

“An EV produces zero tailpipe emissions.”

Raman Bhatia, Founder and Managing Director, Servotech Power Systems, delves into the potential of electric vehicles in industrial transportation, their environmental impact and the challenges and opportunities they present for industries across the country, especially for the cement sector.

Tell us about your views about the use of larger electric vehicles (EV) in industrial transportation across the country.

Currently, electric trucks face limitations in carrying the same load as diesel trucks, primarily due to the weight of battery packs and range constraints. Battery weight reduces cargo capacity, while limited range necessitates frequent recharging, impacting long-haul transportation. Yet, in shorter distances, urban deliveries and specialised applications like mining or waste collection, electric trucks may match or exceed payload capacity due to their simpler drivetrains and suitability for specific tasks. As battery technology advances and charging infrastructure improves, the payload gap is expected to narrow, especially with electric trucks optimised for long-haul transport, promising a future where electric trucks become increasingly competitive with their diesel counterparts.

How can the charging of electric vehicles be made faster and efficient?

To enhance the efficiency and speed of EV charging, various approaches are being explored. Advancements in battery technology, such as developing batteries with higher energy density and faster charging capabilities, hold promise for reducing charging times and extending driving ranges. Improvements in charging infrastructure, including higher power charging stations and the development of ultra-fast charging stations, aim to significantly reduce charging times, particularly for long-distance travel needs. Furthermore, thermal management solutions, like improved battery cooling systems and preconditioning systems, are essential for managing heat generated during fast charging. Standardisation



Raman Bhatia, Founder and Managing Director, Servotech Power Systems

of charging protocols and implementation of smart charging systems can further optimise efficiency. These advancements collectively contribute to making EV charging faster, more convenient, and ultimately accelerating the widespread adoption of electric vehicles.

What environmental impact can be created if fleets are replaced with electric vehicles?

Shifting industrial transportation fleets to EVs can lead to reduced greenhouse gas emissions. Transportation is a major contributor to greenhouse gas emissions, particularly CO². An EV produces zero tailpipe emissions, significantly reducing emissions and mitigating climate change. Petrol and diesel trucks emit harmful pollutants like nitrogen oxides

and particulate matter. Replacing these vehicles with EVs can significantly improve air quality, especially in urban areas with high traffic congestion. Lastly, widespread EV adoption can lessen dependence on fossil fuels, particularly imported oil. This can enhance energy security and reduce geopolitical vulnerability.

How will clean transportation impact the Indian economy?

The clean transportation sector presents an opportunity for significant economic growth. Manufacturing EVs, charging infrastructure, renewable energy sources and battery recycling can create new jobs across various industries. The transition to clean transportation necessitates investments in charging infrastructure, smart grid upgrades, and public transportation systems. This infrastructure development can have a positive ripple effect on the economy in various sectors like construction and materials. India's commitment to clean transportation can attract foreign investment in clean technology companies and position the country as a leader in sustainable mobility solutions.

What are the major challenges in using EVs for material transportation?

While battery technology is rapidly evolving, its long-term reliability and lifespan in heavy-duty applications are still under development. The current battery technology often limits the range of EVs compared to gasoline or diesel trucks restricting the distance EVs can travel on a single charge, potentially impacting delivery schedules and operational efficiency. Compared to refuelling gasoline or diesel vehicles, recharging EVs can take significantly longer and the lack of widespread and readily available charging stations, especially for long-haul routes, creates a barrier to widespread EV adoption for transportation.

Electric vehicles generally have a higher upfront purchase price compared to gasoline or diesel trucks. While operational costs may be lower in the long run due to lower fuel costs and maintenance needs, the initial investment can be a significant hurdle for some companies. Setting up charging infrastructure at depots or warehouses requires additional investment, adding to the overall cost of transitioning to EVs. Battery packs add weight to the vehicle, potentially reducing the overall payload capacity of electric trucks. Extreme weather conditions, such as very high or low temperatures, can impact the battery performance and range of EVs.

What can policymakers do to further support



bringing EVs to industrial scale transportation systems?

Implementing scrappage programmes that offer financial benefits for retiring old, polluting vehicles and replacing them with EVs can accelerate fleet turnover. Public and private investments are crucial for building a robust network of charging stations, especially along major transportation corridors and in industrial hubs. This includes promoting fast-charging and ultra-fast charging technologies to address range anxiety. Upgrading the national grid to accommodate the increased electricity demand from EVs is essential. This might involve investments in renewable energy sources and smart grid technologies to ensure efficient and reliable power supply for charging stations. Government funding and support for research and development in battery technology are crucial to improve range, reduce costs and enhance the lifespan of batteries for heavy-duty applications. Supporting research on faster charging and wireless charging technologies can further improve the convenience and efficiency of EV transportation for industrial fleets.

What is the future of EV transportation?

The future of EV transportation in India is on a promising path, but there are roadblocks to navigate. Government support through subsidies and policies is accelerating EV adoption. Battery costs are dropping, making EVs more affordable. Public awareness about the environmental and economic benefits of EVs is rising. India has the potential to be a major EV manufacturing hub, boosting the economy. However, challenges remain. The lack of widespread charging infrastructure, especially for long distances, is a hurdle. Range limitations of current EVs compared to traditional vehicles can cause concern. The higher upfront cost of EVs can be a barrier, too. Despite these challenges, advancements in battery technology, faster-charging infrastructure, and a focus on sustainability are paving the way for EVs to play a major role in India's future transportation landscape.



- Kanika Mathur