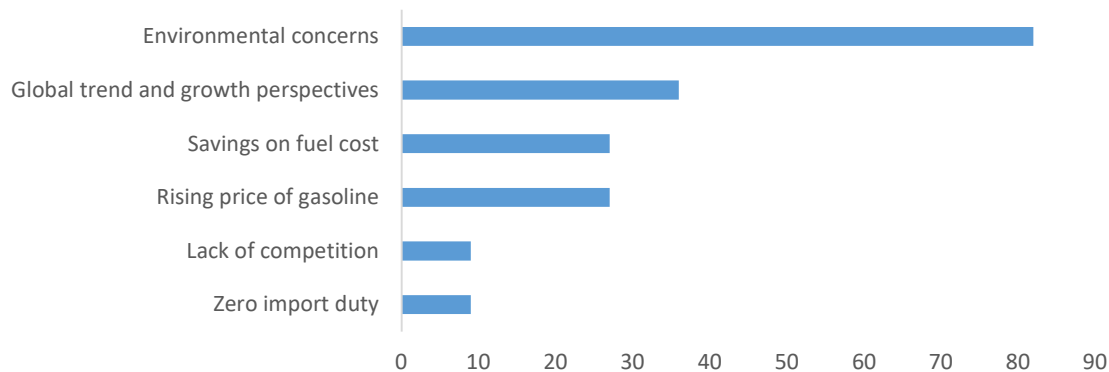
In total, these companies have imported around thirty different models of electric vehicles, ranging from affordable models like the Nissan Leaf to premium brands like Tesla (Figure 1). The prices of these vehicles vary from \$7,000 to \$100,000. Among the 17 popular electric vehicle brands exported to Kyrgyzstan, the highest demand is for Nissan, Volkswagen, Dongfeng, Changan, and BYD.

Figure 1. Popular models of electric vehicles imported to Kyrgyzstan



Electric vehicle suppliers are motivated by the global trend and growth prospects (Figure 2). Environmental incentives, rising fuel costs, fuel savings, low competition, and zero import duties have influenced companies to open businesses for importing electric vehicles to Kyrgyzstan.

Figure 2. Factors influencing electric vehicle imports (% of respondents)



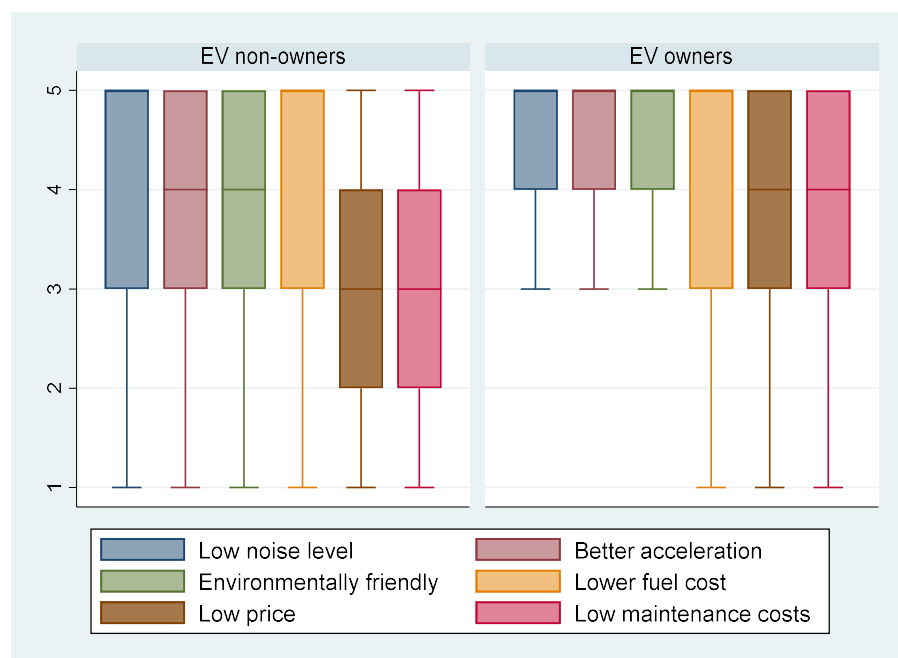
The survey results also highlighted significant barriers to the development of electric vehicles in Kyrgyzstan. Almost all respondents identified the main barrier as the underdeveloped charging infrastructure, specifically the lack of charging stations in Bishkek and their complete absence in the regions. The next most significant barriers include low public awareness, high initial cost of electric vehicles, lack of servicing options, restrictions on electricity consumption in the private sector, high interest rates on car loans, and difficulties in obtaining permits for installing charging stations.

3.2 Survey Results from the General Public

The online survey of Bishkek residents involved 317 participants. The survey revealed that 30% of respondents were not aware of the key characteristics of electric vehicles. Additionally, 53% did not know where to charge an electric vehicle in Bishkek.

When asked about the main advantages of electric vehicles, respondents identified low noise levels, fuel savings, and environmental friendliness as the primary benefits. However, there were differences in responses between those who had never owned an electric vehicle and those who had prior experience (Figure 3). Mann-Whitney test results showed statistically significant differences between owners and non-owners regarding statements about low noise levels, better acceleration, environmental friendliness, price, and low maintenance costs. However, there was no statistically significant difference between the two groups when it came to lower fuel costs. Thus, both groups believed that electric vehicles enable owners to save money on fuel.

Figure 3. Box plot of electric vehicle advantages (1 - strongly disagree and 5 - strongly agree)



According to the survey, respondents identified the following key barriers to the development of electric vehicles in Kyrgyzstan: the absence of government programs providing financing for preferential loans and subsidies, underdeveloped charging infrastructure, restrictions on electricity consumption in the private sector, and limited driving range. These barriers were highlighted by the majority of respondents.

During the discussion with stakeholders, including government agencies, suppliers, and vehicle owners, the advantages and disadvantages of electric vehicles were addressed, as well as the role of the

government in promoting this direction. As advantages, participants—both suppliers and owners of electric vehicles—highlighted fuel savings and lower maintenance costs for electric vehicles.

Regarding the disadvantages, almost all the points mentioned in the survey results from company directors were reiterated. These included the weak charging infrastructure, difficulties in obtaining permits for installing charging stations, high cost of electric vehicles for citizens of the country, and insufficient public awareness of the advantages of electric vehicles. However, representatives from the ministries also emphasized the importance of battery recycling. At present, there is no recycling fee imposed on the import of electric vehicles, and there are no laws regarding mandatory recycling or designated facilities for battery disposal.

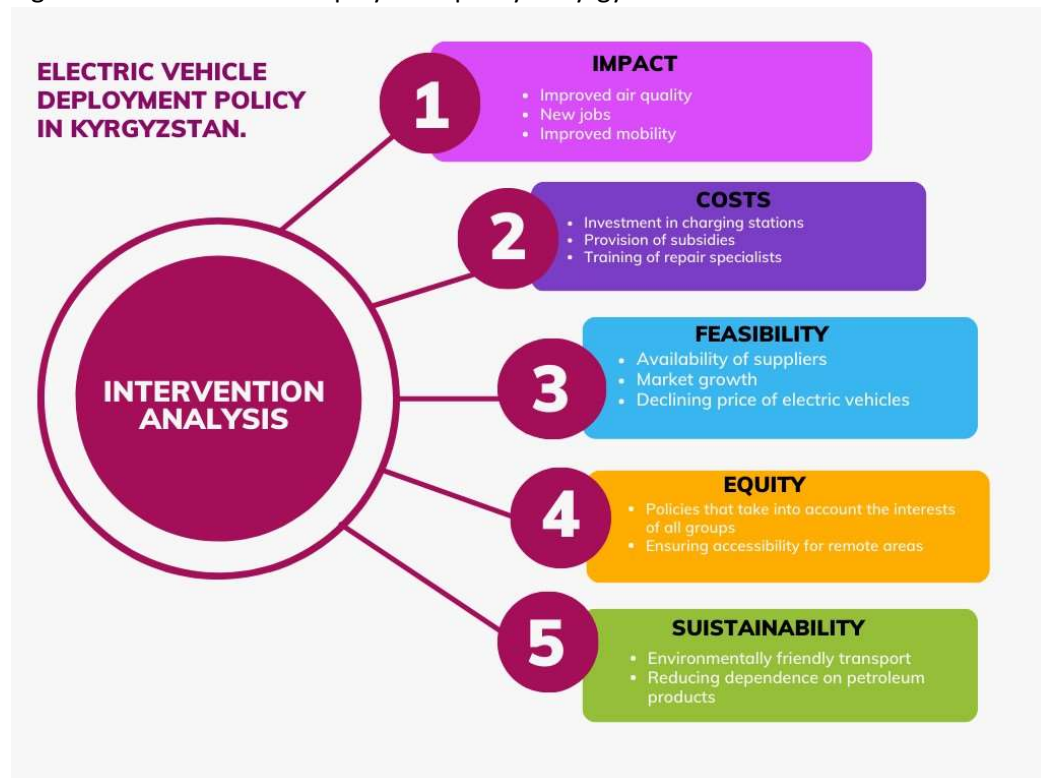
Another drawback is related to the servicing of electric vehicles. In Kyrgyzstan, there are no official and specialized service centers. According to the participants, electric vehicles rarely break down in general, but if issues do arise, there is a lack of necessary specialists and official centers in Kyrgyzstan.

Lastly, participants from the supplier side highlighted an issue with electricity. The shortage of electrical capacity and weak energy infrastructure were mentioned, which can lead to power outages (Sabyrbekov and Ukueva 2019; Mali et al. 2022).

4. Solutions

Within this study, an analysis was conducted that encompassed the following aspects: Impact, Cost, Feasibility, Equity, and Sustainability. Based on the results of this analysis, decisions have been made regarding specific strategies and solutions for the development of the electric vehicle industry in Kyrgyzstan (Figure 4).

Figure 4. Electric vehicle deployment policy in Kyrgyzstan.



Impact: The introduction of electric vehicles has the potential to reduce harmful emissions and improve air quality in cities. Additionally, the development of the electric vehicle market can create new job opportunities and stimulate economic growth. Moreover, electric vehicles can enhance mobility and improve accessibility to transportation services for the population.

Cost: However, the implementation of electric vehicles requires significant investments in charging infrastructure development and fleet upgrades. Currently, the cost of electric vehicles may be higher compared to internal combustion engine vehicles, thus mechanisms for preferential financing are necessary.

Feasibility: It is crucial to consider the availability of viable technical solutions and technologies for the production and operation of electric vehicles. Furthermore, exploring opportunities for investment and establishing partnerships with international organizations for the development of the electric vehicle industry in Kyrgyzstan, such as with Chinese companies, is important.

Equity: In the development of policies and support measures, the interests and needs of all social groups, including low-income populations, should be taken into account. Ensuring accessibility to electric vehicles and charging infrastructure for all residents, even in remote areas and outskirts of cities, is essential.

Sustainability: Electric vehicles are a more environmentally friendly transportation option and contribute to reducing greenhouse gas emissions. The development of the electric vehicle industry can also promote diversification of the energy sector and reduce dependence on imported petroleum products.

Based on the analysis conducted and considering all the factors mentioned, it is recommended to develop and implement a comprehensive policy that promotes the development of the electric vehicle industry in Kyrgyzstan, taking into account the impact, costs, feasibility, equity, and sustainability.

5. Policy Recommendations

Based on this analytical review, the following recommendations are provided to enhance the government policy:

1. Develop a comprehensive policy and regulatory measures to support the implementation and development of the electric vehicle industry in Kyrgyzstan. Specifically, improvements should be made to existing practices and regulatory acts regarding the installation and operation of charging stations and battery disposal. Changes should also be incorporated into plans for new urban transportation infrastructure considering the future growth of the electric vehicle fleet.
2. Attract investments in the development of charging infrastructure and the training of service professionals, taking into account economic viability and long-term sustainability. Training programs for professionals can be integrated into existing vocational education programs in Kyrgyzstan.
3. Consider social equity in policies and measures, ensuring accessibility to electric vehicles and charging infrastructure for all segments of the population. For instance, charging stations should be made available in residential areas on the outskirts of major cities.

4. Promote environmental sustainability and diversification of the energy sector through the development of renewable energy sources. To avoid electricity shortages, it is necessary to concurrently increase the share of renewable energy.

5. Raise public awareness, as the conducted research indicates that low awareness is one of the barriers to the sector's development. Measures can include incentives for adoption (e.g., "green" license plates for free parking, etc.).

These steps will contribute to the formulation of an effective strategy for the development of the electric vehicle industry in Kyrgyzstan, considering the impact, costs, feasibility, equity, and sustainability.

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