

SUPPLY CHAIN · FREE GUIDE 09

Solar & EV Penetration for Logistics Fleets

A practical decarbonisation path for Indian logistics: where EVs pay back first, how solar fits warehouses and charging, and the maths to run before signing anything.

Where EV pays back first

- 2W/3W last-mile with predictable daily km (60–120 km) — fastest payback
- Fixed-route mid-mile shuttles between hub pairs — chargeable at both ends
- Intra-city LCV with return-to-base overnight charging
- NOT (yet): long-haul irregular routes without charging certainty

The numbers to model honestly

- ■/km: EV energy cost typically a fraction of ICE fuel — but model YOUR duty cycle
- Battery degradation & replacement inside the TCO horizon, not outside it
- Downtime economics: a charging vehicle earns nothing — plan swap or off-peak
- Driver behaviour: range anxiety costs deliveries in month one; training fixes it
- Lease vs buy vs FaaS (fleet-as-a-service) — de-risk v1 with FaaS where possible

Solar on the warehouse

- Rooftop solar offsets daytime cold-room, conveyor and charging loads
- Size to daytime base load first; storage only when tariffs justify it
- Captive/open-access options change the maths by state — check your DISCOM
- Pair solar generation curve with EV charging windows to maximise self-use

Industry example — Dark stores and RFCs with daytime-heavy loads are natural solar candidates; pairing rooftop generation with midday 3W top-up charging lifts self-consumption sharply.

A staged rollout that won't embarrass you

- Pilot 10–20 vehicles on your most predictable routes for 90 days
- Instrument everything: ■/km, uptime, charge windows, driver feedback
- Negotiate charging infra with realistic utilisation, not brochure numbers
- Scale only the segments where pilot TCO beat ICE by a safe margin
- Report penetration % and CO2 saved — customers and ESG teams both care

Want this implemented, not just downloaded?

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