

CLIMATE CHANGE IMPACTS ON PUBLIC POLICY GOVERNING TURKISH ELECTRIC VEHICLE MARKET DEVELOPMENT

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Overview

The Paris Agreement, which constitutes the framework of the post-2020 climate change regime, was accepted at the UNFCCC 21st Conference of the Parties held in Paris in 2015 and entered into force as of November 2016. In order to fulfill its obligations under the Paris agreement, European Commission has adopted a set of proposals to make the EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. As a result, in Feb 2023, the European Parliament formally approved a law to effectively ban the sale of new oil and diesel cars in the European Union from 2035, aiming to speed up the switch to electric vehicles and combat climate change.

The Paris Agreement was approved by Turkey on October 7, 2021, and the goal of becoming a carbon neutral country in 2053 (The 100th anniversary of Turkish Republic) was declared. At COP26 in Glasgow in November 2021, more than 100 countries including Türkiye and automakers have committed to fossil fuel-free sales of all new cars and vans in leading markets by 2035, and worldwide by 2040 at the latest. Right after ratifying the Paris Agreement, Turkey for the first time has committed to take an active part in fossil-free transportation.

Greenhouse gas emissions from transportation have a significant share in Turkey. According to the 2019 Turkish Greenhouse Gas Emission Inventory, 16,26% of the total 506.8 Million Tons of CO₂ equivalent emissions comes from the Transportation Sector (82,427 Million Tons of CO₂ equivalent). However, the share of road transport in total passenger and freight transport is 90%. As a result, 93.1% of the total transportation-related greenhouse gas emissions are caused by roads.

As of the end of 2021, the total number of vehicles registered to traffic in Turkey is 25 million 249 thousand 119. When the total distance covered in 2020 is analyzed according to the age groups of the vehicles; Vehicles aged 12 and over, which make up 47.8% of the vehicle fleet, have traveled the most distance by 36%. The most efficient vehicles of the same size and weight consume about half the energy of the same type of vehicle purchased ten years ago. Therefore, it is obvious that vehicles of 10 years ago cause twice as much greenhouse gas emissions and air pollution (NO_x, etc.) compared to today's vehicles. Automobiles constitute 54.1% of the total number of vehicles mentioned above. Therefore, a significant reduction in greenhouse gas emissions is possible with the electrification of automobiles.

The automotive industry in Turkey is highly developed. It ranks 17th in the World Automotive Market and 5th among EU countries. The Turkish automotive industry produced 2,012,102 vehicles in 2022, 57% of which was automobiles. Its exports increased by 15 percent in 2022 compared to the previous year. In its 16th year, Automotive industry continued to maintain its first place with a 13 percent share in total exports in Türkiye. In 2022, 64% of the total 31.5 billion dollars of production were exported to EU countries and 11% to the UK. Therefore, it is vital for Turkish manufacturers to produce vehicles or spare parts according to the trends in EU countries.

In 2018, with response the call of the Turkish government, 5 Turkish companies established partnerships and established Turkey's Automobile Enterprise Group, or simply Togg, an electric car manufacturer company. The first vehicle manufactured by this government-supported company was launched on October 29, 2022. The vehicle sales will begin in 2023.

In summary, Turkey aims to reduce greenhouse gas emissions from transportation in order to meet its international obligations. As the country with the 5th largest automotive industry in Europe, it needs to produce electric vehicles and spare parts in order to be able to sell to European countries, where 75% of its exports are realized. Turkey also targets international markets with the TOGG brand on electric vehicles, at least aiming to increase the share of domestic vehicles in the domestic market. There are several policy and strategy documents that support transport sector transformation in Turkey.

Methods

International climate change strategies, agreements, COP meetings, etc. carried out by the United Nations have been examined specifically for the transportation sector. Due to Turkey's geographical, historical and economic

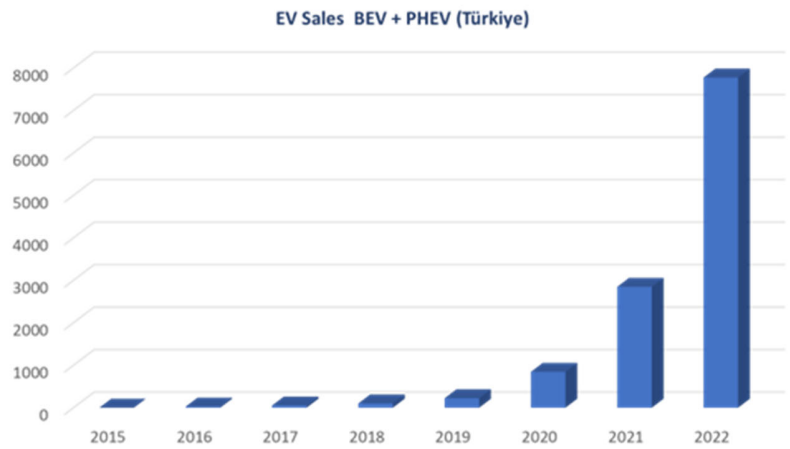
commitment, EU climate legislation, green order and Fitfor55 commitments are also examined with a focus on transportation. The fine details of the policies and strategies that Turkey followed before and after signing the Paris agreement were evaluated. In order to reveal Turkey's position and development more clearly, statistics related to greenhouse gas, transportation and automotive sectors have been evaluated and its connection with national and international policies has been researched.

Results

First published in 2008, “a communique on measures for increasing the Energy efficiency in transportation. However, until 2016, when the Paris agreement was accepted, no significant policy and strategy was produced on the subject. After this date, the intention of Turkey, which is not a party to the Kyoto protocol, to become a party to the Paris agreement was announced and the negotiations gained momentum. The government's call to companies for electric vehicle production in 2017 was answered and TOGG was established by 5 Turkish companies in 2018. However, the real acceleration took place after the “green deal” announced by the EU in December 2019, and since then, many strategies have been created in the field of e-mobility and dozens of legislations have been published.

As a result of these strategy and legislative studies, a great increase was observed in electric vehicle sales; EV sales have tripled for the last 3 years in a row. More increase in e-mobility sector was realized in the EV charging infrastructure and the number of charging stations as a result of the incentives and policies implemented. According to the predictions of Turkey's most widespread charging network operator, by the end of 2023, Turkey will have enough charging infrastructure for 200,000 electric vehicles. (total electric vehicle stock at the end of 2022: around 12.000)

In addition, while there is a need for cost-effective electric vehicles, Turkey increased the tax on electric vehicles of Chinese origin from 20% to 40% in February 2023. With this arrangement, it seems that Chinese manufacturers are aimed to produce automobiles in Turkey. It should not be overlooked that this situation, at least in the short term, may prevent the spread of electric vehicles.



Conclusions

As part of the fight against climate change, countries have turned to clean fuels in transportation. This is why the transition from internal combustion engine vehicles to electric vehicles gained importance. Turkey, which has a strong automotive sector, closely followed the transition to electric vehicles in the EU, where it is geographically, politically and economically close, created its own strategies and published its legislation. There are several policy and strategy documents that have been developed to support transport sector transformation in Turkey

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