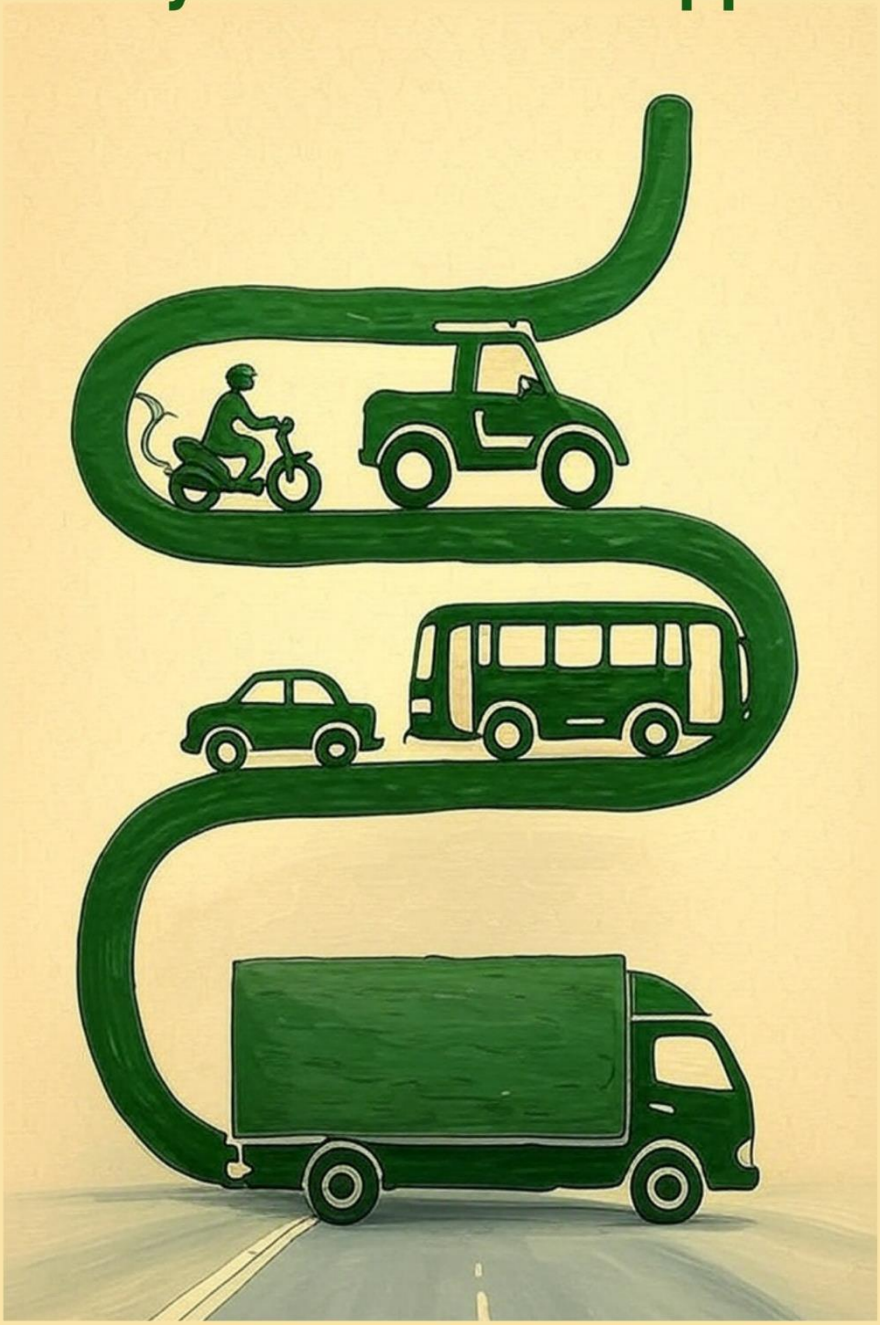
Assessing India's Sustainable Mobility Landscape:

A Policy Framework Approach



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Contents

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Any errors or omissions that remain are solely our responsibility.

Abbreviations

AAT	Advanced Automotive Technology
ACC	Advanced Chemistry Cell
BEV	Battery Electric Vehicles
BEE	Bureau of Energy Efficiency
CAGR	Compound Annual Growth Rate
CFA	Central Financial Assistance
DVA	Domestic Value Addition
EMPS	Electric Mobility Promotion Scheme
EPR	Extended Producers Responsibility
EV	Electric Vehicles
FAME	Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles in India
FCEV	Fuel Cell Electric vehicle
GHG	Greenhouse Gases
Gt	Gigatonnes
GWh	Gigawatt Hour
HDV	Heavy Duty Vehicles
ICE	Internal Combustion Engine
kWh	Kilowatt Hour
MDV	Medium Duty Vehicles
MHI	Ministry of Heavy Industries
MSME	Micro, Small, and Medium Enterprises
NEBP	National Electric Bus Programme
NEMMP	National Electric Mobility Mission Plan
OEM	Original Equipment Manufacturer
PLI	Production Linked Incentive
PMP	Phased Manufacturing Programme
R&D	Research and Development
SPMEPCI	Scheme to Promote Manufacturing of Electric Passenger Cars in India
ZEV	Zero Emission Vehicles
PM	Particulate Matter
PPP	Public Private Partnership
PSM	Payment Security Mechanism
PTA	Public Transport Authority
SGST	State Goods and Services Tax

Executive Summary

India's transition toward sustainable mobility, particularly through the adoption of electric vehicles (EVs), represents a pivotal step in addressing the country's pressing environmental and energy security challenges. The transportation sector, contributing 13–15 percent of India's total carbon emissions, with road transport accounting for nearly 90 percent of this share, is a critical focus area for decarbonisation.

The report, Assessing India's Sustainable Mobility Landscape: A Policy Framework Approach, evaluates the decade-long policy-driven shift toward sustainable mobility, with a specific emphasis on electric vehicles, while also laying the groundwork for future assessments of alternative fuels like biofuels and green hydrogen.

By adopting a Just Transition lens, the report examines the interplay of policy dimensions—manufacturing, employment, gender inclusivity, and regional balance—and draws insights from national and state-level policies, stakeholder consultations, and international experiences to propose a comprehensive roadmap for scaling up sustainable mobility in India.

Context and Importance of Sustainable Mobility

The global imperative to limit warming to 1.5°C above pre-industrial levels, as outlined in scientific assessments, underscores the urgency of transitioning to cleaner technologies. With a remaining global carbon budget of approximately 130 gigatonnes (Gt), projected to be depleted within a few years at current emission rates, countries like India face the dual challenge of mitigating climate change while ensuring energy security amid global trade uncertainties.

In India, transportation's localised emissions exacerbate urban air pollution, posing significant health risks. The report highlights that road vehicles, primarily used for intra-city commuting, contribute to concentrated pollution in urban centres, necessitating a robust policy framework to accelerate the shift to zero-emission vehicles (ZEVs).

India's policy journey began with the National Electric Mobility Mission Plan (NEMMP) in 2013, followed by the Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles (FAME) scheme in 2015. These initiatives marked the foundation for a structured transition to electric mobility. Over the past decade, EV adoption has grown significantly, with EVs rising from less than 1 percent of new vehicle sales in FY 2015–16 to approximately 7 percent by FY 2025–26.

However, this progress falls short of ambitious targets, and the transition has not fully embraced the principles of a Just Transition, which emphasises inclusivity, equity, and socio-economic benefits. The report underscores the need for policies that integrate livelihood generation, gender equity, and regional balance to ensure a fair and sustainable shift.

National Policy Framework

India's national policies have been instrumental in driving EV adoption, with a focus on demand creation, manufacturing, and infrastructure development. Below is an analysis of key national initiatives:

National Electric Mobility Mission Plan (NEMMP, 2013): Launched to achieve fuel security, NEMMP aimed for 6–7 million annual hybrid and EV sales by 2020. It laid the groundwork for subsequent policies by promoting hybrid and electric vehicles and addressing fiscal policies, emissions, safety, and skill development.

FAME and FAME II: Introduced in 2015 with a budget of INR 9 billion, FAME focused on demand creation, technology platforms, pilot projects, and charging infrastructure. It supported 280,000 EVs, 425 electric/hybrid buses, and 520 charging stations. FAME II (2019–2024), with a budget of INR 115 billion, scaled up efforts, supporting over 1.4 million electric two-wheelers, 165,000 three-wheelers, 23,331 four-wheelers, and 6,862 buses. It prevented 3.3 million kilograms of CO_2 emissions daily and saved 1.4 million litres of fuel. However, challenges in regulatory compliance, particularly in the two-wheeler segment, highlighted gaps in implementation.

Production Linked Incentive (PLI) Schemes: The PLI-Auto scheme (2021, INR 259 billion) incentivised Advanced Automotive Technology (AAT) manufacturing, achieving INR 250 billion in investments and 381,186 jobs by 2024. The PLI-ACC scheme (2021, INR 181 billion) targeted 50 GWh of battery storage capacity to reduce import dependence, with 40 GWh allocated to firms and 10 GWh for grid-scale storage. These schemes emphasise domestic value addition (DVA) to strengthen supply chains.

Electric Mobility Promotion Scheme (EMPS, 2024): A short-term scheme with INR 5 billion supported 372,000 electric two- and three-wheelers, bridging the gap post-FAME II.

PM E-DRIVE (2024–2028): With INR 109 billion, this scheme expanded incentives to include ambulances, trucks, and other emerging EV categories, excluding passenger cars. It also prioritised charging infrastructure and technology testing, subsuming EMPS provisions.

National Electric Bus Programme (NEBP) and PM-eBus Sewa: NEBP aims to deploy 50,000 e-buses, with PM-eBus Sewa targeting 10,000 e-buses across 169 cities. A Payment Security Mechanism (PSM) with INR 34.35 billion ensures operator confidence. As of August 2025, 7,293 e-buses have been sanctioned.

These policies have driven significant progress, but challenges remain, including limited charging infrastructure, regulatory compliance issues, and the exclusion of passenger cars from recent schemes like PM E-DRIVE. The report emphasises the need for streamlined implementation and greater focus on inclusivity.

State-Level Policies

State-level policies have complemented national efforts, tailoring incentives to regional contexts. The report analyses policies for all Indian states highlighting their diversity and impact.

Karnataka: Karnataka, the first Indian state to launch an EV policy through the Karnataka Electric Vehicle and Energy Storage Policy 2017, attracted investments worth INR 250 billion. The 2025 Clean Mobility Policy aims to secure INR 500 billion in investments and create 100,000 jobs, with a focus on green hydrogen and R&D. The state is among India's EV leaders, with 250,000 registered EVs and over 6,000 charging stations.

Andhra Pradesh: The 2018–23 policy aimed to attract INR 300 billion in investments, achieve one million EVs, and set up 100,000 charging stations, but it fell short, reaching only 130,000 EVs and 601 stations by 2024. The 2024–29 policy introduces purchase incentives and targets 230,000 new EV registrations by 2029.

Maharashtra: Maharashtra is the only Indian state to have introduced its EV policy three times. The first Electric Vehicle Policy in 2018 aimed to attract INR 250 billion in investments and create 100,000 jobs. The 2021 policy, with a budget of INR 9.3 billion, targeted 10% of new registrations as EVs by 2025 and introducing strong demand- and supply-side incentives. The 2025 policy further strengthens these measures, emphasising public and commercial transport, charging infrastructure, and R&D, while setting emission reduction targets of 325 tonnes of PM2.5 and one million tonnes of greenhouse gases (GHG by 2030.)

Tamil Nadu: The 2019 and 2023 policies aim for INR 500 billion in investments and 150,000 jobs. Despite being an automotive hub, EV adoption is relatively slow due to limited demand-side incentives.

Delhi: The 2020 policy's demand-focused approach, using a feebate model, resulted in high EV adoption rates, with 25 percent of new registrations targeted by 2024.

Other States: Policies in states such as Uttar Pradesh (with 350,000 registered EVs, led by e-three wheelers), Telangana (200,000 registered EVs), and Punjab (gender-inclusive incentives) show varied progress. Smaller states like Goa and Chandigarh have ambitious targets.

Overall, the first few states to introduce EV policies, such as Karnataka, Andhra Pradesh, and Tamil Nadu, focused more on developing a manufacturing ecosystem through supply-side incentives. Later policies began incorporating demand-side incentives as well, aiming to accelerate EV adoption while maintaining supply-side support for a more balanced approach. However, some states, like Delhi, with manufacturing constraints, have remained primarily demand-side oriented. Coordination among several state nodal agencies and steering committees, along with consistent incentives, is critical for success.

International Learnings

The report draws lessons from global leaders in EV adoption, offering actionable insights for India:

Affordability: Norway's tax exemptions and China's purchase tax waivers have driven EV market penetration to 90 percent and 33 percent, respectively. India's time-bound incentives could be extended to sustain demand.

Charging Infrastructure: China's 11.9 million chargers and California's equitable rebate programmes highlight the need for strategic infrastructure investment. India's 29,000+ chargers are a start, but density remains low.

Manufacturing Support: China's public fleet electrification and the European Union's 2035 ICE phase-out provide models for scaling domestic production. India's PLI schemes are aligned but need stricter enforcement of DVA requirements.

Battery Recycling: China's 40% recycling rate and the United States of America's 95 percent material recovery efficiency underscore the importance of Extended Producer Responsibility (EPR). India's PLI-ACC scheme is a step toward a circular economy but requires robust recycling infrastructure.

Key Challenges and Opportunities

India's EV transition faces challenges such as limited charging infrastructure, high upfront vehicle costs, regulatory compliance issues, and insufficient focus on gender inclusivity and marginalised communities. Opportunities lie in leveraging domestic manufacturing, enforcement of compliances, integrating socio-economic parameters, and adopting international best practices to build a resilient and inclusive EV ecosystem.

Way forward

Extend Incentives: Remove caps on numbers of vehicles to be incentivised and extend purchase incentives beyond the initial policy periods, focusing on high emitters such as MDVs and HDVs. Sustaining fiscal support during the early stages of adoption will help stabilise market demand and improve cost competitiveness for commercial fleets.

Enhance Infrastructure: Prioritise the establishment of charging stations based on vehicle movement. Expanding coverage beyond major cities will be essential to build user confidence and enable inter-regional connectivity. Leveraging public–private partnerships can help mobilise private capital, improve operational efficiency, and ensure the long-term viability of charging networks.

Strengthen Manufacturing: Enforce DVA requirements under PLI schemes and extend support to MSMEs across the supply chain to reduce import dependence. Strengthening local manufacturing for batteries, powertrains, and critical components can help enhance resilience and cost competitiveness. Encouraging R&D collaboration and skill development within emerging mobility technologies will further support innovation.

Adopt Circular Economy Principles: Adopt circular economy policy framework that goes beyond battery recycling. Policies should encourage eco-design, reuse of components, and second-life applications for EV batteries to reduce waste and resource dependence. Building a closed-loop system for material recovery can significantly enhance sustainability across the mobility value chain.

Promote Public Transport and Urban Integration: Electrification should be accompanied by efforts to make public transport systems more efficient, reliable, and accessible. Integration of e-buses with metro, non-motorised, and last-mile mobility options—supported by route optimisation and digital ticketing—will be critical to maximising emission reduction and user adoption.

Urban Mobility and Land-Use Planning: Sustainable mobility requires synchronising transport and land-use planning. Compact city design, shared mobility systems, and pedestrian-friendly urban layouts can collectively reduce travel demand and energy use, ensuring that electrification efforts translate into real climate and social gains.

Workforce Transition and Inclusivity: Promote training and entrepreneurship in EV manufacturing, battery management, and recycling, while setting gender-specific targets and capacity-building programmes for marginalised communities to strengthen inclusivity.

1 Introduction

The global drive for sustainability rests on the fact that nearly every anthropogenic activity releases emission, which in excess, are harmful to both the environment and human well-being. Sectors such as electricity generation, industry, transport, agriculture, and housing are the largest contributors, together emitting around 50 Gt of GHG annually — a figure that continues to rise.

Scientific assessments indicate that to retain even a 50 percent chance of limiting global warming to 1.5°C above pre-industrial levels (1850), the world has only about 130 Gt of carbon budget remaining. At the current rate of emissions, this budget will be depleted within the next few years, potentially triggering unprecedented climate-related events with devastating and irreversible impacts.

To tackle the pressing challenges of climate change, countries worldwide are shifting toward cleaner, greener, and more sustainable pathways in energy generation, agricultural production, and consumption, while also encouraging responsible lifestyle choices. As a result, emerging industries such as solar and wind power, green hydrogen, climate-resilient agriculture, biofuels, ZEVs, and other clean technologies are rapidly expanding. These sectors are in a transition phase, gradually replacing conventional fossil fuel–based industries — long-standing drivers of carbon emissions.

However, as with any emerging technology, a robust policy framework offering both financial and regulatory support is essential for clean technologies to grow and scale effectively. In the Indian context, proactive central and state-level policies play a pivotal role in accelerating clean energy enterprises, enabling them to deliver meaningful environmental impact in line with urgent climate goals. Equally important is the pursuit of energy security, especially in light of the global trade uncertainties that have intensified in recent years.

Among various sectors, transportation is a major contributor to India's carbon emissions, accounting for about 13–15 percent of the total, with road transport responsible for nearly 90 percent of this share. Since most road vehicles are used for daily intra-city commuting, their concentrated and localised emissions significantly elevate air pollution levels in urban areas, making cities increasingly polluted and posing serious health risks.

In 2014, the Ministry of Heavy Industries (MHI India) launched the Faster Adoption and Manufacturing of Electric and Hybrid Vehicles (FAME) scheme, marking India's first major policy intervention to accelerate the transition toward sustainable mobility. Since then, a series of central and state-level policies have been introduced, collectively driving the growth

of EVs and shaping their increasing presence in India's automotive market over the past decade.

The report, "Assessing India's Sustainable Mobility Landscape: A Policy Framework Approach", seeks to evaluate India's decade-long transition toward sustainable mobility through a policy lens, with a particular focus on electric vehicles. This will be followed in subsequent edition by assessments of alternative fuels such as biofuels and green hydrogen, offering a comprehensive view of the evolving clean mobility ecosystem.

This report aims to beyond tracking EV sales, charging infrastructure, financial mechanism, etc. across India to examine how policy dimensions such as manufacturing, employment, and gender inclusivity shape the broader socio-economic landscape. By adopting a Just Transition lens, it seeks to inform a comprehensive policy roadmap for sustainable mobility—one that builds on proven strategies while integrating key socio-economic priorities such as livelihood generation, gender equity, and regional balance.

While national and state policies provide the foundation for this report, stakeholder consultations with government agencies and industry, along with insights from international experiences, played a crucial role in deepening the understanding of on-ground challenges and identifying practical solutions to effectively scale up the transition.

The report also emphasised the regulatory framework that determines how effectively the transition can progress while safeguarding the interests of both consumers and businesses. In this context, assessing the roles of key institutions such as the Bureau of Energy Efficiency (BEE), MHI, State Transport Departments, and designated nodal agencies was vital to providing a comprehensive evaluation of India's automotive transition between 2015 and 2025.

In FY 2015–16, electric vehicles accounted for less than 1 percent of India's total new vehicle sales; by FY 2025–26, this figure has risen to around 7 percent. While this progress is commendable and signals a promising path ahead, it represents only a fraction of the intended targets. Moreover, limited attention has been given to ensuring that this transition qualifies as a truly Just Transition—one that is inclusive and equitable. This report seeks to identify the critical areas where policymakers must concentrate their efforts and to support decision-making that advances a fair and inclusive shift toward sustainable mobility.

2 National Policies

2.1 National Electric Mobility Mission Plan

The NEMMP was launched in 2013 to achieve national fuel security by promoting hybrid and electric vehicles in the country. It aimed to achieve annual sales of 6–7 million hybrid and electric vehicles from 2020 onwards, along with an estimated saving of 7-8 million tonnes of liquid fuel by 2020.[1] The NEMMP was first of its kind initiative in India for the promotion of electric vehicles and laid the foundation of subsequent similar programmes. Prior to NEMMP, the Automotive Mission Plan (2006-16) was in effect that provided a 10-year roadmap for automotive industry covering aspects of fiscal policies, emissions, safety, skill development, technical competitiveness with global markets, etc. In parallel, the Ministry of New and Renewable Energy implemented the Alternate Fuels for Surface Transportation Programme, which provided a 20% subsidy as demand incentives for battery-operated 2-, 3-, and 4-wheelers, targeting the deployment of over 130,000 vehicles during 2010–2012.[2]

2.2 Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles in India

As part of the NEMMP, Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles in India (FAME) scheme was introduced by Ministry of Heavy Industries in 2015 initially for a two-year period and was subsequently extended till 2019 with total budgetary outlay of INR 9 billion. The scheme was implemented with a focus on four areas of i) Demand Creation, ii) Technology Platform, iii) Pilot Projects, and iv) Charging Infrastructure

During its implementation, the programme supported around 280,000 electric vehicles with demand incentives worth INR 3.6 billion, 425 electric and hybrid buses with incentives of INR 2.8 billion, and 520 charging stations with support amounting to INR 430 million.[3]

The Central Financial Assistance (CFA) provided under FAME marked a key shift towards sustainable mobility in India's automotive sector, with the number of EVs rising from just 50,000 in early 2016 to about 559,000 by 2020, reflecting a compound annual growth rate (CAGR) of nearly 83%.[4]

1 https://heavyindustries.gov.in/sites/default/files/2023-07/NEMMP-2020.pdf
2 https://evyatra.beeindia.gov.in/wp-content/uploads/2022/07/newtechnology-afstp-12112010-1.pdf
3 https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/jul/doc202271169601.pdf
4 https://niti.gov.in/sites/default/files/2025-08/Electric-Vehicles-WEB-LOW-Report.pdf

In addition to CFA, INR 1.6 billion was sanctioned for pilot projects supporting technology development—such as testing infrastructure and Centres of Excellence for advanced research in electrified transportation and battery engineering—while INR 640 million was allocated for the development of technology platform.

FAME also marked the introduction of states introducing their own EV policies, with Karnataka, Andhra Pradesh, Maharashtra, Kerala, Uttar Pradesh, Tamil Nadu, Madhya Pradesh, and Uttarakhand introducing their state policies between 2017 and 2019.

2.3 FAME II

Following the conclusion of FAME, the second phase—FAME II—was launched in 2019 with a budgetary allocation of INR 100 billion for an initial period of three years, later extended until 2024 with an increment in budget to 115 billion. In addition to providing demand incentives and supporting charging infrastructure, FAME II also put emphasis on publicity and IEC (Information, Education, and Communication) activities to broaden consumer awareness and adoption.

Of the total budgetary outlay, around INR 49 billion was utilised as demand incentive for two wheelers, INR 11 billion for three wheelers, INR 5 billion for four wheelers, INR 30 billion for buses, and INR 9 billion for setting up charging stations.

As of August 2025, the scheme has supported the deployment of over 1.4 million electric two-wheelers, around 165,000 electric three-wheelers, 23,331 electric four-wheelers, and 6,862 electric buses. Collectively, these interventions are estimated to prevent 3.3 million kilograms of CO_2 emissions and save 1.4 million litres of fuel per day.[5]

With the rapid growth in electric vehicle sales, the demand for public charging infrastructure to address range anxiety also increased. Under FAME I, only 520 charging stations were sanctioned, whereas FAME II facilitated the installation of over 10,000 charging stations across the country. A majority of these were established by Oil Marketing Companies—Indian Oil Corporation, Bharat Petroleum Corporation, and Hindustan Petroleum Corporation—at their retail outlets, supported by a budgetary allocation of INR 8 billion for the development of 7,432 public charging stations.

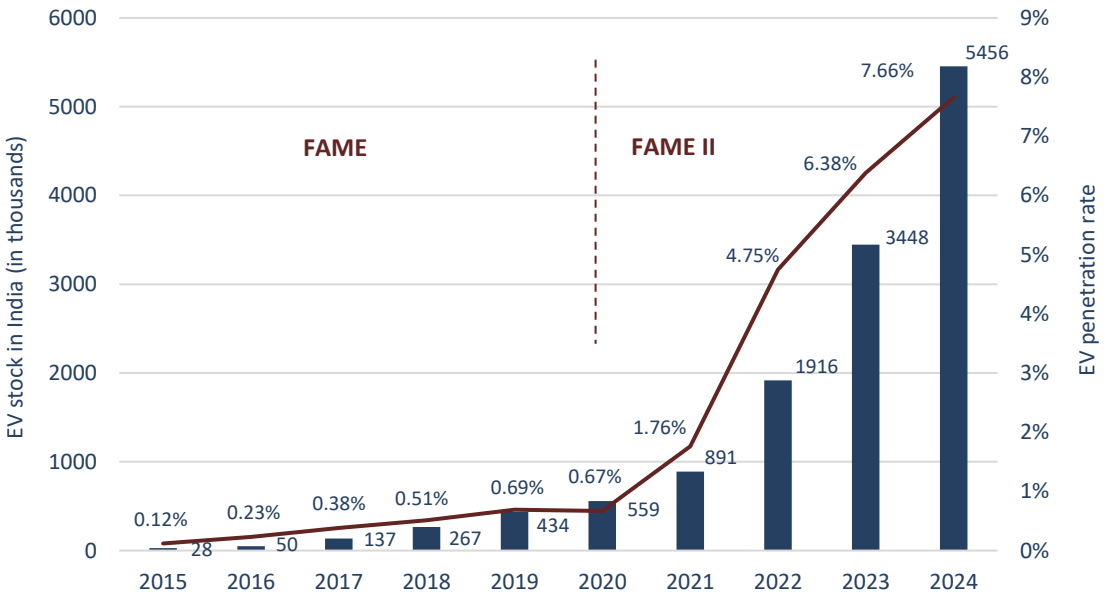
While the FAME scheme helped stimulate demand for electric vehicles in India, FAME II built on this momentum by linking demand incentives for EV industry to the local manufacturing of key EV components through its Phased Manufacturing Programme (PMP. The objective was to strengthen the domestic supply chain, reduce dependence on imports, enhance technical competence, and create livelihood opportunities in the process.

[5] https://fame2.heavyindustries.gov.in/dashboard.aspx

However, with the market still in the early stages of maturation and the manufacturing ecosystem underdeveloped and ill-equipped to scale up, several instances emerged where operational guidelines were not followed and financial incentives were not channelled appropriately—particularly in the fastest-growing EV segment of two-wheelers.[6]

In spite of a few regulatory compliance hurdles, FAME II can be credited with shifting India's sustainable mobility transition into the next gear—heralding a phase that moves beyond demand creation through incentives and focuses on developing a resilient EV ecosystem. Here, it would be interesting to observe how vehicle sales in India progressed from 2015–19 during FAME and from 2019–24 during FAME II, along with the growth in charging infrastructure.

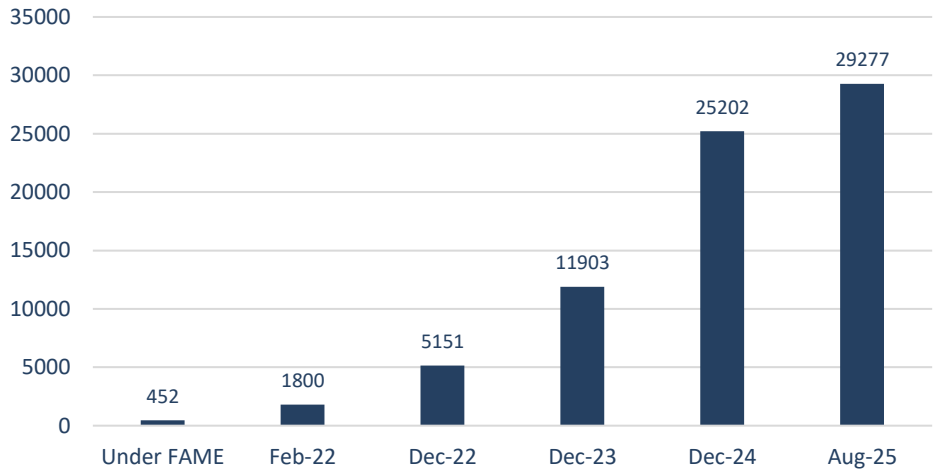
Figure 1: EV Stock and EV Penetration Rate in India



Source: Vahan Dashboard, Niti Aayog

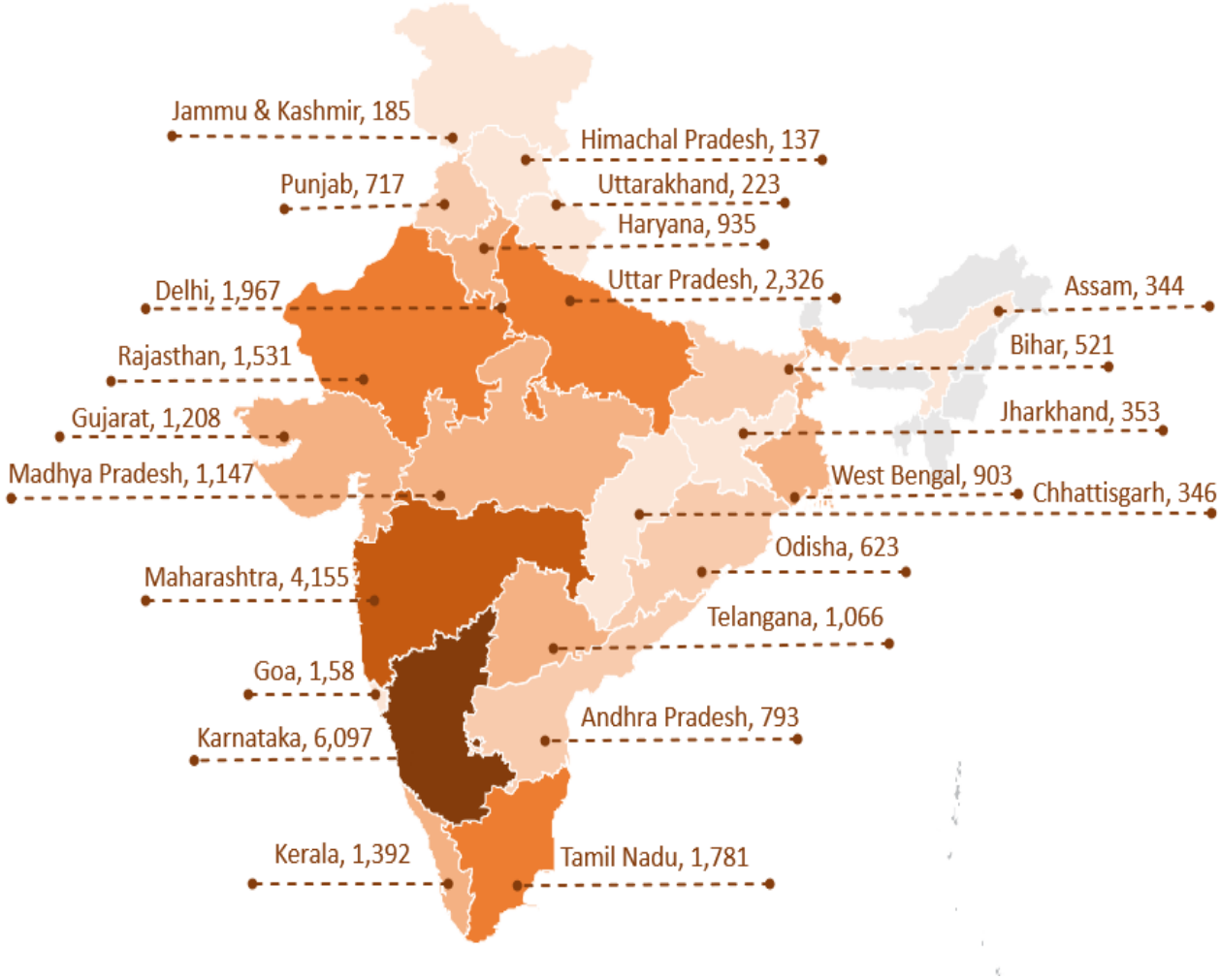
[6] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2079824#:~:text=These%20cases%20arise%20from%20the,MHI)%2C%20Government%20of%20India.

Figure 2: Charging Station Growth in India (Cumulative)



Source: Vahan Dashboard, Niti Aayog

Figure 3: State-wise Distribution of Charging Stations in India (Aug-2025)



Source: Ministry of Heavy Industries, Author's Analysis

During the FAME II period, most of the remaining states that had not yet introduced EV policies launched their own, while a few revised their earlier ones. Delhi, Telangana, Maharashtra, West Bengal, Odisha, Gujarat, Rajasthan, Haryana, Chhattisgarh, Jharkhand, Punjab, Bihar, Goa, Himachal Pradesh, Meghalaya, Assam, Tripura, Manipur, Mizoram, Ladakh, and Chandigarh introduced EV policies for the first time, whereas Andhra Pradesh, Tamil Nadu, and Uttar Pradesh revised their earlier policies.

2.4 Production Linked Incentive Scheme for Automobile and Auto Component Industry (PLI-Auto)

The biggest positive outcome of FAME and FAME II was their ability to generate demand for electric vehicles by bridging the cost gap between EVs and internal combustion engine (ICE) vehicles. To scale up and sustain this momentum, it was essential to shift focus to manufacturing as well. Although FAME II attempted to promote manufacturing through the Phased Manufacturing Programme (PMP), the intended outcomes remained largely unaccomplished.

The PLI-Auto scheme was launched in 2021 with a budgetary outlay of over INR 259 billion to promote the manufacturing of Advanced Automotive Technology (AAT) and to develop domestic supply chains with a focus on ZEVs. It aimed to overcome cost disabilities, achieve economies of scale, strengthen supply chains, and generate employment.

The scheme was divided into the Original Equipment Manufacturer (OEM) Incentive Scheme and the Component Incentive Scheme. The OEM incentive was sales-linked and applied to 19 types of battery-operated and hydrogen fuel cell vehicles, while the Component scheme covered 103 types of AAT components that are either used in EVs and hydrogen fuel cell vehicles or enhance safety, connectivity, emissions, and convenience in other categories of automobiles. The scheme also mandated a Domestic Value Addition (DVA) of 50% to qualify for incentives.

As of December 2024, manufacturers availing of PLI-Auto have committed over INR 250 billion in capital investment, and incentives worth INR 3.2 billion have been disbursed. Interestingly, the progress update also reported the number of jobs created, standing at 381,186, but did not provide data on jobs specifically designed for or assigned to women.

Notably, the disbursement of incentives has been on the lower side of the budgetary outlay, primarily because they are applicable on sales value starting from FY 2023–24, with actual disbursements beginning only in FY 2024–25. The incentive disbursement process is expected to continue until FY 2027–28.

Another notable aspect of the PLI-Auto was that eligibility criteria for OEMs and component manufacturers was quite stringent probably in the backdrop of unlawful deeds committed by some manufacturers under FAME II.[7] As of 2024, 18 OEMS and 67 AAT component manufacturers have been listed under the scheme. In addition to PLI-Auto

2.5 PLI Scheme for National Programme on Advanced Chemistry Cell (ACC) Battery Storage (PLI-ACC)

With the requirement to develop a domestic ecosystem for electric vehicles, the imminent need to support that ecosystem with economical and technologically advanced home-grown battery technologies led to the introduction of the PLI scheme for Advanced Chemistry Cell (ACC) battery storage in 2021, with a budgetary outlay of INR 181 billion for developing 50 GWh of capacity.

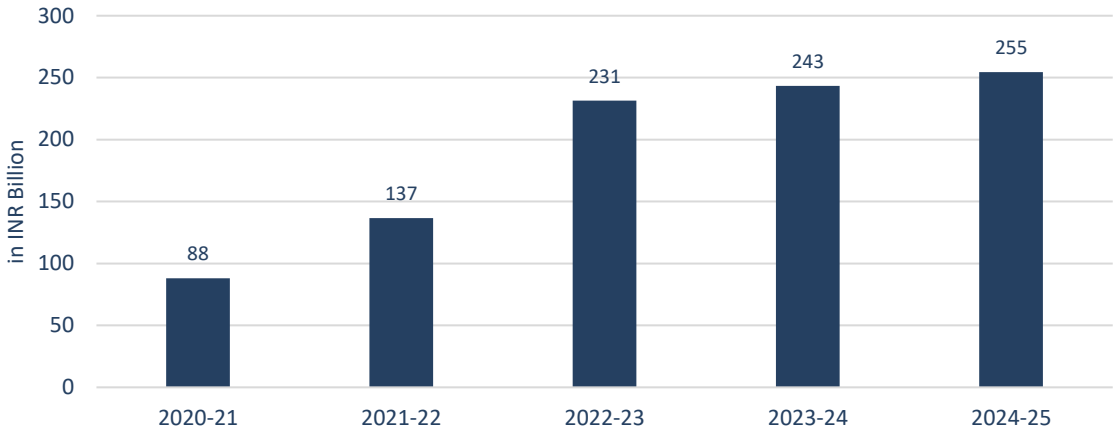
The scheme envisaged reducing reliance on imports—since in FY2024 almost all of India's 15 GWh of battery storage demand was met through imports—and lowering the overall cost of cell manufacturing, as batteries account for 40–50% of the total EV cost. According to the latest updates from MHI, of the total 50 GWh capacity, 40 GWh has been allocated to four firms on an end-use agnostic basis and can be utilised for applications including EVs, stationary energy storage systems, consumer electronics, rail, defence, etc. The remaining 10 GWh has been earmarked for grid-scale storage.

According to the scheme guidelines, beneficiary firms must achieve a minimum DVA addition of 25%, which should increase to 60% within five years, with a required investment of at least INR 2.25 billion/GWh within two years. The scheme provides a two-year gestation period (2023–2024), followed by a five-year performance period from 2025 to 2029.

Here, a comparative analysis of India's reliance on imports viz-a-viz battery demand can highlight the role of PLI-ACC in bridging this gap in developing a self-reliant battery storage ecosystem.

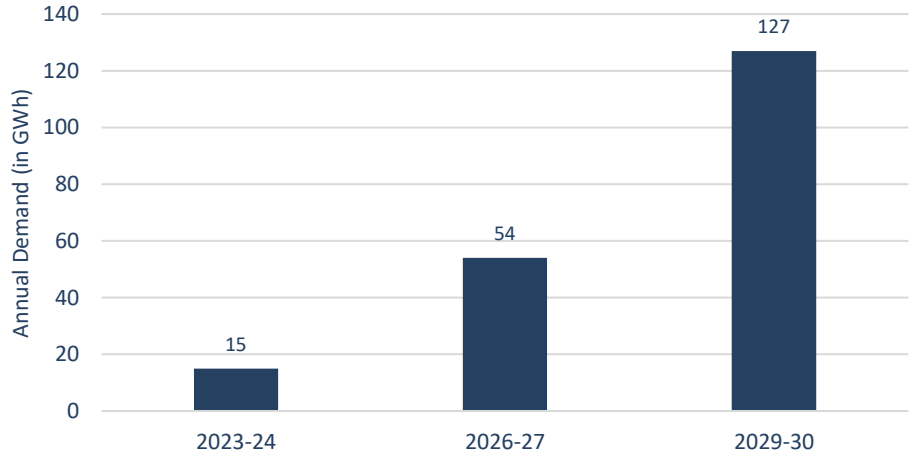
7 PIB – PLI-Auto

Figure 4: India's Lithium-Ion Imports (2020-2025)



Source: Ministry of Commerce and Industry

Figure 5: Estimated Lithium-ion Battery Storage Demand in India



Source: CareEdge Ratings, 2024

While lithium-ion imports grew to INR 255 billion in 2024–25 from INR 88 billion in 2020–21, at a CAGR of over 30%, findings from CareEdge Ratings[8] estimate that demand will rise from 15 GWh in 2023–24 to 127 GWh by 2029–30, with a CAGR of around 43%. CareEdge also projects that import dependence will decline to 20% by 2026–27 due to upcoming gigawatt-scale integrated battery capacities.

Another estimate, by the India Cellular and Electronics Association (ICEA), places lithium-ion battery demand in India at 115 GWh by 2030, with the majority of demand coming from

8 CareEdge Ratings

electric vehicles and is expected to grow at a 48% CAGR. The ICEA report also credits the PLI-ACC scheme for driving growth in domestic cell manufacturing, which is expected to reach around 220 GWh by 2030.[9]

2.6 Electric Mobility Promotion Scheme-2024

With the conclusion of FAME II in 2024, the sudden withdrawal of fiscal incentives for electric vehicles was addressed through the interim scheme of Electric Mobility Promotion (EMPS-2024). Launched in April 2024 for a short duration of six months, i.e., until September 2024, the scheme had a budgetary outlay of INR 5 billion to promote faster adoption of over 372,000 domestically manufactured electric two- and three-wheelers.

Around 334,000 electric two-wheelers and 38,000 electric three-wheelers were to be supported under EMPS through demand incentives of INR 5,000 per kWh or 15% of the total vehicle cost. The EMPS scheme was later subsumed into the subsequent scheme.

2.7 Scheme to Promote Manufacturing of Electric Passenger Cars in India (SPMEPCI)

Along with EMPS, the Scheme to Promote Manufacturing of Electric Passenger Cars in India was introduced by MHI in March 2024. It required beneficiary firms to invest a minimum of INR 41.5 billion in manufacturing electric four-wheelers in India and to achieve a minimum domestic value addition (DVA) of 50% within five years.

In return, manufacturers are allowed to import completely built units (CBUs) of electric passenger cars with a minimum cost, insurance, and freight (CIF) value of $35,000 at a concessional duty rate of 15% for a period of five years, subject to a cap of 8,000 units per year. The SPMEPCI was introduced for global EV manufacturers seeking entry into the Indian market, while ensuring that the development of the domestic EV supply chain remained protected.

2.8 PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE)

After FAME II, PM E-DRIVE was introduced as a comprehensive scheme that expanded the category of electric vehicles eligible for demand incentives. Launched in September 2024 by the Ministry of Heavy Industries with a budgetary outlay of INR 109 billion, the scheme provides demand incentives for electric two-wheelers, three-wheelers, ambulances, trucks, and other emerging categories. Notably, passenger cars were excluded from receiving demand incentives under the scheme.

[9] ICEA

The eligibility criteria for demand incentives are well structured with adherence to Phased Manufacturing Plan, with e-two- and three-wheelers receiving less subsidy per kWh than medium- and heavy-duty vehicles (MDVs and HDVs). The scheme also includes provisions for a gradual reduction in subsidies in subsequent years for two and three wheelers, along with a price cap on the maximum subsidy that can be availed. Within MDVs and HDVs as well, the subsidy per kWh is determined by the size and weight of the vehicles.

Apart from incentives, the scheme aimed to create capital assets such as electric buses, a network of charging infrastructure, and the upgradation of technology testing agencies through grants. Initially designed for an implementation period of two years (2024–2026), the scheme was later extended by another two years, until 2028, with the same budgetary outlay. The provisions under EMPS-2024 were also subsumed under this scheme.

A breakdown of the budget components for PM E-DRIVE, along with the categories and number of vehicles to be supported, is illustrated below:

Table 1: Fiscal Support to Electric Vehicles Under PM E-DRIVE

Vehicle Segment	Number of Vehicles to be Supported	Allocation of Funds (INR billion)
e-two wheelers	24,79,120	17.72
e-rickshaws and e-cart	39,034	0.5
e-three wheelers (L5)	2,88,809	8.57
e-ambulance	-	5
e-trucks	5,643	5
e-buses	14,028	43.91
Public Charging stations	72,300	20
Testing agencies upgradation	-	7.8

Source: Ministry of Heavy Industries

The PM E-DRIVE scheme can be described as a step-up from previous schemes, as it not only expands to other EV categories such as buses and trucks but also provides significant impetus to public EV charging stations, which have so far proved to be a roadblock to faster EV adoption. The incentive disbursal mechanism is also simplified through an IT-enabled interface on the PM E-Drive portal. However, the impact of excluding passenger cars from the scheme remains to be assessed.

The real time progress under PM E-DRIVE can be viewed here: PM E-DRIVE Dashboard

2.9 National Electric Bus Programme

The National Electric Bus Programme (NEBP) was launched in 2022 with the objective of deploying 50,000 e-buses across India through demand aggregation. Convergence Energy Services Limited (CESL), a subsidiary of Energy Efficiency Services Limited, was appointed as the nodal agency to oversee operations under the programme. Subsequent schemes such as PM-eBus Sewa, PM-eBus PSM, and the e-bus component of PM E-DRIVE fall under the broader framework of the NEBP

2.10 PM-eBUS Sewa and Payment Security Mechanism

PM-eBus Sewa was launched in August 2023 by the Ministry of Housing and Urban Affairs for the deployment of 10,000 electric buses across 169 cities (with populations above 300,000) under the public-private partnership (PPP) mode. The scheme entails a total cost of INR 576 billion, including central assistance of INR 200 billion, and aims to support the operation of e-buses for a period of 10 years. Notably, it is one of the few schemes with an estimated job creation potential, ranging between 45,000 and 55,000.

Public transport authorities (PTAs) adopt a gross cost contract for the procurement, deployment, operation, and maintenance of electric buses. Under this contract, OEMs/e-bus operators bear the costs of procurement, operation, and maintenance for a predetermined period and recover them through a fixed per-kilometre (km) charge payable by the PTAs.

However, the higher upfront cost of e-buses, lower revenue realisation, weak financial position of PTAs, and the absence of a payment security mechanism posed significant challenges. This was reflected in the cancellation of a tender for 4,675 e-buses by CESL due to low interest from OEMs, who cited concerns related to delayed and non-payment of dues.[10]

To address this shortfall, a payment security mechanism (PSM) for PM-EBus Sewa was launched in October, 2024 to provide payment security to e-bus operators in case of default by public transport authorities under the central/state government sponsored schemes for procurement and operation of e-buses. The scheme aims to take 38,000 or more e-buses under its ambit for a period of 12 years with a budgetary outlay of INR 34.35 billion.

As of August 2025, 7,293 e-buses have been sanctioned across 14 states and 04 union territories under the PM-eBus Sewa with an amount exceeding INR 10 billion. A breakdown of e-bus deployment under different government schemes is illustrated below to provide clarity over status of e-buses in India.

[10] CESL e-bus tender cancellation

Table 2: Status of e-BUS Deployment in India (As of Dec,24)

Sl.no.	State/Union Territory	Buses (Pure Electric + Hybrid)
1.	Andhra Pradesh	177
2.	Assam	233
3.	Bihar	30
4.	Chandigarh	81
5.	Chhattisgarh	77
6.	Delhi	2,564
7.	Goa	153
8.	Gujarat	898
9.	Haryana	32
10.	Himachal Pradesh	123
11.	Jammu & Kashmir	243
12.	Jharkhand	24
13.	Karnataka	1,689
14.	Kerala	205
15.	Madhya Pradesh	210
16.	Maharashtra	2,505
17.	Odisha	213
18.	Punjab	19
19.	Rajasthan	27
20.	Tamil Nadu	153
21.	Uttar Pradesh	796
22.	Uttarakhand	42
23.	West Bengal	266
24.	Others (Andaman & Nicobar, Ladakh, Manipur, Mizoram, Puducherry, Sikkim, Dadra & Dieu)	110
	Total	**10,870**

Source: Ministry of Road Transport & Highways

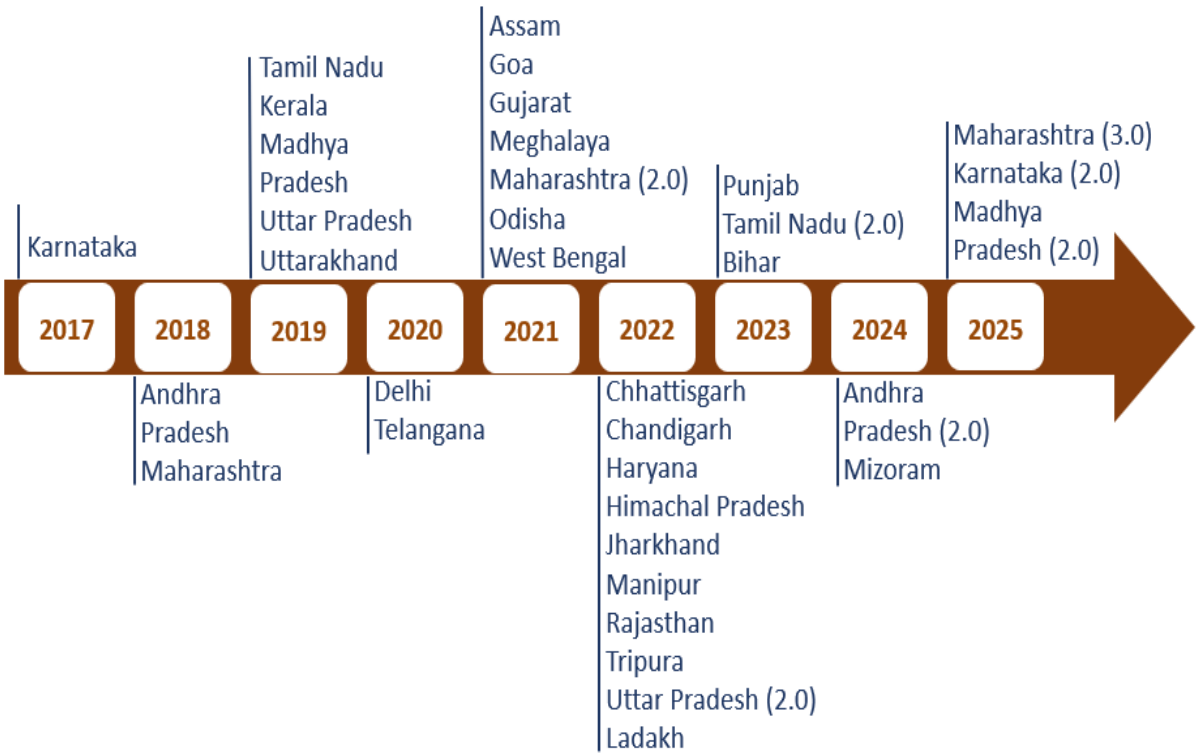
Of the 10,870 e-buses deployed in India, 5,326 have been deployed under FAME I and II (425 under FAME I and 4,901 under FAME II).

3 State Policies

The introduction of FAME in 2015 initiated an automotive transition at the central government level and prompted state governments to notify their own electric vehicle policies. Karnataka was the first to introduce a state-specific policy in 2017, followed by Andhra Pradesh, Maharashtra, and Uttarakhand in 2018. Several other states introduced policies in the subsequent years, with some also revising their earlier versions.

A timeline of state EV policies is illustrated below:

Figure 6: Timeline of State EV Policies



3.1 Karnataka Electric Vehicle and Energy Storage Policy-2017

The Karnataka Electric Vehicle and Energy Storage Policy was launched in 2017 with the objective of making Karnataka a preferred destination for EV manufacturers, creating opportunities for research and development (R&D) in electric mobility, enabling the transition to electric vehicles, attracting investments worth INR 310 billion, and generating 55,000 employment opportunities on both the demand and supply sides. The policy was valid for five years or till a new policy was announced.

The policy adopted four key strategies for achieving these objectives:

i) Special incentive for EV manufacturing
ii) Support for charging infrastructure
iii) Support for research and skill development
iv) Incentives and concessions

The policy focused more on supply-side than demand-side interventions, with the exception of the tax exemption provision for electric transport and non-transport vehicles. It offered investment subsidies (up to 25%) and tax exemptions (100% of stamp duty, electricity duty, and reimbursement of land conversion fees) for MSMEs and large enterprises engaged in the electric vehicle supply chain. In alignment with the policy objectives, Commerce and Industries Department of the Government of Karnataka supervised the policy implementation.

Other notable features related to charging infrastructure and battery storage included targets such as:

- Deployment of 1,000 e-buses
- Establishment of 5 GWh of battery manufacturing capacity, with the potential to create 5,000 direct and 7,000 indirect jobs
- 100% electrification of fleets in e-commerce and last-mile connectivity by 2030
- Use of EVs for airport services
- Installation of fast chargers or battery swapping stations every 50 km on major highways

3.1.1 Karnataka Clean Mobility Policy 2025-30

Karnataka updated its previous policy with the Karnataka Clean Mobility Policy in 2025. At the time of its introduction, the state had 250,000 registered EVs—making it the third-highest in the country—and over 5,000 charging stations, the most of any state. The state budget for 2024-25 also announced a fund of INR 350 million for establishing 2,600 new charging stations. Additionally, the state is in the process of transforming 150 Industrial Training Institutes into technology hubs to provide skill development for 120,000 individuals per year across various aspects of electric vehicles.

While the 2017 policy had enabled Karnataka to attract investments worth INR 250 billion across the EV value chain, the new policy aims to attract INR 500 billion in investments and create 100,000 employment opportunities during the policy period.

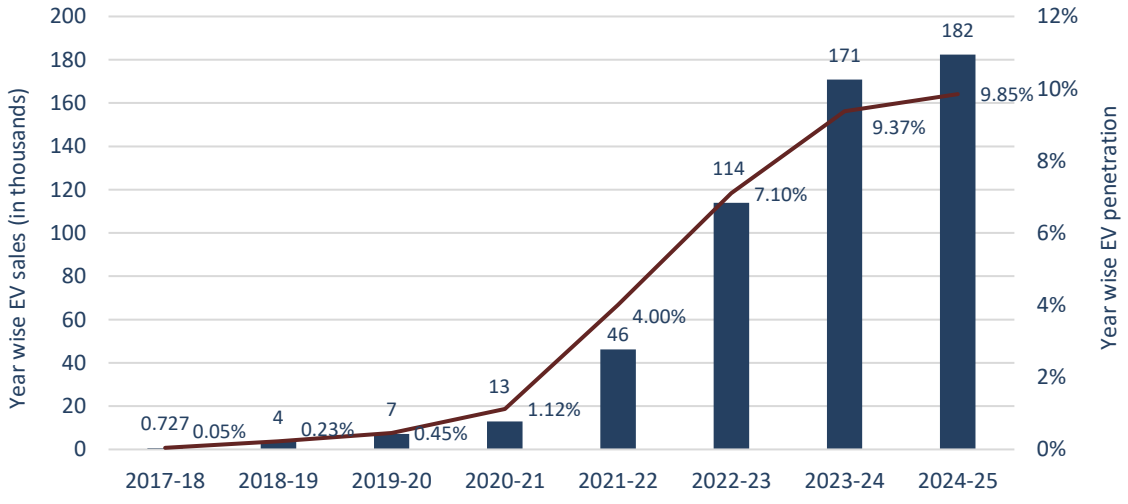
Notably, the new Clean Mobility Policy also emphasises the role of green hydrogen in sustainable transportation and builds on the developments made under the previous policy. However, unlike under the previous policy, a government order issued in early 2024 excludes electric transport and non-transport vehicles—such as motor cars, jeeps, omni buses, and private service vehicles—with a cost exceeding INR 2.5 million from tax exemptions.

Under the new policy, the long-term targets—such as 100% fleet electrification—remain largely unchanged, while demand-side measures, including investment subsidies and tax exemptions for MSMEs and large enterprises, have been incrementally enhanced. The policy also introduces vehicle retrofitting as an additional measure. Additionally, 500 fast charging, 900 battery swapping, and 25 hydrogen stations will be incentivised with a capital subsidy of 25%.

Similar to the 2017 policy, the 2025 policy is supply-side oriented but progressive in nature, with the inclusion of green hydrogen, a renewed focus on R&D and skill development, incremental investment subsidies, and the continuation of tax exemptions for manufacturers.

However, despite the policy being more inclined toward supply-side interventions, the EV penetration rate in Karnataka is among the highest in the country.

Figure 7: Year-wise EV Sales and EV Penetration in Karnataka



Source: Vahan Dashboard

3.2 Andhra Pradesh Electric Mobility Policy 2018-23

The Industries and Commerce Department, Government of Andhra Pradesh, introduced the Electric Mobility Policy 2018–23 with a focus on manufacturing, charging infrastructure, demand creation, and research & development, along with the following ambitious policy targets:

- Investment of INR 300 billion across the electric mobility ecosystem, with an employment potential of 60,000 jobs.
- Establishment of 10 GWh of energy storage manufacturing capacity.
- Conversion of 100% of the Andhra Pradesh State Road Transport Corporation bus fleet (over 11,000 buses) to electric by 2029.
- Conversion of all commercial fleet and logistics vehicles to electric by 2030.
- Conversion of all government vehicles to electric by 2024.
- Deployment of one million EVs across all categories in the state by 2024.
- Installation of 100,000 slow and fast charging stations by 2024.

To achieve these targets, the policy offered several incentives to different category of stakeholders. The policy box shown below highlights the provisions made under the policy.

Table 3: Policy Box - Andhra Pradesh

• *Allocation of 500 to 1,000 acres of land for EV parks* • *Financial assistance of up to 50% for EV park developers* • *Capital subsidy of up to 25% for EV manufacturers/ charging service providers* • *Reimbursement of 100% of stamp duty*	• *Charging stations at every 50 km on highways* • *Mandatory charging stations for large commercial and residential compounds* • *Hydrogen refuelling station at every 200 km on highways*
• *Exter infrastructure (water, power supply, roads) subsidy support of up to 50% of total cost* • *Water supply at 50% of cost* • *Reimbursement of power cost at INR 1/unit and electricity duty*	• *Development of Vijaywada, Vishakhapatnam, Tirupati as model electric mobility cities (conversion of all commercial and logistics fleet into electric by 2024 and 100 charging station in each city)*
• *100% of net state goods and services tax (SGST) reimbursement for manufacturers, charging service providers, EV fleet operators*	• *Reimbursement of registration charges and road tax for sale of EVs for private use* • *Discounted tariffs for EV charging*
• *Cost-sharing by the state government for skill development and providing technical exposure to MSMEs through international trade fairs.*	• *Grant of INR 5 billion for R&D* • *Financial assistance of up to 75% for patent registration and quality certificates.*

The Andhra Pradesh EV Policy 2028 was demand-side focused and offered several incentives across multiple categories but appeared overly ambitious in its targets, particularly with respect to battery charging and hydrogen refuelling stations.

3.2.1 Andhra Pradesh Sustainable Electric Mobility Policy 2024-29

Andhra Pradesh introduced a subsequent policy on electric mobility in 2024. At the time of its launch, the state had around 130,000 EVs and 601 charging stations, and the new policy statement acknowledged the slow adoption of EVs in the state.

Similar to the 2018 policy, the targets under the new policy are well defined:

- New registrations of 200,000 e-two wheelers, 10,000 e-three wheelers, and 20,000 e-four wheelers by 2029
- 100% electrification of Andhra Pradesh State Road Transport Corporation fleet
- One charging station per 30 km along the green channels
- One charging station per 3x3 km grid in electric mobility cities
- 100 e-mobility startup focused incubation centres

To execute different aspects of the policy, seven government departments—including industries, transport, renewable energy, power, skill development, and urban development—have been appointed as nodal agencies.

The incentive structure for manufacturers remains broadly the same as in the 2018 policy, with some adjustments. These include:

- An increase in capital subsidy from 25% to 35% for MSMEs, 45% for recyclers and scrapping facilities, and from 12% to 25% for large enterprises, depending on the percentage of domestic value addition.
- Subsidy provisions aligned with the Andhra Pradesh Industrial Policy, employment generation potential, and decarbonisation potential (e.g., e-waste recycling, vehicle scrapping).
- A reduction in electricity duty reimbursement from 100% to 50%
- A significant cut in financial assistance for patent registration (from up to INR 2.5 million to INR 200,000) and quality certification costs (from INR 500,000 to INR 200,000).
- Introduction of 100% reimbursement of land conversion fees, which was not included in the previous policy.

Charging service providers and EV park developers also receive additional incentives under the Integrated Clean Energy Policy[11] and the Policy for the Establishment of Private Industrial Parks,[12] respectively, such as concessional land rates, among others.

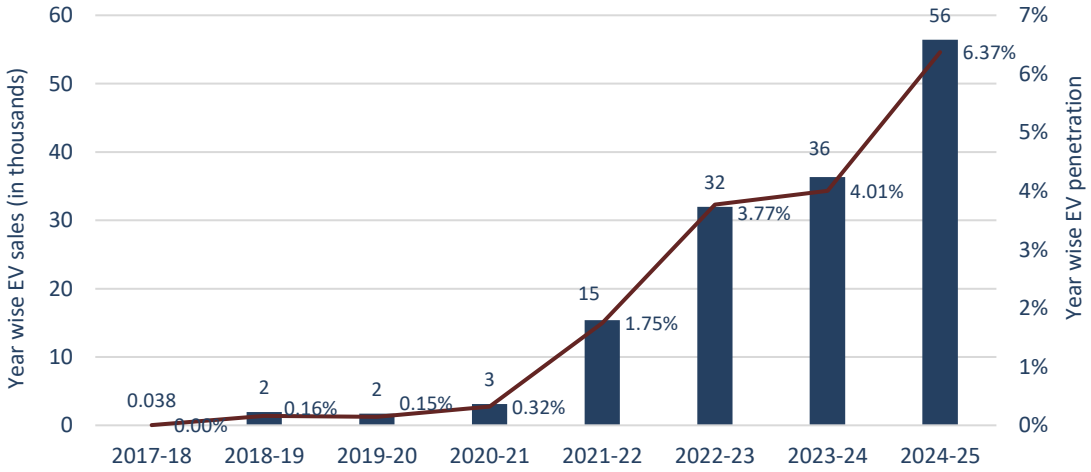
Notably, the new policy offers a purchase incentive of 5% on electric two-wheelers, three-wheelers, goods carriers, and tractors to buyers until March 2027, with a price cap for each

11 AP Integrated Clean Energy Policy
12 AP Policy for Industrial Parks

category of vehicles. This incentive, along with the 100% road tax exemption, does not apply to hybrid vehicles. The inclusion of a purchase incentive provides a balanced approach to the policy, with offerings for both the supply and demand sides, though it remains more inclined towards the supply side.

Other prominent policy measures include the creation of one electric mobility model city in each of the five zones of the state; the establishment of Green Zones in areas such as airports, tourism circuits, and universities; the promotion of retrofitting; and the allocation of an INR 2.5 billion fund for R&D. The year-wise adoption rate of EVs in Andhra Pradesh is presented below to illustrate the policy's impact.

Figure 8: Year wise EV sales and EV Penetration in Andhra Pradesh



Source: Vahan Dashboard

Comparing the EV policies of the southern states of Karnataka and Andhra Pradesh, both are supply-side focused, aiming to develop an EV manufacturing ecosystem, with Andhra Pradesh's 2024 policy additionally providing purchase incentives to stimulate demand. However, Karnataka performs better in terms of EV adoption as well as the establishment of charging infrastructure.

3.3 Maharashtra Electric Vehicle Policy 2018

The Industries, Energy and Labour Department of Maharashtra introduced the Maharashtra Electric Vehicle Policy in 2018 with the objectives of developing an EV manufacturing ecosystem, creating employment opportunities, promoting the export of EVs and their components, advancing R&D, and supporting sustainable transport. To achieve these goals, the policy set specific targets, including increasing the number of EVs in the state to 500,000, attracting INR 250 billion in manufacturing investments, and creating 100,000 jobs.

Under the policy, large enterprises and MSMEs were eligible for incentives under Maharashtra's Package Scheme of Incentives (PSI),[13] while charging service providers were eligible for a 25% capital subsidy for 250 public charging stations. For buyers, the policy offered a 15% subsidy on two-, three-, and four-wheelers, with a cap on the maximum subsidy and the number of vehicles eligible, along with exemptions from road tax and registration fees for electric vehicles.

In public transport, EVs were to be promoted initially in the six cities of Mumbai, Pune, Aurangabad, Thane, Nagpur, and Nashik, with1,000 private and public passenger buses eligible for a user subsidy for five years, along with a 10% subsidy for passenger buses.

The 2018 policy, with an implementation period of five years, lacked a comprehensive approach to address all aspects of EVs—such as charging infrastructure and last-mile connectivity—and was subsequently updated with a new electric vehicle policy in 2021.

3.3.1 Maharashtra Electric Vehicle Policy 2021

The new electric vehicle policy in Maharashtra was introduced by Environment and Climate Change Department in July 2021 for the period up to March 2025, with a budget of INR 9.3 billion. It was specifically applicable to battery electric vehicles (BEVs) and excluded plug-in hybrids, as well as strong and mild hybrid vehicles.

The new policy objectives were well defined and build on the developments made under the previous policy:

- EVs to contribute 10% of all new vehicle registrations by 2025 (20% for three-wheelers, 10% for two-wheelers, and 5% for four-wheelers).
- Achieve 25% electrification of public transport, fleet vehicles, and last-mile connectivity in the six identified cities.
- Electrify 15% of buses operated by the Maharashtra State Road Transport Corporation.
- Establish a gigafactory for manufacturing ACC batteries.
- Set up charging stations in a 3x3 km grid or 50 charging stations per million population; 2,375 charging stations across the seven identified cities; and make four major highways EV-ready by 2025.

The new policy also emphasised purchase incentives to create demand, offering an INR 5,000/kWh incentive for different categories of two-, three-, and four-wheelers, and 10% of the cost for e-buses, with caps on the maximum incentive per vehicle and the number of vehicles eligible. Motor vehicle tax and registration fees were also exempted for EVs. In addition to purchase incentives, the policy offered vehicle scrappage incentives of up to INR

[13] PSI

25,000, assured buy-back, and extended battery warranty incentives of up to INR 10,000 for OEMs.

An incentive of 50% of the cost, capped at INR 500,000, was allocated for 500 fast-charging stations. Other favourable land-related provisions, such as mandates for commercial, residential, and parking areas, were also introduced to support the development of an adequate charging network in the state. Supply-side incentives for industries were covered under the state industrial policy, and a ZEV credit programme was also introduced. In addition, the policy mandated that, from April 2022 onwards, all new vehicles procured by government, semi-government, urban local bodies, and government-funded organisations operating within cities must be EVs.

3.3.2 Maharashtra Electric Vehicle Policy 2025

Maharashtra is the only Indian state to have introduced its third policy on electric vehicles, following the completion of the implementation period of the previous policy. While the objectives of the new policy remain similar but incremental in nature to the previous one, it places renewed emphasis on high-impact vehicle segments such as buses, goods carriers, city utility vehicles, and transport fleets, and sets an emission reduction target of 325 tonnes of PM2.5 and 1 million tonnes of GHG from transport sector by 2030.

The policy box shown below highlights the targets as well as the incentives provided under the policy:

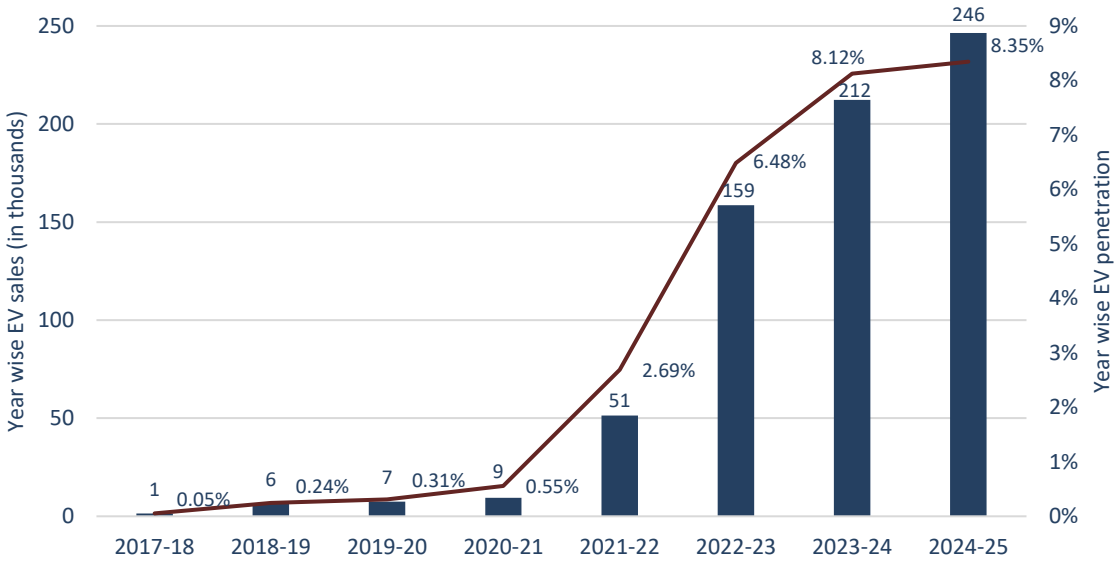
Table 4: Policy Box: Maharashtra

• *30% of all new vehicle registrations to be EVs (40% for two-,three-wheelers, 30% for four wheelers, 15% for buses, 50% for fleet aggregators, 40% in public transport)*	• *Demand incentive of 10-15% for all category of vehicles with caps on number of vehicles to be incentivised and maximum incentive per vehicle.*
• *EVs exempted from motor vehicle tax; registration fees; toll tax exemption for passenger vehicles on Mumbai-Pune and Mumbai-Nagpur highways.*	• *Charging station at every 25 km along the highways; at least one charging station at every government office parking space and fuel pump*
• *Viability gap funding of up to 15% for 1,500 fast charging stations*	• *Benefits for MSMEs and large enterprises under state industrial policy*
• *Allocation of INR 150 million for R&D and establishment of three Centre of Excellences for innovation in EV value chain.*	• *All parking spaces to be EV ready (new residential buildings-100%, new commercial buildings-50%, existing commercial buildings-20%*

Overall, the Maharashtra Electric Vehicle Policy-2025 can be described as an extension of the previous policy announced in 2021, with the inclusion of emission reduction targets as a noteworthy and welcome intervention.

The year wise EV sales and EV adoption rate in Maharashtra is show below to observe the policy impact.

Figure 9: Year wise EV Sales and EV Penetration in Maharashtra



Source: Vahan Dashboard

EV sales in Maharashtra increased significantly with the introduction of the 2021 policy, which included demand incentives as a strategy for faster EV adoption in the state. From the increase in EV sales, a conclusion can be inferred that incentives play a key role in market growth.

3.4 Tamil Nadu Electric Vehicle Policy 2019

Tamil Nadu, a major hub of automobile and auto-component manufacturing in India, introduced the Tamil Nadu Electric Vehicle Policy-2019, with the Departments of Industries, Energy, and Transport acting as nodal agencies for different aspects of the policy.

The policy, with an implementation period of 10 years, aimed to attract investments worth INR 500 billion to create an EV ecosystem in the state and generate 150,000 employment opportunities by focusing on manufacturing, charging infrastructure, promotion of innovation in shared mobility, skill development, R&D, and battery waste management. Notably, in addition to EVs, the policy was applicable to plug-in hybrids and strong hybrid electric vehicles as well.

Policy provisions:

- Conversion of all auto rickshaws in six major cities—Chennai, Coimbatore, Trichy, Madurai, Salem, and Tirunelveli—into electric vehicles within a timeframe of 10 years.

- State transport undertakings to convert 5% of their bus fleet to electric, supported by the introduction of 1,000 e-buses every year. One slow charging station for every e-bus and one fast charging station for every 10 e-buses to support this transition.
- 100% exemption from road tax and registration fees for EVs (2-, 3-, and 4-wheelers), with an additional waiver of permit fees for commercial vehicles until December 2022.
- One station per 25 km along national and state highways and one station per 3x3 km grid in the six major cities.

The policy offered supply-side incentives to manufacturers and charging service providers investing over INR 500 million and creating at least 50 direct jobs. These incentives include SGST reimbursement or capital subsidies, additional support for battery manufacturing and MSMEs, exemptions on stamp duty and electricity tax, land cost subsidies based on region and business type, and employment and infrastructure support for EV parks.

Collectively, these supply-side incentives were referred to as the "EV Special Manufacturing Package", to be sanctioned based on the recommendations of the Tamil Nadu Industrial Guidance and Export Promotion Bureau. Additionally, regulatory provisions were incorporated to develop charging infrastructure in residential and commercial buildings, along with skill development programmes.

The Tamil Nadu policy, while serving as a gateway for developing an EV value chain in the state with a focus on manufacturing and public transport, lacked targeted, demand-oriented interventions. Notably, at the time of the policy's introduction, the state had the second-highest vehicle population in the country, with around 28 million vehicles, and accounted for 6.4% of total EVs sold.

3.4.1 Tamil Nadu Electric Vehicles Policy 2023

Tamil Nadu revised its EV policy in 2023, carrying forward the objective of attracting investments worth INR 500 billion and creating 150,000 new jobs. In the five years preceding the new policy, the state had signed memoranda of understanding (MoUs) worth nearly INR 240 billion with investors, with a job potential of 48,000 across the EV value chain.

The policy objectives are aligned with the previous policy with the focus on manufacturing, faster adoption of EVs, promoting R&D, industry-academia linkage, and recycling, and development of EV cities (electric public transport).

The policy box below shows supply and demand side incentive and other policy provisions:

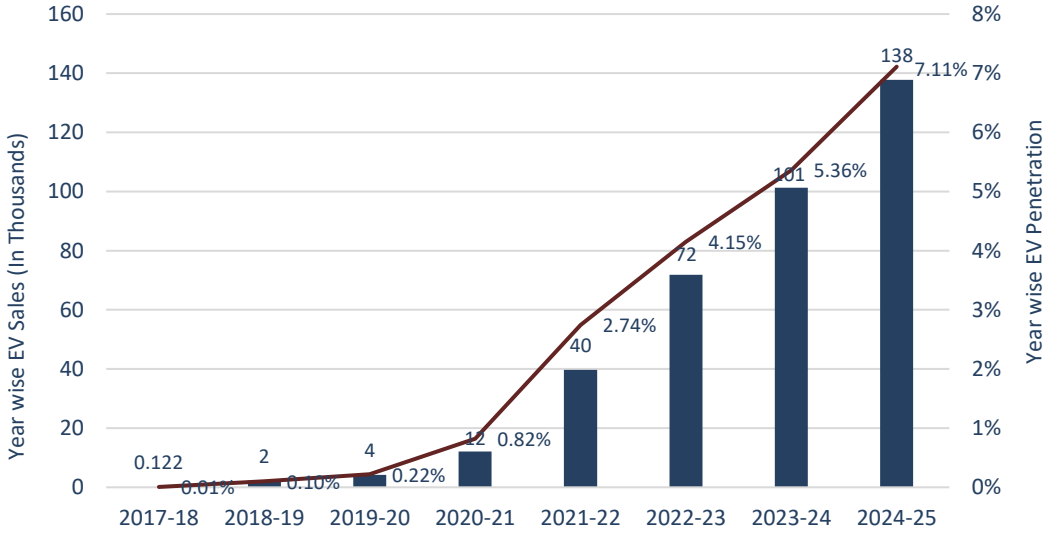
Table 5: Policy Box - Tamil Nadu

• *Incentives under EV Special Manufacturing Package for investments above INR 500 million else incentives under State MSME Policy.* • *Inclusion of R&D cost in eligible fixed assets for incentives.*	• *Conversion of 30% of buses under state transport undertakings to electric by 2030.* • *25% subsidy for EVs used within manufacturing facilities.* • *Amendments in building codes to accommodate charging points.*
• *Provision to opt for one form of subsidy, either reimbursement of 100% of SGST, a turnover-based subsidy of 2%, a capital subsidy of 15%, or a special ACC capital subsidy of 20%.*	• *100% exemption from road tax and registration fees for EVs (2-, 3-, and 4-wheelers and buses), with an additional waiver of permit fees for commercial vehicles until December 2025*
• *100% exemption from electricity tax and stamp duty.* • *10% to 50% concessional rates for land in government industrial estates.* • *Employment incentive* • *Green industry incentive up to INR 10 million*	• *Demand incentives of INR 5,000 for private e-cycles, INR 10,000/kWh for commercial e-two-, e-three-, and e-four-wheelers, and INR 20,000/kWh for e-buses, with a cap on the maximum incentive per vehicle and the number of vehicles to be incentivised until December 2025.*
• *Interest subvention of 5% as a rebate on the rate of interest.* • *Additional capital subsidy of 20% for the MSME sector subsidy of 20% for the MSME sector,*	• *Proposed 50% reduction in power tariffs for charging stations.* • *Incentive of up to INR 1 million for 200 fast charging stations and INR 100,000 for 500 slow charging stations.*
• *Quality certification and intellectual property creation incentive of 50% with a cap if INR 10 million.* • *Up-skilling allowance for 10% of workforce as transition support*	• *Incentive of up to INR 1 million for 50 private e-aggregator charging stations.* • *Incentive of up to INR 200,000 for 200 battery swapping stations and INR 10,000/kWh for retrofitted e-two-,three wheelers.*

Besides supply and demand incentives, Tamil Nadu offers support through industrial and R&D policies aimed at creating a circular and sustainable economy by promoting start-ups and EV parks, recycling, renewable energy sourcing, safety, and capacity building and skilling. Overall, the 2023 policy can be described as an extension of the 2019 policy, with expanded offerings for both the supply and demand sides, as well as across the value chain, with a focus on thematic priorities.

The year-wise EV sales and EV penetration are shown below to provide a perspective on policy impact.

Figure 10: Year wise EV Sales and EV Penetration in Tamil Nadu



Source: Vahan Dashboard

While an automotive manufacturing hub having one of the highest sales of automobiles in the country, EV adoption rates have been on the slower side in Tamil Nadu as compared to a similar industrious state like Maharashtra or Karnataka.

3.5 Kerala Electric Vehicle Policy 2019

The Transport Department of Kerala introduced the Electric Vehicle Policy in March 2019 with the vision of putting 1 million EVs on the road, starting with a pilot fleet of 200,000 two-wheelers, 50,000 three-wheelers, 3,000 buses, and 1,000 goods carriers, along with targeted investments in EVs and component manufacturing. The policy prioritises the electrification of three-wheelers and buses, with the Kerala State Road Transport Corporation aiming to convert its entire fleet of over 6,000 buses to electric by 2025.

The following strategic initiatives were undertaken through the policy to improve affordability and adoption of EVs in the state:

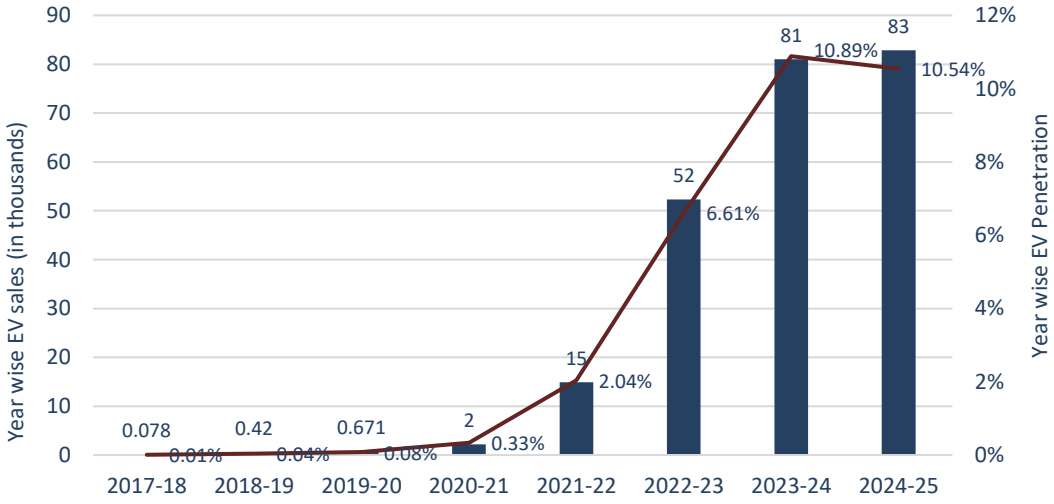
- Address Viability Gap
    - 100% of road tax exemption for EVs for a three-year period.
- Charging Infrastructure
    - One charging station in 3x3 km grid in major cities and at every 25 km along the major highways.
    - Capital subsidy of up to INR 1 million for 100 fast chargers and up to INR 30,000 for 300 slow chargers.
    - Capital subsidy of up to INR 1 million for 50 battery swapping stations.

    - Mandates for large residential and commercial building to set up charging points
- Manufacturing
    - Incentive to manufacturers under Electronics System Design and Manufacturing Policy and Information technology Policy
- Awareness and promotion
    - Creation of e-mobility zones in tourist and technology hubs, business areas, and for last-mile connectivity.
    - Incentive of INR 30,000 for e-three wheelers under the scheme for the promotion of EVs.
    - Exemption from toll and parking charges, and permit fees for fleet drivers.
    - Concessional rates of power for charging stations.
- Capacity Building and Re-skilling
    - Centre of Excellence for Electric vehicles
    - Skilling Programmes

The Kerala Electric Vehicle Policy primarily focused on power requirements for charging EVs and managing the grid, which, while important, may have been more impactful in the later stages of policy implementation as EV adoption and power demand increased. The policy offered limited demand-side incentives and had room for stronger interventions on both the demand and supply sides. A draft of the new Kerala EV policy was introduced in 2023 but has not yet been finalised, and the 2019 policy remains in effect.

Despite the absence of demand-side incentives, the EV adoption rate in Kerala has grown over the years, as shown in the figure below, due to targeted interventions in the three-wheeler segment.

Figure 11: Year wise EV Sales and EV Penetration in Kerala



Source: Vahan Dashboard

3.6 Madhya Pradesh Electric Vehicle Policy 2019

The Urban Development and Housing Department of Madhya Pradesh introduced the EV policy in November 2019 with the objective of improving air quality by reducing emissions from the transport sector and ensuring that 25% of all new public transport vehicle registrations in the state are electric by 2026.

The below box shows the provisions made under the policy to drive Ev adoption in the state.

Table 6: Policy Box - Madhya Pradesh

• *1% of motor vehicle tax for 15,000 e-two wheelers, 5,000 e-rickshaws, 5,000 e-autos, 2,000 e-three-wheeler goods carrier, and 6,000 e-cars.* • *Exemption of registration fees for 22, 500 e-two wheelers. 7,500 e-rickshaws, 7,500 e-autos, 3,000 e-three-wheeler goods carrier, and 9,000 e-cars.*	• *Capital subsidy of up to INR 150,000 for 300 small charging stations, INR 200,000 for 100 medium charging stations, and INR 1 million for 100 large charging stations.* • *Public charging stations to have standalone battery swapping facilities.*
• *Permit waiver for 5,000 e-rickshaws, 5,000 e-autos, and 2,000 e-three-wheeler goods carrier.* • *100% waiver on parking charges for e-two wheelers, e-rickshaws, e-autos, e-three-wheeler goods carrier and e-cars for five years.*	• *Amendments in city and building codes to accommodate charging and battery swapping stations.* • *Power distribution companies to set up charging stations in government buildings and public spaces.*
• *1% of motor vehicle tax for 1,500 e-buses, exemption of registration fees for 2,250 e-buses, and waiver of permit for 1,500 e-buses.* • *Motor vehicle tax, registration fees, and parking fees were waived for all other categories of EVs during the policy period of 2019–2023.*	• *Cities of Bhopal, Indore, Jabalpur, Gwalior, and Ujjain to be developed as model electric mobility cities.* • *Incentive to manufacturers and innovators under Madhya Pradesh Industrial Promotion Policy 2010.* • *All forms of government vehicles to be fully electric by 2028.*
• *-Conversion of 100% of the public transport bus fleet to electric by 2028, with the first phase involving 100% conversion of the bus fleet in the top five cities by 2026.* • *-Conversion of all commercial and logistics fleet to electric by 2028.*	• *Additional focus on end-of-life battery and Ev recycling, R&D, and skill development initiatives.* • *Creation of e-zones in smart cities with entry only to non-fossil fuel-based vehicles.*

The policy, though thorough in nature with both demand- and supply-side interventions, lacked the aspiration to create demand for EVs in the state, while manufacturers did not receive additional incentives beyond those provided under the state's industrial policy. The capping of vehicles in each category and charging stations for incentives further restricted the scope of the policy.

3.6.1 Madhya Pradesh Electric vehicle Policy 2025

Revised in March 2025 for a five-year period, the state EV policy builds on the earlier policy that facilitated the registration of over 148,000 EVs between FY 2018-19 and FY 2023-24, and expands its scope to include Fuel Cell Electric Vehicles (FCEVs) alongside battery EVs.

The new policy targets are as follows:

- Electrification of intra-city public bus services in the model EV cities of Bhopal, Indore, Jabalpur, Gwalior, and Ujjain.
- 40% of all new two-wheeler sales to be EVs by 2030, with 100% of commercial fleet sales being electric.
- 80% of all new three-wheeler sales to be EVs by 2030.
- 40% of all new bus sales to be EVs by 2030.
- 80% of all state government vehicle procurement to be through EVs by 2030.

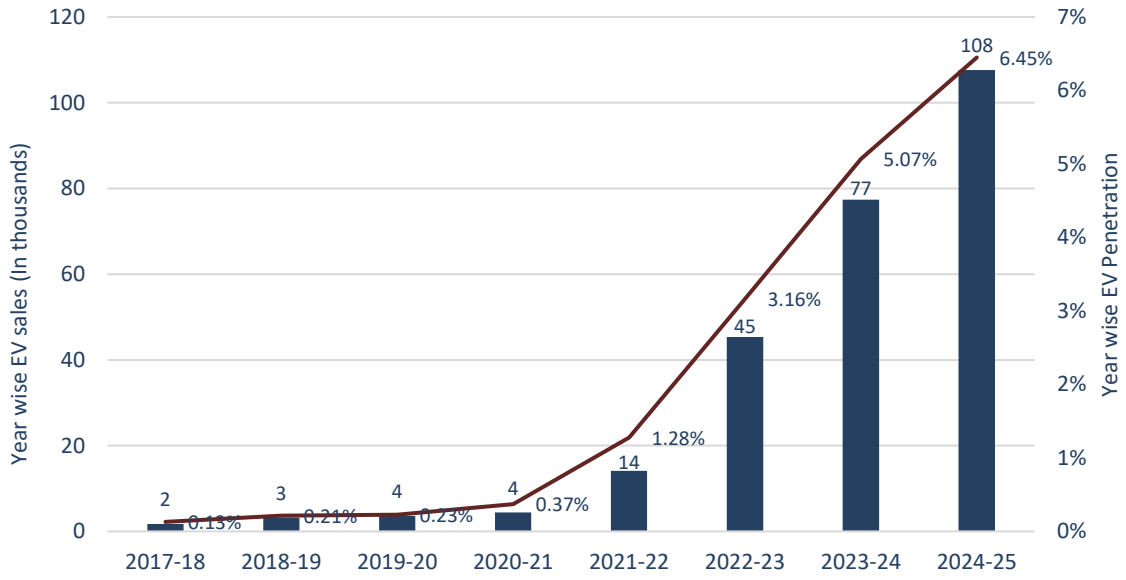
Under the new policy, the incentives offered for two-, three-, and four-wheelers are similar but apply only during the first year of implementation, with a cap on the maximum number of vehicles in each category to be incentivised. Electric light commercial vehicles, buses, trucks, tractors, and ambulances are exempt from 100% of motor vehicle tax, registration fees, and permit requirements until the second year of the policy period. Additionally, incentives of INR 5,000 per two-wheeler, INR 10,000 per three-wheeler, and INR 25,000 per four-wheeler are earmarked for retrofitting purposes.

The capital subsidy for charging stations is also retained in the new policy, with incentives of up to INR 150,000 for 500 small charging stations, INR 300,000 for 300 medium charging stations, INR 1 million for 200 large charging stations, and INR 500,000 for 300 battery-swapping stations.

Other policy provisions related to manufacturing, battery recycling, charging station density, skill development, and R&D have remained largely similar or slightly updated from the 2019 policy. Like several other states, the Madhya Pradesh Electric Vehicle Policy 2025 can be described as an extension of the previous policy, with revised targets but a similar implementation mechanism.

The EV adoption rate in Madhya Pradesh is shown in below figure for context.

Figure 12: Year wise Ev Sales and EV Penetration in Madhya Pradesh



Source: Vahan Dashboard

3.7 Uttar Pradesh Electric Vehicle Manufacturing and Mobility Policy 2019

The Government of Uttar Pradesh introduced the Electric Vehicle Manufacturing and Mobility Policy in August 2019, with an implementation period of five years, a focus on manufacturing, charging infrastructure, and demand creation, and the aim of attracting an investment of INR 400 billion across the EV ecosystem, while creating employment opportunities for 50,000 people.

The policy targets were as follows:

- Introduce 1,000 e-buses and achieve 70% EV public transportation on identified green routes in 10 EV cities by 2030.
- 50% EV mobility in goods transportation in identified 10 cities by 2024 and in all cities by 2030.
- One million EVs across all vehicle categories by 2024.
- Establishment of battery manufacturing capacity of 5 GWh by 2024.
- Set up around 200,000 slow and fast charging stations, and battery swapping stations by 2024.

The supply-side incentives include a 25% land subsidy for large projects as defined in the policy, benefits under the state industrial policy, technology transfer support of up to INR 5 million from anchor units to vendor units, capital subsidy support of up to INR 600,000 for

1,000 charging stations, and capital interest subsidy of up to INR 5 million on fixed capital investment for 10 hydrogen generation and fuelling plants.

The policy also offers environmental protection incentives, including up to INR 10 million in support for waste treatment plants and INR 100,000 for battery recycling for large projects. MSME units are also eligible for up to INR 2.5 million in support for patent registration and INR 500,000 for quality certification.

Demand-side incentives include a 100% exemption from vehicle registration fees for all categories of EVs, a 100% exemption from road tax for e-two wheelers, and a 75% exemption for all other EVs, applicable to 100,000 vehicles.

Other policy provisions included:

- Development of 10 model electric mobility cities, including Noida, Ghaziabad, Meerut, Mathura, Agra, Kanpur, Lucknow, Allahabad, Gorakhpur, and Varanasi, with EV and hydrogen fuelling infrastructure facilitated through new building codes.
- Promotion of EV manufacturing parks/zones.
- Fast charging stations at every 50 km on prominent highways with heavy density vehicle.
- Promotion of battery recycling, R&D, Start-ups and Innovation.

The 2019 policy was supply-side oriented, with a well-defined incentive structure for manufacturers and charging service providers, and included scope for alternative technologies such as hydrogen, methanol-based fuel cells, and hybrid vehicles.

3.7.1 Uttar Pradesh Electric Vehicle Manufacturing and Mobility Policy 2022

The Government of Uttar Pradesh updated the previous policy in October 2022, continuing the state's focus on manufacturing, charging stations, and faster EV adoption, with affordability, convenience, technology, and awareness identified as key areas of intervention. At the time of the new policy's introduction, Uttar Pradesh was a leader among Indian states in EV adoption, with around 350,000 EVs registered in the state and the highest number of e-three wheelers compared to any other state.

The policy box below highlights key policy interventions under the new Uttar Pradesh policy.

Table 7: Policy Box - Uttar Pradesh

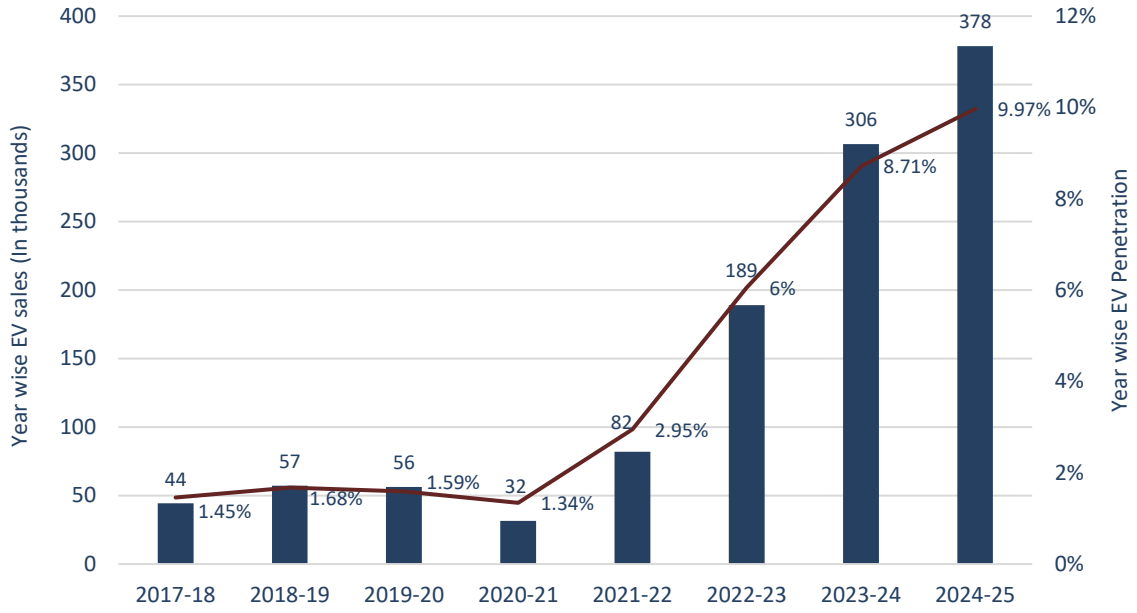
• *Purchase incentives include INR 1 billion for 200,000 e-two wheelers, INR 600 million for 50,000 e-three wheelers, INR 2.5 billion for 25,000 e-four wheelers, INR 800 million for 400 e-buses, and INR 100 million for 1,000 e-goods carriers during the first year of policy implementation.*	• *Capital subsidy of up to INR 10 billion per project for 02 integrated EV and ultra mega battery projects, INR 5 billion per project for 05 mega EV and mega battery projects, INR 900 million per project for large EV and large battery project, and INR 50 million per project for MSME projects, as identified in the policy.*
• *Charging/battery swapping stations in a grid of 3x3 km and at every 25 km along highways.* • *Allotment of land for charging stations on a revenue sharing model at INR 1/kWh.* • *Capital subsidy of up to INR 1 million for 2,000 charging stations and INR 500,000 for 1,000 battery swapping stations.*	• *50% to 100% reimbursement on stamp duty for purchase or lease of land depending on region and category of project.* • *Reimbursement of up to INR 01 million per unit for quality certification charges and up to INR 200,000 for patent registration fees applicable to large and MSME projects.*
• *100% transition of government vehicles to EVs by 2030.* • *Identification of green routes in each district by 2025 and deployment of e-buses on these routes.*	• *A skill development incentive of INR 5,000 per employee per year for 50 employees of all manufacturing projects.* • *Incentive of up to INR 100 million for five Centre of Excellences for innovation in R&D and testing.*

Unlike the 2019 policy, the new policy offers purchase incentives to buyers to accelerate EV adoption in the state, while also expanding support to manufacturers through supply-side incentives for different categories of projects in EV manufacturing and charging station services.

The new policy has also adopted innovative measures to promote EVs, such as the development of a Comprehensive Electric Mobility Plan for 17 cities in the state, the establishment of a Working Group on Fast Track Development of Charging Infrastructure, collection centres at automotive and battery dealerships for end-of-life batteries, battery disposal facilities at battery charging/swapping stations, a special tariff category for EV charging, promotion of retrofitted EVs, and the creation of a land bank. All these initiatives contribute to improving ease of doing business in the EV ecosystem. However, the purchase incentives are applicable only during the first year of the policy implementation period.

Uttar Pradesh is among the states with the highest EV sales due to its large consumer base, and it will be interesting to observe EV penetration rates to assess the policy's impact.

Figure 13: Year wise EV Sales and EV Penetration in Uttar Pradesh



Source: Vahan Dashboard

The EV adoption rate is higher in Uttar Pradesh largely due to the high density of e-three wheelers—almost a million—which account for over 66% of the total EVs in the state.

3.8 Uttarakhand Electric Vehicle Manufacturing, Promotion, and Related Service Infrastructure Policy 2019

The Government of Uttarakhand notified its EV policy in 2018, which was approved in December 2019. Applicable for a period of five years and implemented by the Department of Micro, Small & Medium Enterprises, the policy offered supply side incentives of interest subsidies on term loans—ranging from 5% to 10% (INR 300,000–800,000) for MSMEs, 5% (up to INR 300,000) for heavy industries, 7% (up to INR 2.5 million) for large projects, 7% (up to INR 3.5 lakh) for mega projects, and 7% (up to INR 5 million) for ultra-mega projects.

In addition, the policy offered a 100% exemption from electricity duty for five years, a 50%–100% exemption from stamp duty, and a 50% reimbursement of employees' provident fund contributions for 10 years, up to INR 20 million, for industries employing 100 or more workers. It also provided a 30%–50% SGST reimbursement for five years and a 15%–30% concession on land rates in state industrial areas.

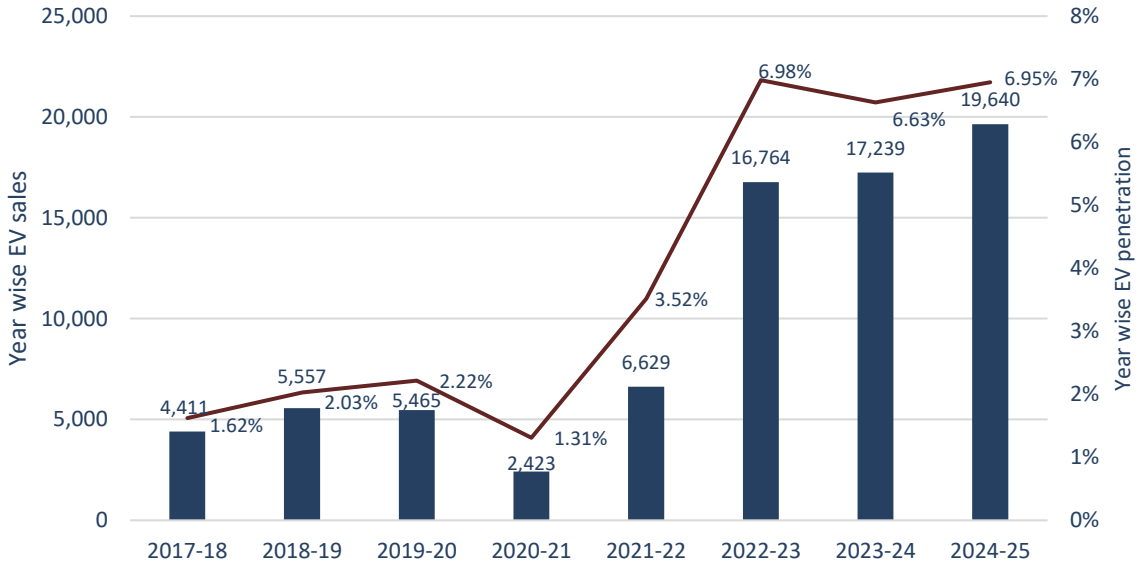
The policy also offered an environment protection incentive of up to INR 2 million for large projects and up to INR 5 million for mega and ultra-mega projects, along with a skill development incentive of INR 1,000 per month for 50 trainees in organisations providing

skill development training. On the demand side, the policy provided a 100% exemption from motor vehicle tax and carriage permit fees for commercial vehicles for five years.

Clearly, the Uttarakhand EV policy is manufacturing-focused but lacks a comprehensive approach that covers the entire EV value chain. In July 2025, the Uttarakhand government introduced a draft of the revised EV policy, which has not yet come into effect.

The EV adoption rate in the state is show in the below figure.

Figure 14: Year wise Ev Sales and EV Penetration in Uttarakhand



Source: Vahan Dashboard

From the data in the figure above, it can be observed that the EV penetration rate in the state was relatively high compared to other states before the introduction of the EV policy and showed some progress after the policy enactment, but remained lower than in other states. It can be inferred that the EV policy had a limited impact on demand creation in the state.

3.9 Telangana Electric Vehicle and Energy Storage Policy 2020-30

The Government of Telangana introduced the Electric Vehicle and Energy Storage Policy in October 2020, with an implementation period extending up to 2030. The policy aims to attract an investment of $4 billion and create employment for 120,000 people by 2030.

Apart from investment and employment opportunities, the policy objectives include reducing the total cost of mobility through increased adoption of EVs, decreasing dependence on fossil fuels, positioning Telangana as a preferred state for manufacturing, developing charging

infrastructure, promoting battery recycling and cascading, and encouraging innovation and R&D.

The below policy box provides details of demand and supply side incentives under the policy.

Table 8: Policy Box - Telangana

• *100% exemption from road tax and registration fees for 200,000 e-two wheelers, 30,000 e-three wheelers, 10,000 e-four wheelers, 500 electric buses, and electric tractors.* • *Retrofitting incentive of up to INR 15,000 for 5,000 three wheelers.*	• *Benefits for manufacturers under State Electronic Policy, 2016:* • *Capital investment subsidy of up to INR 300 million for mega projects.* • *100% reimbursement of net SGST up to INR 250 million over 07 years for mega projects.* • *Power tariff discount of 25% capped at INR 50 million and 100% electricity duty exemption for five years.* • *100% exemption on stamp duty, and reimbursement of quality certification costs.*

Other policy initiatives focus on the development of EV and energy storage clusters, charging infrastructure with mandates for large residential buildings and charging stations every 50 km, preferential market access for domestic manufacturers, R&D promotion, and skill development.

In November, 2024 the government of Telangana updated its EV policy with some new provisions to promote cleaner air, environment sustainability, and energy efficiency which included:

- 100% exemption from road tax and registration fees for all categories of EVs for a two-year period, i.e., until December 2026, with no cap on the number of vehicles.
- Phasing out vehicles older than 15 years.
- Conversion of around 3,000 state road transport buses in the Greater Hyderabad Municipal Corporation area in a phased manner.
- Collaboration with manufacturers to install charging stations in cities and along highways.

The Telangana EV policy promoted manufacturing through the Electronics Policy, 2016, and launched the Telangana Mobility Valley project in February 2023, India's first mobility-focused cluster to advance sustainable mobility. The initiative aims to attract around INR 500 billion in investment and generate over 400,000 jobs in five years, with key features including dedicated zones for EV manufacturing, energy storage, hydrogen fuel cells, battery recycling, and R&D; a Centre for Automotive Excellence for upskilling; and collaboration with national and international partners.

Meanwhile, the 2024 policy updates have helped increase demand for EVs, with cumulative EV sales in the state rising to 200,000 in 2024-25 from 125,000 in 2023-24, accounting for over 5% of total registered vehicles.[14]

3.10 Delhi Electric Vehicles Policy 2020

The Government of the National Capital Territory of Delhi introduced its EV policy in August 2020 with the objective of accelerating the pace of EV adoption in the city, particularly in the mass categories of two-wheelers, public/shared transport, and goods carriers, and achieving 25% of all new vehicle registrations as electric by 2024. The policy also envisages that 50% of all new buses for public transport will be electric, with the induction of 1,000 e-buses by 2020.

With the implementation period of three years and Delhi Transport Department as nodal agency, the policy offered demand incentives as highlighted in the policy box below.

Table 9: Policy Box - Delhi

• *Demand incentive of INR 5,000 per kWh, with a maximum incentive of INR 30,000 per vehicle for e-two wheelers.* • *Scrapping incentive of INR 5,000 per vehicle for old ICE two-wheelers.* • *Conversion of 50% of the two-wheeler fleet to electric by March 2023 and 100% by March 2025.*	• *Demand incentive of INR 10,000 per kWh, with a maximum incentive of INR 150,000 for 1,000 e-four wheelers.* • *Exemption of road tax and registration fees for all categories of EVs.*
• *Demand incentive of INR 30,000 per vehicle for e-autos/e-rickshaws/e-carts.* • *Interest subvention of 5% on loans for purchase of e-autos/e-rickshaws/e-carts.* • *Scrapping incentive of INR 7,500 for old ICE autos.*	• *20% of vehicle parking space in residential and commercial buildings to be EV ready.* • *Grant of up to INR 6,000 per charging point for 30,000 charging points in residential and commercial buildings.*
• *Demand incentive of INR 30,000 per vehicle for 10,000 e-carriers (three wheelers and carriers not exceeding weight 3.5 tonnes).* • *Interest subvention of 5% on loans for purchase of e-carriers.* • *Scrapping incentive of INR 7,500 per vehicle for old ICE carriers.*	• *Public charging stations in 3x3 km grid.* • *Concessional land rates and capital subsidy for installing charging stations.* • *100% reimbursement of net SGST for purchase of batteries for swapping stations.*

The Delhi policy adopts the 'feebate' model to fund EV incentives, under which polluting vehicles are charged a surcharge while non-polluting vehicles receive a rebate. For this purpose, polluting vehicles will be subject to a pollution cess, additional road tax, congestion

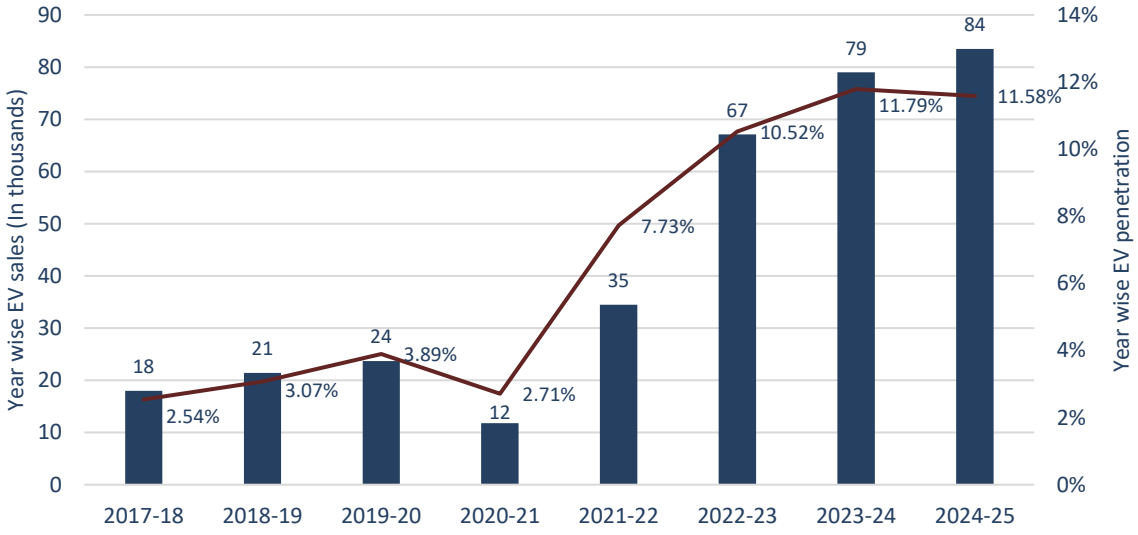
[14] EV sales rise in Telangana

fees, and an environmental compensation charge. The policy also promotes the creation of jobs through vocational training and R&D across the EV value chain.

The Delhi Electric Vehicle Policy of 2020 was purely demand-focused, with the aim of accelerating EV adoption in the region to improve air quality. A draft of a new and more ambitious EV policy, which includes a ban on the registration of ICE two-wheelers among other provisions, was introduced in April 2025 but had not been finalised by August 2025. Meanwhile, the 2020 policy period has been extended until March 2026.

The impact of a demand-focused policy is illustrated in the figure below, with Delhi showing some of the highest EV adoption rates compared to other regions.

Figure 15: Year wise EV Sales and EV Penetration in Delhi



Source: Vahan Dashboard

3.11 Gujarat State Electric Vehicle Policy 2021

The Gujarat EV Policy was introduced in June 2021 for an implementation period of four years, with the objectives of transitioning towards electric mobility, making Gujarat a hub for EV manufacturing, encouraging innovation and investment, and reducing air pollution.

The policy aimed to provide purchase support for 200,000 EVs, including 110,000 e-two-wheelers, 70,000 e-three-wheelers, and 20,000 e-four-wheelers. This was supported by a subsidy of INR 10,000 per kWh for e-two-wheelers for up to 2 kWh capacity, e-three-wheelers for up to 5 kWh capacity, and e-four-wheelers for up to 15 kWh capacity.

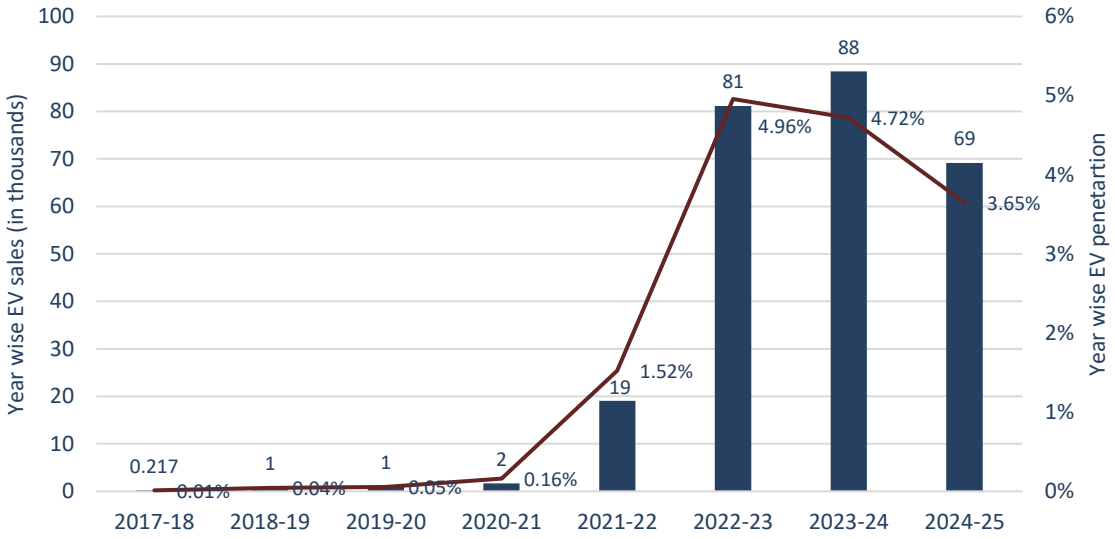
In addition, a capital subsidy of up to INR 1 million was available for setting up 250 public charging stations. Manufacturers also stand to benefit from incentives offered under the Gujarat Industrial Policy, 2020.

The state withdrew the demand incentives in 2024, following which a reduction in motor vehicle tax for EVs from 6% to 1% was announced to maintain the momentum of electric mobility in the state.

Compared to other industrious states such as Tamil Nadu and Maharashtra, the Gujarat EV Policy lacked aspirations to develop a framework for driving innovation and investment across the EV value chain.

The EV sales and penetration rate in the state are shown in the figure below to assess the impact of the state's EV policy.

Figure 16: Year wise EV Sales and EV Penetration in Gujarat



Source: Vahan Dashboard

From the above figure, it can be observed that EV adoption rates in Gujarat have historically been low, with a sudden surge during 2021–22 and 2023–24, likely due to demand incentives provided under the policy. However, the adoption rate has followed a downward trend from 2023–24 onwards, unlike many other states that have seen a gradual rise, possibly due to the withdrawal of state subsidies.

3.12 Odisha Electric Vehicle Policy 2021

The Government of Odisha introduced its EV policy in September 2021 to accelerate the adoption of electric mobility, particularly in the two-, three-, and light motor vehicle categories. The policy aims to achieve 20% of all new vehicle sales as electric by 2025, promote manufacturing, innovation, and R&D, and create jobs across the EV value chain.

Valid for a period of four years, with the State Transport Department as the nodal agency, the policy offers supply and demand incentives, as shown in the policy box below.

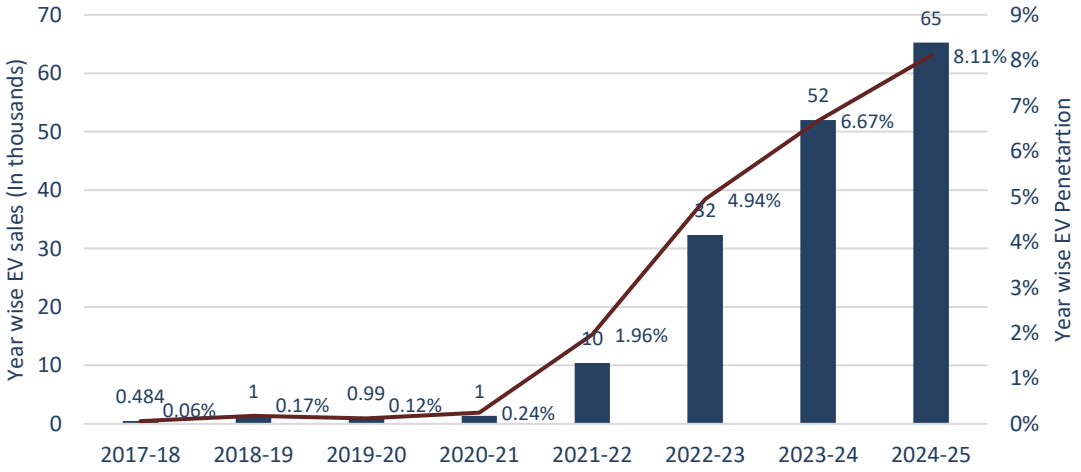
Table 10: Policy Box - Odisha

• *Subsidy of up to INR 5,000 for e-two wheelers, INR 10,000 for e-three wheelers, and INR 50,000 for e-four wheelers.* • *100% interest free loans for state government employees for the purchase of EVs.* • *5% interest subvention to public for purchase of personal EVs.*	• *Reimbursement of 100% of net SGST to manufacturers.* • *Incentives under Odisha Industrial Policy Resolution 2015, MSME Policy 2016, and Odisha Startup Policy 2016.*
• *E-buses to constitute 50% of all new buses for city transport in five years.* • *Subsidy of up to INR 400,000 for e-buses.* • *100% exemption on road tax and registration fees for e-buses.* • *Interest subvention of 5% on loans for purchase of e-buses.*	• *Grant of up to INR 5,000 for 20,000 charging points in residential and non-residential buildings.* • *Concessional land rates for setting up public charging stations.* • *Provisions for recycling of batteries including a separate policy for recycling.*
• *Purchase incentive of INR 30,000 per vehicle for 5,000 e-goods carriers.* • *Interest subvention of 5% on loans for purchase of e-goods carriers.* • *100% exemption on road tax and registration fees for e-goods carriers.* • *Scrapping incentives for old ICE goods carriers.*	• *Creation of State EV Fund for incentivising EVs through additional road tax and congestion fee levied on ICE vehicles.* • *Establishment of a Centre of Excellence to drive innovation and R&D.*

The 2021 policy was amended by the state government in April 2023, and incentives were increased to INR 20,000 for e-two wheelers, INR 30,000 for e-three wheelers, and INR 150,000 for e-four wheelers, citing the low adoption rate of EVs—less than 5% by 2022-23.

The policy prioritises the two-wheeler category, as they constitute 82% of the total vehicles in the state, with incentives for both demand and supply sides; however, the absence of incentives for setting up public charging stations may be detrimental to the development of charging infrastructure in the state. The EV adoption rates in Odisha are highlighted in the figure below.

Figure 17: Year wise EV Sales and EV Penetration in Odisha



Source: Vahan Dashboard

A draft of the Odisha Electric Vehicle Policy 2025 was released in September 2025, aiming for 50% of all new vehicle registrations to be electric by 2030, and extending incentives for trucks, retrofitting, and battery swapping stations as well.

3.13 West Bengal Electric Vehicle Policy 2021

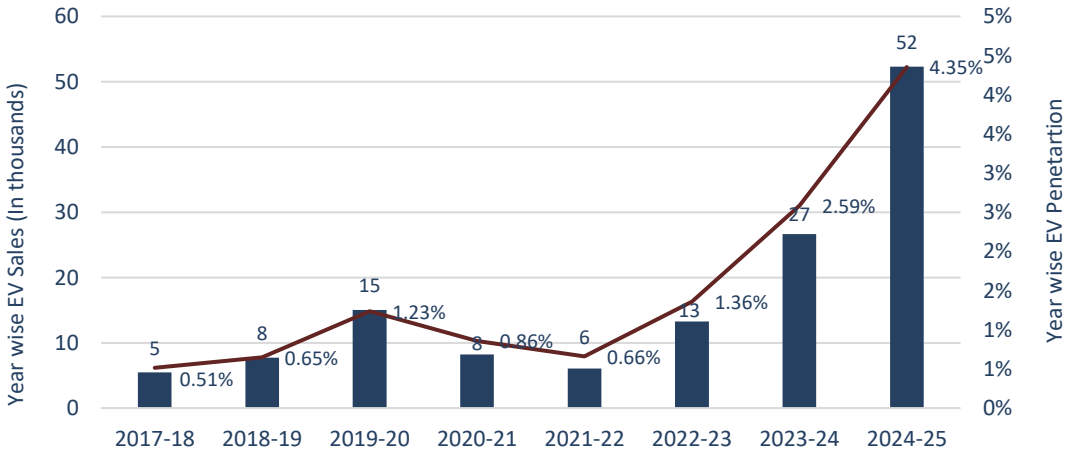
The Government of West Bengal introduced its EV policy in June 2021 with the objective of promoting EVs, enabling investment in charging and battery-swapping infrastructure, and supporting R&D in battery and fuel cell technologies, EV powertrains, and other components.

The policy targeted the deployment of 1 million EVs and 100,000 charging stations, with at least one charging point for every eight EVs in the state during its five-year implementation period. An 'EV Accelerator Cell' was designated as the nodal agency for implementing the policy.

Other provisions under the policy include developing the cities of Kolkata, Asansol, Darjeeling, and Howrah as model electric mobility cities; establishing green zones (restricting fossil fuel-based vehicles); deploying fast chargers every 25 km along the Kolkata–Asansol and Kolkata–Digha routes; providing grants for R&D; and setting up a Centre for Excellence and an Intelligent Mobility Skill Centre to promote innovation and prepare a workforce for the EV transition.

The incentives under the policy are limited to concessional land rates for setting up charging infrastructure and 100% net SGST reimbursement for hydrogen generation and refuelling stations. Overall, the West Bengal policy does not offer demand- or supply-side incentives to create a conducive environment for manufacturing and faster EV adoption, as reflected in the state's EV adoption rates.

Figure 18: Year wise EV Sales and EV Penetration in West Bengal



Source: Vahan Dashboard

3.14 Haryana Electric Vehicle Policy 2022

The Haryana Electric Vehicle Policy, introduced in July 2022 for a period of five years, aims to promote clean and affordable transportation, support EV and component manufacturing, generate employment, and strengthen R&D across the EV value chain. Unlike many other states, the policy also includes hybrid EVs within its scope.

The incentive structure of the policy is shown in the policy box below.

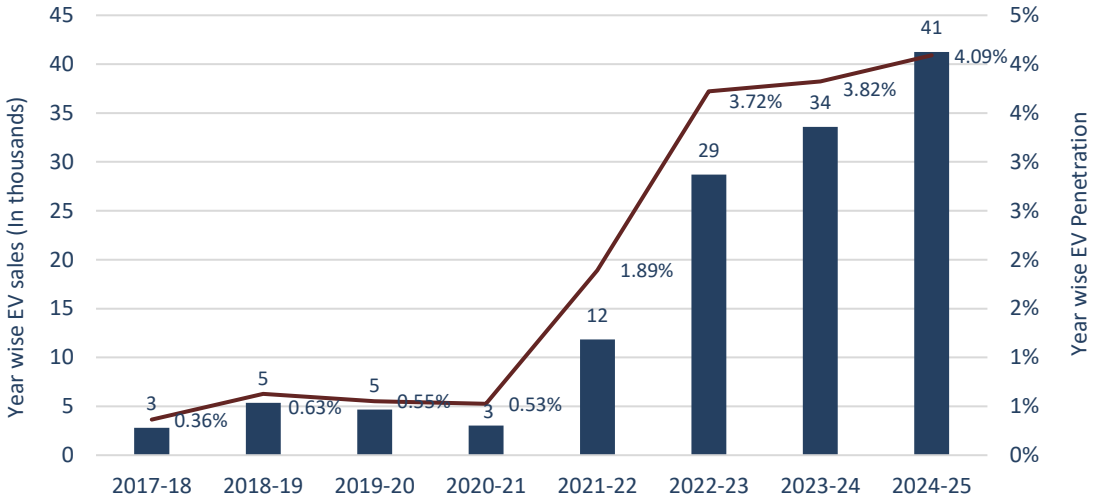
Table 11: Policy Box - Haryana

• *A subsidy of up to INR 1.5 million for 20 micro, INR 4 million for 10 small, INR 5 million for five medium, INR 100 million for two large, and INR 200 million for three mega industries available in each segment — e-two wheelers, e-three wheelers, e-four wheelers, buses/heavy vehicles, and battery and charging equipment.*	• *Purchase incentives ranging from INR 600,000 to 1 million for 2,000 e-cars, and from INR 300,000 to 500,000 for 400 hybrid electric cars, depending on the price of the vehicle.* • *Purchase incentive of up to INR 1 million for200 hydrogen-based vehicles.*
• *Subsidy of up to INR 10 million for five battery disposal/recycling/material recovery facilities.* • *Mega industries to also receive special incentive under Haryana Enterprises and Employment Policy 2020.* • *Seed fund support of up to INR 20 million for converting existing industrial units into EV manufacturing units — for 30 micro and 15 each in small, medium, and large enterprises.*	• *Purchase incentive of up to INR 500,000 for 1,000 e-tractors and 100 hybrid electric tractors.* • *Purchase incentive of up to INR 1 million for 200 e-buses.* • *100% exemption on motor vehicle tax for 30,000 e-two wheelers and 15,000 e-three wheelers.* • *75% exemption on motor vehicle tax for 10,000 e-four wheelers and 1,000 e-buses.*
• *Provision to opt for net SGST reimbursement for ten years or subsidy on fixed capital investment.* • *100% reimbursement of stamp duty and electricity duty.* • *Up to INR 5 million reimbursement of the cost for setting up water treatment plant.*	• *25% exemption on motor vehicle tax for 2,500 hybrid electric four wheelers.* • *Concessional vehicle registration fees for e-two-, three-, four wheelers, e-buses and hybrid electric four-wheelers.*
• *Up to INR 2.5 million reimbursement for patent registration fees.* • *Employment generation subsidy of INR 48,000 per employee per annum for 10 years.* • *R&D funds ranging between INR 2.5 million to INR 50 million for developing charging and vehicle technology.*	• *Subsidy of up to INR 1 million for 100 battery swapping stations and up to INR 500,000 for 200 charging stations.* • *Subsidy of up to INR 50,000 for 2,000 privately owned charging stations in residential and non-residential buildings.*
• *Establishment of five Centres of Excellence with grants up to INR 50 million for each.* • *Cities of Gurugram and Faridabad to be developed as model electric mobility cities with 100% electrification of commercial passenger vehicles.* • *Conversion of 100% of state transport undertakings' fleet into electric by 2030.*	• *Charging stations at every 30 km on highways and other prominent roads.* • *Amendments in building codes to accommodate charging points in residential and non-residential buildings.*

The Haryana Electric Vehicle Policy is well balanced, focusing on both demand- and supply-side interventions, with a detailed incentive structure across each segment, including EV adoption, manufacturing, charging infrastructure, R&D, and employment generation. However, the absence of purchase/demand incentives for electric two- and three-wheelers, along with the inclusion of hybrid electric cars, indicates that the policy priorities are more inclined toward medium- and heavy-duty vehicles.

While the Haryana EV policy is progressive, adoption rates have remained relatively low.

Figure 19: Year wise EV Sales and EV Penetration in Haryana



Source: Vahan Dashboard

3.15 Rajasthan Electric Vehicle Policy 2022

The Rajasthan EV Policy was introduced in September 2022, with a five-year implementation period and the objective of accelerating EV adoption, developing charging infrastructure, and promoting manufacturing and R&D in the state, with a special focus on the priority cities of Jaipur, Jodhpur, Kota, Udaipur, Bikaner, Ajmer, Bharatpur, and Alwar.

The policy targeted a 15% share of EVs in new two-wheeler registrations, 30% in three-wheelers, 5% in four-wheelers, and a phased transition to e-buses, along with the manufacturing of 3.5 million units per year in the next five years form 2022.

The incentive structure of the Rajasthan EV policy is shown in the policy box below.

Table 12: Policy Box - Rajasthan

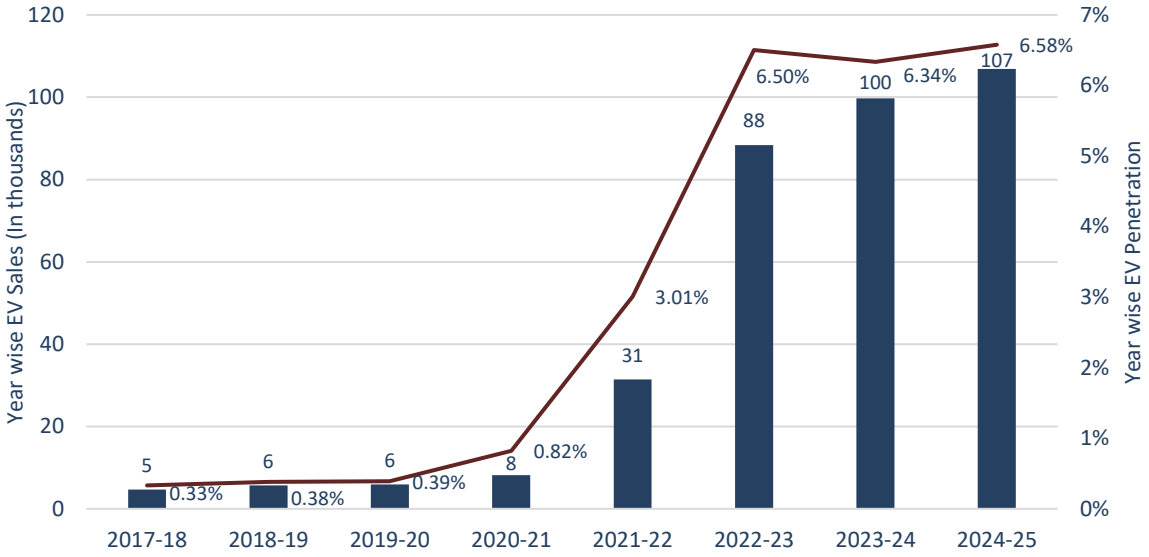
• *Incentive of up to INR 10,000 for 100,000 e-two wheelers.* • *Incentive of up to INR 20,000 for 50,000 e-three wheelers and up to INR 10,000 for 3,000 retrofitted three wheelers across passenger and goods carrier category.*	• *De-licensing of setting up charging stations.* • *Land conversion not required for setting up charging infrastructure.* • *Concessional land rate of 50% for 500 renewable energy-based charging stations along with benefits under Rajasthan Solar Energy Policy.*
• *Incentive of up to INR 50,000 for 4,000 e-four wheelers and INR 15,000 for 2,000 retrofitted four wheelers across private and commercial vehicle category.* • *Incentive of up to INR 500,000 for 500 e-buses and up to INR 250,000 for 200 retrofitted buses.* • *Exemption from motor vehicle tax and green tax, and 100% SGST reimbursement for all categories of EVs.* • *Exemption from permit for passenger or goods carrier.*	• *Benefits for manufacturers under Rajasthan Investment Promotion Scheme 2019:* • *Investment subsidy of 75% of state tax.* • *Employment generation subsidy.* • *Exemotion from 100% of electricity duty, land tax, and market fees for seven years.* • *Exemption from 100% of stamp duty and land conversion charges.*
• *Capital subsidy up to INR 400,000 and loan interest subsidy up to INR 200,000 for fast charging stations under the Rajasthan Investment Promotion Scheme 2019.* • *SGST reimbursement on fast charging electric vehicle supply equipment.* • *-Reimbursement of up to INR 500,000 for upstream electricity infrastructure for charging stations.*	• *Provision of a loan interest subsidy of up to INR 10 million per year for five years, or a capital subsidy of up to INR 5 million for investments above INR 250 million in EV manufacturing.* • *Benefits for startups in the EV value chain and recyclers under the Rajasthan Startup Policy 2015.*

Along with supply- and demand-side incentives, the Rajasthan EV Policy includes provisions for skill development, capacity building, IT system upgrades, and innovation and R&D through the establishment of a Centre of Excellence. The policy also streamlines the regulatory framework to enhance ease of doing business. Provisions such as the identification of five special industrial zones for EV manufacturing, defined power tariffs for charging stations, and regulations around captive renewable energy generation for charging stations, among others, make it a regulation-friendly policy.

But the challenge lies in effective implementation of the policy. As many as seven nodal agencies are responsible for different aspects of the policy, and the institutional mechanism comprises a State Electric Vehicle Committee, an Electric Vehicle Cell, and a District-Level Coordination Committee. Inter-departmental as well as inter-committee coordination will be crucial in achieving policy objectives and targets.

The EV adoption rates are shown in the figure below for reference.

Figure 20: Year wise Ev Sales and EV Penetration in Rajasthan



Source: Vahan Dashboard

3.16 Punjab Electric Vehicle Policy 2022

The Punjab Electric Vehicle Policy, introduced in February 2023, aims for 25% of all new vehicles to be electric by the end of the policy implementation period of three years, with a focus on the target cities of Ludhiana, Jalandhar, Patiala, Amritsar, and Bathinda, which contribute to over 50% of vehicular emissions in the state.

The policy identifies buses, taxis, light commercial vehicles, three wheelers, and two wheelers as the most carbon emitting vehicles and offers fiscal and non-fiscal incentives for a transition towards electric mobility along with incentives for EV infrastructure and manufacturing.

Table 13: Policy Box - Punjab

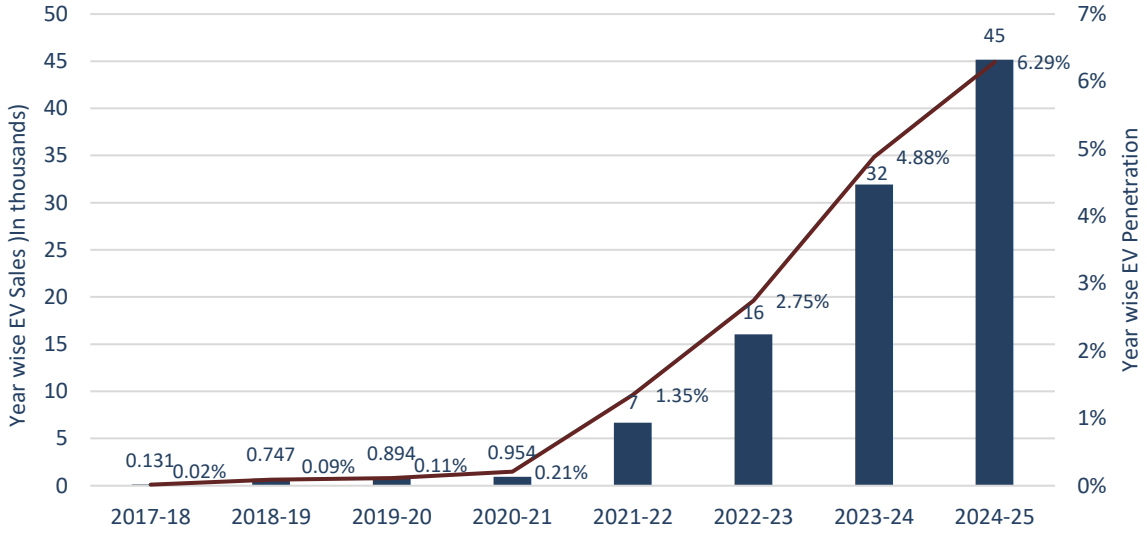
• *Incentive of up to INR 10,000 for 50,000 e-two wheelers.* • *Incentive of up to INR 4,000 for 5,000 passenger e-cycles and up to INR 10,000 for 5,000 cargo e-cycles.* • *Incentive of up to INR 30,000 for 5,000 e-autos, INR 15,000 for 10,000 e-rickshaws, and INR 15,000 for 8,000 e-carts.*	• *Benefits under New and Renewable Sources of Energy Policy for solar charging infrastructure.* • *Amendment in building byelaws to accommodate charging points in residential and non-residential buildings.*
• *100% transition of waste collection vehicle into electric with incentives up to INR 50,000 for 2,500 e-waste collection vehicles.*	• *Incentives ranging between INR 200 million and INR 400 for manufacturers investing more than INR 500 million and generating 500 direct jobs.*
• *Incentives ranging between INR 30,000 and INR 50,000 for 5,000 e-light commercial vehicles depending on the category of vehicles.* • *Exemption from registration fees and road tax for all categories of EVs.* • *Toll fees waiver on selected highways.*	• *Concessional land rates and exemption form conversion of land charges for EV manufacturers.* • *100% exemption from stamp duty for first transaction and 50% on second transaction.* • *50%-100% reimbursement on net SGST for six years depending on nature of sale.* • *100% exemption from electricity duty for 10 years.*
• *Target of at least one public/semi-public charging or battery swapping station for every 10 EVs in target cities and every 15 EVs in other cities.* • *Charging stations at every 25 km along highways and within a 3x3 km grid in target cities.*	• *Benefits to manufacturers under Punjab Industrial and Business Development Policy 2017.* • *Employment generation subsidy ranging between INR 36,000 and INR 48,000 per year for 03 years.*
• *Concessional land rates and capital subsidy for setting up public charging stations.* • *Subsidy of INR 3,000 for 8,000 light EV AC charging points and INR 10,000 for 2,000 DC charging points.*	• *Hi-tech Cycle Valley in Ludhiana to be promoted for EV manufacturing with infrastructure support.* • *Concessions for giga-battery and e-tractor manufacturing units.*

The Punjab EV Policy is unique in that it is the first policy to target 100% electrification of waste collection vehicles and promote gender and social inclusivity by providing a higher employment generation subsidy for women and people from marginalised communities. More similar strategies from other states will be essential for the electrification of the transport industry in a phased and just transition.

The policy also provides a regulatory framework for the development of charging infrastructure, along with provisions for battery recycling, green zones, R&D, skill development, and the adoption of the feebate model for creating a State EV Fund. However, similar to the state of Rajasthan, the institutional mechanism is multi-layered and would require effective coordination. The absence of incentives for four-wheelers and medium- and heavy-duty vehicles is also noteworthy.

The EV adoption rates in Punjab are shown in the below figure for reference.

Figure 21: Year wise EV Sales and EV Penetration in Punjab



Source: Vahan Dashboard

3.17 Bihar Electric Vehicle Policy 2023

The Bihar EV Policy was introduced in December 2023 with an implementation period of five years, aiming for 15% of all new vehicle registrations in the state to be electric by 2028. The policy focuses on developing an EV transport ecosystem, charging infrastructure, and promoting investment and startups across the value chain.

The incentive structure of the policy is shown in the policy box.

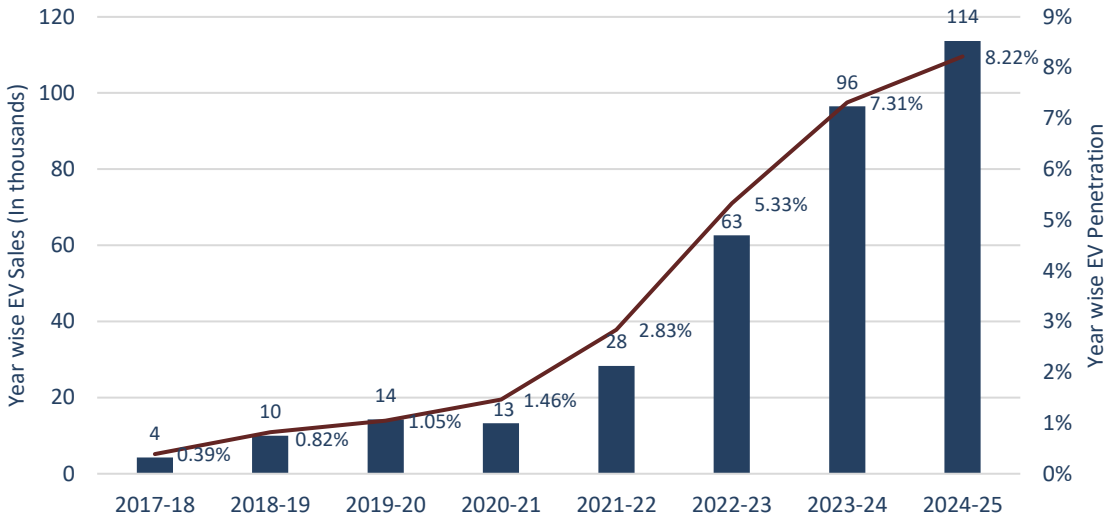
Table 14: Policy Box - Bihar

• *Incentive of up to INR 10,000 and 75% rebate on motor vehicle tax for 10,000 e-two wheelers.* • *50% rebate on motor vehicle tax for e-two wheelers after the first 10,000 sales.*	• *75% rebate on motor vehicle tax for heavy vehicles (buses and goods carriers) for a two-year period, and 50% rebate thereafter.* • *Exemption from permit fees.*
• *50% rebate on motor vehicle tax for e-three wheelers (passenger and goods carriers) and light commercial vehicles (goods carrier).* • *Exemption from permit fees.*	• *Incentives ranging between INR 50,000 and INR 1 million depending on the type of charging technology for setting up 1,260 charging stations.*
• *Incentive of up to INR 150,000 and 75% rebate on motor vehicle tax for 1,000 e-four wheelers.* • *50% rebate on motor vehicle tax for e-four wheelers after the first 1,000 sales.*	• *Government departments to set up 277 charging stations during the policy implementation period.* • *30% subsidy on power tariffs for public/semi-pubic charging stations for a three year period.*
• *Aggregators to convert 20% of their two- and four-wheeler fleet into electric within two years, 40% within three years, and 50% within four years from policy notification.*	• *Provision for a charging point in residential and non-residential buildings with parking facilities for more than 5 four wheelers.*

The Bihar EV policy does not include incentives for promoting manufacturing or provisions for skill development, employment generation, and R&D. Purchase incentives are limited, with no support for e-three wheelers and heavy-duty vehicles. However, incentives for marginalised communities are higher than for others. Overall, the policy has gaps in several areas important for the development of an electric mobility ecosystem.

The EV adoption rates in Bihar are relatively high, with e-three-wheelers accounting for about 80% of total EV sales in 2024-25 and around 84% in 2023-24. The year wise EV adoption rates are shown in Figure 22.

Figure 22: Year wise EV Sales and EV Penetration in Bihar



Source: Vahan Dashboard

4 EV Policies of Other Indian States and Union Territories

4.1 Electric Vehicle Policy of Assam 2021

The EV policy of Assam was introduced in September 2021 for a period of five years, with the objective of electric vehicles contributing to 25% of all new vehicle registrations by 2026. The policy sets targets of 100,000 e-two wheelers, 75,000 e-three wheelers, 25,000 e-four wheelers, and conversion of 100% of public transport buses to electric by 2030.

The demand incentives include up to INR 20,000 for e-two wheelers, INR 50,000 for e-three wheelers, and INR 150,000 for e-four wheelers, along with exemption from vehicle registration fees and road tax, waiver of parking charges, and a retrofitting incentive of up to INR 15,000 for three wheelers.

A capital subsidy of up to INR one million per charging station for 500 public charging stations, along with a 90% exemption from electricity duty for five years, has been earmarked for charging service providers.

Benefits under the Industrial & Investment Policy of Assam 2019 and the North East Industrial Development Scheme 2017 will be available to EV manufacturers, in addition to a capital subsidy of up to INR 1.5 million for micro enterprises, INR 5 million for small enterprises, INR 10 million for medium enterprises, and INR 100 million for large enterprises, along with an interest subsidy of 2% on working capital loans.

Other policy provisions are related to battery recycling and R&D to support innovation and sustainability in the electric mobility ecosystem.

4.2 Goa Electric Mobility Promotion Policy 2021

The Goa EV policy was introduced in December 2021 for a period of five years, with the objective of electric vehicles contributing to 30% of all new vehicle registrations, converting 50% of ferries to electric, and creating 10,000 direct and indirect jobs by 2025.

The supply-side incentives include a capital subsidy of up to INR 50 million for large and mega enterprises, up to INR 500,000 for micro enterprises, up to INR 1 million for small and medium enterprises, and up to INR 1.5 million for startups. Additional incentives include 100% net SGST reimbursement, 50%–100% exemption on stamp duty depending on the industry type, and 30% electricity duty reimbursement for five years.

In the charging infrastructure space, the policy aims for charging station at every 25 km along the highways and within 3x3 km grid in cities and provides up to INR 800,000 of electricity infrastructure support for setting up public charging stations and additional 20% capital subsidy for solar powered charging stations.

The policy provides a demand incentive of up to INR 15,000 for e-two wheelers, up to INR 50,000 for e-three wheelers, and up to INR 100,000 for e-four wheelers, along with a retrofitting incentive of INR 5,000 for three wheelers and INR 10,000 for four wheelers, and exemption from road tax and vehicle registration fees.

Other policy provisions include the conversion of 100% of the two-wheeler commercial fleet to electric by 2025; a scrapping incentive for old ICE vehicles; conversion of 50% of public transport buses to electric by 2025, with a target induction of 500 e-buses; a 100% electric fleet of government-owned/operated four-wheelers; a hybrid marine fleet; adoption of the feebate model; and grants for skill development.

In addition to the EV policy, the government of Goa also issued an EV Concessional Charging Infrastructure Policy 2021 to provide additional revenue generation opportunities for charging service providers.

4.3 Meghalaya Electric Vehicle Policy 2021

The Meghalaya EV Policy aims for 15% of all new vehicle registrations to be electric by 2025 and offers incentives of up to INR 20,000 for 3,500 e-two wheelers and 200 e-three wheelers, INR 60,000 for 2,500 e-four wheelers, INR 5,200 for 30 strong hybrid four wheelers, and INR 1 million for 30 e-buses along with exemption from vehicle registration fees and road tax.

Other policy provisions include concessional land rates for charging stations, incentive under Meghalaya Startup Policy 2018, adoption of feebate model, introduction of skill development vocational courses, recycling support, and EV focussed tourist zones.

4.4 Chhattisgarh State EV Policy 2022

The Chhattisgarh EV policy was introduced in August 2022 for five years, with the objective of 15% of all new vehicle registrations to be electric by 2027 and targets 200,000 EVs on the road during policy implementation period.

A purchase incentive of 15%, up to INR 150,000, is allocated for EVs for private and commercial use, and 50% of this incentive is applicable to hybrid electric vehicles. This is accompanied by an exemption from registration fees for EVs. In addition, a 100% reimbursement of net SGST is applicable for e-buses and goods vehicles.

For manufacturers, a capital subsidy of up to INR 1.5 million for micro enterprises, up to INR 4 million for small enterprises, and up to INR 5 million for medium enterprises is allocated. Large and mega industries receive a capital subsidy of up to INR 100 million and INR 200 million, respectively, for two units in each category. In addition, tax and stamp duty exemptions, tariff incentives, and incentives under the MSME Policy 2016 and State Industrial Policy 2019 are also applicable.

Charging service providers receive a capital subsidy of up to INR 1 million for 300 fast charging stations, 100% SGST reimbursement, and concessional land rates. Other policy provisions focus on renewable energy for charging stations, R&D, battery recycling, and the creation of an EV State Fund.

4.5 Jharkhand Electric Vehicle Policy 2022

The Jharkhand EV Policy was introduced in October 2022 for a period of five years, with the objective of achieving a 10% share of electric vehicles in overall new vehicle registrations by 2027, along with one charging station per million population and the conversion of 15-year-old government-owned or leased vehicles to electric.

In addition, 100% reimbursement of stamp duty, 50% rebate on the cost of land allotted by the government,

The below policy box highlights the incentive structure of the Jharkhand EV Policy.

Table 15: Policy Box - Jharkhand

• *Capital subsidy of up to INR 20 million for micro enterprises, INR 70 million for small enterprises, INR 150 million for medium enterprises, and INR 300 million for non-MSMEs.* • *Additional 5% subsidy for women, differently abled, and entrepreneurs from marginalised communities.*	• *Purchase incentive of up to INR 10,000 for 100,000 e-two wheelers and INR 30,000 for 25,000 e-three wheelers.* • *Up to INR 150,000 for 10,000 e-four wheelers and INR 100,000 for 10,000 e-four wheeler goods carriers.* • *Up to INR 2 million for 1,000 e-buses.*
• *100% reimbursement of stamp duty.* • *50% rebate on the cost of land allotted by the government.* • *100% electricity duty reimbursement for 10 years for captive power plants.* • *Interest subsidy of 6%.*	• *100% exemption from road tax and vehicle registration fees for the first 10,000 EVs; 75% exemption for the next 5,000, and 25% exemption thereafter for EVs manufactured in the state.*
• *Additional 5% capital subsidy for 02 anchor units (mega industries) and new units (established withing two years of policy implementation).* • *50% subsidy on annual interest on loan for setting up waste treatment plant.*	• *25% exemption from road tax and vehicle registration fees for EVs manufactured outside the state.* • *Incentive of up to INR 10,000 for 15,000 slow chargers, INR 500,000 for 500 fast chargers, and INR 700,000 for 500 solar based chargers.*
• *Subsidy of up to INR 01 million each for patent registration and quality certification.* • *15% of the total grant from government to be utilised for cluster development.*	• *Interest free loan for e-two-wheelers and e-four-wheelers for government employees.* • *Parking fee rebate for EVs on government operated parking areas.*

4.6 Himachal Pradesh Electric Vehicle Policy 2022

The Himachal Pradesh EV Policy was introduced in January 2022 for a period of five years, with the objective of achieving a 15% share of electric vehicles in overall new vehicle registrations by 2025. The policy offers waivers on permits for e-commercial vehicles, as well as exemptions from road tax and state toll tax.

In addition, the state government will allocate land for the development of EV parks and provide infrastructure support to manufacturers, along with benefits under the Himachal Pradesh State Industrial Policy 2019.

Four cities—Shimla, Mandi, Baddi, and Dharamshala—are planned to be developed as electric mobility model cities, each having at least one low/zero-emission zone restricting the movement of fossil fuel–based vehicles.

In subsequent stages, a 50% subsidy was introduced for e-taxis and e-buses in the state, along with the setting up of 402 charging stations and adoption of the feebate model.

4.7 Manipur Electric Mobility Policy 2022

The Manipur EV Policy was introduced in August 2022 for a period of five years, with the objective of EVs contributing to 20% of all new vehicle registrations by 2026. The policy offers a 30% waiver on motor vehicle tax for 1,000 e-two wheelers and 3,000 e-three wheelers, and a 20% waiver for 1,500 e-four wheelers, 30 strong hybrid four wheelers, and 8 e-buses. Additionally, registration fees for all categories of EVs are exempted, along with a 100% waiver on parking fees.

Charging service providers will be allotted government land free of cost with special electricity rates while startups will receive benefits under the Manipur Startup Policy 2022. Other policy provisions focus on battery recycling, skill development, and exclusive EV zones in tourist areas.

4.8 Tripura Electric Vehicle Policy 2022

The Tripura EV Policy was introduced in May 2022 for a period of five years, with the objective of 10% of all new vehicle registrations to be electric by 2027. The policy targets the adoption of 60,000 EVs including 500 e-buses during the policy implementation period and offers a 25% exemption from road tax, while reserving 10% of all new commercial vehicle permits for EVs.

Manufacturers will receive benefits under the Tripura Industrial Policy, and the establishment of charging stations every 25 km along highways, with 25% of parking space reserved for EVs in designated areas, is envisaged under the policy. Other policy provisions focus on retrofitting 25% of on-road vehicles, battery waste management, and skill development.

4.9 Mizoram Electric Vehicle Policy 2024

The Mizoram EV Policy was introduced in September 2024 for a period of five years, with the objective of 5% of all new vehicle registrations to be electric by 2029, through strategic interventions in charging infrastructure, promotion of startups and manufacturing in state industrial parks, establishment of exclusive EV zones in tourist areas, battery recycling, and skill development.

4.10 Chandigarh Electric Vehicle Policy 2022

The EV Policy for the Union Territory of Chandigarh was introduced in September 2022 for a period of five years, with the objective of EVs contributing to 70% of all new vehicle registrations by the end of policy period along with setting up of 100 charging stations with at least 01 charging station in public parking.

The incentive structure of the Chandigarh EV Policy is shown in the policy box below.

Table 16: Policy Box - Chandigarh

• *Incentive of up to INR 3,000 for 25,000 e-bicycles, up to INR 30,000 for 10,000 e-two wheelers.* • *Incentive of up to INR 30,000 for 2,000 e-cart/e-autos and up to INR 80,000 for 2,000 e-goods carriers including retrofitting of vehicles.*	• *Incentive of up to INR 6,000 for 30,000 private charging points.* • *Reimbursement of up to INR 50,000 of SGST and electricity infrastructure support of up to INR 500,000 for 50 public fast charging/battery swapping stations.*
• *Incentive of up to INR 150,000 for 2,000 personal e-four wheelers and up to INR 200,000 for 1,000 commercial e-four wheelers.* • *Scrapping incentive of INR 5,000 for two wheelers, INR 7,500 for e-autos, INR 15,000 for light goods carriers, and INR 7,000 for four wheelers.*	• *100% exemption from electricity duty for public charging/battery swapping stations during policy period.* • *Concessional electricity tariff and nil fixed charges for power supply to public charging/battery swapping stations.*
• *Early bird incentive of up to INR 2,000 for e-bicycles and INR 3,500/kWh for other e-two-, three, and four wheelers.* • *Waiver of road tax and registration fees.*	• *Infrastructure incentive of up to INR 18,000/month for 10 startups.* • *Patent fee reimbursement of up to INR 500,000 for 10 patents.*

The Chandigarh policy also aims for the electrification of public transport vehicles, with all new bus procurements to be electric, along with a phased transition of government and municipal vehicle fleets. Other policy provisions include the establishment of an E-Mobility Centre of Excellence, development of a recycling ecosystem, initiatives on skill development, and job creation.

4.11 Ladakh Electric Vehicle and Allied Infrastructure Policy 2022

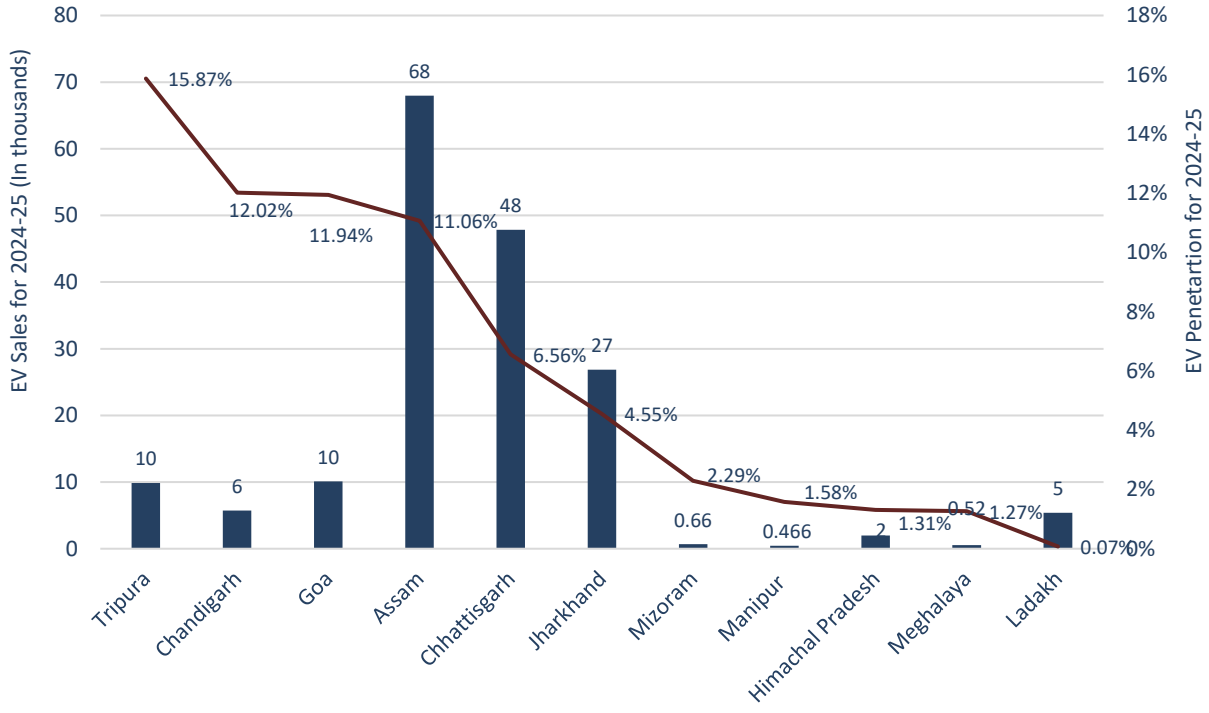
The Ladakh EV and Allied Infrastructure Policy was introduced in August 2022 for a period of five years, with the objective of promoting the adoption of 509 electric vehicles during 2023–27, including 257 EVs in the four-wheeler and bus categories.

The policy's demand incentive structure includes subsidies of up to INR 15,000 for e-two wheelers, INR 30,000 for e-rickshaws/carts, INR 50,000 for e-autos, INR 250,000 for e-cars, INR 5 million for e-buses, and INR 300,000 for e-light commercial vehicles/state carriages. An additional early bird incentive is available for a total of 101 EVs during the first year of the policy implementation period, along with exemptions from road taxes and permit fees for commercial vehicles. A capital subsidy of up to INR 500,000 for 15 charging stations is also allocated under the policy.

Overall, among all the policies mentioned in Section Four of this report, the EV policies of Assam, Goa, Chhattisgarh, Jharkhand, and Chandigarh have adopted a balanced approach to expediting EV adoption and developing an EV ecosystem aligned with their respective regional contexts.

The current EV adoption rates in these regions are shown in figure below.

Figure 23: EV Sales and EV Penetration for 2024-25



Source: Vahan Dashboard

5 Learnings from Other Countries

Like India, several countries are currently undergoing a transition towards sustainable mobility, while some have already made significant progress in this shift. These countries have successfully addressed challenges such as inadequate charging infrastructure, range anxiety, demand–supply imbalances, financing constraints, and recycling concerns through a combination of financial incentives, regulatory interventions, and strategic planning. Their experiences provide valuable lessons for India.

This section reviews the strategies, policies, and regulatory measures adopted by other countries to overcome key barriers in the transition to electric mobility. The insights drawn from these international experiences can help India accelerate its EV adoption.

5.1 Upfront cost

Electric vehicles are often viewed as high-cost investments, with financial benefits realised only over time through lower operating expenses. In India, this perception is further reinforced by the fact that EV technology is yet to become fully mainstream.

Countries such as Norway, China, and Canada have implemented targeted measures to make EVs more affordable and appealing.

- Norway combined fiscal and non-fiscal incentives, exempting EVs from the 25% value-added tax (VAT)[15] and import duties while providing access to bus lanes, reduced tolls, and free parking.
- China waived purchase taxes on EVs through 2024–25, offering buyers savings of up to 30,000 yuan (approximately USD 4,180) per vehicle.[16]
- British Columbia (Canada) launched the *CleanBC Go Electric Passenger Vehicle Rebate Programme*, offering point-of-sale rebates of up to CAD 3,000 for BEVs and CAD 1,500 for plug-in hybrid electric vehicles.[17]

These measures yielded positive outcomes. In Norway, nearly every new car sold in 2024 was electric.[18] China accounted for almost 60% of global EV sales in 2023, with 9.49 million units sold and a 33% market penetration rate.[19] In British Columbia, zero-emission vehicles

15 Norwegian EV policy - Norsk elbilforening
16 China Extends Tax Exemption for Electric Vehicles Until 2027 - Parliamentarian
17 https://www.evfriendly.ca/wp-content/uploads/2022/04/2021_zero_emission_vehicle_update.pdf
18 This country has already pulled off a miracle — Norway sold nearly 100 % electric cars in 2024
19 China's market grows by 9.5 million electric cars and plug-in hybrids in 2023

reached 13% of total sales in 2021, exceeding the province's 2025 target well ahead of schedule.[20]

While purchase incentives have been the driving force behind EV adoption in India, the limits on the number of vehicles eligible for incentives or the time period during which incentives apply may need to be reviewed.

5.2. Charging Infrastructure

A reliable and accessible charging network is essential to address range anxiety and encourage EV adoption. However, in India, infrastructure expansion is constrained by a cyclical challenge - low EV demand discourages investment, while the lack of charging facilities further limits demand.

Globally, leading EV markets have adopted strategic approaches to overcome this barrier:

- California launched the *California Electric Vehicle Infrastructure Project (CALeVIP) 2.0*, offering substantial rebates for public and private installation of high-power DC fast chargers. At least 50% of programme funds are reserved for disadvantaged communities, ensuring equitable access and local employment generation.[21]
- China leveraged its state-owned enterprises to build a nationwide charging network, particularly along highways. The two main state utility companies were deployed to build a network of chargers along the nation's highways. Local governments electrified public fleets, buses, and taxis, creating immediate demand for charging stations and anchoring the private market. As of October 2024, China had 3.39 million public chargers (up by 34.4%) and 8.49 million private chargers (up by 56.4%).[22]
- Norway placed a strong emphasis on urban charging infrastructure. Charging stations were strategically installed across city centres and along major transport corridors. This strategic placement maximised convenience for EV drivers and played an important role in alleviating range anxiety, a common barrier to adoption.

These initiatives have produced remarkable results. California's network of approximately 178,000 chargers now exceeds the number of gasoline nozzles in the state by 48%.[23] China leads the world with nearly 11.9 million chargers, a 49% annual increase,[24] while Norway

[20] Zero-Emission Vehicle Update
[21] California Electric Vehicle Infrastructure Project (CALeVIP)
[22] China witnesses rapid EV charging, replacement infrastructure growth | govt.chinadaily.com.cn
[23] California now has 48% more EV chargers than gasoline nozzles in the state | Governor of California
[24] China witnesses rapid EV charging, replacement infrastructure growth - Chinadaily.com.cn

maintains an impressive density of 447 chargers per 100,000 people—five times higher than the United Kingdom.[25]

5.3 Supporting Manufacturers in the Transition

- China mandated EV integration into public fleets, such as buses and government vehicles. The city of Shenzhen's collaboration with the automaker BYD to fully electrify its bus fleet set a global precedent.[26]
- The European Union provided long-term policy certainty through a regulatory commitment to phase out new ICE vehicle sales by 2035, assuring manufacturers of sustained market demand.[27]

These strategies helped de-risk industry investments. In China, early public-sector demand allowed domestic companies such as BYD and NIO to scale rapidly, while the European Union's policy clarity aligned automaker investments with decarbonisation goals.

5.4 Strengthening Battery Recycling Ecosystems

As EV adoption accelerates, end-of-life lithium-ion batteries pose both an environmental challenge and a resource opportunity. Without effective recycling systems, valuable materials could go to waste and pose an environmental hazard.

- The United States of America follows a decentralised approach combining federal programmes—such as the *Advanced Technology Vehicles Manufacturing (ATVM) Loan Program*, the *Bipartisan Infrastructure Law (BIL)*, and the *National Blueprint for Lithium Batteries (2021–2030)*—with state-level regulations in California, New York, and Washington. Public–private partnerships drive innovation in recycling technologies and domestic supply chain strengthening.[28]
- China adopts a centralised policy driven model through its 13th and 14th Five-Year Plans, mandating manufacturer "take-back" systems and incentivising compliance through subsidies and tax benefits. Major cities like Beijing, Shanghai, and Shenzhen have also invested in municipal recycling infrastructure in partnership with private firms.

Outcomes from both models have been promising. China has achieved a 40% recycling rate with 90% material recovery efficiency, while the United States reports a 35% recycling rate and 95% recovery efficiency through technological innovation and private-sector

25 Electric vehicle adoption rate soars in Norway
26 How did China come to dominate the world of electric cars? | MIT Technology Review
27 EU ban on the sale of new petrol and diesel cars from 2035 explained | Topics | European Parliament
28 Sustainable Recycling of End-of-Life Electric Vehicle Batteries: EV Battery Recycling Frameworks in China and the USA

leadership.[29] Extended Producer Responsibility (EPR) mandates and fiscal incentives have been instrumental in establishing these sustainable recycling ecosystems.

International experiences demonstrate that a combination of consistent policy support, fiscal incentives, robust infrastructure, and clear long-term regulations can transform EV markets. India's pathway to mainstreaming electric mobility will depend on adapting these lessons to its domestic context—addressing affordability, infrastructure gaps, industry preparedness, and end-of-life management holistically to create a resilient and inclusive EV ecosystem.

[29] Sustainable Recycling of End-of-Life Electric Vehicle Batteries: EV Battery Recycling Frameworks in China and the USA

6 Conclusion

The transition to sustainable mobility in India reflects a decade of concerted policy efforts to reduce transportation's environmental footprint, enhance energy security, and promote socio-economic development. The report's comprehensive analysis of national and state-level policies, stakeholder consultations, and international experiences provides a robust foundation for understanding India's progress and charting a path forward.

While significant strides have been made, with EV adoption rising from less than 1 percent of new vehicle sales in FY 2015–16 to 7 percent by FY 2025–26, the transition remains incomplete in scale and inclusivity. This concluding chapter synthesises key findings, reflects on challenges, and outlines a strategic roadmap for a Just Transition to sustainable mobility.

Achievements and Progress

India's policy framework, driven by initiatives such as the NEMMP, FAME, FAME II, PLI schemes, and PM E-DRIVE, has catalysed EV adoption and infrastructure development. The deployment of over 7 million EVs, more than 29,000 charging stations, and 10,870 e-buses demonstrates tangible progress. State policies have complemented these efforts, with regions such as Karnataka, Delhi, Uttar Pradesh, Tripura, Chandigarh, Goa, and Assam leading in EV penetration due to tailored incentives, infrastructure investments, and employment opportunities created through EV transportation. The PLI-Auto and PLI-ACC schemes have strengthened domestic manufacturing, reducing reliance on imports and generating 381,186 jobs by 2024.

Persistent Challenges

Despite these achievements, the transition faces structural and systemic challenges:

Limited Infrastructure: The 29,000+ charging stations are insufficient to address range anxiety, particularly outside urban centres.

Affordability Barriers: High upfront costs, especially for four-wheelers, limit adoption, exacerbated by time-bound or capped incentives.

Regulatory Gaps: Non-compliance in FAME II and complex institutional mechanisms highlight the need for streamlined oversight.

Inclusivity Deficits: Limited focus on gender equity and marginalised communities in employment and policy benefits undermines the Just Transition framework.

Battery Recycling: The absence of a robust recycling ecosystem risks environmental hazards as EV adoption scales.

Strategic Roadmap

To address these challenges and achieve a Just Transition, India must adopt a multi-pronged approach:

Scale Infrastructure: Invest in a dense and equitable charging network, prioritising areas with high vehicular movement. Public–private partnerships can help accelerate deployment, attract investment, and ensure reliable access.

Sustain Incentives**:** Extend purchase incentives without caps and include passenger cars under schemes such as PM e-Drive to boost adoption. Regularly review incentive structures to reflect changing costs and technology maturity.

Strengthen Supply Chains: Enforce DVA requirements under PLI schemes and support MSMEs to build a resilient, self-reliant EV ecosystem. Promoting local manufacturing, R&D, and skilling will enhance competitiveness and reduce import dependence.

Advance Circular Economy and Recycling: Develop a national framework for battery recycling and resource recovery, drawing on global best practices. Embedding circular economy principles across the value chain will strengthen sustainability and reduce waste.

Enhance Public Transport and Urban Integration: Make efficient public transport—such as e-buses, shared mobility, and non-motorised options—central to decarbonisation. Integrating transport with urban planning through compact city design and transit-oriented development can enhance accessibility and reduce emissions.

Promote Inclusivity and Workforce Transition: Encourage gender-responsive employment and training programmes, particularly for marginalised communities. Support reskilling of workers from traditional automotive sectors to ensure an equitable and just transition to green mobility.

Leverage Global Insights: Adapt successful international models—such as Norway's fiscal incentives and California's equitable infrastructure programmes—to India's needs, ensuring affordability, access, and long-term sustainability.

India's sustainable mobility journey is poised for transformative growth, driven by its manufacturing potential, policy innovation, and commitment to climate goals. By addressing cost differentials, infrastructure gaps, promoting a circular economy, and ensuring inclusivity, India can create a resilient and equitable EV ecosystem, aligning with global decarbonisation imperatives and securing a sustainable future.

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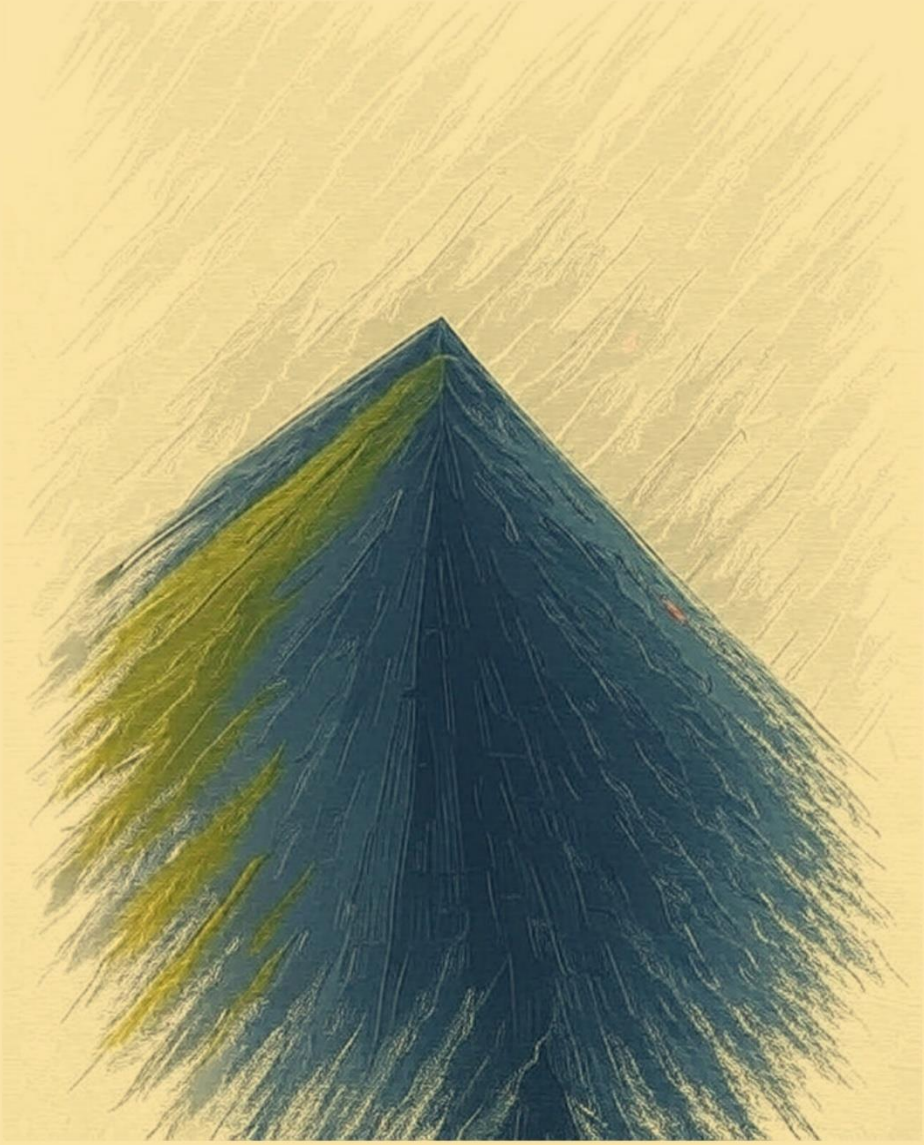

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