Electrifying Public Transport: Electric Bus Adoption to Reach 15% by FY27

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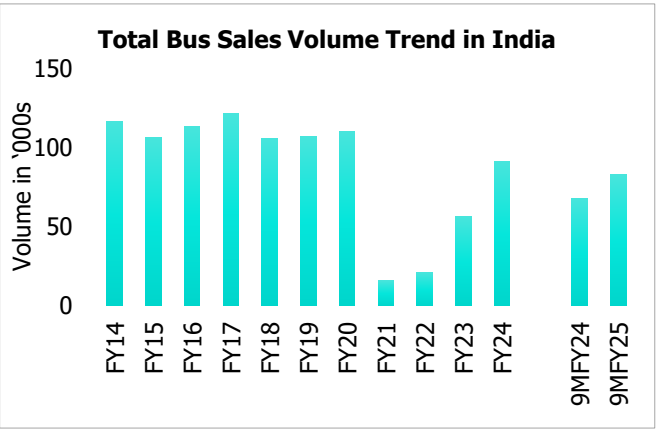
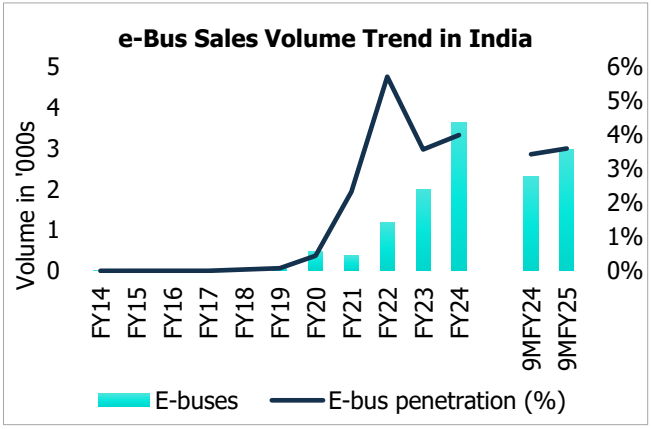
Synopsis

- Electric buses account for 4% of India's annual bus registrations, with 3,644 units sold in FY24, reflecting an 81% year-on-year growth. The transition to cleaner fuels has decreased conventional diesel and petrol buses' market share from 97-98% a decade ago to 90% in FY24.
- India's potential for electric buses (e-Buses) is significant, with only six e-buses per million people compared to the world average of 85. Currently, e-Bus adoption is limited to a few states and cities, but widespread adoption is expected to drive exponential sales growth in the medium term.
- India has sizeable e-Bus manufacturing capability, whereby five companies account for more than 85% of the e-bus market share, with an aggregate of 40,500 e-bus manufacturing capacity per annum. Also, they have sizeable outstanding order book on the back of auctions held by many State Transport Undertakings (STUs) in the recent past.
- Evolution of Gross Cost Contract (GCC) model vis-à-vis the outright bus purchase by STUs is expected to speed up the adoption of e-Buses in a big way; albeit few concerns persist due to the inherent weak financial health of most STUs despite presence of mitigants in the form of payment security mechanism. Further, the total cost of ownership (TCO) for AC e-Bus is nearly 15-20% lower than that of AC diesel buses over the 12 years period, making it an attractive proposition in the long term.
- On the back of above-said factors along-with strong policy push from the Government by way of PM e-Bus Seva and PM e-Drive, annual sales volume of e-Buses in the country is expected to reach more than 17,000 units in FY27 which would be nearly 15% of total bus sales volume in the country vis-à-vis 4% in FY24.

Transition to Cleaner Fuels in India's Bus Industry





Source: Vahan Dashboard

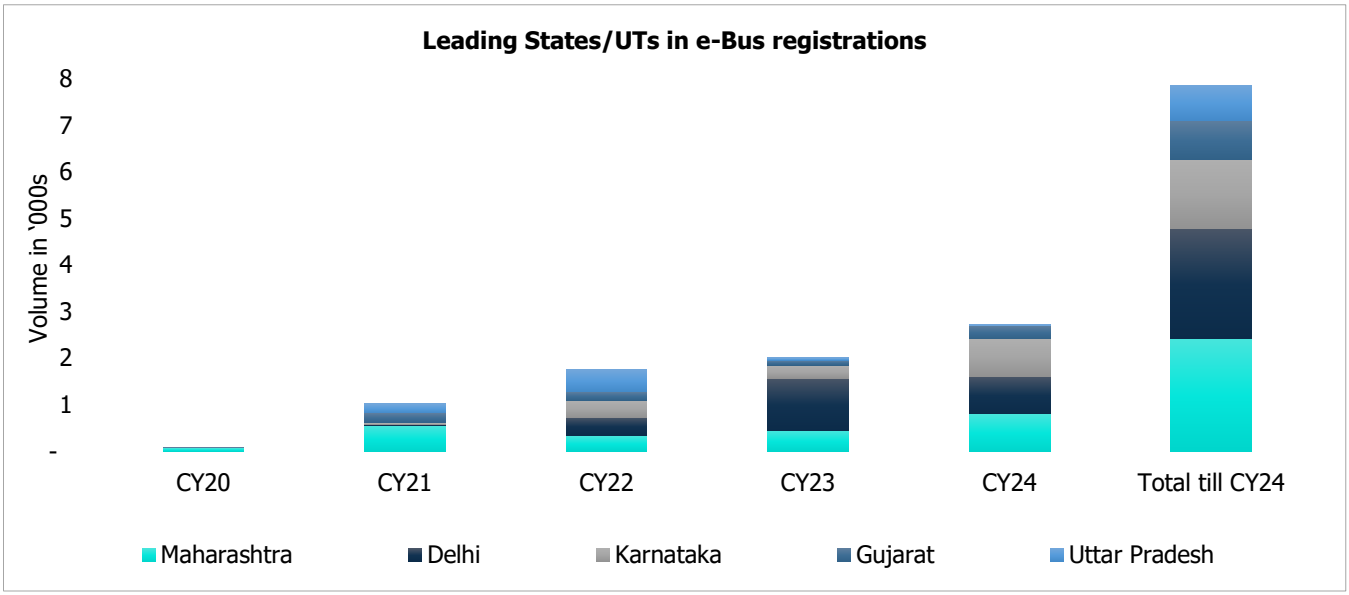
The Indian bus industry was among the last to recover from the Covid-19 pandemic, hampered by extended work-from-home protocols, delays in reopening educational institutions, and decreased STU demand. Consequently, sales volume sharply declined in FY21 but gradually recovered over the next three years, ending in FY24. The industry is set for a more significant rebound, expecting to exceed pre-Covid volumes by end-FY25.

In India, the e-Bus sector is still in its early stage, representing just 4% of total annual bus registrations in FY24. However, there was an impressive growth of nearly 81% on a YoY basis, albeit on a low base, attributed to

incentives from the Government of India under various schemes and support for infrastructure development and favourable contracting terms offered under the GCC model.

Potential For e-Bus Deployment

India has untapped potential for e-buses due to rising demand for sustainable public transport. Faced with air pollution and traffic congestion, e-buses offer a way to reduce emissions. The government has shown strong support for electric mobility with initiatives like the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) schemes and PM e-Bus Sewa for quicker adoption of e-buses.



Source: Vahan Dashboard

As of CY24, Maharashtra leads in electric bus registrations with 2,423, followed by Delhi at 2,361 and Karnataka at 1,473. More STUs are now issuing tenders for e-buses under the GCC model, increasing e-bus penetration nationwide. Currently, EV adoption in India stands at 4% but is expected to grow due to cost reductions, better charging infrastructure, and supportive policies. India has significant e-bus potential, with only six electric buses per million people, compared to the global average of 85 people.

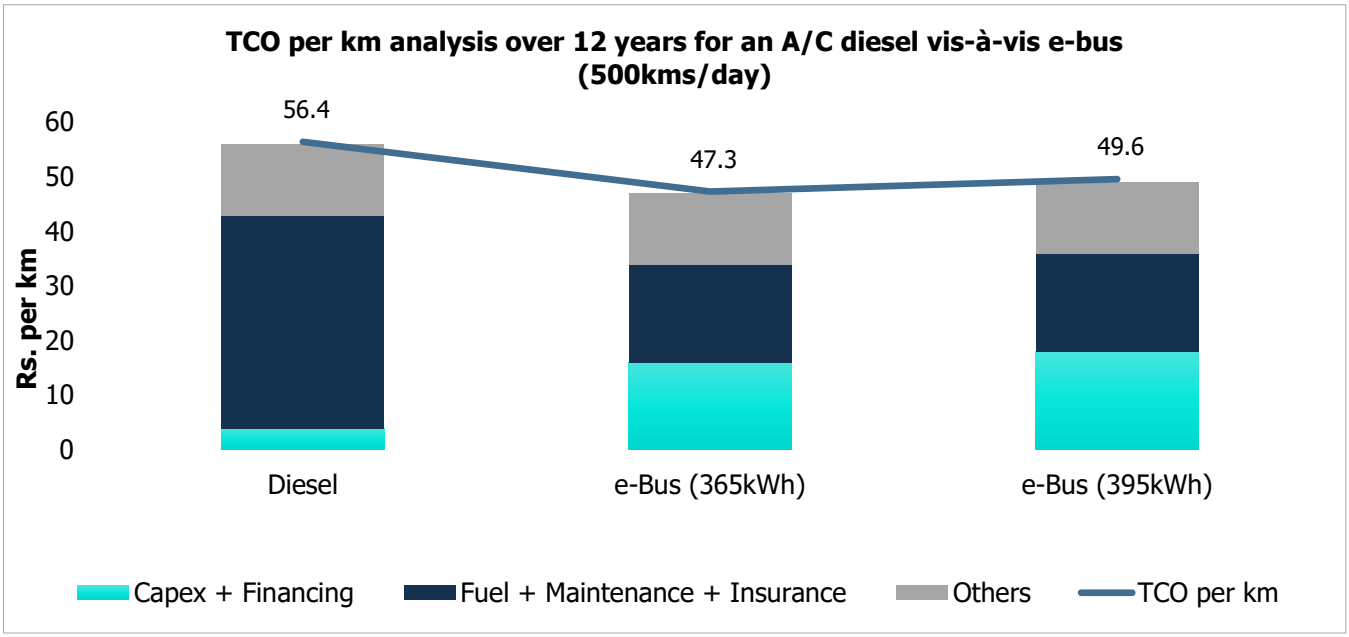
Sizeable e-Bus Manufacturing Capabilities

The Indian e-bus industry is dominated by a few players, including Tata Motors, Olectra, JBM, PMI, and Switch Mobility, which held 88% of the market share in FY24. These companies collectively can manufacture 40,500 e-buses p.a. Demand growth is further supported by a robust order book among industry players. These companies had an order book of approximately 20,000 electric buses as of September 30, 2024, set to be delivered within the next 1-2 years.

Cost Efficiency of E-buses vs. Diesel Buses

TCO for e-buses compared to diesel buses is crucial to the transition to sustainable public transportation. TCO encompasses all costs associated with owning and operating a bus over its lifetime, including purchase price, fuel or electricity costs, maintenance, and operational expenses.

When considering the TCO of electric buses versus diesel buses, while the upfront cost of e-buses may initially be higher, the long-term savings in fuel and maintenance make them a more cost-effective option in the long run. As battery prices continue to decrease and charging infrastructure improves, the gap in TCO between electric and diesel buses will narrow, making electric buses an increasingly attractive choice for cities and public transport operators. TCO for AC e-Bus is nearly 15-20% lower than AC diesel buses over the 12 years period, making it an attractive proposition. Apart from this cost differential, electric buses help significantly to reduce air pollution, which is a pressing need of the hour.



Source: CareEdge Ratings estimates

Evolution of GCC Model

Until a few years back, STUs in the country were following outright purchase mode for buses and operating these buses independently. However, over the last few years, GCC model has successfully emerged, and it has largely replaced the outright purchase model, especially in some larger cities, as it is an asset-light model for STUs with no obligation to operate and maintain buses. Also, per kilometre cost of running an e-bus is reasonably lower than running a diesel bus. However, for an operator of the e-bus, the inherently weak credit profile of STUs across the country remains a significant concern, which is, however, expected to be addressed with the implementation of a properly managed payment security mechanism.

CareEdge Ratings' View

"Currently, the share of E-bus is very low in the overall bus segment in the country. However, the traction seen in the last two years is encouraging. Till now e-bus penetration had been limited to a few larger cities, but gradually e-buses are being rolled out in more cities, which is expected to result in widespread adoption of e-buses across the country. Government support has also been demonstrated through various policy initiatives, which is expected to continue in the foreseeable future. TCO analysis of e-buses vs. diesel buses makes a compelling business case favouring e-buses. The required ecosystem for e-buses has broadly developed in the country. With that, the sales volume of e-buses is envisaged to reach more than 17,000 units in FY27, increasing penetration rates to around 15%," said Arti Roy, Associate Director at CareEdge Ratings.

"E-bus adoption in the country till now has been largely limited to STUs and intra-city transportation. However, with TCO clearly in favour of e-buses, private bus operators are also expected to go in for e-buses which would significantly fast-track e-bus adoption in the country. E-bus penetration in inter-city transportation, which has a huge potential, would require improved charging infrastructure with fast charging facilities. Also, GCC model has excellent prospects but lingering concerns of bus operators with respect to timely payment by STUs need to be properly addressed through an adequate payment security mechanism. Further, the ability of OEMs to bid for many E-bus tenders would be limited as it is an asset-heavy business model for them. Consequently, emergence of innovative business models are expected shortly, which could sustain improvement in the share of e-buses in the country," said Hardik Shah, Director at CareEdge Ratings.

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