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Title: Electric Vehicles in Pakistan

The transport sector in Pakistan accounts for approximately 30% of the total final energy consumption. Pakistan's reliance on imported fuel has a staggering monthly cost of \$1.3 billion. Moreover, this number is only expected to increase with the increasing vehicle demand (NEECA, 2023). With constant political and economic instability, Pakistan has set some ambitious targets, but its policies need more consistent clarity. The most efficient solution is the adoption of Electric Vehicles that reduce reliance on foreign fuel and have positive externalities for the environment.

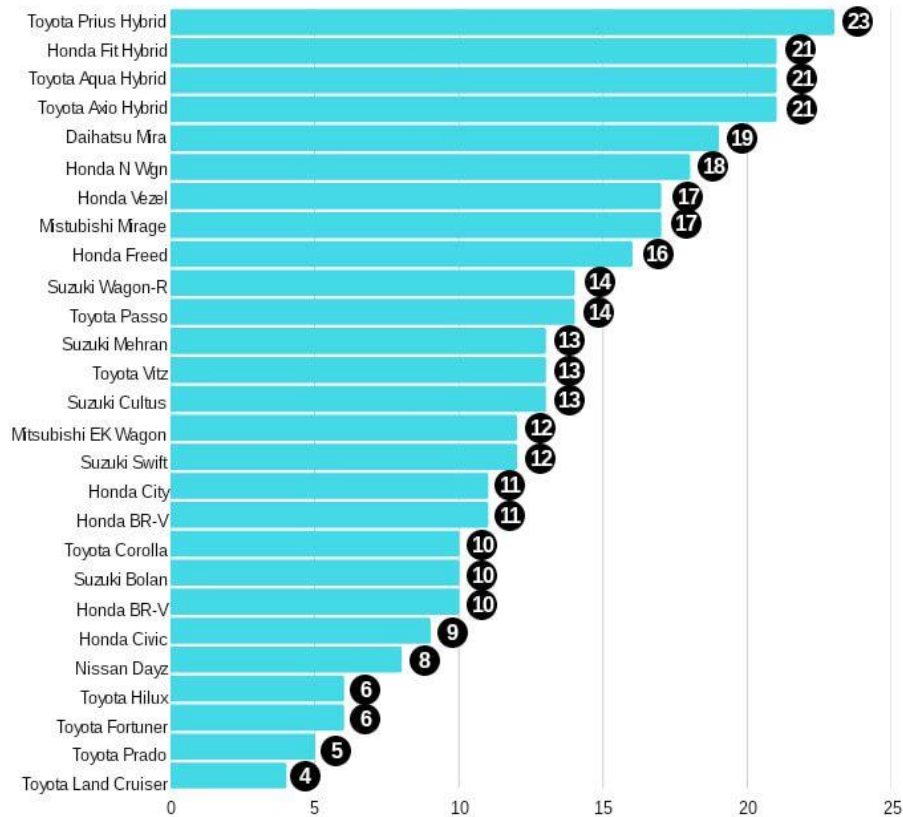
Pakistan is one of the most vulnerable countries to climate change, made apparent by the devastating floods in 2022 that displaced approximately 33 million people (Runde et al.; M., 2023). Estimates suggest that transport is responsible for 40% of polluting emissions in Punjab (Mukhtar, I., 2021). Pakistan aims to reduce overall 50% of its projected emissions by 2030 by switching to renewables and 30% to electric vehicles by 2030 (Pakistan, UNDP, 2023). The goals set out are excessively ambitious as Pakistan's economy and political situation are in the worst condition. The goals require immense foreign investment and a consistent set of policies.

The EV policy included a range of fiscal incentives such as duty exemptions, sales tax exemptions, income tax exemptions and accelerated depreciation. It also introduced low-interest loans, grants and public-private partnership programs. It also promised to build infrastructure for EVs that would accelerate adoption. The focus of the policy was to revolutionize two-wheelers and three-wheelers, which are a driving component of the economy. According to the Pakistan Economic Survey 2022-2023, there are 26,884,786 registered motorcycles (two-wheels) in Pakistan; 1,001,860 three-wheelers; 4,499,423 four-wheel vehicles, according to Pakistan Economic Survey 2022-23 (Hussain, B., 2023).

However, the policy was doomed to fail as it only aided the rich in importing luxury electric vehicles such as the Audi E-Tron, which were value for money compared to other locally manufactured vehicles because of tax exemptions. Moreover, governments changed due to political instability, resulting in changes to the EV policy as part of the Finance Act 2023, which raised the taxes on EVs (Shah et al., 2023). The charging infrastructure for EVs is non-existent in Pakistan, a source of range anxiety and the biggest hurdle to EV adoption.

The policy has yielded some success as companies such as VLEKTRA launched electric motorcycles intending to replace traditional motorcycles. Thirty-two companies specializing in two- and three-wheeled electric vehicles have been granted manufacturing licenses under the 2020-2025 EV Policy (Hussain, B., 2023). SAZGAR is in the process of manufacturing electric rickshaws and has signed a memorandum of understanding to produce 1000 rickshaws. "The electric rickshaws will give an annual saving of around Rs500,000 to Rs700,000. The drivers will recover the extra price of an electric in just one year. The rest will be their savings." (Hussain, B., 2023).

CAR FUEL ECONOMY IN PAKISTAN (KILOMETERS PER LITER)



These numbers represent average fuel economy of the models as reported by users on various Pakwheels blogs.

The numbers are given in 'kilometers per liter' for urban driving with AC.

savejoules.com

Source: [Fuel Economy of Cars in Pakistan - SaveJoules Blog](#)

The average fuel efficiency of Pakistan's most commonly sold cars is abysmal, as shown by the graph above.

Rank	Make & Model	Sales 6M-CY23
1	Suzuki Alto	7,765
2	Toyota Corolla	4,789
3	Toyota Hilux	4,149
4	Honda City	3,180
5	Hyundai Tucson	2,530
6	Suzuki Swift	2,204
7	Kia Sportage	2,107
8	Suzuki Bolan	2,011
9	Toyota Yaris	1,985
10	Toyota Fortuner	1,875

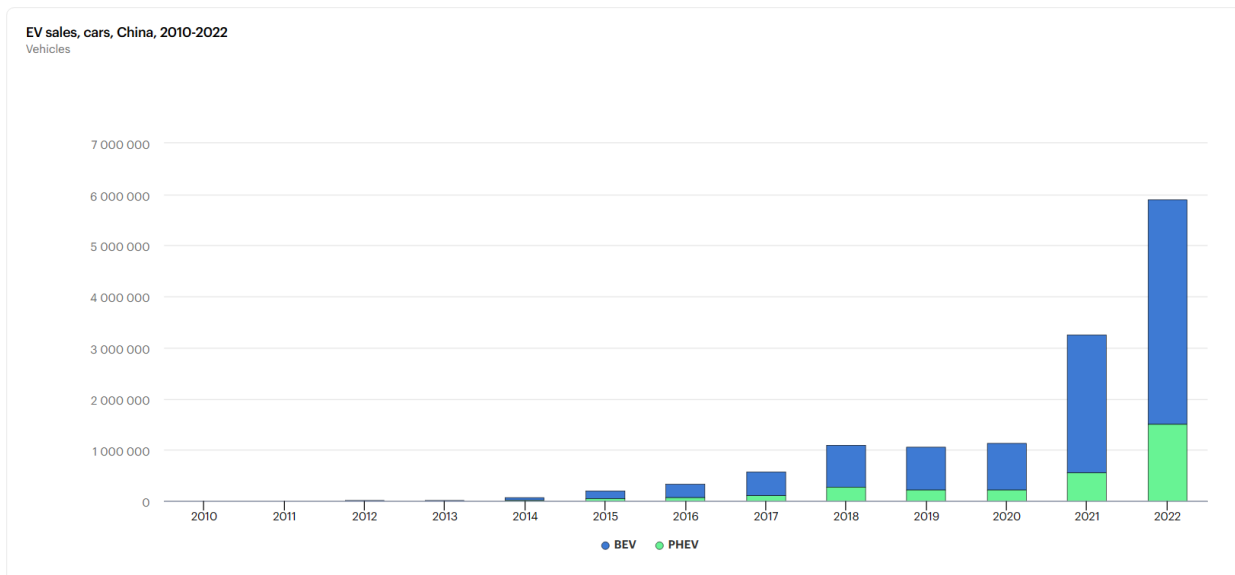
Data compiled by [Auto Journal](#)

Top 10 Cars sold in the first half of 2023 by volume.

Source: [6M-2023: Top 10 Bestselling Cars in Pakistan | CarSpiritPK](#)

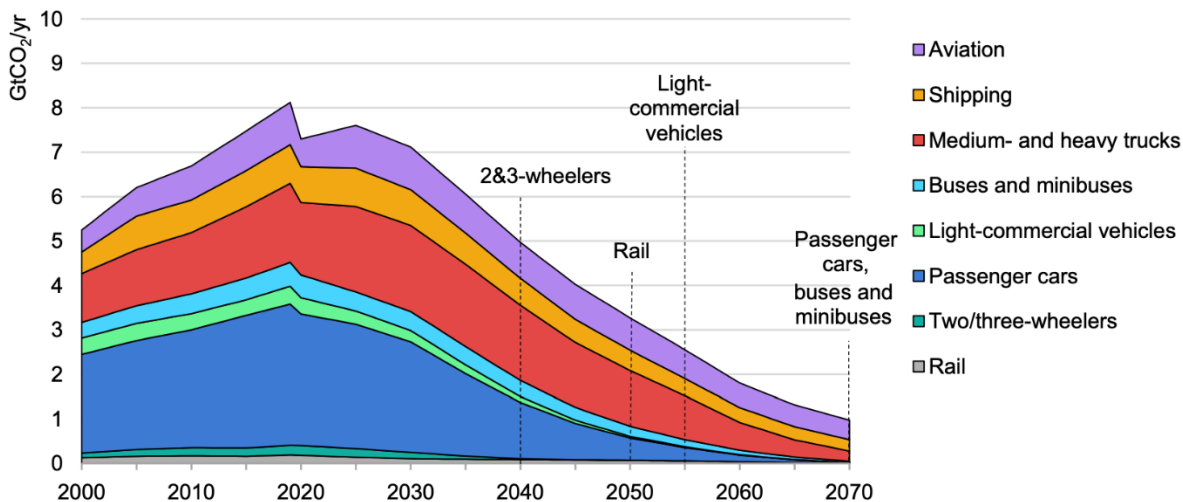
Despite heavily relying on imported fuel, Pakistan is home to one of the most fuel-inefficient cars. Road conditions and frequent traffic jams worsen the situation. Pakistan can considerably decrease its reliance on imported fuel by achieving efficiency in the transport sector.

ADP, USAID, World Bank, Chinese and local governments are some of the stakeholders that can actively participate in helping Pakistan achieve its promises of achieving 30% electric vehicles by 2030. BYD, one of the world's largest electric vehicle producers, mulls over investment opportunities in Pakistan's nascent EV market (Desk, B. W., 2023).



In just two years, China has increased the number of EVs sold from 1.3 million to an astonishing 6.8 million, making it the world's largest market for EVs for the eighth consecutive year (Yang, Z., 2023). From 2009 to 2022, the Chinese government has invested over \$29 billion into relevant subsidies and tax breaks to become the market leader for EVs and be able to export 679,000 NEVs in 2022 (Wu, Y., 2023)

Figure 3.16 Global CO₂ emissions in transport by mode in the Sustainable Development Scenario, 2000-70



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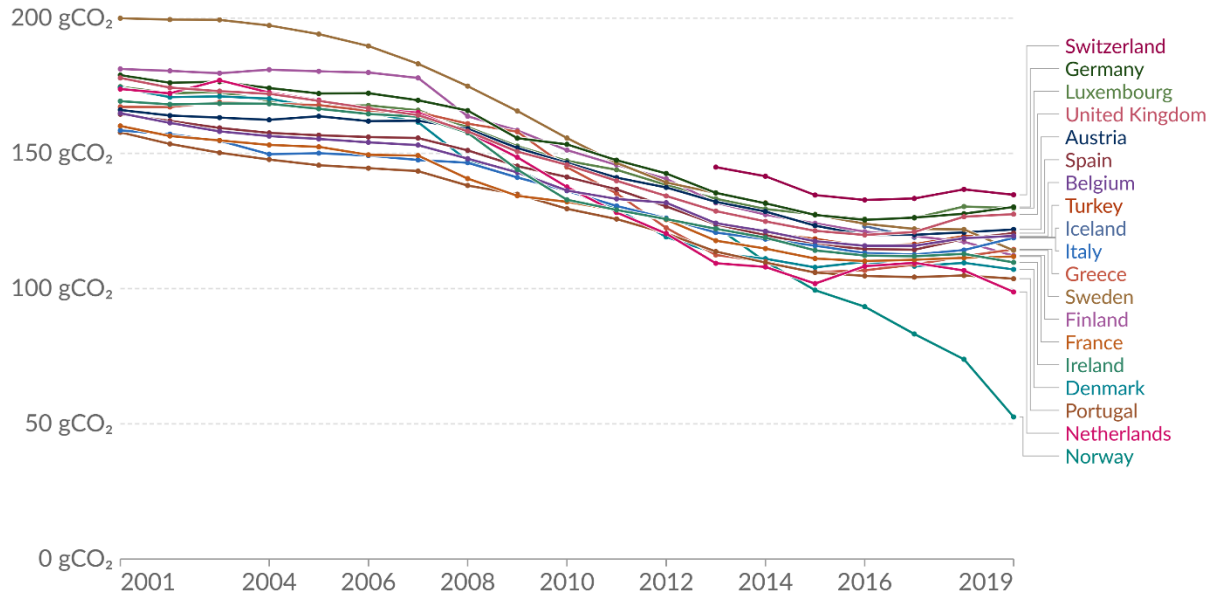
Notes: Dotted lines indicate the year in which various transport modes have largely stopped consuming fossil fuels and hence no longer contribute to direct emissions of CO₂ from fossil fuel combustion. Residual emissions in transport are compensated by negative emissions technologies, such as BECCS and DAC, in the power and other energy transformation sectors.

Global CO₂ emissions from transport in the IEA's Sustainable Development Scenario to 2070

IEA (2020), [Energy Technology Perspectives 2020](#), IEA, Paris.

Average carbon intensity of new passenger vehicles

Carbon intensity of newly registered passenger vehicles is measured in grams of carbon dioxide emitted per kilometer driven (grams CO₂ per km).



Data source: International Council on Clean Transport (ICCT) and European Environment Agency
OurWorldInData.org/transport | CC BY

In December 2022, more than 80% of cars bought in Norway were electric (McKinsey & Company, 2023). Moreover, the graph shows that many other countries have moved towards EVs to reduce emissions. The world is moving towards electric vehicles because fossil fuels are a major contributor to climate change. Even the counterargument that the electricity used for the EVs would be generated by burning fossil fuels is a misguided one since it does not account for the fact that renewable energy in combination with Electric Vehicles has the potential to replace the entire murky supply chain of fossil fuels fully. Oil needs to be extracted, moved across oceans, and refined to produce petrol that needs to be distributed using oil tankers. The entire process is inefficient and causes more harm to the environment than fuel burning in the last stage. The most cost-effective solution is to encourage renewable energy, such as solar chargers, which can charge cars for a minimum while eliminating the oil supply chain. Public electric chargers have the potential to remain profitable forever, hence cementing the argument in favour of electric vehicles.

Table 2. Tax-Adjusted Vehicle Prices in Norway (Data source: Norsk elbilforening)

Vehicle	Volkswagen Golf	Volkswagen e-Golf
Price Before Taxes	€ 22,046	€ 33,037
CO ₂ Tax	€ 4,348	€ -
NO _x Tax	€ 206	€ -
Weight Tax	€ 1,715	€ -
Scrapping Fee	€ 249	€ 249
25% Value Added Tax	€ 5,512	€ -
Price After Taxes	€ 34,076	€ 33,286

Source: [Effectiveness of Electric Vehicle Policies and Implications for Pakistan \(nrel.gov\)](https://nrel.gov)

The graph above shows how effective taxation policy has made electric vehicle prices competitive in Norway. Pakistan must replicate similar policy measures while encouraging foreign companies to invest in locally assembled electric vehicles.

Some of the practical solutions that the government can adopt include:

- Implement a temporary excise tax exemption for locally manufactured electric vehicles. This would involve less than 1% GST (goods and services tax) for the next seven years to make EVs more affordable. The new government should not change this.
- Introduce favorable financing options for EV purchases. The State Bank of Pakistan should encourage banks and financial institutions to offer EV buyers special loan packages and incentives. This could include preferential interest rates, longer loan terms, and lower down payments. These measures must be applied only to the most efficient vehicles rather than luxury cars.
- Implement standardized battery-swapping facilities at public charging stations.
- Adopt smart charging strategies to optimize charging schedules and minimize the strain on the electrical grid.
- Invest in enhancing the grid-infrastructure so that it can accommodate the transition towards EVs.

Pakistan is a developing economy with too many mouths to feed. All its problems, climate change or currency fluctuations, require equal priority. Pakistan has a border with one of the world leaders, and it has yet to exploit that avenue regarding economic sustainability fully. The future of electric vehicles will be centred around China, made apparent by their consistent investment push towards the lithium-ion electric vehicle market. Pakistan must follow in their footsteps to establish a consistent electric vehicle policy and move away from reliance on imported fuel by adopting favorable policies for highly efficient electric vehicle manufacturers and consumers.

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