ELECTRIFICATION POTENTIAL OF URBAN FREIGHT VEHICLES

EXECUTIVE SUMMARY

Delhi LGV Electrification Survey

Operations, Economics and Barriers to Electrifying Light Goods Vehicles in Delhi · Final Report, October 2023

Why this study? Small goods vehicles carry most of Delhi's urban freight, and most of their daily trips are within the range and payload of available electric models. Yet under 0.01% of new light goods vehicles (LGVs) sold in Delhi were electric. A survey of **2,000 owner-operators** at markets, mandis and industrial areas (January–February 2023) examined why.

91% single owners
Most LGVs are run by single-vehicle owner-operators

76% <100 km/day
Travel under 100 km a day — within electric range

91% overloaded
Trips carrying more than the rated payload

31% aware
Know of EV subsidies; only 1% own an EV

Key findings

- **Operations suit electrification**, but overloading (only 11–16% of three- and four-wheelers within payload) would cut electric range.
- **Electric three-wheelers have taken off (73% of goods 3W sales); four-wheelers have not (1.5%)**: few, costly models with no more range.
- **The loan period decides the purchase.** Over 15 years EVs are cheaper per km (₹4.31 vs ₹8.07 for 3W; ₹5.41 vs ₹7.52 for 4W), but in the 5-year loan period an electric 4W costs slightly more than CNG.
- **Public charging is costly (₹10–100 per kWh) and badly laid out**, and many operators cannot charge at home.
- **Owners rank cheaper electricity and cheaper finance** as the top enablers of switching.

Recommendations

- Cap public charging tariffs at ₹6–10 per kWh, with minimum demand guarantees; develop public night-parking-cum-charging depots.
- Fix charger layouts and issue design guidelines for safe charging locations.
- Aggregate demand for electric four-wheelers costing ₹6–8 lakh, with >900 kg payload, 100–120 km range and DC fast-charging at planned freight stands.
- Run awareness campaigns with OEMs and operators' associations.

SURVEY AT A GLANCE

Sample
2,000 owner-operators; 80% response rate

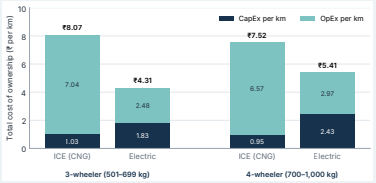
Vehicles
Carts 1% · three-wheelers 37% · four-wheelers 55% · pick-up trucks 6%

Fuel
99% CNG/ICE · 1% electric

Economics (per km)
Earning ₹18.3 · cost ₹10 · profit ₹8.3

Purchase plans
3/4 will replace or add a vehicle within five years

TCO PER KM (15 YEARS)



CapEx and OpEx per km of CNG and electric three- and four-wheelers (electricity at ₹9 per kWh).

Authors: Sandeep Gandhi (SGA); Geetam Tiwari (TRIP-C, IIT Delhi); Manoj M. (IIT Delhi); Shivani Nandal, Shivanshu Singh (SGA)
Prepared for the Transport Department, GNCTD, through TRIP-C, IIT Delhi · **SGArchitects** · info@sga.org.in · sga.org.in
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