Mobilising sub-national action

# A model policy framework

## for promoting zero emission trucks in Indian states

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CLIMATE GROUP

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## Foreword

India's freight sector is at a pivotal moment. According to NITI Aayog, in 2022 road freight sector's contribution was estimated to be around 4% to GDP. As the country accelerates its transition to clean mobility, the electrification of medium and heavy-duty trucks (MHDTs) remains a critical yet under-addressed frontier. As per the latest report on India's Priority Corridors for Zero-Emission Trucks, trucks account for only 3% of India's road vehicle fleet, but they contribute to 34% of CO2 emissions and 53% of particulate matter (PM) emissions. Climate Group, through its global initiatives like EV100, has consistently championed the shift to zero-emission vehicles, especially in commercial fleets. Our work with leading businesses and governments has shown that bold commitments, backed by enabling policies, can unlock transformative change.

This state model policy framework (SMPF) report is an earnest effort to empower subnational governments in India to lead the charge on truck electrification. Developed in collaboration with technical experts and stakeholders across states, the framework provides a comprehensive roadmap across five pillars, i.e., financial incentives, charging infrastructure, demand aggregation, strategic measures, and capacity building. It reflects Climate Group's core belief that climate action must be ambitious, inclusive, and locally driven.

The report's emphasis on corridor-based planning, B2B demand aggregation, and workforce development aligns with our global learnings. It also highlights the urgency of addressing disproportionate emissions from MHDTs. By equipping states with actionable tools and policy levers, this framework lays the foundation for a scalable and equitable transition to zero-emission freight.

We are proud to present this report and invite states, businesses, and civil society to adopt and adapt this framework to their unique contexts. Together, we can create a cleaner, more resilient freight ecosystem that meets India's climate goals and economic aspirations.

Dr. Divya Sharma
Executive Director - India
Climate Group

# Message from Director, Automotive and EV Sector, Industries and Commerce Department, Government of Telangana

Telangana has always been at the forefront of innovation in sustainable transport. As we strive to decarbonise our freight sector, the electrification of trucks presents both a challenge and an opportunity. The state model policy framework report for zero-emission trucks (ZETs) offers a comprehensive and actionable blueprint for states like ours to lead this transition.

Telangana has taken several proactive steps to provide a push to the e-mobility sector, such as the Telangana Mobility Valley (TMV) initiative to create a global EV hub, aiming for ₹50,000 crore investments and 4 lakh jobs by 2030, focusing on R&D, manufacturing, and collaboration. Through the Telangana Electric Vehicle and Energy Storage policy, the state is providing differential electricity tariffs through TGREDCO chargers and creating hubs for R&D and learning exchange platforms.
In Telangana, freight transport plays a vital role in supporting our industrial and agricultural economy. However, medium and heavy-duty trucks contribute significantly to vehicular emissions. The state has the potential to scale e-truck adoption through targeted interventions. Our existing EV policy includes provisions for charging infrastructure and demand-side incentives, and we are exploring corridor-based electrification along key logistics routes.

This framework's emphasis on green channels, strategic land allocation, and capacity building aligns with our priorities. It also provides valuable insights into financing mechanisms and public-private partnerships that can accelerate deployment. The inclusion of Telangana in stakeholder consultations and the recognition of our policy efforts in this report underscore our commitment to sustainable mobility.

We look forward to leveraging this framework to enhance our EV ecosystem, reduce emissions, and create green jobs. Telangana remains committed to working with industry, civil society, and other states to build a cleaner, more efficient freight network.

**Gopalakrishnan VC**
Director, Automotive and EV Sector
Industries and Commerce Department
Government of Telangana

# Acknowledgements

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We would like to extend our thanks to Mr. Ajithkumar T K (CEO, COEZET, IIT Madras), Mr. Amartya Awasthi, (Assistant Professor, ASCI Hyderabad) and Mr. Charith Konda (Lead, E-mobility, IEEFA) for reviewing this report.

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# Key contributors

## Climate Group

Climate Group is an international non-profit organisation, established in 2004, with offices in London, Amsterdam, Beijing, New Delhi, and New York. It has been active in India since 2008 and has worked with 15 state governments and over 190 businesses to drive climate action. Its goal is to achieve a world of net zero carbon emissions by 2050, while supporting greater prosperity for all. The organisation works by bringing together business and government through strong networks, enabling collective action at scale to accelerate the transition of key systems – including energy, transport, built environment, industry, and food – towards a cleaner future. Through this approach, it supports efforts to influence markets and policies towards faster and sustained reductions in carbon emissions.

Climate Group co-led the research and preparation of the state model policy framework and was responsible for developing the overall approach and methodology, electric medium and heavy-duty truck (e-MHDT) projections, identification of key policy pillars and measures, and the way forward. In addition, it conducted stakeholder consultations with the Government of Maharashtra and the Government of Telangana, and reviewed insights and policy recommendations drawing on its wider engagement across platforms supporting the adoption of electric medium- and heavy-duty trucks.

## India ZEV Research Centre at the Institute of Transportation Studies, University of California, Davis

The India ZEV Research Centre at the Institute of Transportation Studies, University of California, Davis, supports policy development on clean transportation and energy transitions in India. Drawing on ITS-Davis's global leadership in evidence-based, policy-driven research, the Centre works with state and national governments, non-governmental organisations, and industry to advance zero-emission transport policies and sustainable mineral supply chains. The Centre has led work on global supply chains and critical minerals under India's G20 Presidency and has engaged with developing countries across Africa and Latin America as part of this effort.

The India ZEV Research Centre co-led the research and conducted the mapping and analysis of existing state electric vehicle policies. It was responsible for drafting Section 2 of the report, including the mapping and scoring of policy levers, and identifying measures that have proven effective in electric vehicle policy implementation and are relevant for scaling zero-emission trucks.

## pManifold Business Solutions Private Limited

pManifold is a strategic consulting and advisory firm specialising in e-mobility, new energy, transport, and hydrogen. It works with countries, cities, industries, and institutions to design and implement solutions, services, business models, and policies that support faster climate and sustainability transitions, improved user experience, and commercially viable growth.

pManifold contributed to the development of medium- and heavy-duty truck projections, including methodology and the selection of states. It also supported the identification of policy measures aligned with key policy pillars, as well as alternative measures to inform policy recommendations.

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# Abbreviations

| | |
|---|---|
| AC | Alternative current |
| ACoS | Average cost of supply |
| APMC | Agricultural produce market committee |
| B2B | Business-to-business |
| BAU | Business-as-usual |
| BESS | Battery energy storage systems |
| BET | Battery electric truck |
| BIS | Bureau of Indian Standards |
| BTB | Business-to-be |
| CAGR | Compounded annual growth rate |
| CAPEX | Capital expenditure |
| CMS | Centralised monitoring system |
| CPO | Charge point operator |
| DC | Direct current |
| DCR | Development control regulations |
| DISCOM | Distribution company |
| DPIIT | Department for Promotion of Industry and Internal Trade |
| e-MHDT | Electric medium and heavy-duty truck |
| e-transition | Electric transition |
| e-truck | Electric truck |
| EV | Electric vehicle |
| 4Ws | Four-wheelers |
| FAME | Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles |
| FASTPAS | Fast and Simplified Trust-Based Plan Approval System |
| GDP | Gross domestic product |
| GHG | Greenhouse gas |
| GST | Goods and services tax |
| GVW | Gross vehicle weight |
| ICE | Internal combustion engines |
| IDC | Industrial Development Corporation |
| IRA | Inflation Reduction Act |
| LCV | Light commercial vehicle |
| LEADS | Logistics Ease Across Different States |
| LEZ | Low emission zones |
| LSP | Logistic service providers |
| MHDT | Medium and heavy-duty truck |
| MIDC | Maharashtra Industrial Development Corporation |
| MoHUA | Ministry of Housing and Urban Affairs |
| MoP | Ministry of Power |
| MoRTH | Ministry of Road Transport and Highways |
| MSME | Micro, Small & Medium Enterprises |

| | |
|---|---|
| **NDC** | Nationally Determined Contributions |
| **NOC** | No objection certificate |
| **NYCDOT** | New York City Department of Transportation |
| **OBPAS** | Online Building Plan Approval System |
| **OEM** | Original equipment manufacturer |
| **PM E-DRIVE** | PM Electric Drive Revolution in Innovative Vehicle Enhancement |
| **PSU** | Public sector undertaking |
| **PLI** | Production linked incentive |
| **RBI** | Reserve Bank of India |
| **RTPSDA** | Right to Public Service Delivery Act |
| **SERC** | State Electricity Regulatory Commission |
| **SGST** | State Goods and Services Tax |
| **SIPCOT** | State Industries Promotion Corporation of Tamil Nadu Limited |
| **SOP** | Standard Operating Procedure |
| **TCO** | Total cost of ownership |
| **ULB** | Urban local body |
| **ULEZ** | Ultra Low Emission Zones |
| **UPI** | Unified Payment Interface |
| **UPYOG** | Urban Platform for Delivery of Online Governance |
| **ZET** | Zero-emission truck |

# EXECUTIVE SUMMARY

# 1. Background

This report outlines a comprehensive policy framework for sub-national governments to accelerate the adoption of zero-emission trucks (ZETs)[1] in the first section and focuses on existing EV policies in the second section.

| **Section 1**<br>State model policy framework | **Section 2**<br>Existing policy enablers for EVs |
|---|---|

The first part of this report consists of all the policy measures and alternatives available to states for ZET specific policy along with best practices and examples. The transition from internal combustion engine (ICE) medium and heavy-duty trucks (MHDTs) to ZETs is important as MHDTs, despite constituting only 2% of the total vehicle fleet, are responsible for 45% of vehicular emission on road directly impacting the country's commitment to its Nationally Determined Contributions and Paris Agreement objectives to cut emissions[2].

ZET adoption faces significant challenges, including

- High upfront costs
- Limited charging infrastructure
- Uncertain market dynamics

While central government initiatives like the PM E-DRIVE subsidy offer a starting point, they are deemed insufficient for large-scale adoption due to limited outlay for ZETs. A comprehensive and coordinated policy framework at the state level is essential to foster an enabling environment for ZETs.

This framework is strategically structured with focus on five interconnected 'pillars'. They are:

- Financial incentives are crucial for overcoming substantial upfront cost barriers, particularly for the logistics sector which operates on slim profit margins.
- Public charging infrastructure development focuses on a robust network of heavy duty, convenient and affordable public charging stations fundamental for widespread adoption and ensuring operational reliability with minimal downtime for commercial vehicles.
- Demand aggregation explores coordinated market development, aiming to create economies of scale, reduce costs, and signal strong market interest to original equipment manufacturers (OEMs).
- Strategic measures dive into provisions for green channels and corridor development, land related subsidies, incentives related to manufacturing units and administrative processes related to approvals and licensing.
- Capacity building discusses the transformative nature of EV technology, and the need for extensive upskilling and training programmes for a skilled workforce.

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1 Disclaimer – For this report, ZETs primarily focuses on Battery Electric Trucks (BETs) where BETs refers to electric medium and heavy duty trucks.
2 Early Outlook Market Report (2022)

While these pillars ensure that while each addresses specific challenges, they collectively support ZET acquisition, infrastructure development, market optimisation, and workforce readiness, aligning with global best practices for successful ZET market development.

# 2. Recommendations

| Pillar | Recommendations |
|---|---|
| Financial incentives | States can provide purchase subsidies (e.g. ₹5,000 per kWh – 10,000 per kWh, capped at 20% of ex-factory price) for BETs .<br><br>It can be potentially structured in a tiered manner (e.g. higher subsidy for the first 10% of a fleet) or pilot-based incentive. Banks (with support from state government) can provide interest subvention on BET loans with extended tenures.<br><br>Implementation of fee waivers and tax reliefs, including SGST rebates/ exemptions, 100% RTO registration fee exemption, toll fee exemptions on designated corridors, and road/permit tax exemptions.<br><br>States could work with the Reserve Bank of India (RBI) to relax leasing-tenure mandates for e-trucks, enabling longer leasing periods that align with the operational lifecycle of BETs. |
| Charging infrastructure | State can provide subsidies for charge point operators to establish fast chargers that can be tiered by charger type and strategically located at warehouses, logistics hubs and industrial parks.<br><br>States can offer concessional land in priority corridors/ hubs (e.g. freight corridors, industrial parks, transport nagars) with access to high-tension lines and adequate parking. State can mandate that all government-incentivised fast-charging stations accommodate e-trucks.<br><br>Subsidising Battery Energy Storage Systems (BESS) at charging stations (per kWh basis) to manage peak demand, store energy during low demand, and utilise renewable energy.<br><br>To support power infrastructure, states can choose to offer behind-the-meter subsidies for CPOs to offset high grid connection costs (11 kV or 33 kV HT lines) and developing power infrastructure along corridors/hubs, potentially as “plug-and-play” solutions.<br><br>State can allow open access to renewable energy for EV fast-charging stations by waiving/ reducing cross-subsidy surcharges and facilitating energy banking.<br><br>“Soft measures” to streamline and fast-track approvals for charging stations, build capacity of local authorities and establish single-window clearance mechanisms. |

| Pillar | Recommendations |
| --- | --- |
| Demand aggregation | State can work with B2B stakeholders (fleet operators, state PSUs, private logistics companies) to aggregate demand for BETs, including setting fleet transition targets for state PSUs and offering financial/ operational support.<br><br>Provision of mandates for aggregated fleets and fleet owners (public and private) to transition to BETs, with these mandates announced in advance. Set sector-specific electrification percentages by defined timelines. |
| Strategic measures | State can adopt a corridor-based approach to develop green channels along critical freight routes, ensuring preferential loading/ unloading zones and prioritised routes for BETs. This could involve developing industry-specific corridors, public-private partnerships, dedicated green loading zones.<br><br>Enable single-window clearance systems to provide timely access permissions for BETs to enter green zones and operate in restricted areas.<br><br>Layout approval processes can be streamlined from town planning and industrial development corporations (IDC) for BET logistics parks and charging infrastructure, through dedicated nodal officers, digital platforms, standard layouts, and auto-approvals.<br><br>Land-related subsidies, such as subsidies on land costs and stamp duty exemptions for EV manufacturing units, to attract investment can be provided.<br><br>Offer fee waivers and tax reliefs for manufacturing units, including special electricity tariff discounts and employment-related incentives (tax breaks, training subsidies).<br><br>Promote sustainability, circularity, and decarbonisation by incentivising battery recycling units (capital subsidies, tax rebates, fast-track approvals) and the use of renewables in manufacturing processes (electricity duty exemptions, open access charges). |
| Capacity building | States can support training programmes for LSPs on EV operations and maintenance, potentially with skill certification programmes and fiscal incentives for trained LSPs.<br><br>Create targeted training programmes for skilled charging station operators, focusing on technical skills, CMS integration, and energy management, through public-private partnerships.<br><br>States can choose to partner with corporate groups and OEMs to deliver driver training programmes on eco-driving techniques, safety protocols, and vehicle maintenance for BETs. Corporate-led certification or OEM-driven training will ensure a well-prepared workforce. |

# 3. Evaluation of current state EV policy measures

Part two of the report consists of mapping and evaluating existing state EV policies. While national and state-level EV policies have catalysed adoption in two-wheelers, three-wheelers, and buses, they have largely overlooked freight vehicles. This study bridges that gap by examining how state EV policies can be recalibrated to support ZET adoption.

It evaluates nine states which constitute about 60% of the national heavy-duty truck registrations and about 70% of the national EV sales using a scoring framework that assesses 27 policy interventions across demand-side interventions, supply-side interventions, and charging infrastructure.

Each intervention is rated across four pillars offering a nuanced understanding of effectiveness of each policy intervention.

**Administrative (ease of implementation)**

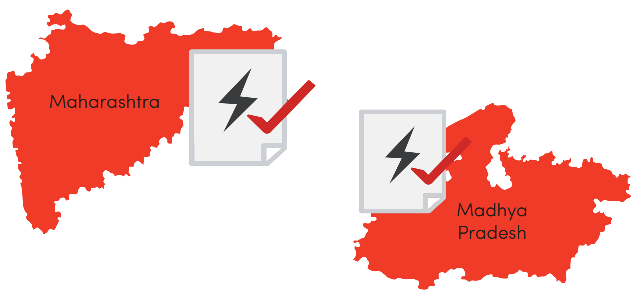
**Automotive industry impact**

**EV consumer benefit**

**Long-term policy impact**

The assessment reveals that demand-side interventions such as registration fee and road tax exemptions, and capital subsidies for EV purchase, are widely adopted across states. They score highly in the framework. Supply-side interventions like capital subsidies for manufacturing units and EV components, stamp duty exemptions on land purchases, and electricity duty waivers are the most widely adopted to fulfil needs of the automotive industry. In the charging infrastructure domain, preferential parking provisions under urban local body plans, concessional tariffs for public charging stations and capital subsidies for EVSE installation are the most preferred interventions.

While a strong base of policy tools exists, these require tailored adaptation to address the financial risks, fragmented ownership, on-demand operations, and infrastructure needs specific to ZETs. States like Madhya Pradesh and Maharashtra have taken early steps by including e-trucks in their incentive schemes, setting a precedent for others.




The study highlights the need for freight specific instruments that can build on existing policy levers. Strengthening and aligning these measures will be essential for enabling a scalable and coordinated transition to zero-emission freight across states.

The implementation of these comprehensive and integrated recommendations is expected to drive a transformative shift towards on-road freight electrification in India.

# INTRODUCTION

# 1. Background

India's transport sector is a major contributor to greenhouse gas emissions (GHG) and air pollution, with medium and heavy-duty trucks comprising only 2% of the total vehicle fleet but contributing to approximately 45% of vehicular road transport emissions[3]. The need for transitioning to zero-emission trucks is critical, particularly for India's commitment to its Nationally Determined Contributions and Paris Agreement objectives. States are key to the transition away from fossil-fuel based trucks. While targets are determined at the central level, transport is a State subject under the Indian Constitution and state governments implement those targets at the state-level.

# 2. About the framework

This report provides a framework for states to accelerate the adoption of ZETs at scale in India. This framework includes list of policy measures and alternative policy levers for enabling ecosystem support for e transition in MHDT vehicle segment. This framework has been developed by identifying the key policy levers available to sub-national governments and analysing aligned existing enablers in current EV policies.

# 3. The need for a structured policy framework

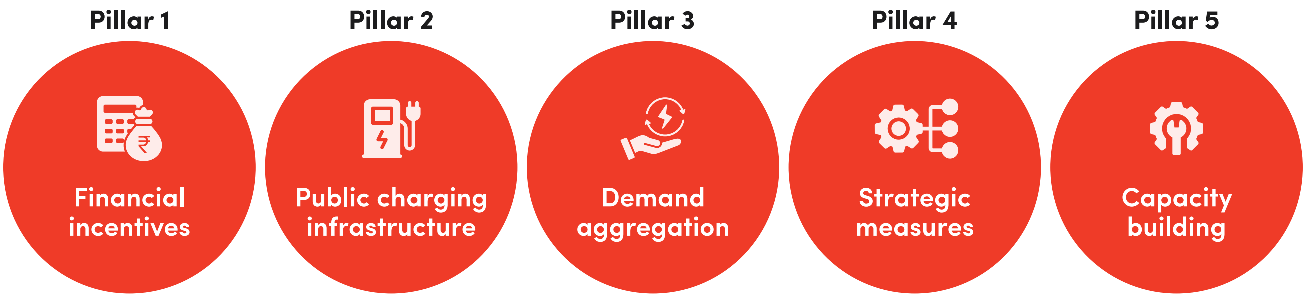
- ZETs are crucial in reducing the on road emission from transport sector and it necessitates its inclusion in state EV policies. At central government level, PM E-DRIVE scheme brings subsidy of 500 crores for supporting the e-truck adoption. It's long overdue for state governments to bring policies to support ZET adoption at grassroot level.


- A comprehensive policy framework is essential as electric truck adoption faces multiple, interconnected challenges. There are barriers like high upfront costs, limited charging infrastructure, and uncertain market dynamics. While the central government has advanced penetration of battery electric trucks (BETs) through the PM E-DRIVE subsidy, more efforts are needed for large scale adoption. Thus, states need to provide additional incentives and subsidies regionally to increase BET penetration.

- These challenges require coordinated policy interventions across different domains to create an enabling environment for electric truck adoption. Studies have shown that successful electric vehicle markets are shaped by different levels of policy support, corporate activity, and consumer preferences.[4]

[3] Electrification of Medium and Heavy-Duty Trucks in India, 2022
[4] Policy Developments – Global EV Outlook 2023 – Analysis - IEA, 2024

While evaluating the challenges in adoption of ZETs across states, the key thematic areas that stood out were finance, charging infrastructure, demand aggregation,  strategic measures and capacity building. These are the five key thematic areas where states can support the EV ecosystem that would result in greater adoption of ZETs.




- **Financial incentive** is crucial as fiscal incentives have historically spurred the initial uptake of electric vehicles and supported scaling in manufacturing and battery industries.[5] In India, upfront cost remains a significant barrier. This is particularly true for the logistics sector where operating costs are high while profit margins are relatively slim. Therefore, subsidies and tax incentives are essential for market development.

- **Public charging infrastructure** is crucial in this framework as research shows that convenient and affordable publicly accessible chargers become increasingly important for electric vehicles scale-up.[6] Strong infrastructure is particularly critical for commercial vehicles, where operational reliability and minimal downtime are essential for business viability. [7]

- The **demand aggregation** for ZETs addresses the need for coordinated market development. Experience from global markets demonstrates that aggregating demand can help create economies of scale and reduce costs through group purchasing and shared resources.[8] This approach is relevant in the Indian context, where the market is still in its early stages and original equipment manufacturers (OEMs) are not witnessing significant market demand to foray into BET product portfolio development.

- **Strategic measures** deals with the administrative and corridor development needs for ZETs. It includes policy measures and alternative measures related to green channels, no entry regulations and charging layout approval process, land related subsidy and sustainability related measures.

- **Capacity building** is important given the transformative nature of electric vehicle technology. A complete overhaul in existing supply chains is expected to cater to the emerging BET ecosystem. The sector is expected to create significant employment opportunities, with projections indicating a demand for 10 million direct and 50 million indirect jobs by 2030.[9] However, this transition requires extensive upskilling and training programmes to develop necessary workforce capabilities.[10]

5 Policies to Promote Electric Vehicle Deployment – Global EV Outlook ..., n.d.
6 Policies to Promote Electric Vehicle Deployment – Global EV Outlook ..., n.d.
7 Jessica Leung, David Gardiner, 2021
8 Scaling and Aggregation Supercharge Electric Vehicle Charging, 2023
9 S. Divya Sree, 2023
10 S. Divya Sree, 2023

# 4. Integrated approach for effective implementation

While each pillar addresses specific challenges, they are interconnected. For instance, financial incentives can support both vehicle acquisition and charging infrastructure development, while demand aggregation can help optimise infrastructure utilisation and reduce costs. The capacity building initiatives ensure the availability of skilled personnel across the electric truck ecosystem. The integrated, structured approach aligns with global best practices, where successful electric vehicle markets have been built through comprehensive policy frameworks that address multiple aspects of market development simultaneously.[11]

# 5. Projections of e-MHDT stock in selected states

For conducting the e-MHDT projections, a structured and criteria-based approach was adopted to shortlist the top 10 states in India with the highest potential for electric medium and heavy-duty truck adoption and scaling. The selection was based on three key parameters:

01 Policy ecosystem

02 Demographics

03 Geographical representation

Under policy ecosystem, states were evaluated on the strength of their EV policies, particularly focus on commercial vehicle electrification, presence of an industrial base and existing EV manufacturing ecosystem.[12]

Demographic and economic indicators like GDP per capita and population of each state were assessed to identify regions with high commercial activity and potential for e-MHDT deployment.[13][14] As illustrated in Figure 1, a zone-wise analysis was conducted to ensure balanced regional representation. Within each zone, the most promising states were shortlisted based on demographic weight and economic performance.

[11] Policy Developments – Global EV Outlook 2023 – Analysis - IEA, 2024
[12] OMI Foundation, WRI India, e-Amrit, Niti Aayog, GiZ
[13] National Commission on Population, MoHFW
[14] GSVA/NSVA by economic activities, MoSPI, GoI

**Figure 1** Demographic matrix for state prioritisation

| North | GDP per Capita (USD) | Population ('000) |
|---|---|---|
| Haryana | 4,729 | 30,694 |
| Himachal Pradesh | 3,258 | 7,518 |
| Punjab | 2,682 | 30,992 |
| Uttar Pradesh | 1,427 | 238,875 |
| Uttarakhand | 3,479 | 11,795 |

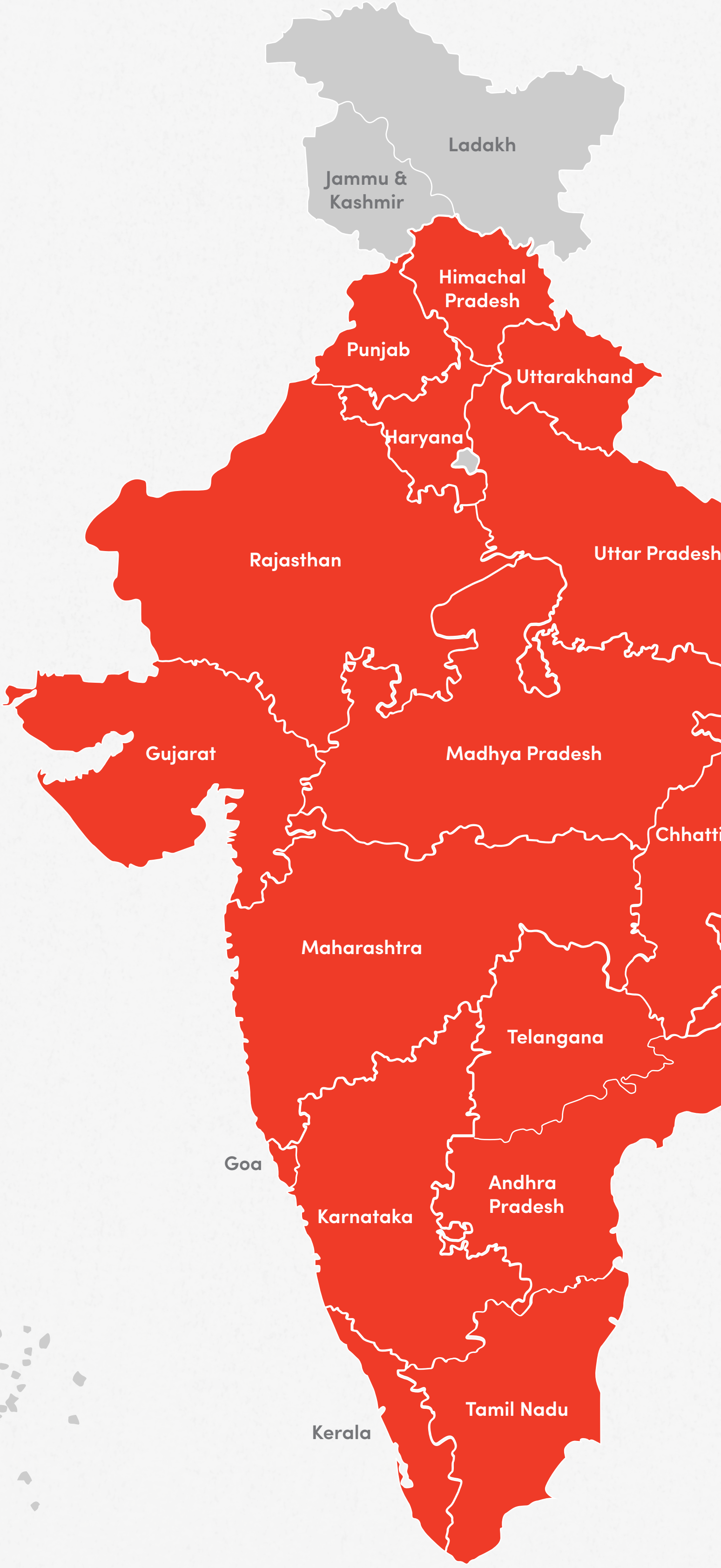
- Haryana selected as it has highest GDP per capita in North Zone
- Uttar Pradesh selected as it has the highest population

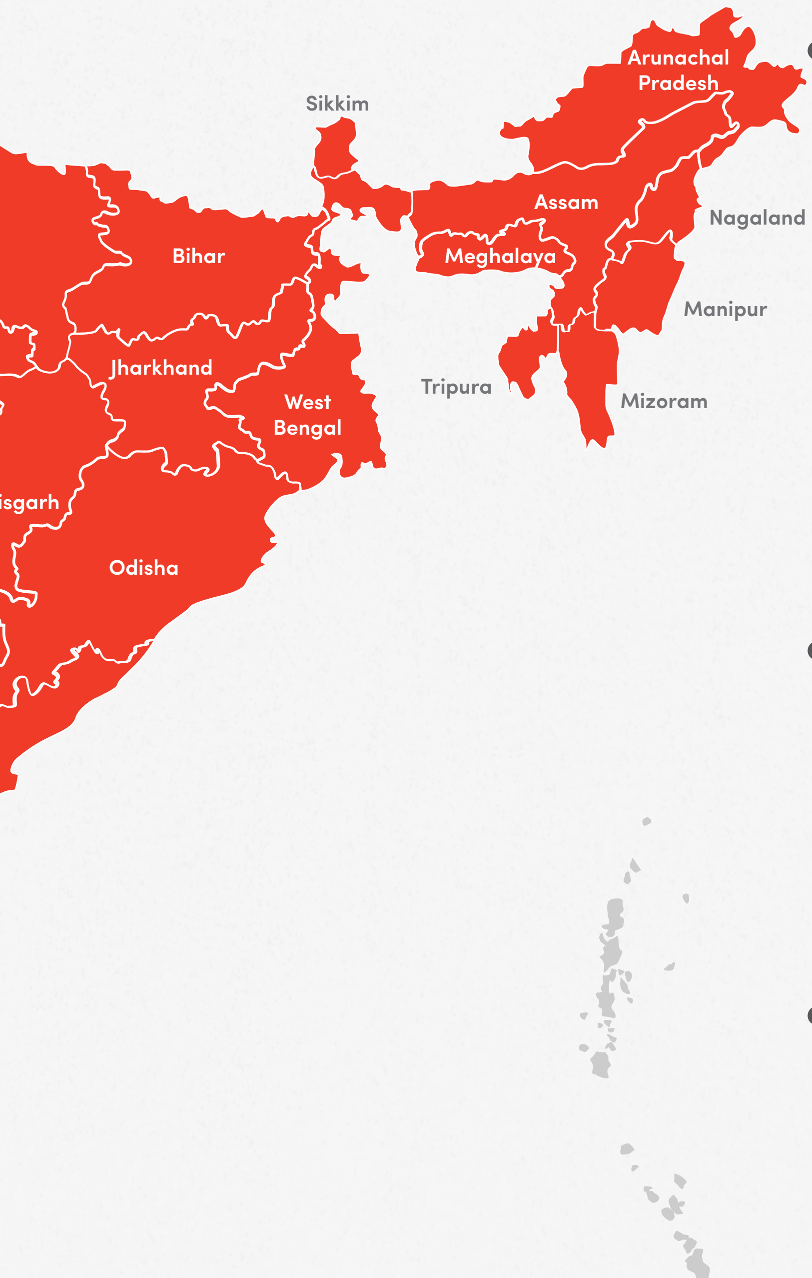
| North-West | GDP per Capita (USD) | Population ('000) |
|---|---|---|
| Rajasthan | 2,573 | 82,188 |

Only state in North-West Zone

| West | GDP per Capita (USD) | Population ('000) |
|---|---|---|
| Goa | 6,675 | 1,585 |
| Gujarat | 4,702 | 72,653 |
| Maharashtra | 4,225 | 127,684 |

Maharashtra and Gujarat selected as it has higher population and relatively similar GDP compared to Goa in the West Zone






| East | GDP per Capita (USD) | Population ('000) |
|---|---|---|
| **Bihar** | 786 | 129,200 |
| **Jharkhand** | 1,364 | 40,129 |
| **Odisha** | 4,729 | 46,663 |
| **West Bengal** | 2,014 | 99,723 |

Odisha selected as it has highest GDP per capita in East Zone

| Northeast | GDP per Capita (USD) | Population ('000) |
|---|---|---|
| **Arunachal Pradesh** | 2,656 | 1,580 |
| **Assam** | 2,294 | 36,159 |
| **Manipur** | 1,475 | 3,260 |
| **Meghalaya** | 1,839 | 3,387 |
| **Mizoram** | 2,928 | 1,252 |
| **Nagaland** | 1,957 | 2,258 |
| **Sikkim** | 8,320 | 697 |
| **Tripura** | 2,334 | 4,194 |

Assam selected as it has the highest population in the Northeast Zone

| Central | GDP per Capita (USD) | Population ('000) |
|---|---|---|
| **Chhattisgarh** | 1,959 | 30,638 |
| **Madhya Pradesh** | 1,988 | 87,954 |

Madhya Pradesh selected as it has highest GDP per capita in Central Zone

| South | GDP per Capita (USD) | Population ('000) |
|---|---|---|
| **Andhra Pradesh** | 3,180 | 53,402 |
| **Karnataka** | 4,862 | 68,256 |
| **Kerala** | 3,738 | 35,967 |
| **Tamil Nadu** | 4,870 | 77,165 |
| **Telangana** | 4,628 | 38,317 |

Selected as both Karnataka and Tamil Nadu have relatively similar yet the highest GDP per capita in South Zone

Note: Map not to scale

Freight demand and logistics readiness were evaluated using the LEADS 2024 Framework developed by the Ministry of Commerce & Industry and DPIIT.[15] Based on this analysis, states were classified into two categories:

**01 Achiever states**

which demonstrate high performance in logistics infrastructure and freight ecosystem maturity.

**02 Fast movers**

which show progress in logistics capabilities and are emerging hubs for medium and heavy-duty truck activity.

**Figure 2** Top performing states as per LEADS framework 2024 by DPIIT

| Achievers | | | Fast Movers |
|---|---|---|---|
| **Coastal Group** | **Landlocked Group** | **North-Eastern Group** | **Landlocked Group** |
| Gujarat | Haryana | Assam | Himachal Pradesh |
| Karnataka | Telangana | Arunachal Pradesh | Madhya Pradesh |
| Maharashtra | Uttar Pradesh | | Rajasthan |
| Odisha | Uttarakhand | | |
| Tamil Nadu | | | |

This approach ensures that the identified states possess the foundational ecosystem, and the momentum needed to support and scale e-MHDT adoption. Additionally, geographical diversity was ensured to enable national-level scaling and represent regional contexts.

The selected states were Assam, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh. This methodological selection process ensured that projections are grounded in data and aligned with regions most conducive to large-scale e-MHDT deployment.

[15] LEADS 2024 Framework by Ministry of Commerce & Industry and DPIIT

# 6. Truck stock consolidation and projection

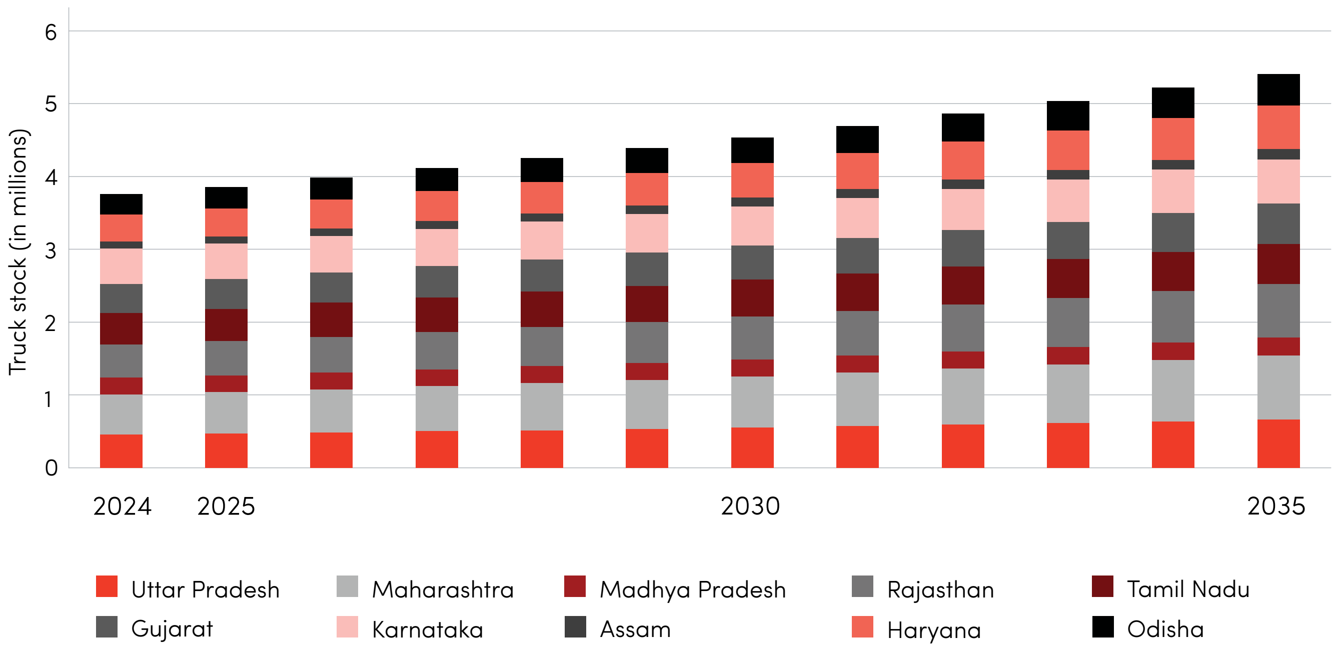
The projections are developed under three scenarios:

- No electrification and continued reliance on ICE trucks.
- BAU (Business-as-usual) indicating moderate e-truck uptake based on current trends.
- BTB (Business-to-be), representing accelerated adoption through strong policy and market shifts.

## 6.1 No electrification scenario

Figure 3 illustrates projected truck stock trend across the selected states under the 'No electrification' scenario. The total truck stock across the 10 selected states is projected to rise from approximately 3.8 million units in 2024 to over 5.4 million units by 2035. Uttar Pradesh and Maharashtra contribute the highest shares, together accounting for over 30% of the cumulative stock by 2035, followed by Tamil Nadu, Gujarat, and Rajasthan. States like Assam and Odisha see relatively modest growth but still exhibit a clear upward trend in line with economic activity.

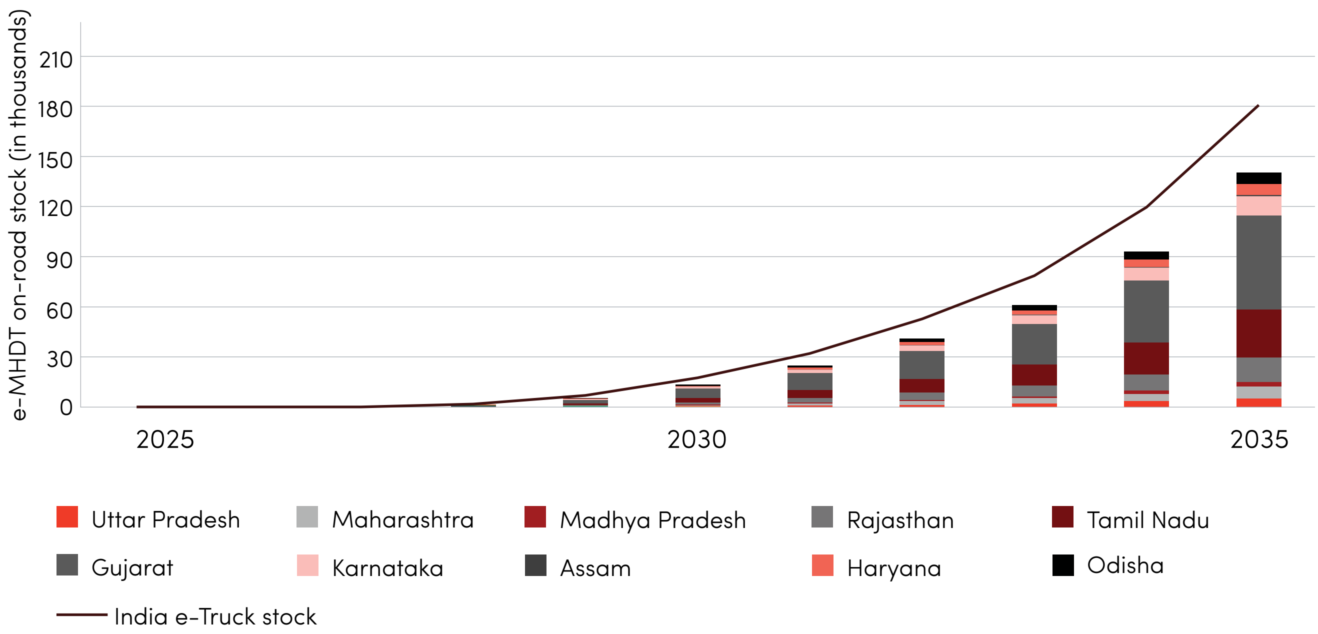
**Figure 3** No electrification scenario (Truck projections)



## 6.2 Business-as-usual scenario

As illustrated in Figure 4, there has been steady growth in the on-road stock of e-MHDTs, which is expected to reach ~140 thousand units by 2035. The primary contributors to this projected growth are states such as Gujarat, Tamil Nadu, Karnataka, Rajasthan, and Maharashtra, where supportive policies, conducive ecosystems, and pilot initiatives have facilitated adoption. This consistent upward trend reflects the expansion of underlying freight demand, and the sales elasticity associated with GDP growth. However, under BAU conditions, traditional diesel trucks continue to dominate, owing to the limited policy impetus and market shift toward electrification. Uttar Pradesh and Maharashtra contribute the highest shares, together accounting for over 30% of the cumulative stock by 2035 followed by Tamil Nadu, Gujarat, and Rajasthan. States like Assam and Odisha see relatively modest growth but still exhibit a clear upward trend in line with economic activity.

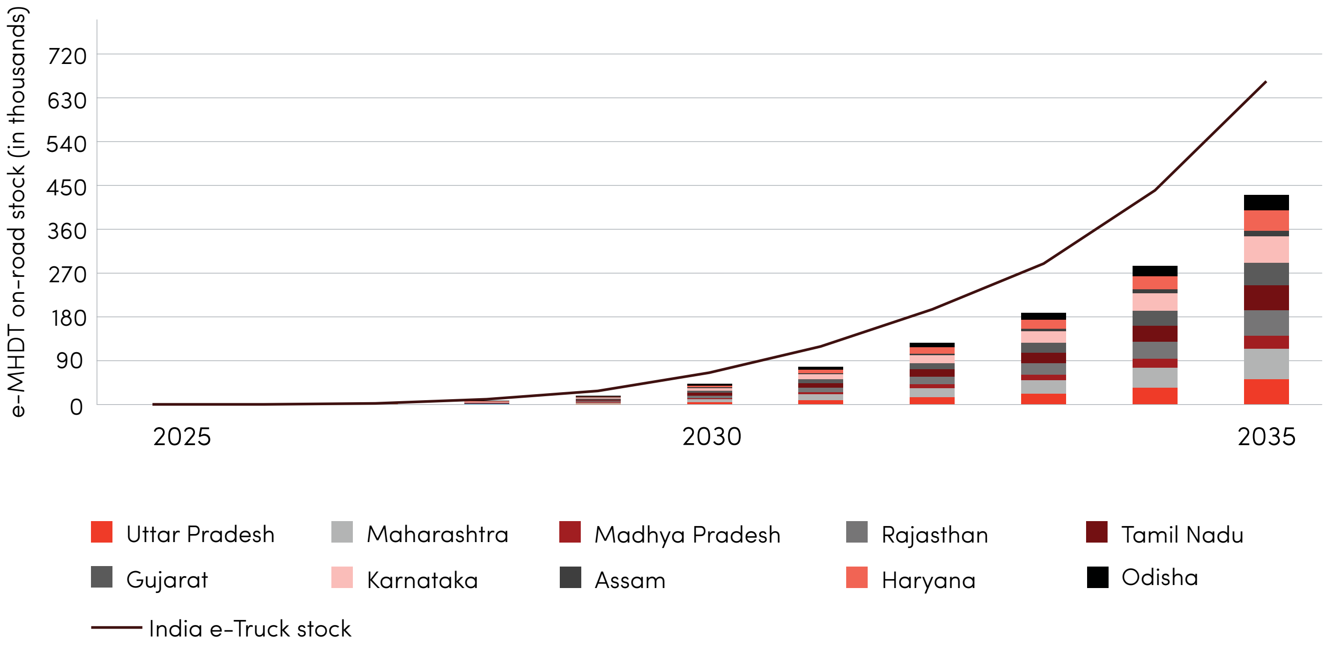
**Figure 4** Business-as-usual scenario (trucking projections)




## 6.3 Business-to-be scenario

Business-to-be scenario as shown in Figure 5, the total truck stock across the selected states is projected to grow to ~420 thousand by 2035, with a significant share transitioning to e-trucks. The primary contributors to this projected growth are states such as Maharashtra, Uttar Pradesh, Tamil Nadu, Rajasthan, Karnataka, and Gujarat where supportive policies, conducive ecosystems, and pilot initiatives will facilitate adoption. The sharp upward trajectory of the total and e-truck stock highlights a transformative shift in freight electrification, enabled by proactive adoption measures. Compared to the BAU scenario, BTB reflects a nearly 3x higher total on-road stock, driven by higher economic responsiveness and technology shift.

**Figure 5** Business-to-be scenario (trucking projections)




The sharp upward trajectory of the total and electric truck stock highlights a transformative shift in freight electrification, enabled by proactive adoption measures. Compared to the BAU scenario, BTB reflects a nearly 35% higher total truck stock, driven by higher economic responsiveness and technology shift.

PILLAR 1

# FINANCIAL INCENTIVES

# Pillar - 1
# Financial incentive

Financial incentive pillar will provide list of policy measures that can be provided/extended to ZETs for its greater adoption at state level. It includes policy measures and alternative levers related to provisions of financial subsidy which state governments can adopt based on their vision or state's requirement.

## Indicator 1.1
## Purchase subsidy and interest subvention

**Policy objective**

The objective of this measure is to **enhance financial support for BET adoption beyond existing national programmes (e.g. FAME, PM E-DRIVE).** Top-up subsidies aim to provide **additional financial incentives** to make BETs more affordable. **Interest subvention** is designed to **reduce the cost of borrowing for BET procurement.** These measures can stimulate greater investment in zero-emission technologies by reducing the financial burden on businesses and individuals.

### 01 Purchase subsidy

The state will provide **purchase subsidy** in addition to national-level schemes (e.g. **FAME, PM E-DRIVE**) to incentivise the additional adoption of **BETs**. It has been a prevalent practice to link **capital subsidy to battery capacity at ₹5,000 – ₹10,000 per kWh[16] and is capped** 15-20% on ex-factory price of the truck, where ex-factory cost of truck does not exceed ₹2 crores[17]. The lower ceiling of the range mentioned is based on the subsidy provided under PM E-DRIVE scheme (for trucks 5000/kWh) and the upper ceiling has been capped based on the subsidy provided by states like Maharashtra and Madhya Pradesh. The step will bring more trucks into commercial viability rather than making the same number of trucks cheaper. To maintain fiscal prudence, the maximum cost of subsidy expected per truck is around **₹5.4 – ₹25 lakhs categorised by the truck category (refer table 1.1).[18]** This can be used in combination with the available budget to arrive at **maximum number of trucks** within the specified programme phase.

[16] Basis to PM E-DRIVE and State's subsidy for e-trucks
[17] To ensure imported trucks are not eligible for subsidy.
[18] Calculated values based on PM E-DRIVE and State's subsidy for e-trucks

**Table 1** Proposed subsidy structure

| MHDV Category | Truck GVW segment (Tonnes) | Subsidy (INR/ kWh) | Battery size (kWh) | E-truck ex-factory cost threshold (₹) | Max subsidy amount | |
|---|---|---|---|---|---|---|
| N2 | 3.5 – 7.5 | 5,000 –10,000 kWh | 90 | 24 lakhs | 5.4 lakhs | ~20% |
| | 7.5 – 12 | 5,000 –10,000 kWh | 120 | 35 lakhs | 7.2 lakhs | ~20% |
| N3 | 12 – 28 | 5,000 –10,000 kWh | 200 | 1 crore | 20 lakhs | ~20% |
| | >28 | 5,000 –10,000 kWh | 400 | 1.25 crore | 25 lakhs | ~20% |

Global point-of-sale incentives play a crucial role in making ZETs financially competitive with ICE trucks, particularly in regions like California, where programmes like the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) provide significant savings of approximately 21% per vehicle.[19] Similar initiatives are observed in the EU[20] and China[21], and are aimed at bridging the cost gap between ZETs and ICE vehicles, facilitating adoption.

For example, In India, the **Maharashtra Electric Vehicle Policy** has announced incentives for **e-4W goods carriers under the N2 and N3** categories, offering a subsidy of 15% of the ex-factory cost per vehicle, with a cap of **₹20 lakhs** per vehicle, applicable to a total of 1,000 vehicles.[22] The Madhya Pradesh EV Policy 2025 offers 100% motor vehicle tax exemption & registration fee exemption for all vehicles, till 2nd year of policy implementation.[23]

## Alternate policies

### Fleet tiering subsidy

The subsidy can be **two-tiered,** providing **higher subsidy,** for say, **10% of the fleet** and then subsequently tapering it off to **lower subsidy,** for say, **5% of the fleet.** This approach ensures that support is available for adopting electric trucks across more fleets (wider reach), rather than concentrating support within a single transporter's fleet.

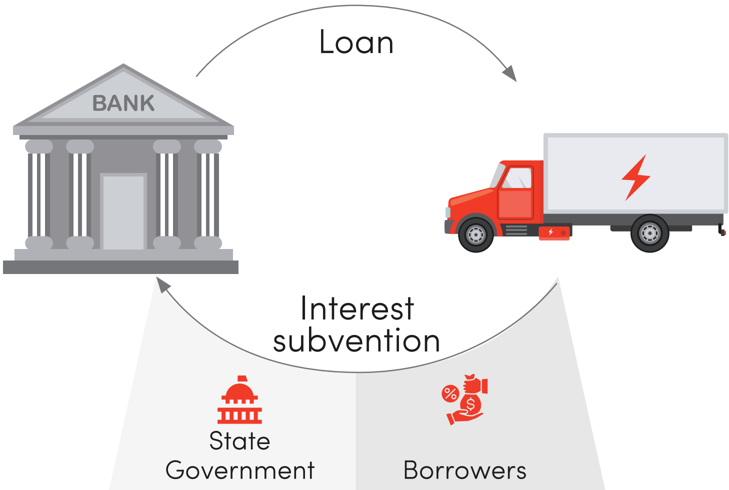
### Pilot based subsidy

The subsidy can be allocated to **pilot projects,** for say, **up to 10% of the fleet and the required charging infrastructure** to assess viability and promote sector-specific use cases.

[19] Hybrid and ZeroEmission Truck and Bus Voucher Incentive Project (HVIP)
[20] Subsidies for Electric Trucks in Europe: Steering Towards a Sustainable Future.
[21] Subsidies for New Energy Vehicles in China
[22] Maharashtra EV Policy, 2025
[23] Madhya Pradesh EV Policy, 2025

## 02 Interest subvention through state financial institutions

The state can provide **interest subvention** on loans for BET purchases through **state banks, cooperative banks, or infrastructure development finance institutions.** Loan tenures can be extended to balance the increase in EMIs with operational savings.




State Bank of India (SBI) in partnership with Statiq has introduced India's first financing scheme for setting up EV charging stations with a 2% interest subvention for loans upto ₹2 crores[24]. Delhi EV policy provides interest subvention of 5% on all loans granted for EV financing including e-LCVs/ goods carrier[25]. Similar scheme can be thought of extended for BETs as well.

# Indicator 1.2
# Fee waivers and tax reliefs

**Policy objective**

The primary objective of fee waivers and tax reliefs for BETs is to **reduce the overall cost of ownership and operation of zero-emission technologies.** By waiving certain fees and providing tax relief, governments aim to make BETs **more economically viable and competitive** compared to traditional, higher-emission alternatives. Tax reimbursement or exemption for BETs is potentially aimed at **reducing the financial barriers to BET adoption.** These policy interventions **benefit e-truck operators** to promote the initial mobilisation of BETs at the state level.

## 01 SGST rebate/ exemption on purchase

The state can provide a **rebate or exemption on SGST** for the purchase of e-trucks, lowering the total cost of ownership for operators. For example the SGST rebate can be made available to first 500 trucks under each programme phase with upper limits.

**Partial SGST rebate**
The state can offer a rebate on the SGST component up to **25% SGST** exemption per truck

**Full SGST exemption for pilot trucks**
A **100% SGST exemption can** be provided for the first **100** trucks engaged in pilot projects or green freight programmes.

[24] Statiq & SBI Partner To Launch EV Charging Station Financing Scheme
[25] Delhi EV Policy

For example, Government of Rajasthan is providing SGST rebate on buying and registering EVs within the state. Similar provision can be thought of extending to ZETs as well.

National Highway Authority of India along with Energy Efficiency Services Limited, provides land near toll plazas and buildings for installing charging infrastructure on a revenue-sharing basis, where the land is leased to private entities to ensure optimal utilisation. Similar MoUs can be taken up by states on the state highways.

Andhra Pradesh, Bihar, Chandigarh, Delhi, Odisha, Punjab, Telangana, Uttar Pradesh, are some states that offer exemption on demand charges for EV charging. Same can be extended for high-tension lines in all states which currently do not offer the same.[26]

Countries like US, through their Inflation Reduction Act (IRA), provide tax credits of up to 30% of the cost of charger till 2032[27] and California provides tax credits under Low Carbon Fuel Standard by direct investments and through utilities' investments under California Energy Commission's programme and California Public Utilities Commission's programme.[28]

Denmark provides additional incentives to housing societies for providing chargers.[29]

## 02 RTO registration fee exemption

The state can offer up to **100% exemption** on RTO registration fees for BETs to promote uptake and reduce initial costs. States like Madhya Pradesh providing 100% registration fee exemption on ZETs.

**Alternate policies**

### Toll Fee Exemption:

The state can exempt BETs from **toll fees** on designated highways and freight corridors, promoting green freight operations.

For example, Maharashtra government is providing toll fee exemption for designated state highways and expressways for passenger EVs. This can be replicated to BETs as well.

**Time-based waiver**

Toll waivers can apply during **off-peak hours** to avoid congestion and encourage efficient transport.

**Zone-based toll waiver**

Toll exemptions can apply in **low-emission zones** and **green corridors,** incentivising sustainable freight movement.

For example, seventeen states and UTs offer road tax exemptions or registration fee waivers for e-freight vehicles. E-trucks registered in these states as eligible for these benefits[30].

[26] Electricity Cost for Charging, e-Amrit
[27] Alternative Fuel Infrastructure Tax Credit
[28] Charging Infrastructure Deployment and Incentives
[29] Global EV Policy Explorer, IEA
[30] Bharat ZET Policy Advisory

As part of the Eurovignette Directive 2022, toll fees for e-trucks were lowered in the EU, with each member state following the directive with some adjustments[31].

London's congestion charging is applied to vehicles not complying with EURO VI standards[32]. While BETs do not receive any preferential benefit, they appear as an attractive option for operating inside the Ultra Low Emission Zone and Low Emission Zone due to zero tailpipe emissions.

### 03 Road tax exemption

State governments (such as Telangana, Andhra Pradesh, Odisha, Tamin Nadu etc) in their respective states have extended this support in multiple vehicle category like 2 wheelers, 4 wheelers. Similar provision can be thought of extending for BETs as well.

### 04 Permit fee exemption

The state can waive off permit fees (local and state permits) for BET operations, lowering operating costs.

## Indicator 1.3
## Leasing period

**Policy objective**

Leasing commercial vehicles means that a business agrees to pay a set amount each month to use the vehicles for a certain amount of time without having to pay for them all at once. The objective of allowing longer leasing periods for BETs serves dual purpose. Firstly, this approach **enables the distribution of BET investment costs over an extended timeframe, effectively reducing monthly or annual financial burdens for adopters.** Secondly, it **aligns leasing terms more closely with the characteristic longer lifespan and slower depreciation rates often associated with zero-emission technologies.** By offering the extended leasing option, policy can enhance the attractiveness of BETs for businesses and individuals who might otherwise be deterred by the substantial upfront costs associated with outright purchases. This measure **functions as a strategic tool to lower barriers to entry and encourage wider adoption** of climate friendly technologies.

### 01 State intervention on leasing tenure and models

The state can request Reserve Bank of India (RBI) to relax leasing tenure mandates for e-trucks, enabling longer leasing periods. Additionally, the state can explore options for providing higher interest subvention on leased vehicles to support operators in managing financial risks. SBI Green Car Loan scheme allows repayment periods for a maximum of 8 years[33].Similar schemes can be extended to BETs.

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31 Tolling the Highway to Green Trucking, Eurovignette Reform
32 London's Ultra Low Emissions Zone (ULEZ)
33 SBI Green Car Loan

PILLAR 2

# CHARGING INFRASTRUCTURE

# Pillar - 2
# Charging infrastructure

This pillar deals with charging infrastructure related policy measures and alternative levers for state government to make their EV policy ZET ready. It includes measures related to creation of charging infrastructure,  optimising tariff, supporting power infrastructure, and soft measures.

Adequate charging infrastructure is critical for ZET adoption. High quality electricity should be available at reasonable prices, dispersed through widely distributed easy to locate and easy to access, dependable fast charging stations.

This will help in the following ways:

- **Address range anxiety and build confidence:** Range anxiety makes fleet operators hesitant to switch to BETs, particularly for long-distance operations. A reliable network of charging stations can boost user confidence.

- **Location:** Strategic placement of charging stations along high-demand routes, key freight corridors, warehouses, logistics parks, industrial units, and ports ensures charging is available for BETs. This will help reduce 'range anxiety' and enhance charger utilisation. Such stations also need to be well-designed for BET accessibility and user convenience.

- **Minimise downtime and increase operational viability:** Fast charging systems (in excess of 100 kWh) reduce BET charging time and downtime (time spent off the road). Reduced downtime allows BETs to match ICE trucks in freight lead times, increasing operational viability.

- **Reduce costs and increase economic viability:** A wide network of charging stations allows BETs to have optimised battery packs. Smaller battery packs increase BET payloads (for the same GVW), reduce weight and increase energy efficiency.

Charging infrastructure development requires physical information, human capital upfront and deployment of large financial resources. State governments need to carefully plan the development of charging infrastructure for BETs given their large energy needs. A well-planned fast-charging network can yield significant returns with BET adoption.

# Indicator 2.1
# Creating charging infrastructure

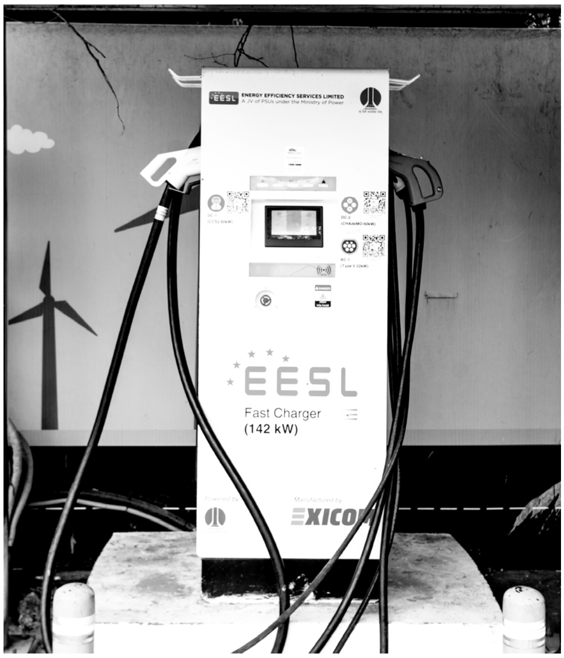
**Policy objective**

All state EV policies have made multiple provisions including capital incentives, land facilitation, regulatory amendments to development control regulations and building bye laws. But these have focused primarily towards creating infrastructure to support e-2W, e-3W and electric cars within urban areas. The policies providing support are typically chargers with low capacity (less than 50 kwh for 2-Wheelers and 4-Wheelers) and for ZETs, we need for high capacity chargers. The provisions can be expanded to support creation of fast charging infrastructure - charging space, location and accessibility - amenable to BETs.

## 01 Direct subsidies for CPOs to set up fast chargers

Direct subsidies aim to encourage the deployment of faster charging stations by lowering the upfront capital costs incurred by charge point operators (CPOs) for setting up such stations. Most states already offer subsidies on CAPEX incurred in establishing a charging station. Annexure 2 outlines a detailed list of such subsidies offered by different states and UTs.

Earlier FAME-I and FAME-II provided subsidy to public charging point operators and then PM E-DRIVE scheme extended fiscal support to private charge point operators along with public and also has increased the quantum of support for creating of charging infrastructure. Considering this, state government can also extend support for private CPOs for increasing the charging infrastructure in their respective states.




**Policy:** A subsidy of 20% offered on the capital cost of the fast charger (excluding the cost of ancillary and civil works). A fast charger, for the purpose of being suited for trucks and buses, can be defined as those with power levels more than 100 kW. The subsidy can be capped at ₹10 lakhs per charger unit.

**Alternate policies**

**Tiered subsidy by charger type**

For offering subsidies, most state policies have conceived only types of chargers: slow chargers and DC fast chargers. However, it is recommended that a three-tiered categorisation for charger-types be defined and subsidies given against all three tiers:

Table 2 Subsidies for CPOs to set up fast chargers

| Charger type | Power levels | Incentive | Maximum limit |
|---|---|---|---|
| Slow chargers (for 2W, 3W and 4W) | Less than 100 kW (AC or DC) | ₹ 1 lakh | 20% of charger cost |
| DC fast chargers (for cars, LCVs and trucks) | 100 kW to 250 kW (DC) | ₹ 5 lakhs | 20% of charger cost |
| DC hyper fast chargers (for trucks and buses) | Greater than 250 kW (DC) | ₹ 10 lakhs | 20% of charger cost |

**Location-determined subsidy**

Subsidy can be limited to chargers installed at specified transport hubs or along highway corridors. Hubs like industrial parks, ports, logistics hubs, transport nagars, truck unions, depots, APMC and grain markets can be chosen for such a policy. (Refer Indicator 4.1)

### Develop fast chargers via public-private partnerships (PPPs)

The state government can enter PPPs to share the upfront investment cost for charging infrastructure development, making it more attractive for private sector participation. The government can participate via the distribution company [state nodal agency or a special-purpose vehicle (SPV) company]. The government's equity can be raised via land parcels and behind-the-meter high-tension (HT) connectivity, and the CPO can set up charging station units and ancillary facilities. The CPO would be responsible for operating the fast charging station and sharing revenues.

> For example, Kerala government has started the "Refresh and Recharge" Initiative under which they are developing 63 EV charging station on PPP on DBFOT model[34].

### Develop fast chargers via public-sector companies

The state government, via the DISCOM and Oil Marketing Companies (OMCs), can themselves develop fast chargers at strategic locations.

> For example, public sector companies like Bharat Petroleum, Indian Oil Corporation Ltd., HPCL have already installed chargers upto 60 kWh. These companies have operational fuel stations at strategic locations along highways. There is merit in utilising them as charging stations for commercial vehicles for better utilisation. The same can be upgraded to high capacity chargers can be deployed.

### Concessional land in priority corridors/ hubs

The state government can provide land at concessional rates or on a revenue-sharing basis for the establishment of charging infrastructure. This reduces a significant cost component for CPOs, incentivising infrastructure development.

> For example, Tamil Nadu is providing 50% discounted land in EV supplier parks for companies setting up EV and components manufacturing[35].

### Targeted land allocation

State governments can reserve land parcels near freight corridors, state and national highways, urban node peripheries, industrial parks, transport nagars, depots, APMC and grain markets and other strategic locations. Such land parcels should have access to 11 kV or 33 kV high-tension spur line, and adequate parking and manoeuvring space for multiple BETs.

### Ensuring access to BETs at all fast charging stations

Most fast charging stations are not yet designed to accommodate heavy-vehicles like trucks and buses. However, fossil fuel stations are designed by oil-marketing companies to provide ample parking space and manoeuvring space for trucks and buses. States can stipulate that all fast chargers (greater than 100 kW) developed via government incentives must be designed to accommodate trucks and buses.

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[34] Kerala's 'Refresh & Recharge' Initiative Sets a New Benchmark for EV Charging Infrastructure in India

[35] TamilNadu EV Policy 2023

### Creating battery swapping stations for e-trucks

To ensure seamless highway connectivity for electric medium and heavy-duty trucks, the state government can incentivize the creation of automated battery swapping stations along key freight corridors and highways. This framework will promote the 'Battery-as-a-Service' (BaaS) model to reduce high upfront battery costs and mandate automated swapping technology to reduce turnaround times to under few minutes, matching the efficiency of conventional refuelling.

For example, Union Minister Nitin Gadkari launched India's first electric truck battery swapping station in Sonipat. It is built by Energy in Motion at Delhi International Cargo Terminal Private Limited (DICT) near village Panchi in Sonipat (Haryana).[36]

# Indicator 2.2
# Optimising tariffs

**Policy objective**

Despite efforts by the central and state governments to reduce charging costs, they still range from ₹15-23 /kWh at fast charging stations. At these energy costs, the per km energy costs of a BET are only marginally better than those of an ICE truck. Charging costs can be optimised by CPOs only when state DISCOMS optimise electricity tariffs. The Ministry of Power via their 'Guidelines on Electric Vehicle Charging Infrastructure for EVs' in the year 2022 and 2024 has made several pragmatic suggestions to optimise tariffs for EV charging. State governments need to make forward-looking policy that make a trade-off between revenue losses today and the creation of a whole EV industry tomorrow.

### Holiday on demands charges, fixed charges and electricity duty

States can consider a five-year holiday on demand charges, fixed charges and/ or electricity duty for fast chargers. This can reduce the tariffs for CPOs who can pass on the benefits to BETs (and other EV) users and potentially enhance the economic viability of setting up fast chargers for BETs with high power requirements. State Electricity Regulatory Commissions (SERC) can establish guidelines for waivers on demand and fixed charges.

For example, Telangana Electric and Energy Storage Policy 2020-2030 is providing electricity duty exemption 100% for 5 years capped at ₹0.5 Cr[37].

### Time-based demand management/ time-of-use tariffs

After SERC's approval, states can define and implement time-of-use tariffs for EV charging. The draft 'Guidelines on Electric Vehicle Charging Infrastructure for EVs' prepared by the Ministry of Power in 2024 proposes a time-of-day tariff structure with lower tariffs of 0.7 times ACoS (Average Cost of Supply) during solar hours during (9:00am to 4:00pm) and higher tariffs of 1.3 times ACoS during non-solar hours. This can be used as a template for defining time-of-use tariffs.

[36] Indias first battery swapping station
[37] Telangana EV and ESS Policy 2020-2030

Time-of-use tariffs allow state DISCOMs to offer lower electricity prices for charging BETs. At the end of supply, time-of-use tariffs allow DISCOM to move EV charging off peak electricity demand on the grid and better align EV charging during the daytime hours when renewable energy is ample. It is an effective mechanism for DISCOMs to minimise peak loads, manage costs, and reduce the need for additional distribution capacity.


## Support for BESS at charging stations

Battery energy storage systems (BESS) can be integrated into charging infrastructure to help manage peak electricity demand on the grid. BESS can allow the following benefits when integrated with individual fast chargers:

- Fast chargers can create peak demand over short periods of time. The high-power draws can put a strain on grid stability and DISCOMs need to build provisions for such demand. BESS can help manage the short-duration surge.
- Allow fast charging stations to store energy during periods of low demand, discharge when demand goes up to address peak demand for EV charging.
- Allow fast chargers to reduce costs by making use of time-of-day tariffs and open access renewable energy.

State governments can provide a CAPEX subsidy for installing BESS at fast charging stations. States can consider a subsidy on a per kWh basis, with the maximum battery energy capacity capped for each charger unit installed.

**Alternate policies**

### Rooftop-solar and BESS

State governments can subsidise an integrated solution comprising BESS, rooftop solar, and energy management systems — that help reduce peak grid load and improve economic viability. To qualify, projects must demonstrate a reduction in peak grid draw or improved load factor. Priority should be given to chargers installed along highways and in areas with grid constraints.

For example, the Investment Tax Credit (ITC) is a federal tax credit of 30% that can be claimed by investors in solar energy property, both residential (under Section 25D) and commercial/utility (under Section 48), to offset their tax liability[38].

[38] Alternative Fuel Infrastructure Tax Credit

Tamil Nadu's EV Policy provides incentives for chargers with the cost of renewable energy equipment being a part of the charging statin provided at least 75% of the energy produced is used for charging. It also suggests a reduction of 50% energy charges between 8AM to 4PM to incentivize charging during non-peak hours to promote usage of renewable energy for EV charging[39].

# Indicator 2.3
# Supporting power infrastructure

**Policy objective**

Charging stations should be supported by strong infrastructure that provides high-quality electricity with stable voltage, no harmonic distortions, losses and outages. It is also necessary that charging stations be 'smart' and interact with the grid to not destabilise or degrade the electricity distribution system.

## 01 Behind-the-meter subsidies for CPOs

A behind-the-meter subsidy scheme is aimed at offsetting the high costs of connecting fast charging stations to the grid through 11 kV or 33 kV dedicated high-tension lines. These connections, essential for high-power chargers (≥100 kW), involve substantial CAPEX on transformers, cabling, switchgear, and metering. A policy such as this would de-risk private investments and accelerate deployment in grid-poor but high-demand locations, particularly highways.

Capital subsidy of up to 80% of the cost of behind-the-meter infrastructure like high-tension lines, step-down transformers, ring main units (RMUs), and associated civil works - can be provided, with differentiated caps for urban and rural locations.

## 02 Developing power infrastructure along corridors/ hubs

Incentives or subsidies can be linked to the achievement of specific charging infrastructure deployment targets along key freight corridors or at designated hubs. This can ensure a strategic and phased approach to infrastructure build-out.

**Alternate policies**

### Plug-and-play power infrastructure

State governments can create plug-and-play power infrastructure along key freight corridors or at designated hubs.

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[39] TamilNadu EV Policy 2023

For example - Uttar Pradesh is setting up an EV park of 500-acre near Kanpur for manufacturing with provisions for battery swapping and charging infrastructure on-site. It will be a ready-made infrastructure (power supply, land, permissions) so investors can plug-and-play directly[40].

## 03 Open access for renewable energy

State governments can allow open access to renewable energy for EV fast charging stations. Allowing renewable energy procurement through open access — via solar, wind, or hybrid sources — can significantly lower electricity costs while making EV operations nearly zero-emissions. This policy tool complements national policies under the Energy Conservation Act and the Green Open Access Rules, 2022.
State governments can work with their respective SERC to:

- Recognise EV charging stations as eligible open access consumers for loads greater than 1 MW.
- Waive or reduce cross-subsidy surcharges, additional surcharges, and wheeling charges for renewable energy used solely for EV charging.
- Facilitate storing renewable energy to match intermittent supply with EV demand profiles.

# Indicator 2.4
# Soft measures

**Policy objective**

Setting up charging stations requires approvals, compliances and permits from multiple government agencies (see Table 3) coordination. A major bottleneck facing CPOs is the delay in obtaining necessary permits and electricity connections. The current process is marked by delays and inefficiencies in installation. While not a direct subsidy, streamlining and fast-tracking approvals can reduce soft costs and accelerate deployment.

[40] UPSIDA to invest ₹700 crore in 500-acre EV park near Kanpur under CM Yogi's Visi

Table 3 Permits and approvals required for setting up a fast charger

| Category | Requirement | Authority/ agency involved |
|---|---|---|
| Electricity connection | • Security deposit and meter installation<br>• Installing a dedicated high-load electricity connection | Local DISCOM |
| Load sanction | • Feasibility study for load requirements<br>• Approval of sanctioned load based on charging capacity<br>• Installation of a dedicated transformer<br>• Laying of 11 kVA or 33 kVA line (if needed) | Local DISCOM |
| Electrical safety | CEIG inspection and safety clearance | Chief Electrical Inspector to government (CEIG)/ State Electrical Inspectorate or authorised third-party agencies |
| Fire safety clearance | No objection certificate (NOC) for fire safety | Local fire department |
| Environmental clearance | Consent to establish and operate (as applicable) | State Pollution Control Board |
| Land and zoning approvals | • Municipal permissions: Secure approvals related to land use, layout, construction, and signage from the municipal corporation or development authority. | Municipal corporation/ development authority |
| Business registration | Business license, shop and establishment registration | Local Municipality/ Panchayat |
| Charger standards | Installation of BIS-compliant chargers (e.g. CCS, CHAdeMO, Bharat DC-001) | Bureau of Indian Standards (BIS), Ministry of Power |
| Infrastructure setup | Parking, lighting, security systems, signage | Self-compliance based on guidelines |

| Category | Requirement | Authority/ agency involved |
|---|---|---|
| Safety measures | Fire extinguishers, staff training, emergency protocols | Self-compliance |
| Data sharing | Share charging station data with DISCOM and central government portal | DISCOM, MoP guidelines |
| Incentives and subsidies | Apply for PM E-DRIVE and state EV policy incentives | Department of Heavy Industries/ State nodal agencies |
| GST registration | If a new business entity is incorporated | GST department |
| Software and payments | Mobile app for booking and payments (UPI, wallets, cards) | Private integration/ fintech partnerships |

## Reducing delays in permits and power connections

State governments can ensure a time-bound resolution for issue of permits, electricity connection (new or upgrade) and incentives approval decisions for charging stations. This can be provided legal enforceability by notifying issuances as public service under the Right to Public Service Delivery Act (RTPSDA) that are in place in 24 states.

**Alternate policies**

### Pre-approve sites and power infrastructure

Identify and pre-approve strategic locations, like transport hubs, certain highways, and logistics parks. They should have pre-sanctioned electricity loads and civil infrastructure to facilitate a plug-and-play solution for CPOs.

**Mandate time-bound high-tension connections:** SERCs can issue specific timelines for high-tension connections, including cabling, transformer installation and metering. Penalty provisions for non-compliance by DISCOMs should be considered.

**Capacity building for local authorities:** Training municipal authorities, DISCOM engineers and pollution control officers in the regulatory framework for chargers and electric vehicles to enhance understanding and reduce bureaucratic hesitation.

**Charging infrastructure facilitation committees:** States can organise inter-agency facilitation committees at the state and district levels to resolve cases and monitor progress.

PILLAR 3

# DEMAND AGGREGATION

# Pillar 3
# Demand aggregation

This pillar deals with aggregating business to business demand for ZET ecosystem. It includes policy measures and alternative levers related to aggregating fleet demands through state PSUs and demand side mandates. State governments can include these in the EV policies.

## Indicator 3.1
## Aggregating B2B demand

**Policy objective**

The state can work with B2B stakeholders to aggregate demand from fleet operators, state PSUs and private logistics companies to promote the transition of MHDTs to e-MHDTs. Convergence Energy Solution Limited (CESL) concluded 'The Grand Challenge' for procurement and deployment of 5,450 e-buses across 5 cities[41]. A similar framework can be identified for BETs, specifically for government fleets and industries who are required to make CO2 reduction commitments (like heavy-industries and e-commerce).

**Aggregated fleet transition for state PSUs**

The state can set fleet transition targets for state PSUs and offer financial and operational support.

For example - Steel Authority of India (SAIL) has committed to deploy 150 e-trucks in coming two years[42].

**Alternate policies**

**Fleet procurement targets**

Setting targets on state PSUs to make new truck procurements electric.

## Indicator 3.2
## Demand-side mandates

**Policy objective**

The state can implement mandates for aggregated fleets and fleet owners (public and private) to transition to BETs. These mandates can be announced in advance, ensuring that operators have sufficient time to prepare for compliance.

**Fleet transition mandates**

Mandating certain percentage of fleet electrification for logistics companies and public entities by a defined timeline is helpful.

**Alternate policies**

**Sector-specific mandates**

Set sector-based mandates (e.g., cement, mining, e-commerce) for fleet operators.

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[41] Electric Bus Grand Challenge Case Study
[42] SAIL commits to procure 150 e-trucks in couple of years to strengthen PM E-Drive Scheme

PILLAR 4

# STRATEGIC MEASURES

# Pillar 4
# Strategic measures

This pillar deals with strategic measures for enabling ZET ecosystem. It includes policy measures and alternative measures related to green channels, administrative measures related to no entry and charging layout approval process, land related subsidy and sustainability related measures for state governments can include in their EV policies.

## Indicator 4.1
## Green channels and highways

**Policy objective**

The state can adopt a **corridor-based approach** to **develop green** channels along critical freight routes, ensuring **preferential loading/ unloading zones** and **prioritised routes for BETs**. States can have the flexibility to design **custom green channels** aligned with specific **industry needs and local use cases** (e.g. mining, e-commerce). The state could also **engage with the Highway Infrastructure Trust** to facilitate planning and execution.

For example, In India, the **PSA office, GoI** has recently released a report identifying **10 priority corridors for seamless ZET movement.** The corridors were meticulously identified through primary and secondary surveys and stakeholder consultations. These corridors would serve as pilot corridors for generating insights on ZET technology performance, shifts in operational patterns, infrastructure requirements, and policy and financial interventions required for scaling up of ZET adoption along major highways in India[43].

**Sao Paulo in Brazil** has developed **exclusive corridors and bypass**es for urban freight management.[44] Similarly, **Gothenburg in Germany** allows **priority lane access** to electric trucks in its A.P. Moller-Maersk (APM) terminals.[45] **New York City Department of Transportation (NYC DOT)** has conducted a survey with fleet operators on their current use of green vehicles and associated challenges, while also exploring possible means for adopting **Green Loading Zones beyond the pilot**. **The Green Loading Zones** are proposed for exclusive use by green vehicles for loading and unloading activities.[46]

### Corridor-based green channel development

The state can identify **a minimum of 3** to **maximum 10 key freight corridors** and designate them as **green channels** for BET movement. Infrastructure along these routes can prioritise **charging stations, depots and logistic hubs** to ensure seamless operations.

**Alternate policies**

### Sector-specific corridor approach

States can develop green channels along **industry-specific corridors** (e.g. mining, cement and e-commerce sectors) to address freight demand.

[43] India's Priority Corridors for Zero-Emission Trucking
[44] Case Study on Green Trucks/Freight Transport Initiatives, World Bank
[45] Electric Truck Priority - APM Terminals, Gothenburg
[46] New York City DOT Green Loading Zones Pilot Survey

**Public-private corridor partnerships**

States can engage with **private stakeholders** and **Highway Infrastructure Trust** under a **PPP model** to co-develop charging and logistics infrastructure.

## Preferential loading and unloading zones

The state can ensure **preferential access** for BETs at **loading and unloading docks**, reducing idle time and improving operational efficiency.

**Alternative policies**

**Dedicated green loading zones**

Establish **exclusive loading/ unloading bays/ areas** for BETs at ports, freight train terminals, logistics parks and warehouses.

For example - **The Municipal Corporation Shimla and the traffic police** have identified several locations across the city for **loading/unloading activities.** These can be extended to ZETs as well.

## Prioritised routes for BETs

The state can designate **prioritised routes** for BET movement, with **exclusive lanes or time-based priority access** to minimise travel delays and enhance freight efficiency.

**Alternative policies**

**Time-based priority routing**

States can work on provisions related to BETs **priority access during peak hours** on select highways and urban routes.

**Dedicated lanes for BETs**

Develop **dedicated BET lanes** on major corridors to reduce congestion and improve vehicle efficiency.

## Green channels based on local context

The state can provide **flexibility for regional authorities** to design green channels aligned with **specific local industries** and operational needs, ensuring tailored freight solutions.

**Alternative policies**

**State-specific green freight plans**

Require each state to develop a **green freight plan** aligned with local logistics patterns.

**Pilot green corridors**

Launch **pilot projects along few key routes** to test the effectiveness of green channels and make adjustments based on real-time feedback.

# Indicator 4.2
# No-entry permissions and green zone access

**Policy objective**

The state can enable **single-window clearance systems** to provide timely permissions for BETs to enter **green zones**.

For example,the Delhi EV Policy exempts e-LCVs from entry time restrictions and similar provisions can be explored for BETs [47].

# Indicator 4.3
# Streamlining charging station layout plans and approval processes

**Policy objective**

The state can streamline **layout approval processes** from **town planning and industrial development corporations (IDC**) to facilitate the development of BET logistics parks and charging infrastructure. In Maharashtra, all special planning authorities (SPAs) including Maharashtra industrial development corporation (MIDC) are required to align their approval processes within the guidelines of Maharashtra EV Policy to ensure uniformity and streamline implementation of charging infrastructure across residential and commercial spaces.[48]

### Dedicated nodal officers for fast-track approval

States can appoint **nodal officer** within each department to expedite layout approvals.

### Digital platform and auto approvals for layout approvals

- Expedite a **digital tracking system** to monitor approval timelines and issue updates to applicants. State governments, through development authorities, can integrate BET infrastructure layout approvals with existing single-window clearance portals (such as OBPAS, FASTPAS, UPYOG portal of MoHUA).
- Development authorities can provide standard layouts/ model layouts for BET infrastructure.
- State governments can permit/ regulate BET chargers under DCR or zoning regulations for auto-approvals

For example, in some states such as **Rajasthan and Madhya Pradesh have single-window clearance systems** to approve new charging stations within weeks, coordinating utilities and urban bodies.

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[47] EVs in Delhi can ply in no-entry hours
[48] Maharashtra EV Policy, 2025

# Indicator 4.4
# Land-related subsidies

**Policy objective**

The objective behind land related subsidies to manufacturing units is to **compensate for the initial cost and attract investment in the state, particularly in the EV manufacturing sector.** This will also boost employment opportunities. Under the Tamil Nadu EV Policy 2023, the state offers land at concessional rates through SIPCOT and other industrial agencies to EV and component manufacturers. Additionally, long-term lease options and infrastructure-ready EV parks (e.g. in Manallur) are provided to reduce setup costs, anchor investments and generate employment across the EV value chain.[49]

### Subsidy on cost of land

States can include provisions for **subsidising land costs** to reduce the initial setup burden for EV manufacturing units and attract investment. States can also offer **stamp duty exemptions** on **land transactions** to further ease entry barriers and encourage industrial establishment in the EV sector.

For example, Telangana EV Policy provides 100% stamp duty fee exemption for the first transaction and 50% on second transaction[50].

# Indicator 4.5
# Fee waivers and tax reliefs

**Policy objective**

Fee waivers and tax reliefs to manufacturing units can bring down operational costs, nurturing a f**avourable environment for investment and adoption of zero-emission vehicles manufacturing in the state.** Certain taxes or discounts on BET-related investments can also be part of the exemptions. The Tamil Nadu EV Policy 2023 offers comprehensive fiscal incentives, including 100% SGST reimbursement, electricity tax exemption for five years, and stamp duty waivers for EV-related manufacturing units. These measures aim to lower operational costs, attract investment, and boost employment in the zero-emission vehicle sector[51].

### Electricity tariff discounts

States can offer **special tariffs (both consumption and demand)** on electricity, with additional reductions for charging infrastructure using renewable energy sources.

For example, Telangana Electric and Energy Storage Policy 2020-2030 is providing electricity duty exemption 100% for 5 years capped at ₹0.5 Cr[52].

### Employment-related incentives

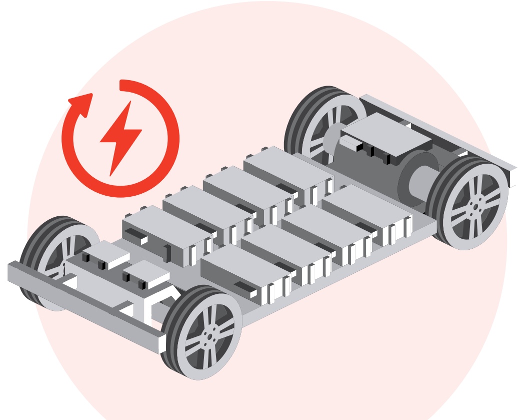
States can include employment-related incentives such as **offering tax breaks** or **subsidies for employer-led training initiatives** and providing **financial support** for training programmes.

[49] Tamil Nadu EV Policy 2023
[50,51,52] Telangana EV Policy 2025

# Indicator 4.6
# Sustainability, circularity and decarbonisation

**Policy objective**

Encourage environmentally responsible practices across the EV value chain. This includes **reducing lifecycle emissions,** promoting **reuse and recycling of EV components** like batteries, and supporting low-carbon manufacturing and supply chain processes. These measures aim to minimise the environmental footprint of the EV ecosystem.



The Tamil Nadu EV Policy 2023 mandates the establishment of EV battery recycling centres, offering incentives equivalent to those for battery manufacturing projects. These measures are designed to foster a circular economy, minimise resource usage, reduce waste and emissions, and support low-carbon manufacturing processes within the EV value chain.[53]

### Incentives for battery recycling

**Capital subsidies or tax rebates** to encourage **establishment of battery recycling units.** Additional support can include **fast-track approvals, land allotment, or mandating buy-back obligations under Extended Producer Responsibility (EPR) frameworks.**

### Incentives for use of renewables in manufacturing process

States can offer incentives to manufacturers adopting renewable energy in their operations, **including exemptions on electricity duty, open access charges, or viability gap funding for captive solar and wind projects.** Industries using green power can also be prioritised for approvals or green certification benefits.

[53] Tamil Nadu EV Policy 2023

PILLAR 5

# CAPACITY BUILDING

# Pillar 5
# Capacity building

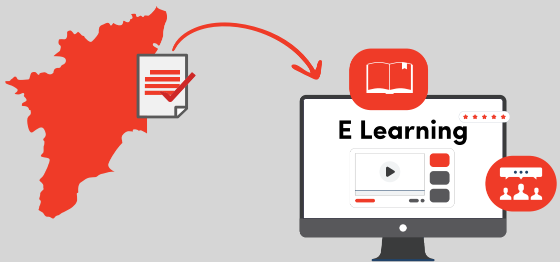
This pillar deals with capacity building of ZET ecosystem players including logistics service providers, driver partners, OEMs and charge point operators for euipped with necessary additional skills required to deal with ZETs. It consists of policy measures and alternative measures for state governments to modify their EV policies and make them ZET inclusive as well.

## Indicator 5.1
## Capacity building for local LSPs

**Policy objective**

Through government departments develop training programmes for local service providers (LSPs) to ensure the availability of skilled labour for logistics and vehicle maintenance.

Tamil Nadu's EV Policy commits to training programmes for logistics and EV service providers like launching courses across logistics subsectors, collaborating with industry and academia, and supporting centres of excellence.[54]




**Alternate policies**

**Skill certification programmes for LSPs**

Certification programmes focused on EV operations and maintenance.

For example, Haryana EV Policy provides provisions related to training for various skill developments to the stake holders. Industrial Training Institutes (ITIs) to conduct courses for the repair of electric vehicles. Information Education Communication (IEC) plan will also be prepared by HAREDA for wide scale public awareness[55].

**Incentives for trained LSPs**

States can provide fiscal incentive per certified LSP to logistics companies employing skilled personnel.

[54] Tamil Nadu EV Policy 2023
[55] Haryana EV policy 2025

## Indicator 5.2
## Capacity building for skilled charging station operators

**Policy objective**

The state can create targeted training programmes for charging station operators, focusing on technical skills, CMS integration, and energy management.

West Bengal's EV Policy 2021 has vocational training for charging station staff, which includes curriculum development and a dedicated skill centre.[56]

**Alternate policies**

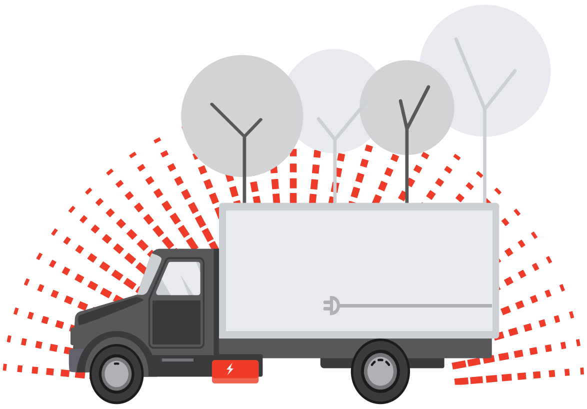
**Public-private training partnerships**

Collaborate with OEMs and energy companies to deliver specialised training for operators.

## Indicator 5.3
## Capacity building for drivers

**Policy objective**

The state can partner with businesses and OEMs to deliver driver training programmes, while focusing on eco-driving techniques, safety protocols, and BET vehicle maintenance.



**Alternate policies**

**Corporate-led driver certification**

Corporate fleet operators can offer driver certification programmes as part of their transition strategy.

**OEM-driven driver training**

Specialised training sessions by OEMs for drivers operating their BET models, ensuring proper vehicle handling and battery management.

[56] West Bengal EV Policy 2021


DELTA

# EXISTING POLICY ENABLERS FOR EVs

# 1. Background

India's freight sector is projected to grow from 2.6 trillion tonne-kilometres in 2018 to nearly 9.6 trillion tonne-kilometer by 2050[57]. India's EV adoption efforts have so far focused predominantly on segments like two- and three-wheelers, passenger cars, and public transport buses. These have been supported by national schemes like FAME and the Production-Linked Incentive (PLI) programmes, and EV policies notified by over 29 states and UTs[58]. The freight sector has largely been overlooked. State governments have regulatory authority over transport corridors, logistics hubs and industrial development, and are in a position to build the ZET ecosystem.

This section presents a qualitative assessment of existing state EV policy frameworks to evaluate their potential of boosting ZET adoption. The analysis focuses on three of five pillars presented in the first part of the report, which have been included and implemented in existing state EV policies for different vehicle segments (Figure 6). This sets a precedent for state governments to modify and extend such interventions for ZET adoption. The three interventions considered for the evaluation are briefly described below:

| Demand-side interventions | Supply-side interventions | Charging infrastructure provisions |
|---|---|---|

**Demand-side interventions** like purchase incentives, road tax exemptions, and registration fee waivers, and their scalability to support the higher capital costs associated with electric trucks.

**Supply-side interventions**, including capital subsidies for fixed asset investment, reimbursements for setting up industrial units related to the EV ecosystem, and manufacturing incentives to support heavy-duty EV platforms and components.

**Charging infrastructure provisions**, planning and deployment of high capacity charging stations suitable for freight operations along industrial corridors, logistics hubs and highways.

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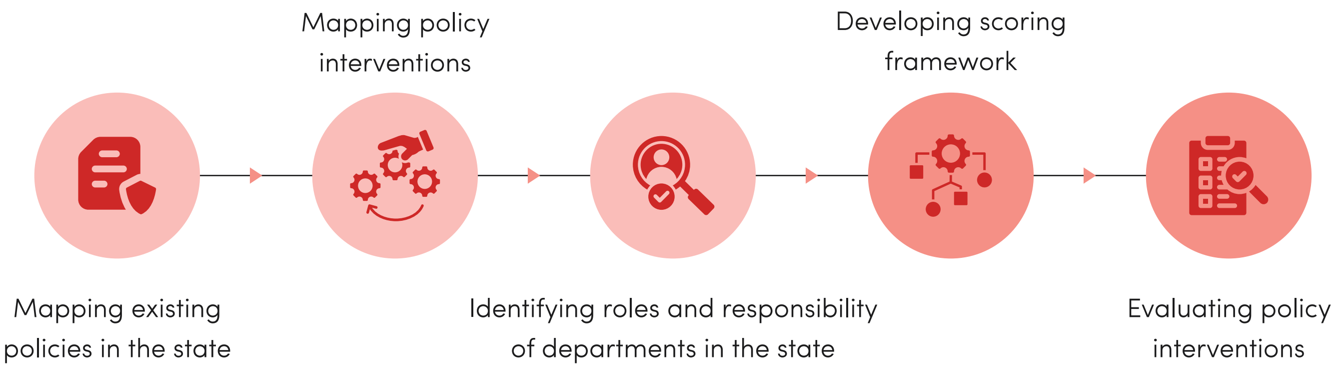
57 https://www.niti.gov.in/sites/default/files/2021-06/FreightReportNationalLevel.pdf
58 https://evyatra.beeindia.gov.in/state-ev-policies

**Figure 6** Three pillars considered for evaluation in the study


We have conducted an in-depth assessment of existing state EV policies, supporting policies to enable ZET transition, and mapped roles and responsibilities of state departments (detailed approach followed are mentioned in figure 7).

**Figure 7** Process of evaluation of policy interventions

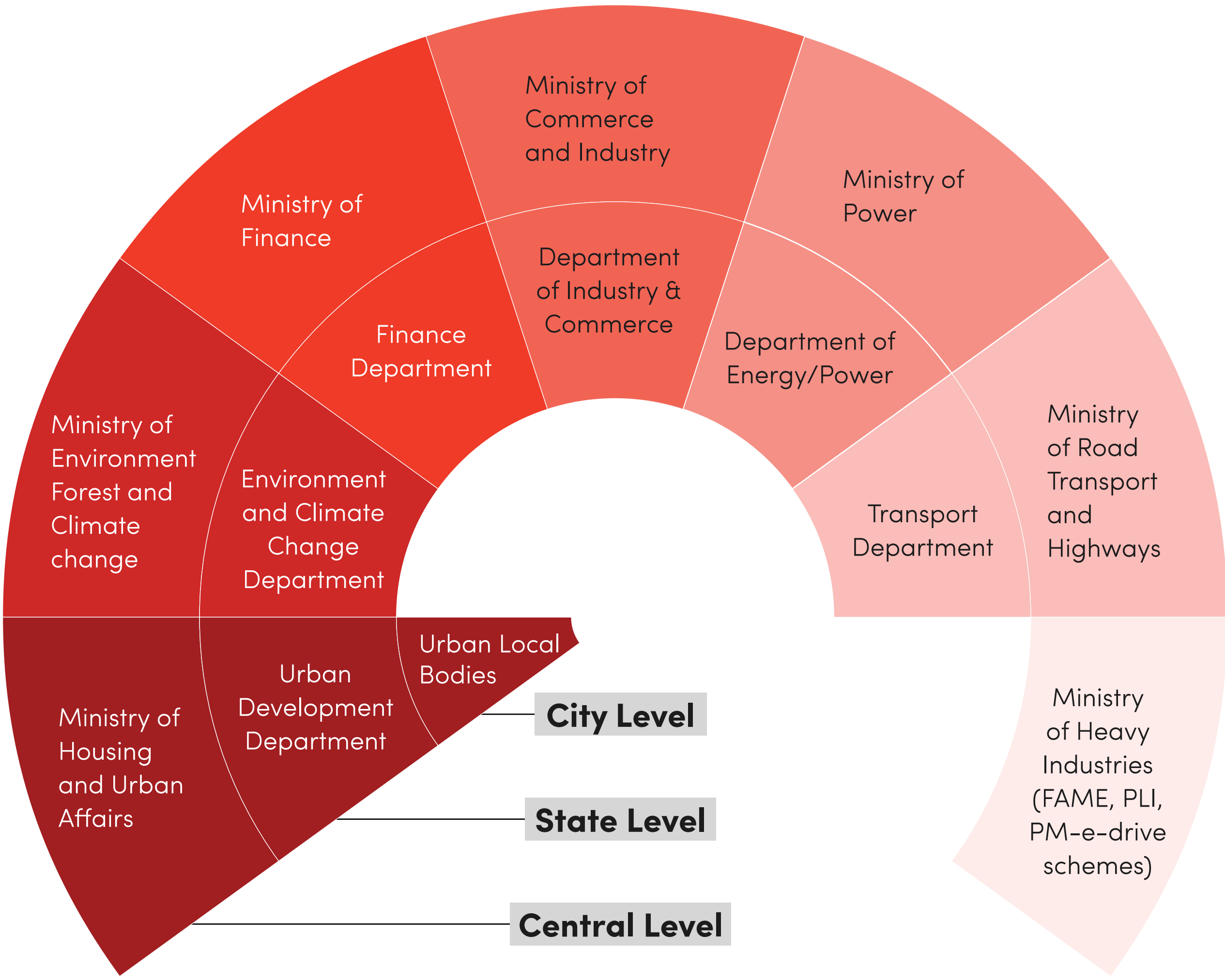



To compare state-level interventions, the study develops a scoring framework to understand the complexity in implementation of an intervention, its effectiveness in the industry, market and long-term impact. This approach has helped identify and study preferences for different policy instruments at the state level and presented a strategic opportunity to recalibrate existing policy levers to catalyse ZET adoption. Additionally, new freight-specific instruments can be introduced to address the unique operational, financial and infrastructural requirements of the trucking sector across the pillars presented in figure 6.

# 2. Mapping central and state policies

Multiple levels of government coordinate the implementation of ZEV policies. While the central government sets direction through national schemes and incentives, states have independently formulated EV policies tailored to local contexts. Figure 8 maps the key ministries and departments involved at the central, state and city levels.

**Figure 8** Institutional landscape for ZEV policy implementation




At the national level, direct purchase subsidies for electric vehicles have been a key policy tool that India has used to help catalyse market adoption, with the greatest success in two-and three-wheelers and city buses. National demand-side incentive programmes focusing on these vehicle segments, as well as light-duty (4-wheeled) vehicles, have included FAME I (2015)[59], FAME II (2018)[60], PM e-bus Sewa (2023)[61], and the electric mobility promotion scheme (EMPS) (2024)[62]. In 2024, the Government of India announced a similar incentive programme called PM E-DRIVE[63] which included, for the first time, dedicated allocation of ₹500 crore (~$60 million) for medium-and heavy-duty battery electric trucks. These incentives are in effect from 1 October 2024 to 31 March 2028.

59 https://udit.beeindia.gov.in/fame/
60 https://heavyindustries.gov.in/fame-ii
61 https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1987804
62 https://emps.heavyindustries.gov.in/
63 https://pmedrive.heavyindustries.gov.in/docs/policy_document/257594.pdf

Additionally, policies such as production linked incentive (PLI) for auto and auto components (2023-2027)[64] and for advanced chemistry cells (2025-2029)[65] have been introduced to promote localisation of auto components and domestic battery and cell manufacturing. Budgetary outlay is ₹25,938 crores ($3.2billion) and ₹18,100 crores ($2.26 billion) respectively.

India does not yet have a target for transitioning trucks to zero-emission powertrains but deliberations to set these and implement required policies are ongoing. As of 2025, about 29 states in India had an EV policy with EV adoption targets[66]. They had also adopted purchase subsidy to cover 15% of the ex-factory cost of e-trucks up to ₹20 lakhs (USD 22850) for the first 1,000 e-trucks along with road tax exemption for five years.

# 3. Scoring framework for evaluating ZET adoption

At the sub-national level, apart from state EV policy targets, ZET adoption will depend on the following:

- Industrial policy
- State logistics outlook
- Utility of ZETs
- Demand for ZETs
- Total cost of ownership
- Charging infrastructure ecosystem
- Product market

Several interventions were assessed on their ease-of-implementation for this study, consumer and industry effectiveness, and long-term market impact. A cumulative functional distribution-based qualitative scoring framework was adopted to score interventions across these four criteria. The study also tested these parameters across EV adoption to establish effectiveness and distinct challenges of freight electrification.

## 3.1 Ease-of-implementation

Implementation of interventions varies from state-to-state because of the implementing authority, scale of implementation and interdepartmental coordination required on-ground. Several state government departments needs to coordinate with their relevant counterparts such as transport, industry, power, finance and urban development.

This study tried to evaluate 'the ease' with which policies can be implemented and took into consideration clarity, institutional mechanisms and regulatory feasibility at the sub-national level. This is because strong policy intent alone is insufficient without administrative readiness through the number of departments involved in the policy process.

## 3.2. Impact on consumer market

The second-most important evaluation criterion is the impact on EV consumers. Consumers drive a market through consistent demand. The effectiveness of a policy intervention on consumer market can be assessed by its impact on reducing adoption barriers such as high upfront cost, access to financing, overall cost-effectiveness and improving value proposition for consumers. A higher score translates to a more direct benefit for the EV consumer.

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[64] https://heavyindustries.gov.in/pli-scheme-automobile-and-auto-component-industry
[65] https://heavyindustries.gov.in/pli-scheme-national-programmeme-advanced-chemistry-cell-acc-battery-storage
[66] https://invest.mp.gov.in/wp-content/uploads/2025/02/MP-EV-Policy-2025_FINAL-1.pdf

## 3.3. Impact on automotive industry

Effectiveness of policy interventions is important to trigger consistent supply. Effectiveness can be assessed by its impact on the development of the broader EV manufacturing ecosystem within the state. This specifically measures supply-side dynamics and includes considerations such as the potential to attract investment, support to local value chains, and facilitating long-term economic growth through EV market development. A higher score translates to a more direct benefit for the automotive industry.

## 3.4. Policy impact

The fourth factor of evaluation in this study was the impact of a policy intervention in enabling long-term market transition for ZETs. It reflects the scalability, adaptability, continuous demand and supply, and sustained policy relevance. A well-developed market will sustain beyond market triggers such as demand-side incentives that increase the attractiveness of a product in the short term. A higher score suggests that the specific intervention can create a long-term impact on the market.

Together, these four criteria provide a rounded comparison of effectiveness of policy interventions in state EV policies.

The study evaluated 27 policy interventions (Annexure 5(b)), which were grouped into demand-side policies, supply-side policies, and charging ecosystem development. These interventions were scored through this scoring framework on a scale of 0 to 4 depending on the status of the intervention as presented in Table 4.

Table 4 Scoring criteria for state EV policy evaluation

| Score criteria | Administrative (Interdepartmental coordination) | Industry (Automotive) | Consumer (EV buyer) | Policy impact (Term) |
|---|---|---|---|---|
| 0 | Intervention not included in the policy | No benefit observed | No benefit observed | Intervention not included in the policy |
| 1 | Departmental roles and responsibilities are unclear | Benefit delivery mechanism is unclear | Benefit delivery mechanism is unclear | Impact limited to the active policy period |
| 2 | Require coordination between more than two departments | Indirect benefits to industry | Indirect benefit to consumer | Short-term impact lasting 1–2 years after policy expiry |
| 3 | Require coordination between up to two departments | Direct benefit to industry with approval required | Direct benefit to consumers, subject to some procedural delays | Medium-term impact lasting up to 5 years post-policy |
| 4 | Managed by a single department with clear implementation structure | Direct, unconditional benefit to industry | Immediate and tangible benefits to consumers | Long-term effectiveness aligned with strategic goals |

# 4. Evaluation of policy interventions

The study scores the impact of these policy interventions for nine states (refer Annexure 1) that together account for more than half of the annual heavy-duty truck registrations and over two-thirds of EV sales in the country. Though most of these states do not have a policy target of ZET electrification, their experience with other vehicle segments and institutional structure was examined.


Each state's policy was reviewed comprehensively, with relevant interventions spanning demand-side incentives, supply-side support, and charging infrastructure assessed against the four parameters using a standardised 0–4 scoring matrix. The scoring was based on publicly available policy documents, government notifications, and implementation details wherever accessible. Each intervention was independently scored under each parameter.

To assess state preferences across broader policy categories, a weighted average was calculated for each policy measures within the three interventions i.e. demand side, supply side and charging infrastructure. This enabled a clearer understanding of the types of interventions states prioritise in their EV policies and where opportunities exist to better align them with freight electrification goals.

This section presents the assessment of state EV policies (refer Annexure 2 for the exhaustive list of policy interventions assessed) based on the four criteria established earlier: ease of implementation, effectiveness on consumer, effectiveness on industry, and long-term impact on market. The cumulative score of each intervention is calculated as a weighted average of scores assigned across the evaluation parameters.

## 4.1. Evaluation of demand-side interventions

The demand-side interventions include policy levers implemented at the state level aimed at driving EV adoption. The interventions include:

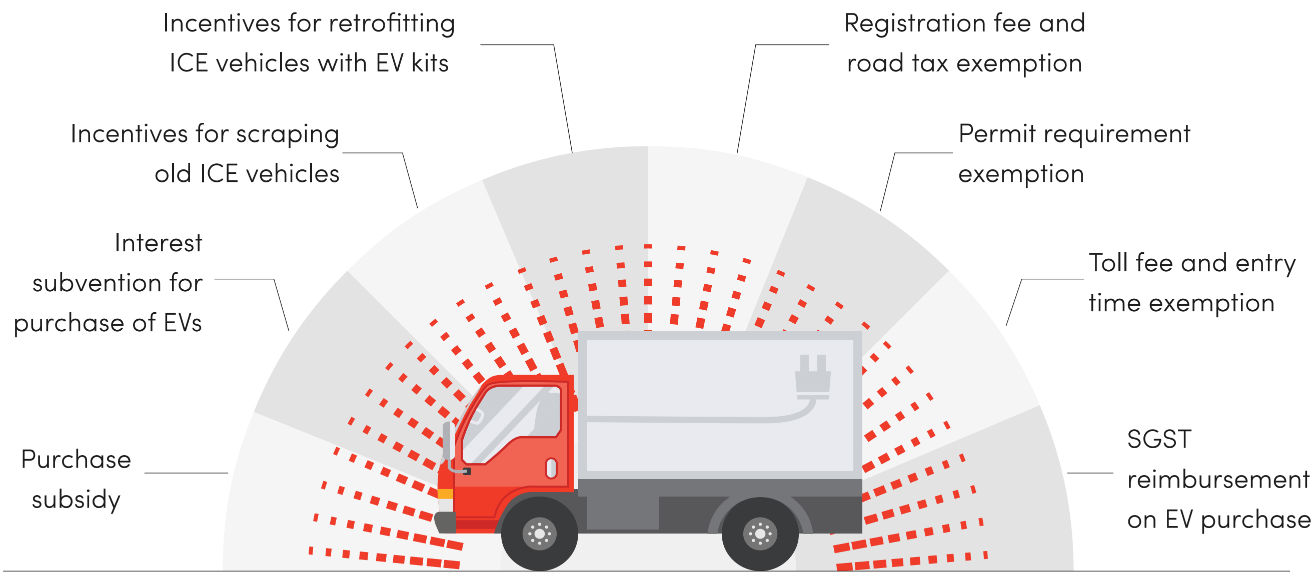
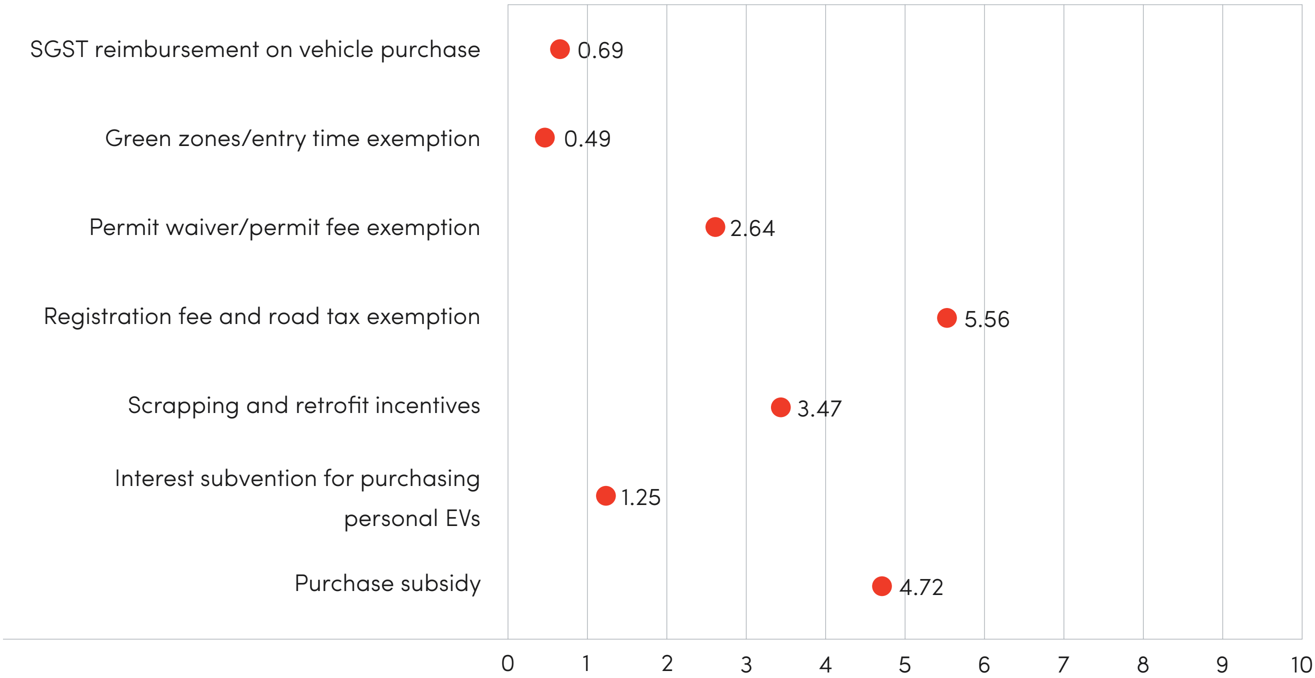


**Figure 9** Weighted average score for demand-side interventions




Under the demand-side interventions (refer Figure 9):

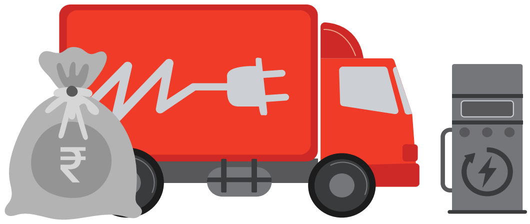
## 01 Registration fee and road tax exemption is the most preferential policy intervention among the states considered for analysis.

- The transport department in each state levies a one-time registration fee for all the vehicles to be registered in the state. Fees of ₹1,000 and ₹1,500 are levied for medium and heavy-duty trucks, respectively.[67]
- Of the nine states considered in the study, eight states provide such exemption for different vehicle segments for the policy period, including seven states providing the exemption for electric LCVs but none for ZETs.
- These exemptions are administered by the transport department in each state and provide a direct benefit to the consumer purchasing an EV.
- Madhya Pradesh and Maharashtra have extended such exemptions to e-trucks in their latest EV policies as mentioned in the first section. This sets a precedent for other states and aligns with our assessment of preferential policy intervention being extended to ZETs.

[67] https://parivahan.gov.in/parivahan//en/content/fees-user-charges

## 02 Capital subsidy for purchase of EVs in addition to the national subsidy is the second-most preferred policy intervention.

- Seven out of the nine states considered provide this subsidy ranging from ₹5,000 - ₹30,000 for e-2W, ₹10,000 - ₹50,000 for e-3W, ₹30,000- ₹1.5 lakhs for e-cars and e-LCVs and ₹1 lakh – ₹20 lakhs for e-buses across different states.
- Maharashtra has recently introduced purchase subsidy for e-trucks up to ₹20 lakhs in its revised EV policy released in 2025.
- The states now have a precedent and can include e-trucks under the capital subsidy component, supplementing the national subsidy under PM E-DRIVE for early market development for ZETs.



## 4.2. Evaluation of supply-side interventions

The supply-side interventions include policy levers aimed at incentivising EV and EV components, including EV battery manufacturing in the state. The interventions include:

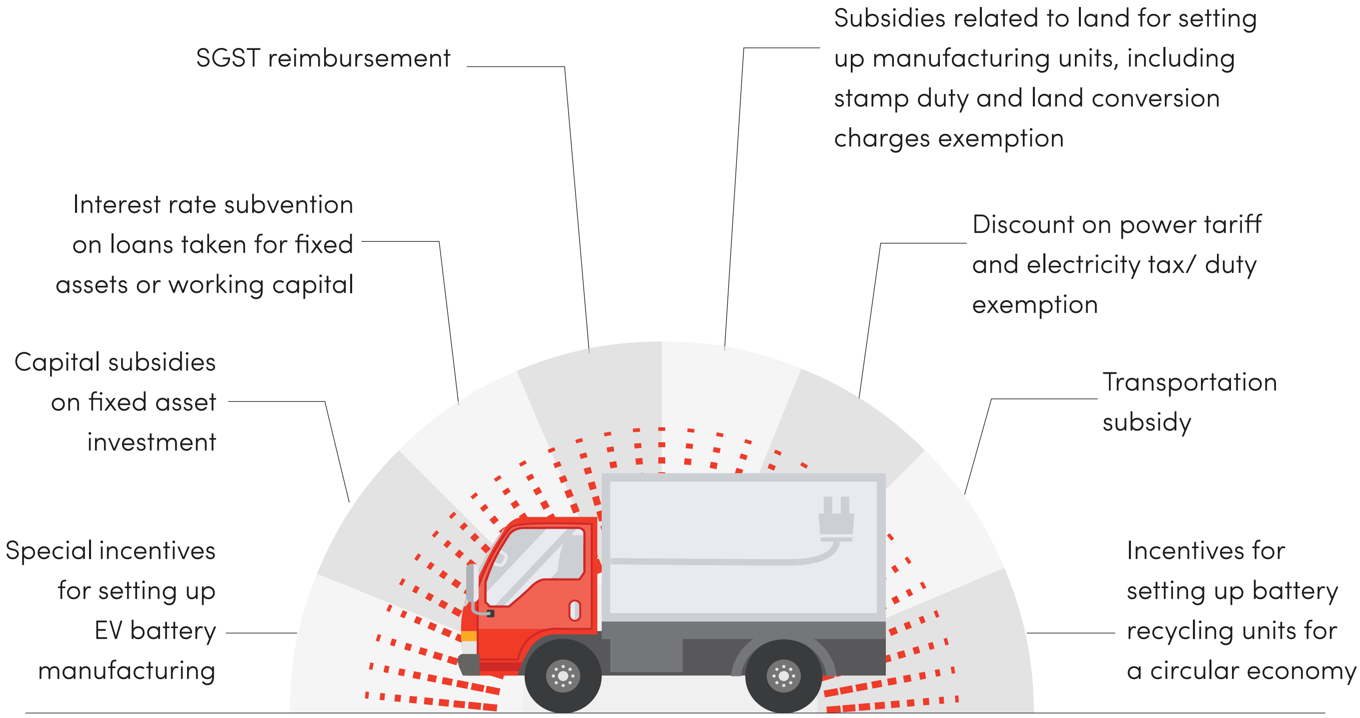
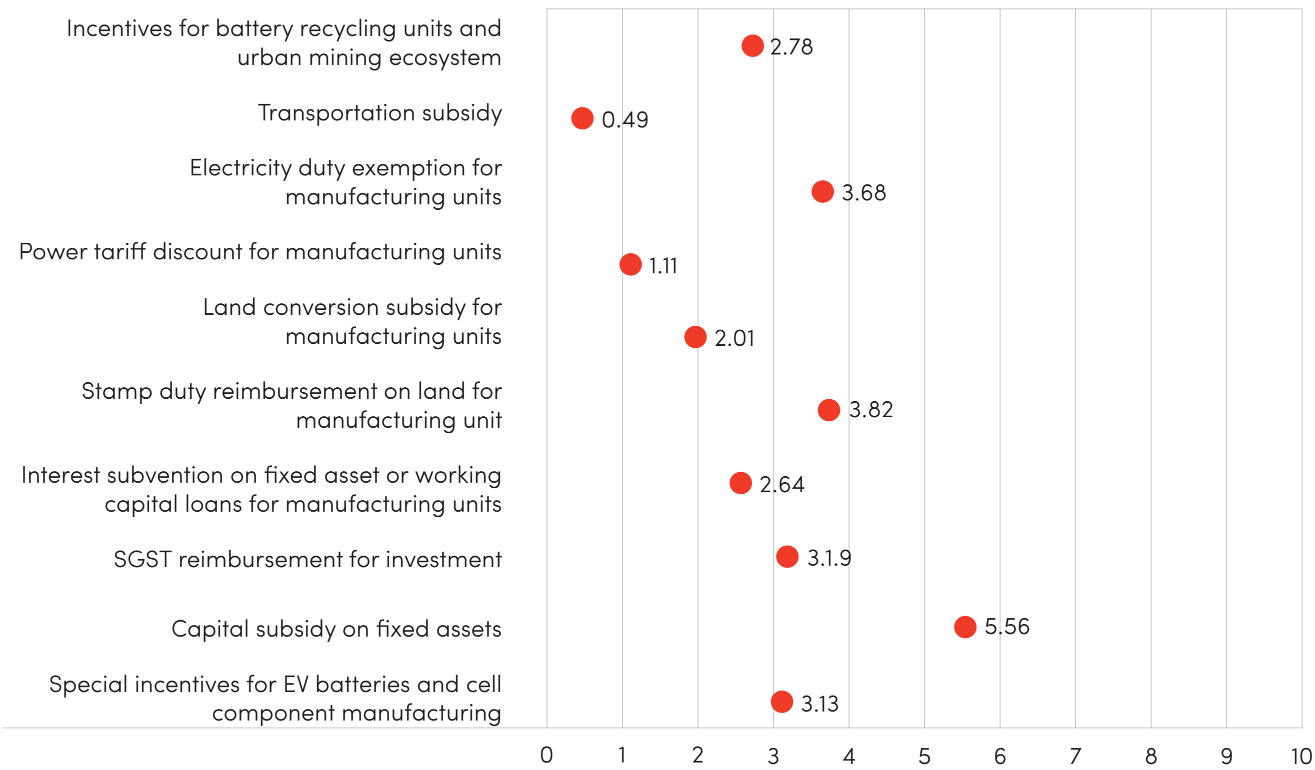


**Figure 10** Weighted average score for supply-side interventions




Under the supply-side interventions (refer Figure 10):

## 01 Capital subsidy on fixed assets investment to set up manufacturing units for EVs and EV components is the most preferred policy intervention among the states considered.

- The capital subsidy varies according to the category of manufacturing units including Micro, Small & Medium Enterprises (MSMEs, large, mega and ultra-mega projects based on factors such as investment amount, direct employment generated and location of industry within the state.)
- Eight states provide such subsidies with the objective of developing an EV manufacturing hub.

## 02 Stamp duty exemption/ reimbursement on land purchase required for setting up the manufacturing unit is the second most preferred policy intervention.

- Eight states provide up to 100% stamp duty exemption/ reimbursement for various categories of manufacturing units.

03 Electricity duty/ tax exemption is the third most preferred policy intervention and is provided by seven states for EV manufacturing units.

The supply-side interventions at the sub-national level also focus on providing incentives for setting up EV and EV component manufacturing units like the national PLI scheme for auto and auto components and Advanced Chemistry Cells (ACC). States have the potential to explore other supply-side interventions from global cases, including fleet transition targets to create a regulatory ecosystem for increased ZET product availability and adoption.

## 4.3. Evaluation of charging infrastructure related provisions

Electricity is a Concurrent subject matter under the Indian Constitution, permitting both the central and state governments to make laws on the subject. The power distribution network which provides electricity to consumers - residential, commercial or industrial - falls under the jurisdiction of the state governments.

The states considered in this study have appointed a nodal agency for developing charging infrastructure in their EV policies. They have taken measures such as:

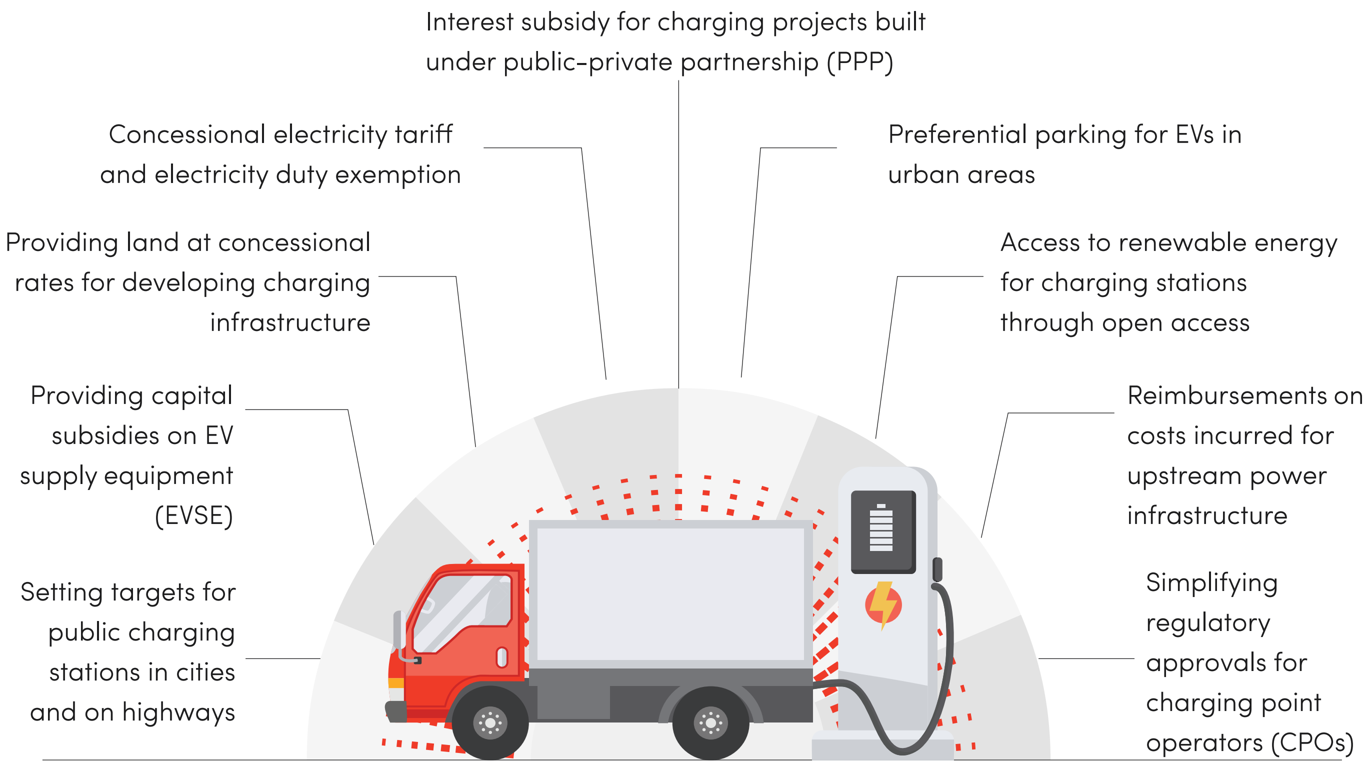
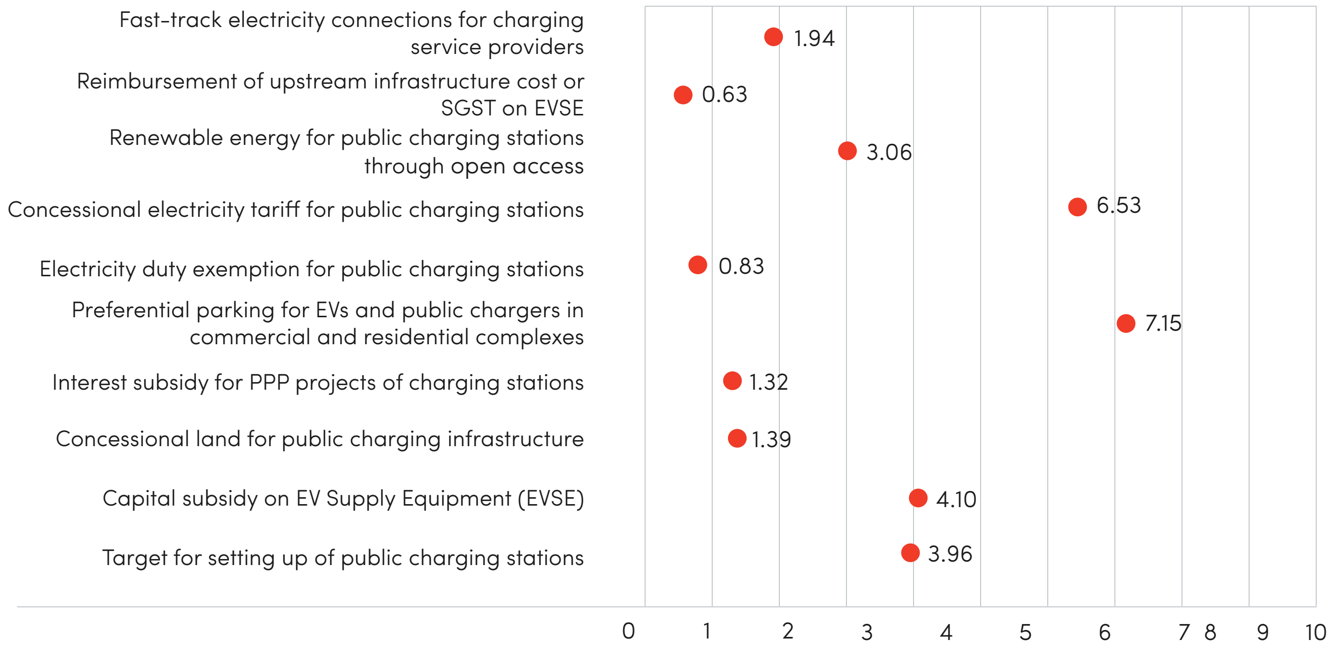


Figure 11 Weighted average score for charging infrastructure




Under the interventions related to developing charging infrastructure (refer Figure 11):

## 01 Preferential parking for EVs under parking plans of ULBs or urban planning authorities along with provision of chargers in commercial and residential complexes in urban areas is the most preferred policy intervention.

- All the states considered include such measures in their EV policy. This aligns with the amendments to Model Building Byelaws 2016 issued by the Ministry of Housing and Urban Affairs to include norms for developing EV charging infrastructure in urban areas[68].

## 02 A provision for concessional tariff for public charging stations is the second-most preferred policy intervention.

- Eight states out of the nine considered have notified a reduced tariff for public charging stations, providing direct and long-term benefits to the EV buyer in the form of reduced operating costs.

## 03 Capital subsidy on EVSE for public charging infrastructure is the third-most preferred policy intervention.

- Seven states considered here provide subsidies to enhance the public charging infrastructure in their states and fulfill the targets set for urban areas and/ or highways.

[68] https://www.mohua.gov.in/upload/whatsnew/5c6e472b20d0aGuidelines%20(EVCI).pdf

Charging infrastructure, particularly fast public charging infrastructure on highways, is integral for scaling up ongoing closed-loop pilots to long haul open-loop ZET adoption. More than 50% of the states considered in this study have set targets for developing public charging stations on highways.

Achieving these targets, combined with concessional tariffs and capital subsidy on EVSE, would prove critical in developing fast charging stations for ZETs.

This section shows how tax exemptions, capital subsidy on EVs, subsidy on fixed capital investments, duty exemption on land under supply-side incentives, preferential parking and concessional tariff for EV charging are the most preferred policy interventions of states to develop their EV market.

However, extending such interventions for ZET market creation might not be sufficient due to ownership and operational characteristics. India's truck market is highly fragmented with small fleet operators (who own less than six trucks) comprising about 75% of the fleet operators.

About 70% of the overall fleet operates on demand basis with a lack of any formal contract with the shippers[69]. The transition to ZETs comes with a 2-3x upfront cost premium relative to diesel trucks to be borne by fleet operators with limited financing.

Therefore, with uncertainty on utilisation of trucks due to limited contracts with shippers and a primarily cash-run business with low profit margins, the transition to ZETs requires additional policy interventions.


[69] https://globaldrivetozero.org/site/wp-content/uploads/2022/03/D2Z-India_Industry-Assessment_Fleet-Landscape.pdf

## Way forward

India's sustainable mobility journey is incomplete without the decarbonisation of its road freight sector. The ZET policy measures proposed in this report seek to be comprehensive and move beyond incentivising purchases. This report also demonstrates how targeted interventions can be seamlessly integrated with existing state EV policies, which have largely focused on smaller vehicle segments so far.

The report proposes five 'pillars' to scale-up ZET adoption through state policies. There are some key learnings.

The proposed ZET policy measures recognise that financial incentives, while crucial, are just one piece of the puzzle for increasing ZET uptake. Measures like direct subsidies, fee waivers and SGST rebates align perfectly with existing national policies like PM E-DRIVE and provide demand-side stimulus to the heavy-duty segment. However, for ZETs, high upfront cost is a barrier which needs complementary financial support like de-risked leasing periods (longer leasing period). This support needs to be actively developed with financial institutions and NBFCs.

The bigger challenge and opportunity are in charging infrastructure development. While efforts have been made to expand public EV charging, the requirements for ZETs are distinct i.e. high-power charging along national highways, state highways, at logistics hubs and dedicated depots. The creation of charging infrastructure - supported with power infrastructure - directly addresses the gap of less charging stations and lack of significant grid upgrades. Simultaneously, optimising tariffs for ZET charging can leverage existing regulatory mechanisms to reduce operational costs, making ZETs more attractive.

The policy measures also point to creating robust market demand. Aggregating B2B demand is crucial for manufacturers to gain confidence and scale-up production. Ambitious demand-side mandates will necessitate a careful, phased introduction of ZETs. Perhaps starting with government and state-owned fleets can provide a clear long-term signal to the market, learning from global regulatory trends in fleet electrification.

The strategic measures and capacity building pillars are vital for operationalising the ZET vision. Implementing measures for no-entry permissions and green zone access in urban areas align with existing municipal traffic regulations and offer immediate benefits to ZETs. The ambitious goal of green channels and highways require significant infrastructure planning and dedicated lanes. Capacity building for LSPs, charging station operators and drivers directly complements existing skill development initiatives by creating a specialised workforce for the ZET ecosystem, ensuring smooth adoption and efficient operation.

While central policies set a broad direction, the test for India's EV transition lies in a decentralised approach of state governments. As of 2025, 29 states including UTs, have formulated their own EV policies. They have tailored incentives and regulations to address unique regional challenges and market conditions. These state-level interventions include exemptions on registration fees and road taxes, significantly lowering the upfront cost of EV ownership. States like Maharashtra and Madhya Pradesh have even introduced specific incentives for electric trucks in recognition of the critical role of freight electrification.

For this report, we conducted a systematic and in-depth assessment of 10 existing state EV policies (Assam, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh). This assessment developed a comprehensive understanding of current interventions, the roles and responsibilities of various government departments, and the effectiveness of different policy instruments in driving EV adoption in respective states.

## Categorisation of policy measures based on ease of implementation

This report categorises policy measures by ease of implementation — easy, moderate and difficult.

**Tough measures** represent grand-scale transformations, demanding substantial capital investment, extensive land acquisition, fundamental grid overhauls and complex regulatory shifts. Building a nationwide high-power charging network for heavy trucks, implementing widespread mandates, or creating dedicated green highways are examples of such long-term and complex undertakings that necessitate multi-year planning and considerable political will.

**Moderately implementable measures** require more planning, inter-departmental coordination, and initial investment in developing programmes or specific capacity building initiatives. This tier fosters structured financing options like longer leasing periods or establishing training programmes for specialised skills like ZET mechanics. These are not instant fixes but are achievable within a reasonable timeframe with focused effort.

**Easy-to-implement measures** are typically immediate, less resource-intensive and can be quickly rolled out. These often involve financial adjustments like subsidies or tax breaks, leveraging existing administrative channels to provide direct incentives without requiring significant new infrastructure or conducting complex multi-stakeholder consensus. They are low-hanging fruits, designed for rapid impact and early momentum.

## Recommendations

### 01 Easy-to-implement

Based on existing state EV policies, there are several simple measures which can provide immediate impact to end users. These measures can also increase the uptake of ZETs and primarily involve financial incentives or regulatory tweaks that can be quickly enacted and scaled while leveraging existing administrative structures.

**Financial incentives**

- Purchase subsidy.
- Fee waivers and tax reliefs.
    - » SGST rebate partial SGST rebate on purchase.

**Charging infrastructure**

- Optimising tariffs.

**Strategic measures**

- No-entry permissions and green zone access.

**Capacity building**

- Capacity building for local LSPs.
- Capacity building for skilled charging station operators.
- Capacity building for drivers. (These involve developing curriculum, training infrastructure and reaching a large, diverse workforce.)

## 02 Moderately difficult to implement

There are several measures which can be implemented with moderate difficulty. While they cannot be immediately rolled out, they are achievable within a reasonable timeframe. They require some level of new programme development, stakeholder coordination or initial infrastructure planning.

**Financial incentives**

- Leasing period (requires developing attractive financial products and involving NBFCs/ banks, which can take time to structure and de-risk).

**Demand aggregation**

- Aggregating B2B demand (requires sustained effort to bring together businesses, negotiate terms and ensure consistent demand, though pilot projects can be quicker).

**Strategic measures**

- Green channels and highways (establishing dedicated 'green channels' on highways requiring separate infrastructure or priority access, which would be a logistical challenge).

## 03 Difficult to implement

There are several measures which can take time to implement and are more complex in nature due to the involvement of multiple departments, need for creation of special arrangements as these are new in nature. They provide long-term impact to end users. Based on the analysis, these measures score low among all other policies measures due to their complexity and multi-departmental involvement. They are long-term, multi-phase initiatives.

**Charging infrastructure**

- Creating charging infrastructure. (This is a massive undertaking in a large country like India, and which requires extensive land and grid connections, varied charging technologies across highways/ urban centres. The current infrastructure is far from adequate for heavy-duty ZETs.)
- Supporting power infrastructure. (Directly linked to creating charging infrastructure. This involves substantial upgrades to the electricity grid, new substations and ensuring reliable, high-power supply, especially for fast charging heavy trucks. Long-term planning and investment from DISCOMs is essential.)
- Soft measures (large-scale behavioural change, public awareness campaigns, and fostering a cultural shift towards ZETs across stakeholders needs consistent reinforcement of benefits).

**Demand aggregation**

- Aggregating B2B demand and demand-side mandates. (Adding mandates significantly increases complexity. Implementing mandates for ZET adoption requires robust regulatory frameworks, monitoring, careful phasing and support mechanisms to prevent economic disruption.)

# ANNEXURE

# Annexure 1(a): Methodology for projecting state on-road e-MHDT sales and stock

The following methodology was adopted to calculate the e-MHDT stock of different selected states basis to the e-MHDT adoption in India.[70]

1. Validation with other sources
2. Establishment of projection method

**Annual sales projection (till 2035) - India**

Using registration trend from Vahan Portal & macro-economic data

CAGR based projection

Linear regression

- Population
- GDP per Capita

Elasticity method

Truck stock consolidation

1. e-MHDT on-road sales (India)

**Impact of electrification**

Using TCO analysis, corporate influence & operational certainty

No electrification

Realistic (BAU)

Optimistic (BTB)

e-MHDT mix on road

1. e-MHDT on-road sales (consolidated for different states)

**Shortlisting of states**

Using past registration trends & favourability of policy adaption

**Sales & stock projection**

Basis to India e-MHDT mix on road & state registration percentage

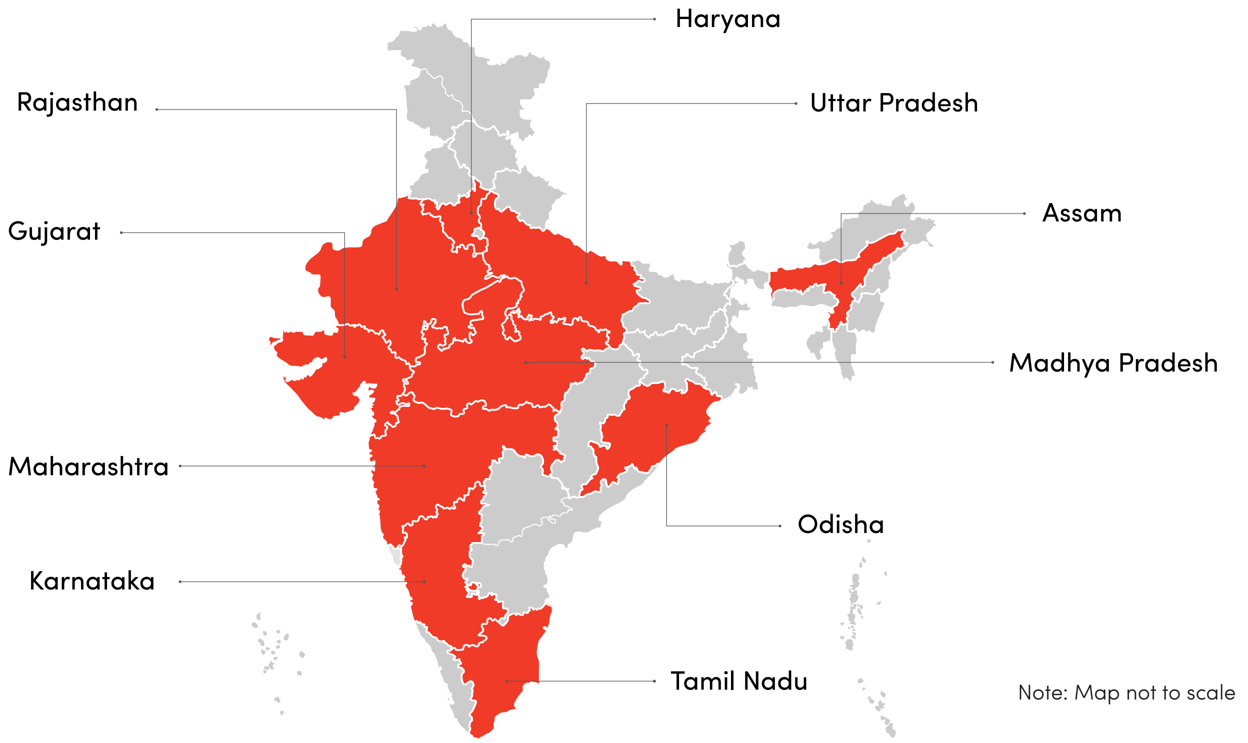
No electrification

Realistic (BAU)

Optimistic (BTB)

[70] Calculations done by pManifold as part of emissions inventory of MHDTs till 2050, commissioned by Shakti Foundation.

The report's methodology for projecting state on-road e-MHDT sales and stock involved follows a criteria-based approach to shortlist the top 10 Indian states with the highest potential for e-MHDT adoption: Assam, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh. This selection was based on the respective state's policy ecosystem, demographic indicators (GDP per capita and population), and geographical representation along with freight demand and logistics readiness evaluated using the LEADS 2024 Framework.




E-truck stock projections were developed under three scenarios for 2025, 2030 and 2035.

- As a "No Electrification" baseline scenario showing a steady rise in conventional ICE trucks.
- A "Business-as-Usual (BAU)" scenario projecting moderate e-truck uptake with as it is policy and ecosystem support, resulting in a nearly fivefold increase in total truck stock to over 9.3 million units by 2035, predominantly ICE MHDTs.
- A "Business-to-be (BTB)" scenario, representing accelerated adoption driven by strong policy and market shifts, projecting total truck stock to approximately 12.5 million by 2035, with a significant share transitioning to e-trucks. The BTB scenario notably reflects a nearly 35% higher total truck stock compared to BAU, indicating a transformative shift.

# Annexure 1(b): e-MHDT projections for India

**Overall truck stock consolidation and projection**

For this report, industry nomenclature of MHDTs - defined as a vehicle segment equal to or greater than 12 T[71] with a daily travel distance of 200 kms or more has been used. Four methodologies were employed for fleet projections through macro-economic data and growth trends. These projections facilitate a comprehensive understanding of the overall trucking industry growth. The trend data from 2013-14 to 2022-23, specifically the annual truck registration[72], has been utilised as a basis for the projections. The four methods utilised (as shown in Figure number 12) are as follows:

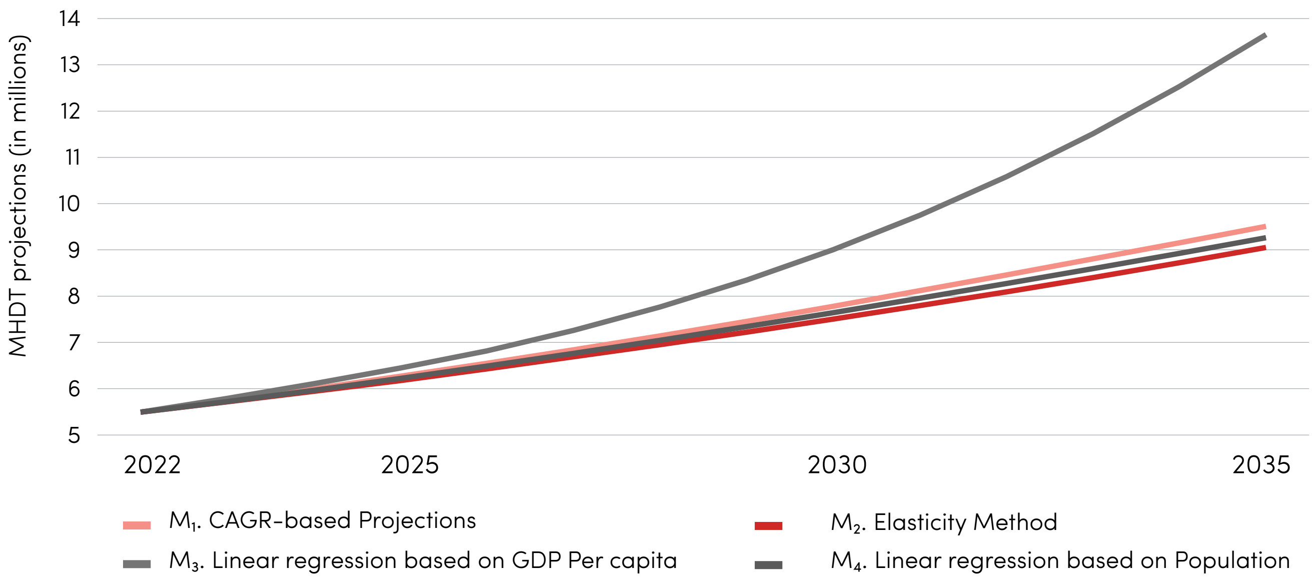
**CAGR-based projections:** This method considers historical data[73] and calculates the average annual growth rate over a specific timeperiod. The CAGR is then applied to estimate future volumes and stock of MHDTs.

**Freight elasticity method:** Freight elasticity is a measure of growth in volume of freight transport (measured in tonne-km)[74] to growth in economic output or gross domestic product (GDP) to derive future projections.

**Linear regression based on GDP per capita:** In this method, linear regression analysis is performed using GDP per capita[75] as an independent variable. The historical data of GDP per capita and MHDT sales are used to establish a relationship. MHDT sales were predicted by applying the regression equation to future GDP per capita projections.

**Linear regression based on population:** Similarly, linear regression analysis is conducted using population[76] as an independent variable. The historical data of population and MHDT sales are used to establish a relationship. MHDT sales were estimated by applying the regression equation to projected future population.

Figure 12 Growth of India's truck stock through 2050



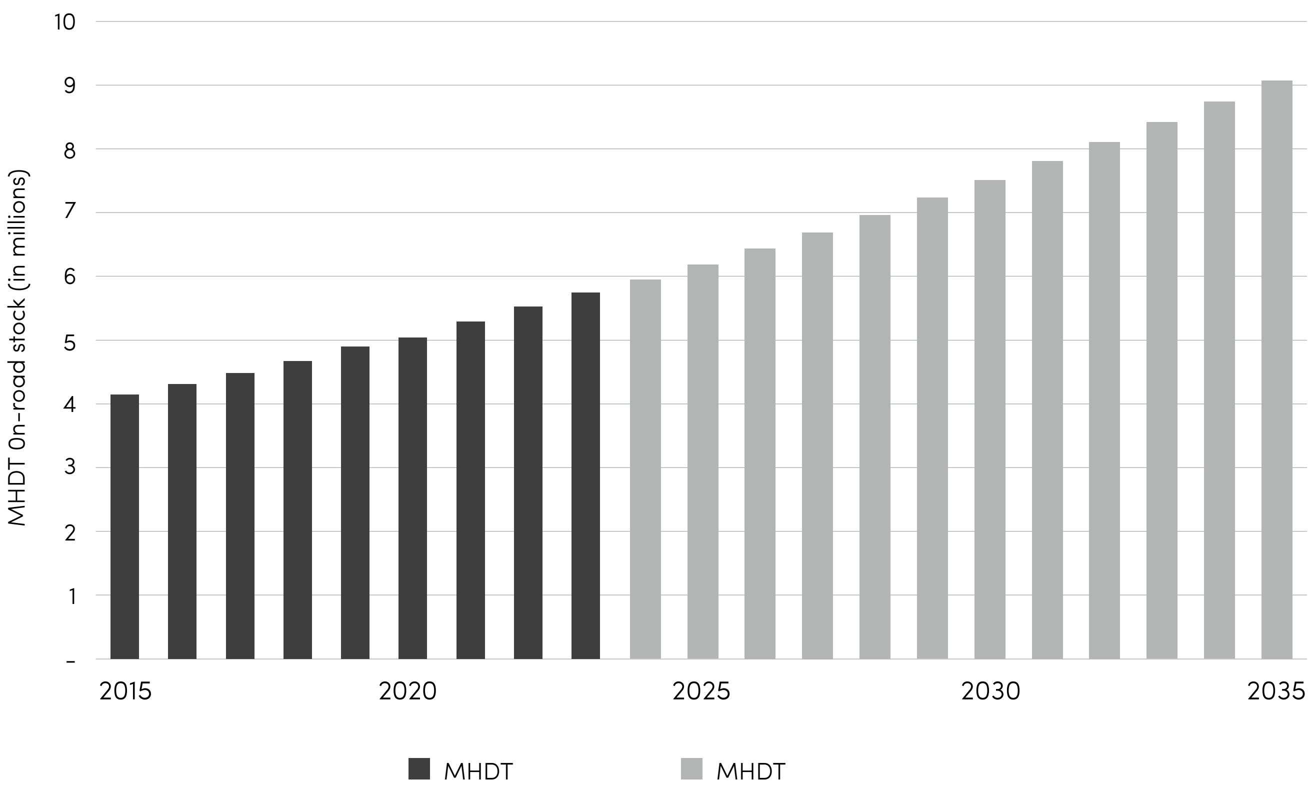

[71] Goods Vehicle Classification as per MoRTH (Govt. of India)
[72] Vahan Dashboard by MoRTH (Govt. of India) till March '23
[73] Vahan Dashboard by MoRTH (Govt. of India) till March '23
[74] NITI Aayog, 'Goods on Move', 2018
[75] International Monetary Fund
[76] United Nations - World Population Prospects

Evaluating the results obtained from the four methods, namely M1: CAGR, M2: Elasticity, M3: Linear regression based on population and M4: Linear regression based on GDP per capita, it was observed that they provide similar projection numbers with a delta of 10%.

Among these methods, the elasticity method was the preferred approach, as it directly captures the dynamic relationship between economic activity and freight movement — two key drivers of MHDT demand. Unlike static historical extrapolations, this method accounts for shifts in freight intensity relative to GDP growth, making it more adaptive to structural changes in the economy, like industrial output, infrastructure expansion, and logistics demand. Its responsiveness to both - economic cycles and policy impacts - provides a more realistic and policy-relevant forecast for MHDT growth. Additionally, the results of the elasticity method have been validated using other secondary sources.

For instance, Transforming Trucking in India published by RMI with NITI Aayog's support in 2021[77] documents that India's trucking market is expected to grow four times by 2050, significantly impacting the nation's economy and transportation emissions. This publication projects around 7 million trucks by 2030, which aligns with our estimates with 7% delta. Considering this alignment and the comprehensive analysis it offers, the M2, Elasticity method has been chosen for further analysis. Utilising this method, the on-road truck stock for MHDTs were calculated, considering a decommissioning rate for a period of 15 years (Figure 13).

Figure 13 MHDT on-road stock projection




[77] Transforming Trucking in India, RMI, 2022

**MHDT electrification projection**

### Impact of electrification

An electrification adoption scenario for MHDTs until 2035 has been formulated, to understand the probability of uptake/ sales of e-MHDTs.

- **Base case -** No electrification: Although hypothetical, this scenario has been considered to provide a reference point for analysis.
- **Scenario 1 - Realistic adoption scenario (BAU)[78]:** This scenario is based on current policies, practices, and trends continuing without significant changes or interventions.
- **Scenario 2 - Optimistic adoption scenario (BTB)[79]:** This scenario reflects deliberate efforts and multiple interventions to align with targets, goals, or policies. It considers interventions and changes in business practices aimed at reducing emissions and improving sustainability.

Three criteria have been considered for setting scenario-level electrification targets:

- **Total cost of ownership (TCO):** Applications with favourable TCO are prioritised for electrification.
- **Corporate influence:** Industries with stronger regulation and organisational structures are expected to transition faster to e-MHDTs.
- **Operational certainty:** Functional and operational characteristics that determine fixed charging schedules and infrastructure planning, such as fixed routes and schedules, reliable road terrains, and lower payload capacity, are favourable for electrification.

Each criterion was given weight for relative importance to consolidate final priority scores for e-MHDT adoption in each sector. The weights are estimated based on consultation with industry experts. Scoring on different criteria has been done on quantitative or qualitative analysis and normalised on scale of 0-100, with 100 as highest electrification priority and 0 as lowest. This quantitative and qualitative analysis has been used to score each segment. Ranking is provided with a year by which 100% electrification will occur in the given segment.

As per industry consultations, use cases like market load/ FMCG, parcel load, and on-road tippers are expected to achieve 100% annual e-MHDT sales earlier than other segments, with adoption accelerating further under optimistic scenarios. Under the BAU pathway, annual e-MHDT sales are expected to reach approximately 40% by 2050, whereas the BTB scenario—with strong policy support—enables full electrification by 2040. The period between 2025 and 2035 is critical for deploying targeted interventions to establish a self-sustaining market transition.

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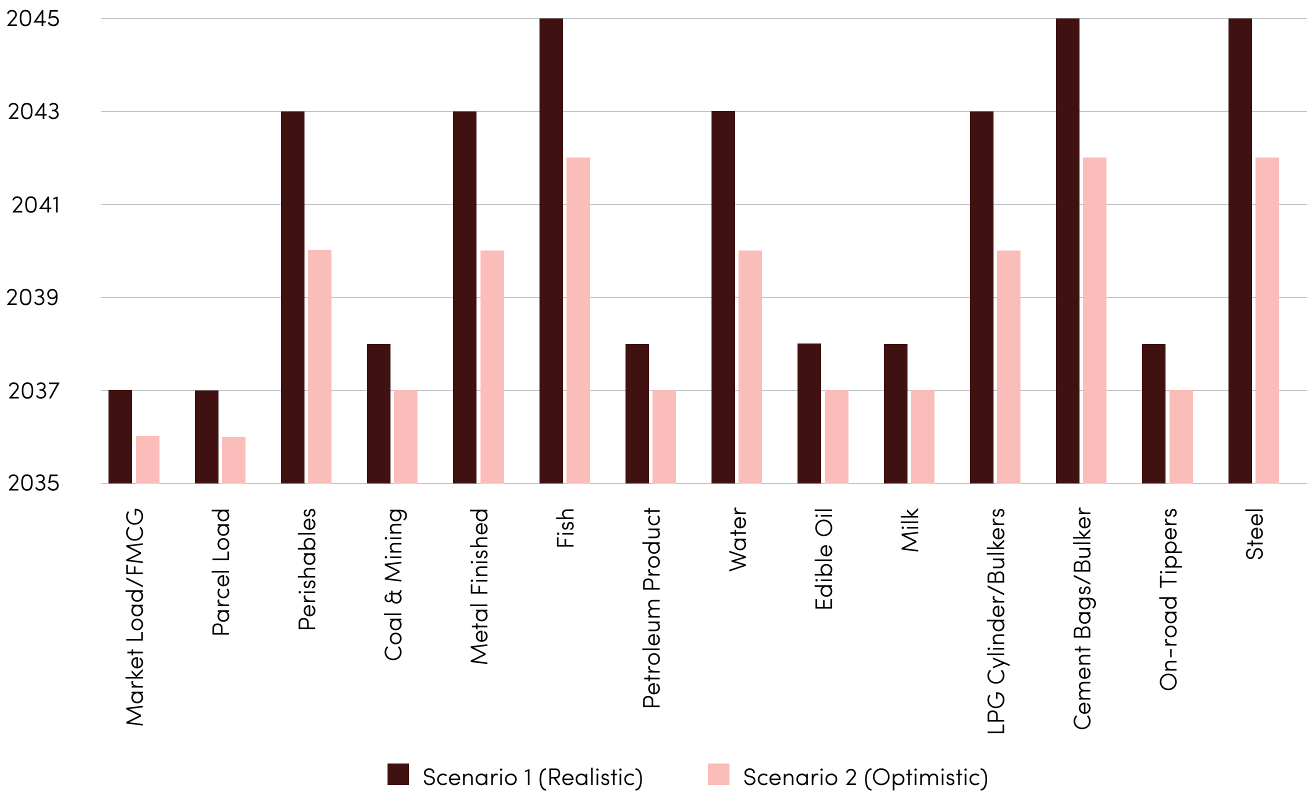
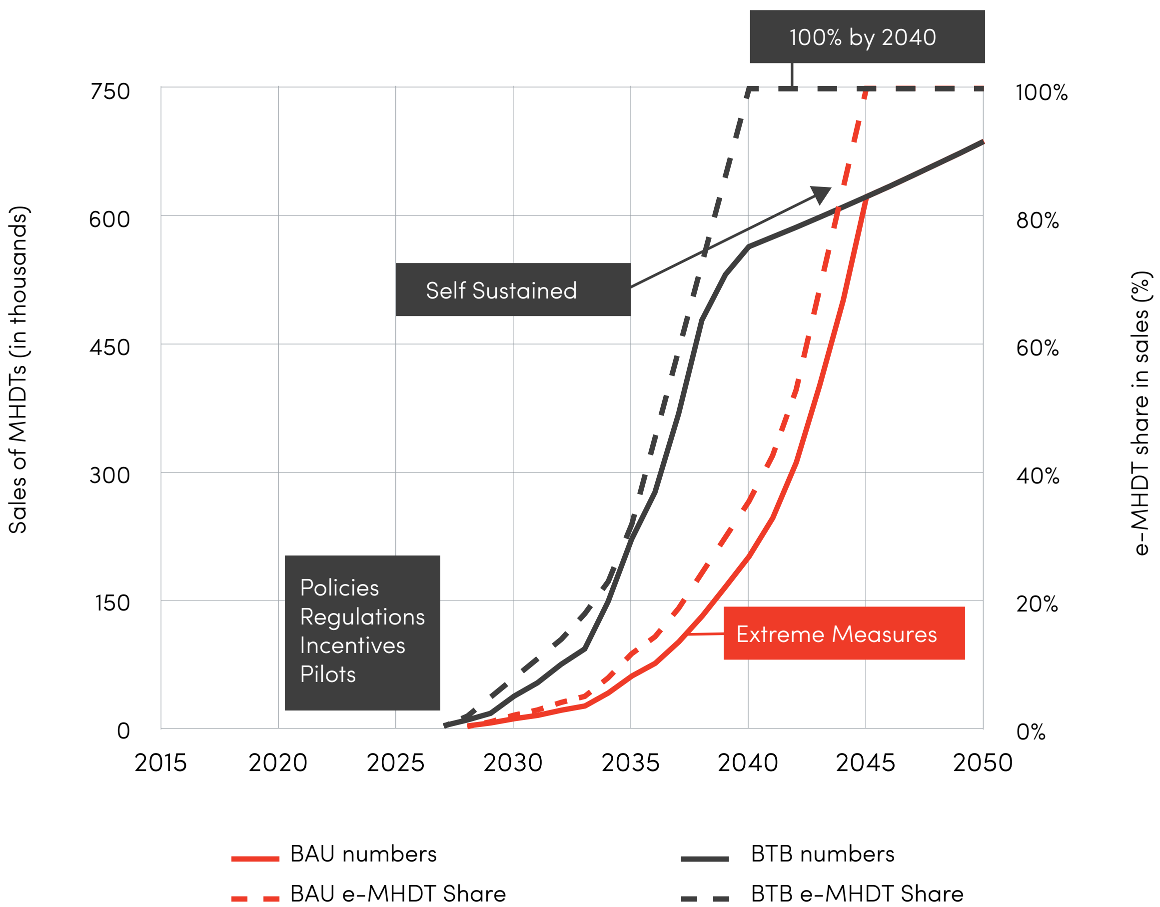
[78] BAU: Business-As-Usual
[79] BTB: Business-To-Be

**Figure 14** 100% Annual e-MHDT sales uptake sector-wise (up) and total (down)



The MHDT on-road stock was calculated for BAU (Figure 15) and BTB (Figure 16) scenarios.

**Figure 15** E-MHDT stock for BAU: Realistic e-MHDT adoption scenario

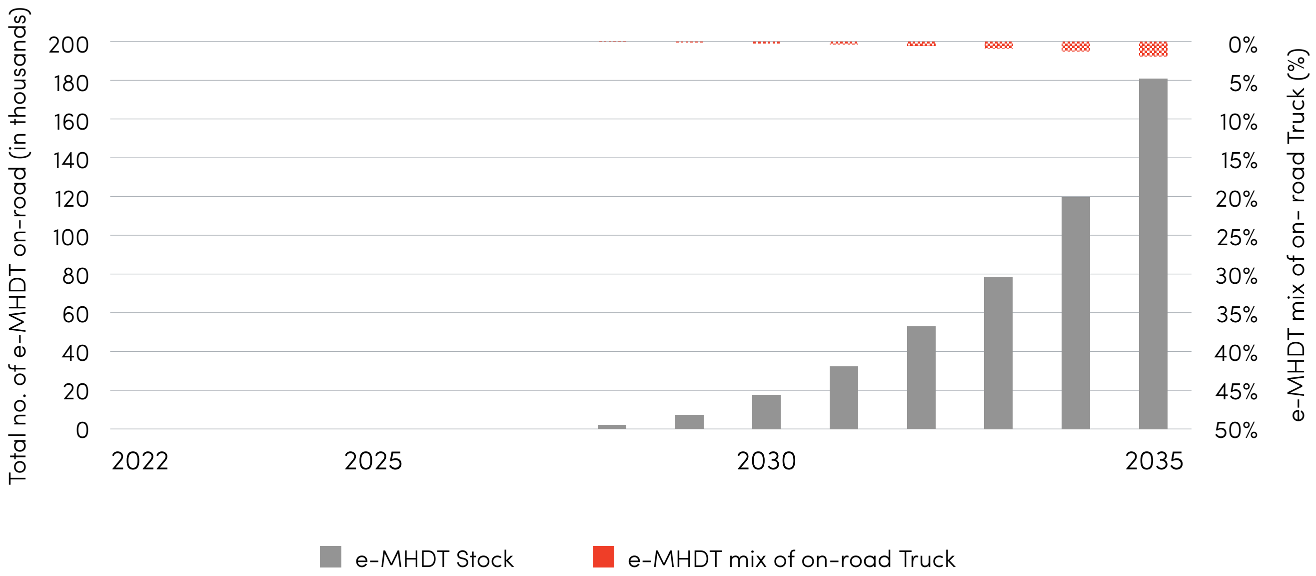
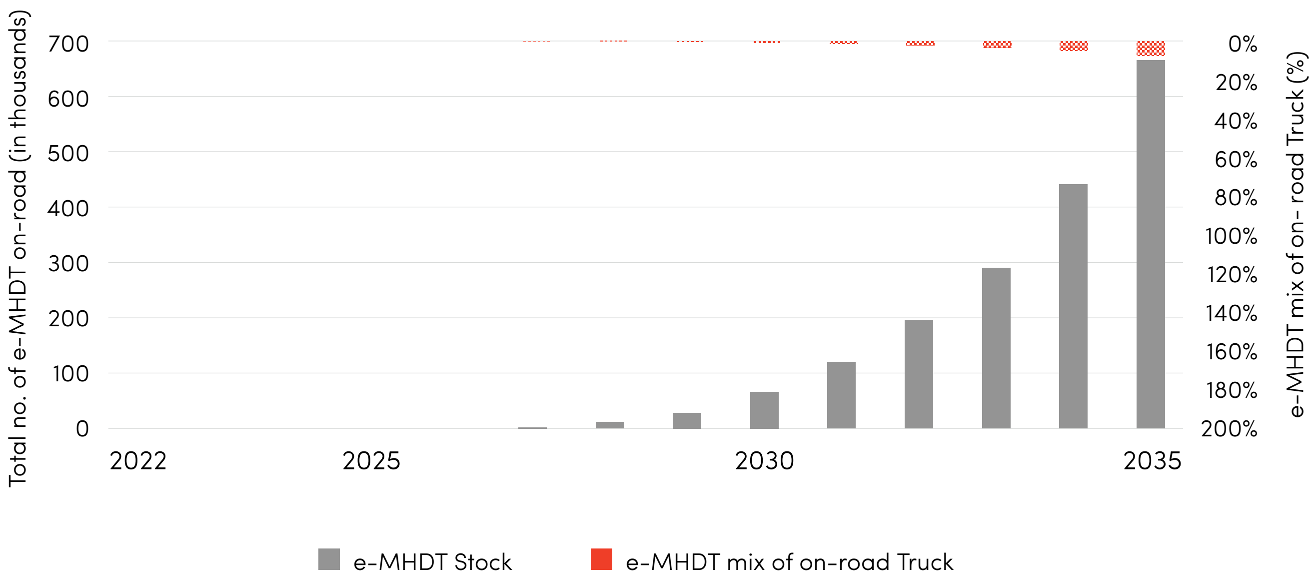



**Figure 16** E-MHDT stock for BTB: Optimistic e-MHDT adoption scenario



# Annexure 2: PM E-DRIVE scheme outlay for e-trucks

## Eligibility

The following categories of e-trucks, as defined in the Central Motor Vehicle Rules (CMVR) will be eligible for demand incentives under the scheme[80]:

- **N2 –** Gross vehicle weight (GVW) exceeding 3.5 tonnes but not exceeding 12 tonnes;
- **N3 –** GVW exceeding 12 tonnes but not exceeding 55 tonnes;
- The incentive will be applicable only for the "puller tractor" of N3 category in case of an articulated vehicle (tractor-trailer combination).

The demand incentive to be provided to e-trucks will be lower of the following:
- ₹5,000 multiplied by battery capacity measured in kilowatt-hour (kWh);
- 10% of ex-factory price (excluding trailer);
- Maximum incentive based on GVW.

| Sr.No | E-truck category | GVW (tonnes) | Maximum incentive/ e-truck (₹ lakh) |
|---|---|---|---|
| 1 | N2 | >3.5 & <=7.5 | 2.7 lakhs |
| 2 | | >7.5 & <=12 | 3.6 lakhs |
| 3 | N3 | >12 & <=18.5 | 7.8 lakhs |
| 4 | | >18.5 & <=35 | 9.6 lakhs |
| 5 | | >35 & <=55 | 9.3 lakhs |

The warranty requirement for e-trucks that should be eligible under PM E-DRIVE scheme shall be as per table below:

| Minimum warranty | | | |
|---|---|---|---|
| Category | Battery (years or kms, whichever is earlier) | Motor (years or kms, whichever is earlier) | Vehicle (years or kms, whichever is earlier) |
| e-trucks (N2 & N3) | 5 yrs or 5 lakhs kms | 5 yrs or 2.5 lakhs kms | 5 yrs or 2.5 lakhs kms |

[80] PM E-DRIVE notification for e-trucks

# Annexure 3: List of states and provisions on public charging stations

| State | Infrastructure type | Incentive | Maximum limit per station | Conditions/ limitations |
|---|---|---|---|---|
| Andhra Pradesh | Public charging facilities | Setting up in government/ private lands like airports, metro stations, parking lots, etc. | Not specified | NREDAP responsibility |
| | Public and private charging stations | Provision of renewable energy for charging stations as per grid related provisions with support of AP DISCOMS | Not specified | APSSDCL responsibility |
| Assam | Commercial public EV charging stations (2W, 3W, 4W) | 25% capital subsidy on equipment/ machinery | Up to ₹10 lakhs | For the first 500 commercial public EV charging stations |
| Bihar | Category-1: AC charger (three guns) | 75% on purchase of equipment/ machinery and ₹10,000 installation cost | Maximum of ₹50,000 | For the first 600 chargers. Encouraged for private use in residential buildings with at least 5 ECS parking. Incentives also for semi-public locations for a maximum of 5 chargers. |
| | Category-2: AC charger (two guns) | 75% on the purchase of equipment/ machinery and ₹25,000 installation cost | Maximum of ₹1.5 lakhs | For the first 300 chargers |
| | Category-3: DC charger (CCS-2/ GBT) | 75% on the purchase of equipment/ machinery and ₹25,000 installation cost | Maximum of ₹1.5 lakhs | For the first 300 chargers |

| State | Infrastructure type | Incentive | Maximum limit per station | Conditions/ limitations |
|---|---|---|---|---|
| Bihar | Category-4: DC charger (CHAdeMO/ CCS/ GB/T) | 75% on the purchase of equipment/ machinery and ₹1 lakhs installation cost | Maximum of ₹10 lakhs | For the first 60 chargers. At least one Cat-2 and one Cat-4 charger required for PCS on government land operated by a private entity. |
| Chandigarh | Private charging infrastructure | Grant on purchase and installation of charging equipment | ₹6,000 | Only for the first 30,000 private chargers installed during the policy period |
| | Public charging infrastructure | 100% reimbursement of GST paid | Not specified | Not specified |
| Chhattisgarh | Fast charging stations | Capital subsidy of 25% on charging equipment/ machinery | Maximum of ₹10 lakh | To the first 300 fast charging stations commissioned in the state |
| Delhi | Public charging stations | Capital subsidy for the cost of charger's installation expenses | Not specified | For selected energy operators for chargers installed within one year of the allocation of a concessional location. No operational subsidies provided. |
| Gujarat | Commercial public EV charging stations (2W, 3W, 4W) | 25% capital subsidy on equipment/ machinery | Limited up to ₹10 lakhs | For the first 250 commercial public EV charging stations |
| Haryana | Battery swapping stations | One time subsidy of 20% of fixed capital investment (FCI) | Up to ₹10 lakhs | For the first 100 battery swapping stations with FCI of more than ₹50 lakhs |
| | Privately owned public charging stations | One time subsidy of 20% of the fixed capital investment (FCI) | Maximum up to ₹5 lakhs | For the first 200 privately owned public charging stations with FCI of more than ₹25 lakh |

| State | Infrastructure type | Incentive | Maximum limit per station | Conditions/ limitations |
|---|---|---|---|---|
| Haryana | Privately owned public charging stations | One time subsidy of 20% of fixed capital investment (FCI) | Up to ₹50,000 | For the first 2,000 in group residential buildings, commercial buildings, etc., catering to more than 1,000 people daily. |
| Himachal Pradesh | Public and semi-public charging points/ stations | Incentives will be prescribed by the government under the policy | Not specified | Incentive is limited to the cost of the charging station and does not include land/ ancillary costs. Public/semi-public stations availing FAME II incentives are not eligible. Municipalities can provide land concessions. |
| Jharkhand | Slow PCS/ SPCS | 60% of the cost* | ₹10,000 | Maximum number to be incentivised: 15,000. Cost of charging station only, excluding land/ ancillary costs. Eligible only after commencement of operation. Not eligible if availing FAME II incentives. |
| | Moderate/ fast PCS/ SPCS | 50% of the cost* | ₹5 lakh | Maximum number to be incentivised: 500. Cost of charging station only, excluding land/ ancillary costs. Eligible only after commencement of operation. Not eligible if availing FAME II incentives. |

| State | Infrastructure type | Incentive | Maximum limit per station | Conditions/ limitations |
|---|---|---|---|---|
| Jharkhand | Solar based fast PCS/ SPCS | 70% of the cost | ₹7 lakh | Maximum number to be incentivised: 500. Generating at least 75% of annual electricity through solar energy. Cost of charging station only, excluding land/ ancillary costs. Eligible only after commencement of operation. Not eligible if availing FAME II incentives |
| Karnataka | Battery switching/ swapping stations (2W, 3W) | Capital subsidy of 25% | Up to ₹ 3 lakh | Number of stations to be incentivised: 500 |
| | Battery switching/ swapping stations (cars) | Capital subsidy of 25% | Up to ₹5 lakh | Number of stations to be incentivised: 200 |
| | Battery switching/ swapping stations (buses) | Capital subsidy of 25% | Up to ₹10 lakh | Number of stations to be incentivised: 200 |
| | Hydrogen stations (all vehicles) | Capital subsidy of 25% | Up to ₹1 Cr | Number of stations to be incentivised: 25 |
| Kerala | Public charging stations | Capital subsidy of 25% of the value of the charging station equipment/ machinery | Maximum of ₹10 lakh | For the first 100 stations direct-current (DC) chargers (100V and above) |
| | Public swapping stations | Capital subsidy of 25% for eligible assets excluding cost of battery inventory | Maximum subsidy of ₹10 lakhs | For the first 50 stations |
| Ladakh | Commercial public EV charging stations (2W, cars, buses) | Capital subsidy of 25% on equipment/ machinery | ₹5 lakh (Whichever is less) | For the first 15 EV charging stations |

| State | Infrastructure type | Incentive | Maximum limit per station | Conditions/ limitations |
|---|---|---|---|---|
| Madhya Pradesh | Small charging stations | Capital subsidy of 30% of the value of the charging equipment/ machinery | Maximum subsidy of ₹1.5 lakh | For the first 500 charging stations |
| | Medium charging stations | Capital subsidy of 30% of the value of the charging equipment/ machinery | Maximum subsidy of ₹3 lakh | For the first 300 stations |
| | Large charging stations | Capital subsidy of 30% of the value of the charging equipment/ machinery | Maximum subsidy of ₹10 lakh | For the first 200 stations |
| | Battery Swapping Station | One-time capital subsidy on eligible fixed capital investment at the rate of 30% | Maximum of ₹3 lakh | For the first 300 Swap Stations in the State. |
| Maharashtra (2025) | DC Charging Protocol for e 4W, Buses and Trucks (DC 50 kW to 250 kW) | 15% of cost | ₹5 lakh | Maximum number to be incentivised: 1,000. Cost of charging station only, excluding land/ ancillary costs. A charging station must have a minimum 4 charging points installed. |
| | DC High Power for e-Bus and Trucks Charging Station (DC High Power: 250 to greater than 500 kW) | 15% of cost | ₹10 lakh | Maximum number to be incentivised: 500. Cost of charging station only, excluding land/ ancillary costs. A charging station must have a minimum 2 charging points installed. |

| State | Infrastructure type | Incentive | Maximum limit per station | Conditions/ limitations |
|---|---|---|---|---|
| Rajasthan | Creation public charging & swapping infrastructure | SGST Reimbursement on Fast Charging Electric Vehicle Supply Equipment (EVSE) procured by private enterprises setting up public charging stations/ swapping stations. | Not specified | Reimbursed up to specific amount and number of charging stations. |
| | Creation public charging stations/ swapping stations | Reimbursement of cost towards upstream electricity infrastructure | Up to ₹5 lakhs per charging station on actual cost basis | Applicable for the first 100 Public Fast Charging/Swapping Stations installed during policy period. |
| Tamil Nadu | Public Charging Stations | 25% subsidy of the cost of equipment and machinery | ₹1,00,000 | Firms establishing public charging stations complying with Ministry of Power guidelines. Cost of land is excluded. |
| | Private Charging Stations | 25% capital subsidy on the cost involved in the purchase of equipment and machinery | ₹10 lakhs | For the first 50 private charging stations set up in Tamil Nadu. |
| Uttar Pradesh | Charging Stations | One-time capital subsidy of 20% on eligible fixed capital investment | Maximum ₹10 lakhs per unit | To 1st 2000 charging stations in the State. Incentive provided post commencement of commercial operations. Maximum 100 stations per investor. |
| | Swapping Stations | One-time capital subsidy of 20% on eligible fixed capital investment | Upto max ₹5 lakh per unit | To 1st 1000 swap stations in the State. Incentive provided post commencement of commercial operations. Maximum 100 stations per investor. |

# Annexure 4: Approach and methodology for identifying ZET corridors within states

## Approach

The goal of this approach is to enable states to systematically identify and prioritise ZET corridors that are best suited for early adoption and deployment of e-MHDTs.

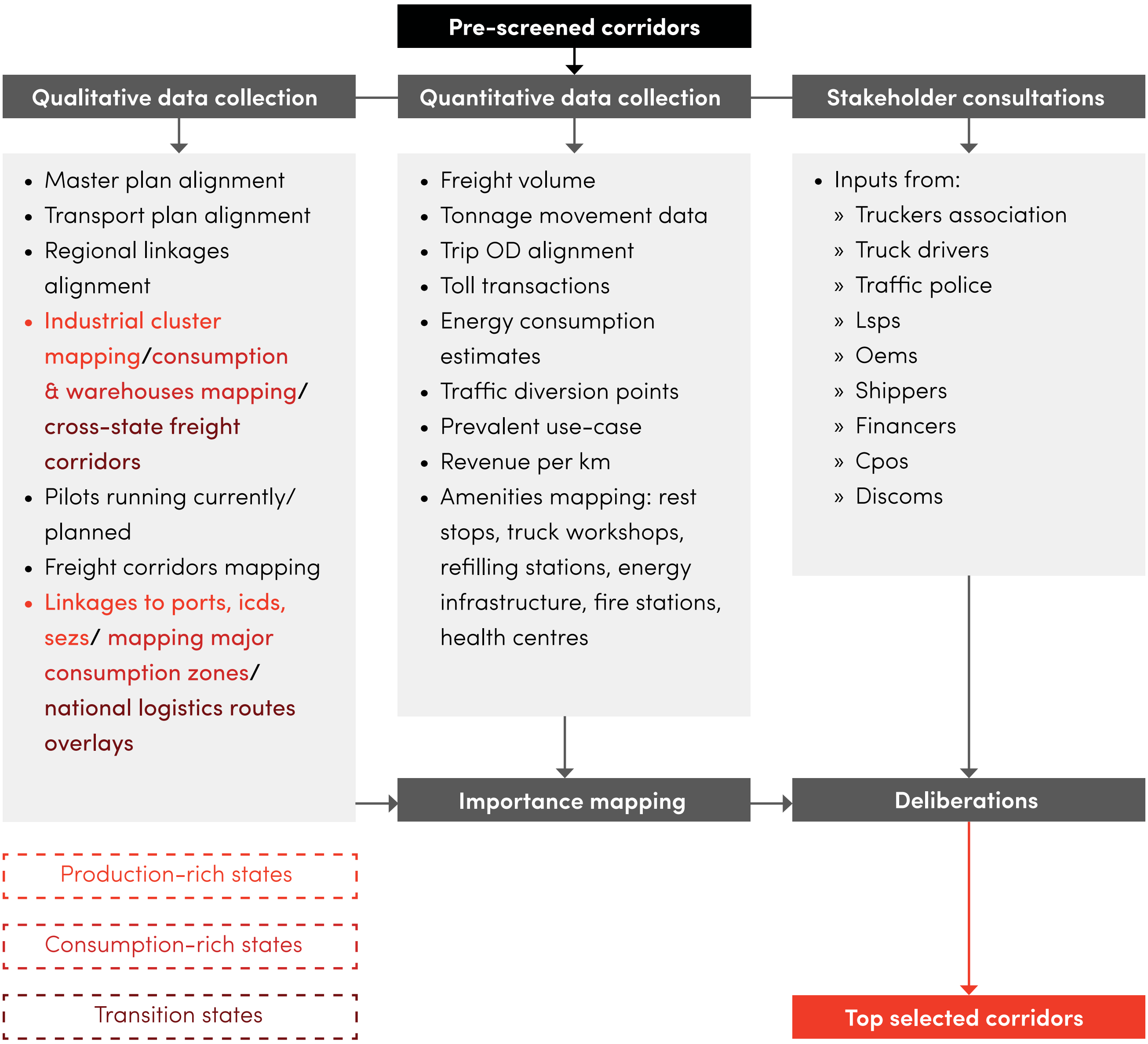
The approach is structured around four foundational pillars[81]

- **Strategic corridor mapping:** Create a comprehensive inventory of freight corridors by leveraging existing data, aligning with logistics movements, alignment with master plan, transport plans, regional linkages and integrating with national and state priorities.
- **Readiness assessment:** Use a mix of qualitative(e.g., GIS mapping of infrastructure) and quantitative data(e.g., driver/operator surveys, toll data) to assess corridor feasibility.
- **Stakeholder-centric validation:** Engage with government, industry, and ground-level operators to validate real-world viability, willingness, and use-case alignment.
- **Data driven prioritization:** Apply a structured importance mapping to rank and shortlist corridors using parameters like freight volume, electrification potential, operational behaviors, and infrastructure availability.

[81] India's Priority Corridors for Zero-Emission Trucking

# Methodology

This methodology offers a structured, state-level approach to identify and prioritise (ZET) corridors based on data-driven insights, stakeholder inputs, and state typology (Production-Rich, Consumption-Rich, or Transition States).



Step 1

### Identify the nature of the state

States can be categorised in three types (color-coded overlays are used to represent). These characteristics help to determine the important hubs and their linkages:

- Production-rich states
- Consumption-rich states
- Transition-states

Step 2

### Multi-dimensional data collection

Begin with a broad list of freight corridors using data from masterplan, freight plan (if existing), corridors connecting important industrial hubs, identified important regional linkages, and from logistics and transport data. These corridors serve as the baseline for further evaluation.

**Qualitative data collection**

- Align corridor selection with state spatial and sectoral planning
- Map industrial clusters, consumption hubs, warehouse zones, and cross-state corridors.
- Integrate corridor mapping with master plans, regional transport plans, and strategic logistics infrastructure like ports, SEZs, and ICDs. Integrate with existing/ planned pilots running in the state.

**Quantitative data collection**

- Capture freight and operational characteristics.
- Analyse freight volume, tonnage data, toll transactions, and OD alignment.
- Identify traffic diversion points, prevalent use-cases, and route-level amenities including rest stops, energy access, and safety infrastructure.

**Analysis**

- Analyse current traffic and tonnage distribution on the corridors.
- Project future growth in traffic and tonnage including split between road and rail.
- Calculate the Energy Consumption Estimates route wise.
- Determine the TCO of the use-cases on the corridor and project the TCOs over the years.
- Determine feasible use-cases basis to TCO and availability of load on the corridors.
- Determine future energy demands on the corridor to support electrification including existing/ proposed availability of HT transmission lines and capacity of sub-stations.

**Stakeholder consultations**

- Engage key actors through interviews, surveys, and workshops.
- Inputs from truckers, LSPs, OEMs, traffic police, CPOs, and utilities ensure the final corridors reflect real-world viability and ground-level readiness.

Step 3

**Importance mapping**

- All data streams are synthesised and prioritisation (we use british english) matrix to select corridors based on strategic fit, electrification readiness, and stakeholder insights.

Step 4

**Deliberations and finalization**

- Through expert-led discussions and cross-departmental alignment, the top corridors are selected for ZET deployment, ensuring a high-impact, feasible, and scalable transition path.

# Annexure 5(a): States considered for the study

| States | Heavy-duty truck registration (share in national sales) (FY 2024-25) |
|---|---|
| Assam | 3,848 (2%) |
| Gujarat | 20,494 (9%) |
| Karnataka | 13,281 (6%) |
| Maharashtra | 35,312 (15%) |
| Odisha | 11,963 (5%) |
| Rajasthan | 15,788 (7%) |
| Tamil Nadu | 13,273 (6%) |
| Telangana | 2,781 (1%) |
| Uttar Pradesh | 15,617 (7%) |

# Annexure 5(b): List of policy interventions

| Demand-side interventions | Supply-side interventions | Charging infrastructure |
|---|---|---|
| Purchase subsidy | Special incentives for EV batteries and cell component manufacturing | Defined targets for setting up public charging stations |
| Interest subvention for purchasing personal EVs | Capital subsidy on fixed assets | Capital subsidy on EV Supply Equipment (EVSE) |
| Scrapping and retrofit incentives | SGST reimbursement in lieu of investment | Concessional land provision for public charging infrastructure |

| Demand-side interventions | Supply-side interventions | Charging infrastructure |
|---|---|---|
| Registration fee and road tax exemption | Interest subvention on fixed assets or working capital loans | Interest subsidy for PPP charging station projects |
| Annual permit fee exemption | Stamp duty exemption or reimbursement | Designated EV-ready parking spaces with chargers in residential and commercial buildings |
| Green zones/entry time or entry fee exemption | Land conversion subsidy | Electricity duty exemption for charging stations |
| SGST reimbursement on EV purchase | Power tariff discount | Concessional electricity tariff |
| | Electricity duty exemption | Renewable energy for charging stations through open access |
| | Transportation subsidy | Reimbursement of upstream infrastructure costs or SGST on EVSE |
| | Incentives for battery recycling and urban mining ecosystem | Fast-track electricity connections for charging service providers |

# Annexure 6: Scores for administrative pillar across nine states

| Administrative | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Policy interventions | St-1 | St-2 | St-3 | St-4 | St-5 | St-6 | St-7 | St-8 | St-9 | Average across states |
| **Demand-side interventions** | | | | | | | | | | |
| Purchase subsidy | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 3 | 2.33 |
| Interest subvention for purchasing EVs | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0.44 |
| Scrapping and/ or retrofit incentives | 3 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 3 | 1.67 |
| Registration fee and road tax exemption | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 2.67 |
| Annual permit fee exemption | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 3 | 1.33 |
| Green zones/ entry time exemption | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0.22 |
| SGST reimbursement on vehicle purchase | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0.33 |
| **Supply-side intervention** | | | | | | | | | | |
| Special incentives for EV batteries and cell component manufacturing | 3 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 2 | 1.22 |
| Capital subsidy on fixed assets | 3 | 3 | 3 | 2 | 3 | 0 | 2 | 0 | 3 | 2.11 |
| SGST reimbursement | 2 | 3 | 3 | 0 | 0 | 2 | 0 | 2 | 2 | 1.56 |
| Interest subvention on fixed asset or working capital loans for manufacturing units | 0 | 3 | 1 | 0 | 2 | 0 | 0 | 2 | 1 | 1.00 |
| Stamp duty exemption/ reimbursement for manufacturing unit | 2 | 2 | 0 | 2 | 2 | 2 | 1 | 2 | 2 | 1.67 |
| Land conversion subsidy for manufacturing units | 3 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0.89 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Power tariff discount for manufacturing units | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0.67 |
| Electricity duty exemption for manufacturing units | 2 | 0 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 1.56 |
| Transportation subsidy for manufacturing units | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.22 |
| Incentives for battery recycling units and urban mining ecosystem | 1 | 1 | 0 | 1 | 1 | 2 | 1 | 0 | 1 | 0.89 |
| Infrastructure | | | | | | | | | | |
| Target for setting up of public charging stations | 3 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 3 | 1.33 |
| Capital subsidy on EV Supply Equipment (EVSE) | 0 | 3 | 3 | 3 | 2 | 0 | 3 | 3 | 3 | 2.22 |
| Concessional land provision for public charging infrastructure | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0.44 |
| Interest subsidy for PPP projects of charging stations | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0.44 |
| Preferential parking for EVs and chargers in commercial and residential complexes | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 3 | 2.44 |
| Electricity duty exemption for charging stations | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0.56 |
| Concessional electricity tariff for charging stations | 3 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2.56 |
| Renewable energy for charging stations through open access | 3 | 3 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 1.33 |
| Reimbursement of upstream infrastructure cost or SGST on EVSE | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0.11 |
| Fast-track electricity connections for charging service providers | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 2 | 0.78 |

**Table 2: Scores for automotive industry pillar across nine states**

| Automotive industry | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Policy interventions | St-1 | St-2 | St-3 | St-4 | St-5 | St-6 | St-7 | St-8 | St-9 | Average across states |
| **Demand-side interventions** | | | | | | | | | | |
| Purchase subsidy | 0 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 1.56 |
| Interest subvention for purchasing EVs | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0.44 |
| Scrapping and/ or retrofit incentives | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 1.11 |
| Registration fee and road tax exemption | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 1.78 |
| Annual permit fee exemption | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0.67 |
| Green zones/ entry time exemption | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0.11 |
| SGST reimbursement on vehicle purchase | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0.22 |
| **Supply-side intervention** | | | | | | | | | | |
| Special incentives for EV batteries and cell component manufacturing | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 3 | 3 | 1.67 |
| Capital subsidy on fixed assets | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 3 | 2.67 |
| SGST reimbursement | 3 | 3 | 3 | 0 | 0 | 3 | 0 | 3 | 3 | 2.00 |
| Interest subvention on fixed asset or working capital loans for manufacturing units | 0 | 3 | 3 | 0 | 3 | 0 | 0 | 3 | 3 | 1.67 |
| Stamp duty exemption/ reimbursement for manufacturing unit | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 2.67 |
| Land conversion subsidy for manufacturing units | 3 | 0 | 0 | 0 | 3 | 3 | 3 | 0 | 0 | 1.33 |
| Power tariff discount for manufacturing units | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0.67 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Electricity duty exemption for manufacturing units | 3 | 0 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 2.33 |
| Transportation subsidy for manufacturing units | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.33 |
| Incentives for battery recycling units and urban mining ecosystem | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 0 | 2 | 1.56 |
| **Infrastructure** | | | | | | | | | | |
| Target for setting up of public charging stations | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 2 | 1.11 |
| Capital subsidy on EV Supply Equipment (EVSE) | 0 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 1.56 |
| Concessional land provision for public charging infrastructure | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0.22 |
| Interest subsidy for PPP projects of charging stations | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0.44 |
| Preferential parking for EVs and chargers in commercial and residential complexes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1.00 |
| Electricity duty exemption for charging stations | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0.22 |
| Concessional electricity tariff for charging stations | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.78 |
| Renewable energy for charging stations through open access | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0.56 |
| Reimbursement of upstream infrastructure cost or SGST on EVSE | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0.11 |
| Fast-track electricity connections for charging service providers | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0.33 |

**Table 3: Scores for EV consumer pillar across nine states**

| EV consumer | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Policy interventions | St-1 | St-2 | St-3 | St-4 | St-5 | St-6 | St-7 | St-8 | St-9 | Average across states |
| **Demand-side interventions** | | | | | | | | | | |
| Purchase subsidy | 0 | 4 | 3 | 3 | 4 | 4 | 0 | 4 | 4 | 2.89 |
| Interest subvention for purchasing EVs | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0.89 |
| Scrapping and/ or retrofit incentives | 4 | 4 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 2.22 |
| Registration fee and road tax exemption | 4 | 4 | 0 | 4 | 4 | 4 | 4 | 4 | 4 | 3.56 |
| Annual permit fee exemption | 4 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 4 | 1.78 |
| Green zones/ entry time exemption | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0.33 |
| SGST reimbursement on vehicle purchase | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0.44 |
| **Supply-side intervention** | | | | | | | | | | |
| Special incentives for EV batteries and cell component manufacturing | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0.56 |
| Capital subsidy on fixed assets | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0.89 |
| SGST reimbursement | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0.44 |
| Interest subvention on fixed asset or working capital loans for manufacturing units | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0.56 |
| Stamp duty exemption/ reimbursement for manufacturing unit | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0.89 |
| Land conversion subsidy for manufacturing units | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0.56 |
| Power tariff discount for manufacturing units | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0.11 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Electricity duty exemption for manufacturing units | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0.67 |
| Transportation subsidy for manufacturing units | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.11 |
| Incentives for battery recycling units and urban mining ecosystem | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0.78 |
| **Infrastructure** | | | | | | | | | | |
| Target for setting up of public charging stations | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 3 | 3 | 1.67 |
| Capital subsidy on EV Supply Equipment (EVSE) | 3 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 3 | 2.00 |
| Concessional land provision for public charging infrastructure | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0.67 |
| Interest subsidy for PPP projects of charging stations | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0.33 |
| Preferential parking for EVs and chargers in commercial and residential complexes | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4.00 |
| Electricity duty exemption for charging stations | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0.33 |
| Concessional electricity tariff for charging stations | 4 | 0 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3.56 |
| Renewable energy for charging stations through open access | 3 | 3 | 0 | 3 | 3 | 0 | 0 | 0 | 3 | 1.67 |
| Reimbursement of upstream infrastructure cost or SGST on EVSE | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0.33 |
| Fast-track electricity connections for charging service providers | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0.67 |

**Table 4: Scores for policy impact pillar across nine states**

| Policy impact | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Policy interventions | St-1 | St-2 | St-3 | St-4 | St-5 | St-6 | St-7 | St-8 | St-9 | Average across states |
| **Demand-side interventions** | | | | | | | | | | |
| Purchase subsidy | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0.78 |
| Interest subvention for purchasing EVs | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0.22 |
| Scrapping and/ or retrofit incentives | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0.56 |
| Registration fee and road tax exemption | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0.89 |
| Annual permit fee exemption | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0.44 |
| Green zones/ entry time exemption | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0.11 |
| SGST reimbursement on vehicle purchase | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0.11 |
| **Supply-side intervention** | | | | | | | | | | |
| Special incentives for EV batteries and cell component manufacturing | 4 | 0 | 0 | 4 | 0 | 0 | 1 | 1 | 4 | 1.56 |
| Capital subsidy on fixed assets | 4 | 4 | 4 | 4 | 4 | 4 | 1 | 0 | 4 | 3.22 |
| SGST reimbursement | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 4 | 1.11 |
| Interest subvention on fixed asset or working capital loans for manufacturing units | 0 | 1 | 3 | 0 | 1 | 0 | 0 | 2 | 2 | 1.00 |
| Stamp duty exemption/ reimbursement for manufacturing unit | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0.89 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Land conversion subsidy for manufacturing units | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0.44 |
| Power tariff discount for manufacturing units | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0.33 |
| Electricity duty exemption for manufacturing units | 1 | 0 | 3 | 0 | 2 | 2 | 2 | 1 | 1 | 1.33 |
| Transportation subsidy for manufacturing units | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.11 |
| Incentives for battery recycling units and urban mining ecosystem | 1 | 3 | 0 | 1 | 1 | 1 | 1 | 0 | 3 | 1.22 |
| **Infrastructure** | | | | | | | | | | |
| Target for setting up of public charging stations | 4 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 4 | 2.22 |
| Capital subsidy on EV Supply Equipment (EVSE) | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0.78 |
| Concessional land provision for public charging infrastructure | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0.89 |
| Interest subsidy for PPP projects of charging stations | 4 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0.89 |
| Preferential parking for EVs and chargers in commercial and residential complexes | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4.00 |
| Electricity duty exemption for charging stations | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0.22 |
| Concessional electricity tariff for charging stations | 4 | 0 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3.56 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Renewable energy for charging stations through open access | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 4 | 1.33 |
| Reimbursement of upstream infrastructure cost or SGST on EVSE | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0.44 |
| Fast-track electricity connections for charging service providers | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 4 | 1.33 |

**Table 5: Total normalised score (out of 10) for each policy intervention across four pillars**

| Policy interventions | Administrative pillar | Automotive industry pillar | EV consumer pillar | Policy impact pillar | Total score out of 10 |
|---|---|---|---|---|---|
| **Demand-side interventions** | | | | | |
| Purchase subsidy | 2.33 | 1.56 | 2.89 | 0.78 | 4.72 |
| Interest subvention for purchasing EVs | 0.44 | 0.44 | 0.89 | 0.22 | 1.25 |
| Scrapping and/ or retrofit incentives | 1.67 | 1.11 | 2.22 | 0.56 | 3.47 |
| Registration fee and road tax exemption | 2.67 | 1.78 | 3.56 | 0.89 | 5.56 |
| Annual permit fee exemption | 1.33 | 0.67 | 1.78 | 0.44 | 2.64 |
| Green zones/ entry time exemption | 0.22 | 0.11 | 0.33 | 0.11 | 0.49 |
| SGST reimbursement on vehicle purchase | 0.33 | 0.22 | 0.44 | 0.11 | 0.69 |
| **Supply-side intervention** | | | | | |
| Special incentives for EV batteries and cell component manufacturing | 1.22 | 1.67 | 0.56 | 1.56 | 3.13 |

| Policy interventions | Administrative pillar | Automotive industry pillar | EV consumer pillar | Policy impact pillar | Total score out of 10 |
|---|---|---|---|---|---|
| Capital subsidy on fixed assets | 2.11 | 2.67 | 0.89 | 3.22 | 5.56 |
| SGST reimbursement | 1.56 | 2.00 | 0.44 | 1.11 | 3.19 |
| Interest subvention on fixed asset or working capital loans for manufacturing units | 1.00 | 1.67 | 0.56 | 1.00 | 2.64 |
| Stamp duty exemption/ reimbursement for manufacturing unit | 1.67 | 2.67 | 0.89 | 0.89 | 3.82 |
| Land conversion subsidy for manufacturing units | 0.89 | 1.33 | 0.56 | 0.44 | 2.01 |
| Power tariff discount for manufacturing units | 0.67 | 0.67 | 0.11 | 0.33 | 1.11 |
| Electricity duty exemption for manufacturing units | 1.56 | 2.33 | 0.67 | 1.33 | 3.68 |
| Transportation subsidy for manufacturing units | 0.22 | 0.33 | 0.11 | 0.11 | 0.49 |
| Incentives for battery recycling units and urban mining ecosystem | 0.89 | 1.56 | 0.78 | 1.22 | 2.78 |
| **Infrastructure** | | | | | |
| Target for setting up of public charging stations | 1.33 | 1.11 | 1.67 | 2.22 | 3.96 |

| Policy interventions | Administrative pillar | Automotive industry pillar | EV consumer pillar | Policy impact pillar | Total score out of 10 |
|---|---|---|---|---|---|
| Capital subsidy on EV Supply Equipment (EVSE) | 2.22 | 1.56 | 2.00 | 0.78 | 4.10 |
| Concessional land provision for public charging infrastructure | 0.44 | 0.22 | 0.67 | 0.89 | 1.39 |
| Interest subsidy for PPP projects of charging stations | 0.44 | 0.44 | 0.33 | 0.89 | 1.32 |
| Preferential parking for EVs and chargers in commercial and residential complexes | 2.44 | 1.00 | 4.00 | 4.00 | 7.15 |
| Electricity duty exemption for charging stations | 0.56 | 0.22 | 0.33 | 0.22 | 0.83 |
| Concessional electricity tariff for charging stations | 2.56 | 0.78 | 3.56 | 3.56 | 6.53 |
| Renewable energy for charging stations through open access | 1.33 | 0.56 | 1.67 | 1.33 | 3.06 |
| Reimbursement of upstream infrastructure cost or SGST on EVSE | 0.11 | 0.11 | 0.33 | 0.44 | 0.63 |
| Fast-track electricity connections for charging service providers | 0.78 | 0.33 | 0.67 | 1.33 | 1.94 |

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