VIVEK V. GAVIMATH

SENIOR ANALYST,
CSTEP

SPURTHI RAVURI

SENIOR ASSOCIATE,
CSTEP

India is one of the fastest-growing large economies in the post-Covid era. The transport sector, a major contributor to India's GDP, is currently dominated by internal combustion engine (ICE) vehicles and, therefore, is dependent on fossil fuels.

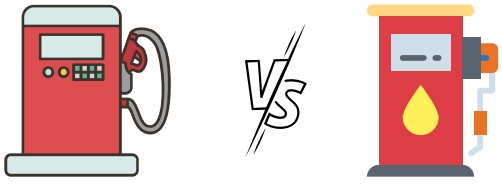
Hike in fuel prices: An unending saga

Most of India's petroleum oil requirements (88%) are met largely by imports from different countries. The recent disruption to the global energy supply chain due to the Eastern European conflict and non-pocket-friendly taxes (domestically) have resulted in a fuel price hike.

In addition to the recent developments, fuel prices have been soaring consistently over the decades. Between 1992 and 2022, crude oil prices (dollar per barrel) rose by 400%. Petrol and diesel prices (INR per liter) increased by 290% and 500%, respectively, between 2000 and 2022. Even in the unlikely scenario of the United States lifting the embargo on Venezuela and Iran, the upward trend in fuel prices is most likely to continue in the coming decades. Electric vehicles (EVs), however, are immune from these petroleum market developments.

Advantage EV

In addition to being comparatively green, with zero tailpipe emissions, the main advantage of EVs over ICE vehicles is the independence from the volatile oil market and the consequent low operating costs. Most studies indicate that EV operating costs per km are typically 1/10th of their ICE counterparts. With rising fuel prices, this relative advantage will only improve. However, as the capital cost of EVs is high, it would take approximately 10 years for a retail user with low daily kilometers traveled to realize the overall benefit of an EV's low operating cost. On the other hand, fleet operators could reduce their operating costs by switching to EVs as the number of vehicles in a fleet is high and the vehicles travel more kilometers daily.



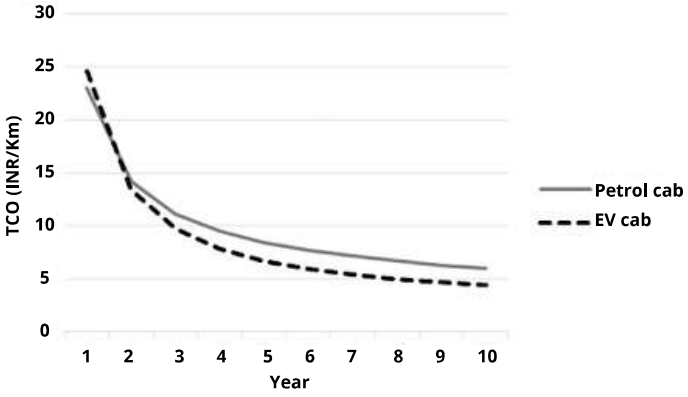


Figure 1: A comparison of the total cost of ownership of ICE cabs and their EV counterparts

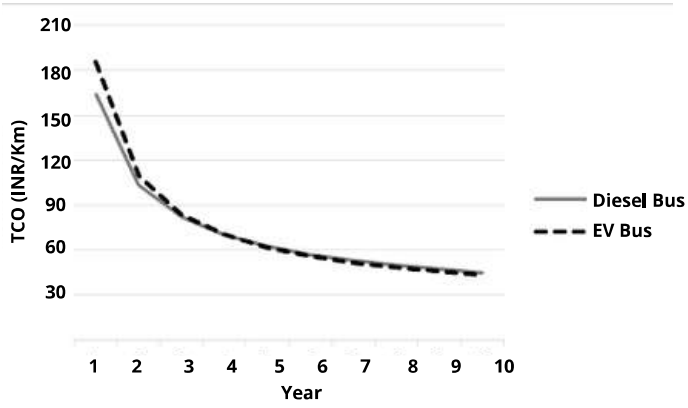


Figure 2: A comparison of the total cost of ownership of ICE buses and their EV counterparts

The total cost of ownership of a personal EV with an average daily run of 32 km is comparable to its ICE counterpart only after 6 years. However, an EV cab running for 160 km a day is cost-effective from the second year onwards (see Figure 1). Similarly, the cost parity for e-LCVs and e-buses (see Figure 2) could be achieved in the third and fifth years, respectively. Thus, an EV fleet will enable operators to offer cheaper fares, providing them with a competitive edge in the market.

The push and the pull

Periodic increases in petrol and diesel prices coupled with surging road taxes and registration fees for ICE vehicles are definitely making fleet owners look around for options. Road taxes across the country average at 10%–12% and are as high as 20% in some cases. To increase the EV uptake, many states have adopted EV-friendly policies that partially or fully exempt EVs from taxes and fees.

Existing EV policies have largely tried to lessen the financial burden of the retail user and promote the establishment of charging infrastructure for EV uptake. Further financial incentives or instruments for alleviating the pain of the high initial cost of the EV fleet are the need of the hour. The expansion of the charging infrastructure and the wide dissemination of technical know-how about EV-fleet management will boost the confidence of operators.

The switch to EV fleets will contribute to curbing transport-related emissions and has the potential to improve energy security in the long run.