

Decarbonising Freight in India – Feasibility of Electrification of MDVs and HDVs

Background

India's climate action includes commitments to reach 500 GW of non-fossil energy capacity by 2030 and reduce the economy's carbon intensity by 45 percent by 2030, over 2005 levels. One of the modalities India proposes to achieve these targets is the induction and growth of electric vehicles (EVs).

The Government of India recognised the viability of this mechanism in achieving the targets through schemes, such as the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles - 2015 by the Ministry of Heavy Vehicles, which was issued to promote the manufacturing of electric and hybrid vehicle technology and ensure sustainable growth. Further, the National Electric Mobility Mission Plan (2020) was also introduced to provide the vision and roadmap for the faster adoption of EVs and their manufacturing in the country.

However, the successful penetration of electric vehicles in all segments of the Indian market presents challenges such as the capacity of the charging infrastructures and consumers' preferences to switch to electric vehicles over internal combustion engine vehicles. CUTS has undertaken a project entitled *Decarbonising Freight in India – Feasibility of Electrification of MDVs and HDVs* to understand the successful penetration of EVs in the Indian market and encourage its growth. It will also understand how Medium and Heavy-duty trucks (MDVs and HDVs) primarily operated as internal combustion engines can be effectively transitioned to EVs and further for the successful induction of the EVs in the newly proposed electric highways in the country.

Objectives

The project intends to study the viability of Decarbonisation of MDVs and HDVs in the context of the proposed three electric corridors in India. In this regard, the project will assess the same following the below-mentioned parameters:

- To understand the feasibility of the transition to EVs in terms of the cost burden on vehicle owners, who are primarily private entities, to gauge the operational challenges and strategies;
- To understand the feasibility of electrification of the HDV and MDV vehicle segments in the three corridors in India. It will analyse gaps in the electrification of freight and corridors, including the capacity of the charging infrastructure; and
- To strengthen the discourse around introducing mandates for electrification of the logistics and freight sector in the Indian context.

Methodology

The project will be undertaken in the following modalities:

- **Deploying Pilots for Electrification of Freight**
 - (i) This phase of the project will include a review of the secondary literature on the decarbonisation of the logistics sector, including national and international policies and regulations, followed by a constitution of a Project Advisory Committee (PAC), including sector experts and representatives from the Government, Industry and Academia. Further, data collection through informant interviews will be conducted in this phase in the proposed corridors on the benefits of electrification in the said corridors.

- (ii) Pursuant to the above, this project phase will include corridor-specific need assessment and SWOT analysis of the electrification strategies of the three potential project locations, which will be translated into preparing a prospectus document. The said document will be shared with the members of a stakeholder convention constituted with stakeholders from original equipment manufacturers (OEMs), charging infrastructure manufacturers, charge point operators, logistics companies and respective state nodal agencies/authorities concerned with the governance of the selected project corridors.
 - (iii) This phase will also include the formation of a Project Consortium, including organisations working on decarbonisation of freight in selected locations, OEMs manufacturing e-HDVs/MDVs, charge point operators/charging infrastructure manufacturers, respective state nodal agencies/authorities concerned with the governance of the selected project location.
 - (iv) Based on the research garnered through the above activities, a Pilot – Phase 1 will be conducted in this phase in collaboration with one logistics company, one E-MDV/HDV manufacturing OEM and one Charging Infrastructure Manufacturer/Charging Point Operator in the corridor, which has an existing EV charging and service ecosystem. The results will be shared in a closed-door meeting with the members of the Project Consortium and PAC.
 - (v) Based on the learning's from Pilot-Phase 1, a Pilot- Phase 2 will be conducted in collaboration with one logistics company, one e-MDV/HDV manufacturing OEM, and one Charging Infrastructure/Charge Point Operator in two corridors with a potential for the development of EV charging and service ecosystem.
 - (vi) A roadmap for electrification of HDVs and MDVs in India will be drafted based on the inputs garnered from Pilot- Phase 1 and Pilot-Phase 2.
- **Strengthening the Discourse around Supply-side mandates for e-HDVs/MDVs**
 - (i) This phase of the project will include a review of the national and international literature on mandates for decarbonisation of the logistics sector, stakeholder consultation and advocacy meetings for initiating discussions on the supply-side mandates for e-HDVs/MDVs.
 - (ii) A National Convention with representatives of the Freight Decarbonisation ecosystems from across the country will be conducted to disseminate overall project outcomes and strengthen the narratives around supply-side mandates for e-HDVs/MDVs.

Expected Outcomes

- The project proposes sensitising State/District level authorities about the need and strategies for decarbonising e-HDVs/MDVs and their roles and responsibilities in facilitating this transition.
- The project proposes to enhance awareness and traction amongst industry stakeholders involved in the manufacturing of e-MDVs/HDVs and charging infrastructures for better penetration of the e-MDVs/HDVs in the market.
- The project proposes enhancing awareness and capacities for different e-MDVs/HDVs for enhanced adoption and effective policy utilisation for their benefit.

