SUPREME AUDIT INSTITUTION OF INDIA
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# India's stride towards net zero campaign - The impact of FAME Scheme

International Centre for Environment Audit and Sustainable Development (iCED)

**Director General's Message**

India's march towards a sustainable future is both a necessity and an opportunity. Our country has pledged to reach Net Zero by 2070, a commitment that is as much about national interest as it is about global responsibility. Achieving this vision will require action across energy, industry, agriculture, and above all, transport.

The transport sector today contributes nearly 12% of India's total $CO_2$ emissions, with road transport being a key contributor to urban air pollution. Vehicles powered by internal combustion engines continue to dominate mobility, adding to urban air pollution, oil import dependency, and greenhouse gas buildup. This challenge, however, also opens up a remarkable avenue for transformation.

On the one hand, India has rapidly expanded its renewable energy base, industries are also increasingly investing in green technologies, and states are drafting ambitious climate action plans. On the other, the challenges of rising energy demand, fossil-fuel dependence, and urban emissions remain.

The transport sector epitomizes this dual reality. In recent years, we have seen a remarkable surge in EV adoption — electric two-wheelers and three-wheelers are now common sights in our cities, and several states report double-digit growth. Yet the charging network remains thin, particularly outside urban centers. Manufacturing has grown, but domestic supply chains for batteries and critical minerals still need strengthening.

In this journey, electrification of transport is not merely a technology shift, but a paradigm change. Electric vehicles powered by clean energy sources can slash emissions, reduce operating costs, and redefine the way people and goods move across the country.

The FAME scheme stands at the forefront, aligning industrial growth with climate commitments. By providing demand incentives, supporting charging infrastructure, and focusing on public transport, FAME has turned intent into action. Coupled with the Production Linked Incentive (PLI) scheme for Advanced Chemistry Cell manufacturing, the National Electric Mobility Mission Plan, and diverse state EV policies, FAME scheme is intended to shape a comprehensive ecosystem. While the FAME scheme has ended in 2024, integration of the successor of FAME II with India's wider Net Zero strategy will be crucial.

The transport sector must also integrate with renewable energy deployment, public transport strengthening, urban planning, and digital innovations. Electric buses and shared mobility will play as vital role as two-wheelers and passenger cars. The challenge is not just technological, but behavioural and cultural — about reimagining mobility itself.

I invite readers to approach this publication not merely as a technical assessment, but as a mirror of India’s larger sustainability story. It shows how one sector, one scheme, and one vision can ripple across the nation’s environmental and economic future.

**Author's Note**

This publication presents a comprehensive assessment of India's transition towards sustainable mobility through the FAME (Faster Adoption and Manufacturing of Electric Vehicles) scheme. It examines the scheme's design, implementation, and outcomes within the broader context of India's Net Zero commitment. The work brings together policy analysis, impact evaluation, and audit perspectives to highlight both achievements and emerging challenges. It seeks to bridge the gap between environmental objectives and public accountability by emphasising governance, efficiency, and measurable outcomes. Ultimately, the paper aims to provide insights for policymakers, auditors, and stakeholders to strengthen future electric mobility initiatives in India.

**Author's Disclaimer**

This publication is intended for academic, analytical, and knowledge-sharing purposes only. The views, interpretations, and conclusions expressed herein are those of the author and do not necessarily reflect the official position of any government, institution, or organization. The analysis is based on publicly available information and secondary sources, and while due care has been taken to ensure accuracy, no responsibility is assumed for any errors, omissions, or subsequent use of the information. This work should not be construed as an official audit opinion or policy recommendation, but as an independent analytical perspective on the FAME scheme and India's transition towards Net Zero.

**Author's Declaration**

I hereby declare that this publication is an original work carried out by me and has not been submitted, in part or in full, for any other publication or purpose. The analysis presented is based on information gathered from credible and publicly available sources, which have been duly acknowledged wherever used. To the best of my knowledge, the work does not contain any material that infringes upon the intellectual property rights of any individual or institution.

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# Chapter 1: Understanding Climate and Climate Change

Climate refers to the average weather conditions of a particular region over a long period of time. The World Meteorological Organization defines climate using a standard period of 30 years to determine averages in temperature, rainfall, humidity, and other weather patterns. In contrast, weather is what we experience on a day-to-day basis-it may be hot, rainy, or windy today, but climate is what tells us how typical such weather is for that region and time of year.

It is also important to recognize that climate is not static; it has changed naturally over millennia due to factors such as volcanic eruptions, solar cycles, and shifts in Earth's orbit (Milankovitch cycles). However, the pace and scale of change witnessed at present is unprecedented in human history.

**What is Climate Change?**

Climate change refers to a long-term shift in temperatures and weather patterns. While such changes can occur due to natural phenomena, evidence overwhelmingly shows that, since the 1800s, human activities have become the dominant cause of climate change. During the Industrial Revolution, countries relied heavily on fossil fuels also known as non-renewable resources like coal, oil, and natural gas to power factories, transport systems, and homes, releasing large amounts of greenhouse gases, including methane ($CH_4$), nitrous oxide ($N_2O$), and fluorinated gases. The Greenhouse Effect due to these gases has resulted in global warming, which in turn has triggered wide-ranging impacts such as melting glaciers, rising sea levels, more frequent and severe weather events, and disruptions to ecosystems.

- NASA reported that the global temperature has reached 1.28°C in 2024 making it warmest year. (Source: NASA News Release – 10 January 2025)
- According to the Intergovernmental Panel on Climate Change (IPCC), if global warming exceeds 1.5°C, the world will face irreversible and catastrophic changes. (Source: IPCC Special Report: Global Warming of 1.5 ºC)
- IPCC's Special Report on Global Warming of 1.5°C noted that from 1880 to 2012, the average global temperature increased by 0.85°C. (Source: IPCC Special Report: Global Warming of 1.5 ºC)
- World Meteorological Organisation identified January 2025 as the hottest January ever recorded globally. (Source: WMO: News 14 February 2025)

Deforestation, industrialization, rapid urbanization, and unsustainable agricultural practices are other major contributors to climate change. Clearing forests reduces the Earth's capacity to absorb $CO_2$, while modern agriculture releases methane and nitrous oxide. Urban areas, with their concrete surfaces and lack of vegetation, often experience the "urban heat island" effect, making cities even warmer than surrounding areas.

**India's Vulnerability**

India is especially vulnerable to the impacts of climate change. From deadly heatwaves and erratic monsoons to rising sea levels threatening coastal cities like Mumbai and Kolkata, the signs are everywhere. The Himalayas, often referred to as the "water towers of Asia," are losing their glaciers, endangering the water supply for millions downstream. Farmers face unpredictable weather patterns, leading to crop failures and economic losses. Cities like Delhi face an added burden: apart from rising temperatures, they also suffer from dangerously poor air quality. The recent years have seen a sharp increase in the frequency and severity of cyclones along India's coasts, devastating communities and infrastructure. Floods in Assam and Uttarakhand, droughts in Maharashtra, and forest fires in the Western Ghats are all linked to changing climate patterns. The economic cost of these disasters runs into billions of dollars annually, straining both state and national resources.

# Chapter 2: The Impact of the Transport Sector on Climate Change and Pollution in India

Transport sector is backbone of the industries which provides mobility of products and materials to the intended user. Other than industries transport sector plays an important role in connecting people by providing faster mode of transportation. India's rapid urbanization and economic growth have fundamentally altered the nation's mobility landscape. The proliferation of vehicles-ranging from two-wheelers to heavy-duty trucks-has not only improved connectivity but also made the transport sector a key driver of greenhouse gas emissions and urban air pollution. India has the world's second-largest road network[1], stretching over 63.45 lakh km—including 1.46 lakh km of national highways and 1.79 lakh km of state highways.

**2.1 Transport Emissions**

**2.1.1 Greenhouse Gas Emissions: Sources and Effectiveness**

The transport sector accounts for approximately 12% of India's total $CO_2$ emissions. Within this, road transport is responsible for over 94% of sectoral $CO_2$ emissions[2]. The primary source is the combustion of fossil fuels-petrol and diesel-in internal combustion engines (ICEs). As per Australian Bureau of Statistics[3], for every litre of petrol burned, about 2.3 kg of $CO_2$ is released; for diesel, it is about 2.7 kg $CO_2$/litre. Besides $CO_2$, vehicles emit[4] methane ($CH_4$) and nitrous oxide ($N_2O$), both of which have higher global warming potentials (GWP) than $CO_2$. Further, hydrofluorocarbon (HFC) is released from vehicular air conditioners. For example, $N_2O$ is 273 times more potent than $CO_2$ over a 100-year period[5].

**Air Pollutants: Types and Health Impacts**

Transport emissions are a major source of criteria air pollutants:

- Particulate Matter (PM2.5 and PM10) penetrate deep into lungs, causing respiratory and cardiovascular diseases.
- Nitrogen Oxides ($NO_x$) are precursor to ozone ($O_3$) and acid rain which irritates airways.
- Carbon Monoxide (CO) reduces oxygen delivery in the body, especially harmful for heart patients.
- Volatile Organic Compounds (VOCs) react with $NO_x$ to form ground-level ozone, which is a key component of smog.

[1] Ministry of Road Transport and Highways, Annual Report:2024-25
[2] IEA and NITI Aayog: Transitioning India's Road Transport Sector
[3] Australian Bureau of Statistics: Transport
[4] United States Environmental Protection Agency: Greenhouse Gas Emissions from a Typical Passenger Vehicle
[5] United States Environmental Protection Agency: Understanding Global Warming Potentials

### 2.1.2 Emission Trends and Projections

- **$CO_2$ emissions** from transport sector in India increased from 221,202 Gigagrams of carbon dioxide ($GgCO_2$) in 2011 to 297,371 $GgCO_2$ in 2020 with consistent share in total emissions from transport sector[6]. Further, as per study on India Transport Energy Outlook by Council on Energy, Environment and Water (CEEW), vehicle wise carbon emissions in 2020 is as follows[7]:

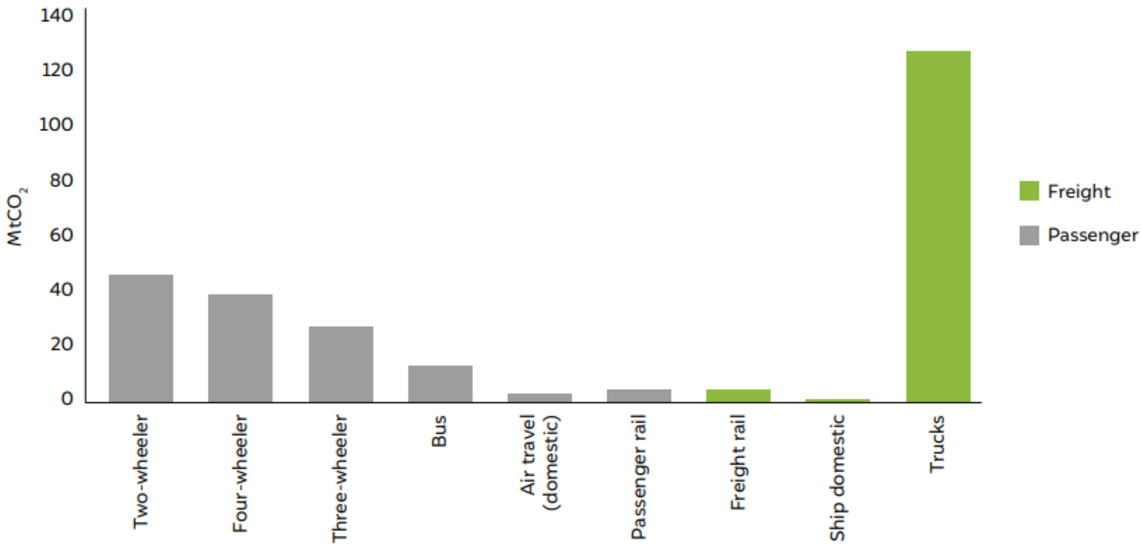



Figure 2.1: Carbon Emissions produced by the Transport Sector in 2020

- **Vehicle population:** Grew from 67 million in 2003 to over 335 million[8] in March 2021.
- **Energy demand:** Road Transport sector in India[9] utilises 19.62 *per cent* of Natural Gas and 77.80 *per cent* of high speed diesel in 2023-24.

If current trends persist, **road transport emissions[10] in India could reach 560 million tonnes by 2040**.

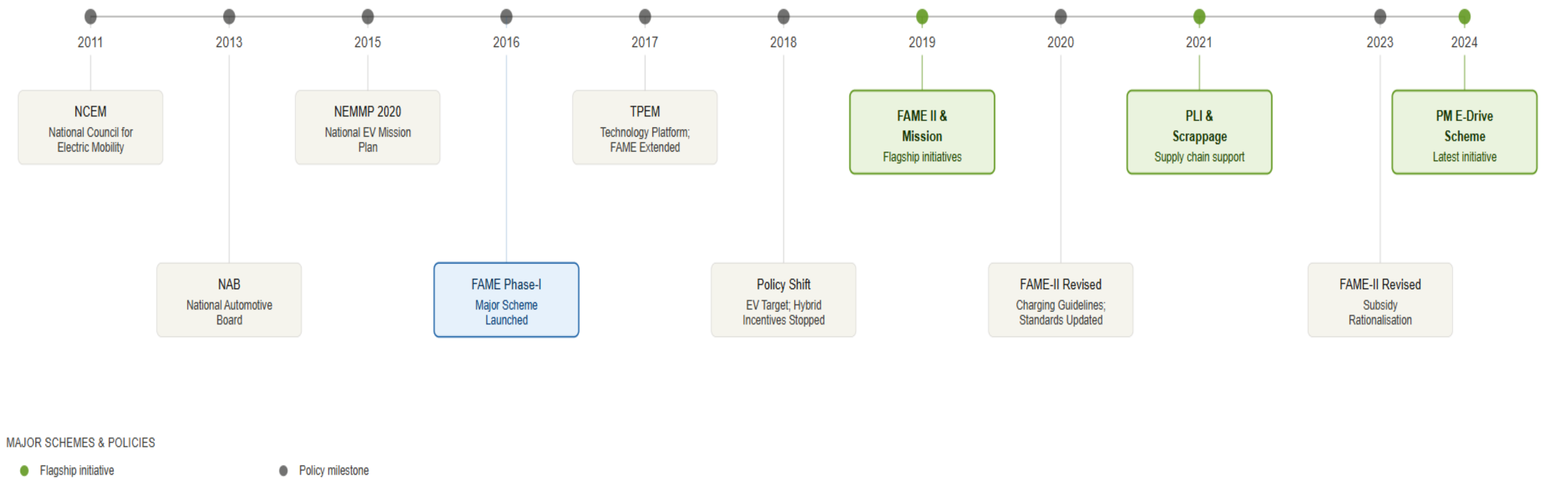
[6] Energy Statistics 2025
[7] CEEW: India Transport Energy Outlook
[8] Ministry of Road Transport and Highways, Annual Report:2024-25
[9] Energy Statistics 2025
[10] IEA and NITI Aayog: Transitioning India's Road Transport Sector

# Chapter 3: Transforming the Transport Sector through the FAME Scheme

India’s quest for a sustainable, low-carbon future is inseparable from the transformation of its transport sector. The transport sector accounts for nearly 12% of the nation’s $CO_2$ emissions[11].

Recognizing this, the Government of India launched a policy innovation: the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME) scheme. Introduced in 2015 under the National Electric Mobility Mission Plan (NEMMP), FAME was envisioned[12] as a transformative lever to address the twin crises of rising vehicular emissions and growing fossil fuel dependency.

**Figure 3.1: India’s Electric Mobility Policy Timeline**




### 3.1 The Vision and Objectives of FAME I and II.

The scheme’s objectives are fourfold[13]:

1. **Accelerate the adoption of electric and hybrid vehicles (EVs and HEVs)** in both public and private domains, making clean mobility accessible to the masses.
2. **Reduce India’s chronic dependence on imported fossil fuels** and curb vehicular greenhouse gas emissions, thus improving energy security and air quality.

[11] IEA and NITI Aayog: Transitioning India's Road Transport Sector
[12] PIB: FAME India Scheme
[13] PIB: NEMMP and FAME Scheme

3. **Develop robust domestic manufacturing capabilities** for EVs, advanced batteries, and critical components, positioning India as a global hub for clean mobility technology.
4. **Create demand and build infrastructure** for sustainable mobility solutions, from charging networks to battery recycling, thus nurturing an entire ecosystem.
5. **For reduction of vehicular emissions** by transitioning from traditional vehicles to electric vehicles which contribute to air pollution levels of the country.

### 3.2 FAME I (2015–2019): Laying the Groundwork

The scheme[14] was launched initially for two years with a budget of ₹795 crore and later extended till 31 March 2019 with additional outlay of ₹100 crore, increasing sanctioned outlay to ₹895 crore.

The first phase of FAME was about building confidence and laying the foundation for an electric mobility revolution. FAME I focused on four pillars: demand incentives, pilot projects, charging infrastructure, and technology development[15].

The benefits envisaged were –

- Reducing purchasing cost to customers so they are encouraged to adopt newer model of transportation.
- Grants were sanctioned to encourage research, pilot projects, develop charging infrastructure.

#### 3.2.1 Key Outcomes[16]:

- **2.8 lakh vehicles received incentives**, spanning electric two-wheelers, three-wheelers, cars, and buses. The demand incentive provided for this stood at ₹359 crore.
- **425 electric and hybrid buses** were deployed across the country with incentive of ₹280 crore.
- **520 charging stations** sanctioned with for a cost of ₹43 crore, seeding the first public EV charging networks.
- ₹158 crore was sanctioned for **research and development** for regular technological upgradation.

[14] PIB: FAME India Scheme
[15] Ministry of Heavy Industries: Lok Sabha Reply 19 December 2023
[16] PIB: Schemes for accelerating the adoption of electric vehicles

Despite these pioneering steps, FAME I faced challenges[17]. Public awareness remained low, the high upfront cost of EVs deterred buyers, and the charging infrastructure was patchy and often unreliable, outcome of key parameters of fuel savings remained below target, industries remained cautious about fast developments. The scale of transformation required was quickly outpacing the initial policy design.

### 3.3 FAME II (2019–Present): Scaling Up for Impact

FAME II was launched[18] in 2019 with a five-year outlay of ₹10,000 crore (later revised[19] to ₹11,500 crore). This phase marked a strategic shift from pilots to mass adoption, with a sharper focus on public and shared transport-buses, three-wheelers, and two-wheelers.

FAME II was initially proposed for implementation[20] over 3 years upto 31 March 2022 with three verticals –

A. Demand Incentive will be available to consumers/ end users
B. Establishment of network of Charging Stations
C. Administration of Scheme including publicity, IEC (Information, Education and Communication) activities.

The Budgetary allocation identified was as follows:

**Table 3.1: Budgetary Allocation under FAME II**

| Sr. No | Component | 2019-20 | 2020-21 | 2021-22 | Requirement (₹ in crores) |
|---|---|---|---|---|---|
| 1 | Demand Incentives | 822 | 4587 | 3187 | 8596 |
| 2 | Charging Infrastructure | 300 | 400 | 300 | 1000 |
| 3 | Administrative Expenditure (incl. Publicity, IEC activities) | 12 | 13 | 13 | 38 |
| | **Total for FAME-II** | **1134** | **5000** | **3500** | **9634** |
| 4 | Committed Expenditure of Phase-I | 366 | 0 | 0 | 366 |
| | **Grand Total** | **1500** | **5000** | **3500** | **10000** |

[17] Department of Heavy Industries, Lok Sabha Answer dated 9 July 2019
[18] Department of Heavy Industries: FAME II
[19] Ministry of Heavy Industries: Lok Sabha Reply dated 18 March 2025
[20] Ministry of Heavy Industries: Lok Sabha Reply dated 29 March 2022

### 3.3.1 Key Features of FAME II:

- Incentives linked to battery capacity (₹10,000–₹15,000 per kWh), making EVs more affordable[21] for both commercial and private users.
- Ambitious targets**:** Support[22] for 7,090 electric buses, 5 lakh e-three-wheelers, 55,000 e-four-wheeler passenger cars, and 10 lakh e-two-wheelers.
- Charging infrastructure**:** Sanction of 2,877 charging stations across 68 cities, across 25 States/UTs. Further, 1576 charging stations[23] were sanctioned for 9 Expressways and 16 Highways.
- Localization drive**:** The Phased Manufacturing Program (PMP) mandates[24] increasing domestic content, spurring Indian industry to invest in battery, motor, and controller manufacturing.
- **Demand incentive** – Provides demand incentive[25] to the consumers (buyers/end users) in the form of an upfront reduced purchase price of hybrid and electric vehicles to enable wider adoption, which will be reimbursed to the Original Equipment Manufacturers (OEMs) by Government of India. The details of vehicle segment wise incentives is also indicated in Table 3.2 below

Further, vehicle segment wise approximate amount of incentives, initial target number of vehicles and other details are as follows:

**Table 3.2: Vehicle Segment wise incentives and targets - Department of Heavy Industries (DHI)**

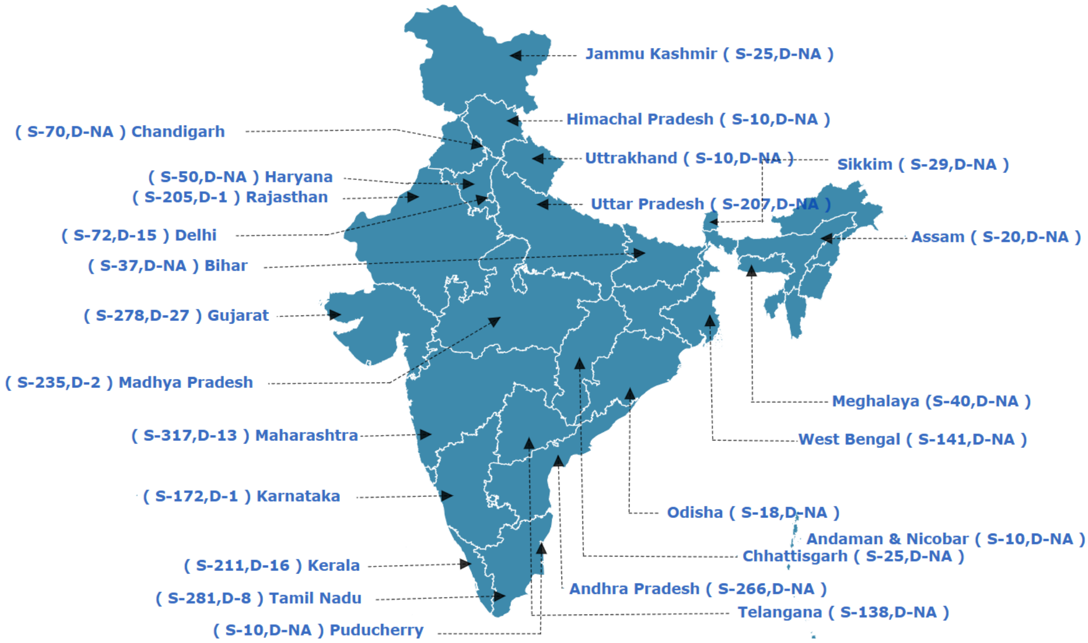
| Sr. No | Vehicle Segment | Max. No. of Vehicles to be Supported | Approx. Battery Size (kWh) | Incentive @ ₹10,000/ kWh and 20000/kWh for Buses and Trucks | Ex-Factory Price (Approx.) | Total Fund to be Availed from DHI |
|---|---|---|---|---|---|---|
| 1 | Registered e-2 Wheelers | 10,00,000 | 2 KWh | ₹20,000 | ₹1.5 Lakh | ₹2,000 Cr |
| 2 | Registered e-3 Wheelers (incl. e-Rikshaws) | 5,00,000 | 5 KWh | ₹50,000 | ₹5 Lakh | ₹2,500 Cr |

21 PIB: Ministry of Heavy Industries
22 Ministry of Heavy Industries: Lok Sabha Reply dated 12 December 2023
23 PIB: Ministry of Heavy industries sanctions 520 Charging Stations under the Phase-I of FAME India Scheme
24 Ministry of Heavy Industries Order dated 13 May 2020
25 Ministry of Heavy Industries: Lok Sabha Reply dated 29 March 2022

| Sr. No | Vehicle Segment | Max. No. of Vehicles to be Supported | Approx. Battery Size (kWh) | Incentive @ ₹10,000/ kWh and 20000/kWh for Buses and Trucks | Ex-Factory Price (Approx.) | Total Fund to be Availed from DHI |
|---|---|---|---|---|---|---|
| 3 | e-4 Wheelers | 35,000 | 15 KWh | ₹1,50,000 | ₹15 Lakh | ₹525 Cr |
| 4 | 4W Strong Hybrid Vehicles | 20,000 | 1.3 KWh | ₹13,000 | ₹15 Lakh | ₹26 Cr |
| 5 | e-Buses | 7,090 | 250 KWh | ₹50 Lakhs | ₹2 Crore | ₹3,545 Cr |
| | **Total Demand Incentive** | | | | | **₹8,596 Cr** |

**Figure 3.2: State Wise EV Charging Stations Sanctioned and Deployed**

(Source: Ministry of Heavy Industries Dashboard)




## 3.4 Impact in Numbers (as of 2024):

- Under the scheme incentives were provided[26] for more than 14 lakh 2 wheelers, 1.6 lakh 3 wheelers and 22 thousand 4 wheelers with total demand incentive of ₹6,559 crore.
- 5,165 electric buses were incentivised[27] under this scheme.

[26] Ministry of Heavy Industries Lok Sabha Answer dated 5 August 2025
[27] Ministry of Heavy Industries: Lok Sabha Reply dated 18 March 2025

- As per Bureau of Energy Efficiency[28], in 2022-23, thermal energy saving from FAME was 0.14 million ton oil equivalent and GHG emission reduction stood at 0.53 $MtCO_2$.

### 3.5 Technical Innovations and Ecosystem Development

FAME has catalyzed a wave of technical innovation[29] and ecosystem building:

- **Battery Technology:** Indian manufacturers have rapidly improved lithium-ion battery energy density, while pilot projects in battery swapping for two wheelers have made commercial EV operations more viable.

- Charging Solutions**:** The rollout of Bharat DC-001 and CCS-II standards[30] (15 kW and 50 kW) has enabled both slow and fast charging, while solar-powered stations are being piloted in cities like Jaipur and Pune.

- **Indigenous R&D:** Institutes like Automotive Research Association of India (ARAI) set up under the Ministry of Heavy Industries and IITs have developed indigenous battery management systems (BMS), power electronics, and vehicle telematics, reducing reliance on imports and boosting local value addition.

As per the Ministry of Heavy Industries, under FAME – II, since 1 April 2019 to 31 March 2024 a total of 16.71 lakh electric vehicles[31] have been sold. The state wise details of the electric vehicles sold under FAME II scheme from April 2019 to March 2024 is detailed under the *Annexure I*. NITI Aayog in May 2022 published "Promoting Clean Energy Usage Through Accelerated Localization of E-Mobility Value Chain" projected[32] the overall EV adoption at 10-12% of annual sales by FY26 and 30-35% by FY30.

[28] BEE: Impact of Energy Efficiency Measures Report 2022-23
[29] Ministry of Power: India's EV Digest 2023
[30] Bharat DC001 is indigenously developed compact slow / moderate charging station as per MoP guidelines for Electric vehicles. The Combined Charging System (CCS-II) is a European protocol for charging e-4W and heavy-duty electric vehicles, allowing high power DC fast charging.
[31] Ministry of Heavy Industries Lok Sabha Answer dated 25 March 2025
[32] NITI Aayog: "Promoting Clean Energy Usage Through Accelerated Localization of E-Mobility Value Chain"

# Chapter 4: Assessing the Impact of FAME on Emissions, Mobility, and Adoption along with comparison with other countries

Electric vehicles (EVs) have emerged as a cornerstone of global strategies to decarbonize transport. India, with its vast population and growing mobility needs, has made strides in EV adoption, supported by government schemes like FAME I & II and state-level policies. This chapter reviews India's performance in EV adoption across different vehicle segments, penetration levels, and infrastructure availability.

### 4.1 Adoption of EVs in India

While electric vehicles still represent a relatively small fraction of new vehicle registrations, their growth trajectory is striking. In 2019–20, EVs made up just 0.71% of total registrations nationwide; by 2024–25, their share soared to 7.81%. In this short span, annual EV registrations went from 173,596 to over 2 million, showing a momentum driven by innovative government incentives, increased public awareness, and the collective push for cleaner air in cities.

**Table 4.1: Progress of electric vehicles under FAME-II**

| Year | EV Registrations | Non-EV Registrations | Total Registrations | EV Share (%) |
|---|---|---|---|---|
| 2019–20 | 173,596 | 24,418,858 | 24,592,454 | 0.71 |
| 2020–21 | 142,362 | 17,378,662 | 17,521,024 | 0.81 |
| 2021–22 | 459,030 | 17,983,520 | 18,442,550 | 2.49 |
| 2022–23 | 1,183,330 | 21,146,005 | 22,329,335 | 5.30 |
| 2023–24 | 1,683,009 | 22,955,477 | 24,638,486 | 6.83 |
| 2024-25 | 2,050,902 | 24,200,749 | 26,251,651 | 7.81 |
| **Total** | **5,692,229** | **128,083,271** | **133,775,500** | **4.26** |

As per VAHAN Portal[33], from 2019-24, 16.71 lakh electric vehicles were sold under the FAME-II Scheme. While during the same period the total electric vehicles sold stood at 36.41 lakh. This growth in sale of electric vehicles shows the growth of electric vehicles market beyond the FAME scheme. Further, the details of state wise registration of vehicles from 2019-20 to 2024-25 as on August 2025 is shown in *Annexure II*.

From 2019 to 2025, a total of 56.92 lakh electric vehicles were registered in India. When the FAME-II was launched in 2019, the financial year recorded sale of 1.74 lakh electric vehicles which increased to 20.51 lakh in financial year 2024-25 accounting growth of 11.79 times in 6 years.

Out of 35 states and union territories, 5 states which contributed most to electric vehicle adoption are Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Rajasthan having more than 50% contribution.

Himachal Pradesh, Manipur, Meghalaya, Mizoram, Daman and Diu, Andaman and Nicobar Islands, Arunachal Pradesh, Ladakh, Nagaland, Lakshadweep, and Sikkim have shown slow progress in adoption of electric vehicles. These states accounted less than 10000 registered electric vehicles during last six years. Further, the details of state wise share of electric vehicles in total registered vehicles during 2019-20 to 2024-25 are shown in Annexure III.

The national average during the scheme period i.e., 2019-20 to 2024-25 was 4.26 *per cent.* Out of 35 states and union territories, 24 were below national average. The top five states and union territories which had higher share of electric vehicles registration during 2019-20 to 2024-25 are Tripura, Delhi (NCR), Goa, Chandigarh, and Assam.

**4.2 Growth in installation of charging station**

Government of India allocated ₹839 crore out of which ₹633.44 crore have been utilized during the last five years with ₹560 crore spent during 2022-23 only. Further, as on 1 March 2025 under FAME 6,027 Electric Vehicle Public Charging Stations (EVPCS) have been installed[34] out of which 5,817 were installed by Oil Marketing Companies.

[33] VAHAN Portal as on August 2025
[34] Ministry of Heavy Industries Lok Sabha Reply dated 1 April 2025

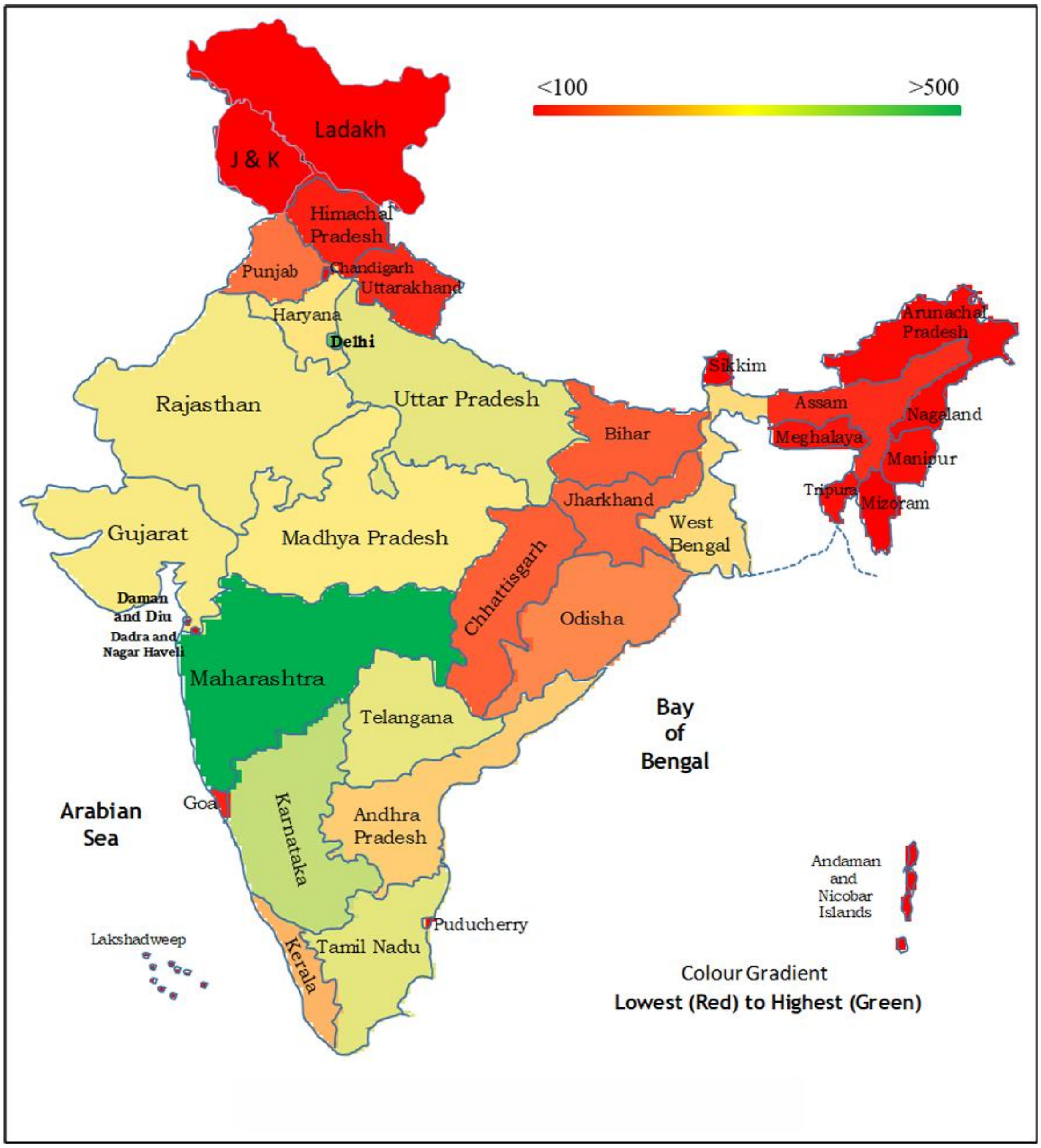



**Figure 4.1: Heatmap of operation Public Charging Stations in India as on 31 October 2023**
(Source - Ministry of Power: India's EV Digest 2023)

As per India's EV Digest 2023 of the Ministry of Power, the Southern part of the country has higher density of public electric vehicle charging stations when compared to eastern and northern part of the country (Figure 4.1).

India's EV charging network is growing rapidly, with more slow and fast chargers being installed across the country. Slow AC chargers are commonly used at homes and offices where vehicles are parked for longer durations, while fast chargers are mainly set up at public charging stations for quicker top-ups. The state-wise distribution of fast and slow EV charging station deployments as per Ministry of Power (Figure 4.2), shows that only a few states such as Maharashtra, Delhi, Gujarat, Haryana, Karnataka, Kerala, Rajasthan, Tamil Nadu, Telangana, and Uttar Pradesh have more than 500 charging stations (both fast and slow).

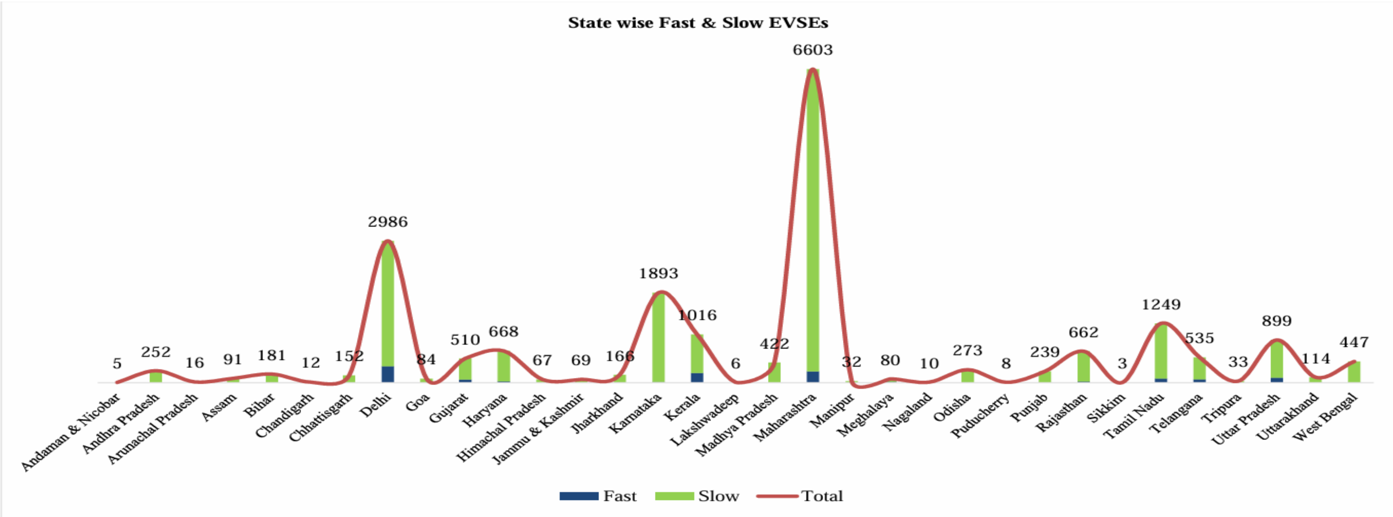



**Figure 4.2: State Wise Fast and Slow EV Charging Station deployment**
(Source: Ministry of Power: India's EV Digest 2023)

**Delhi NCR: Pioneering Electric Public Transport**
The Delhi Electric Vehicle Policy, 2020 aims to make Delhi a leading hub for electric mobility by promoting widespread EV adoption across key segments. It targets around 25% of new vehicle registrations as EVs and focuses on reducing air pollution from the transport sector. The policy offers financial incentives, tax exemptions, and supports the development of charging infrastructure. It also emphasizes ecosystem development through skill creation, battery management, and institutional support.(Source: Delhi Electric Vehicles Policy, 2020)

- **Over 1,000 electric buses now ply Delhi's streets**, reducing both noise and particulate pollution.
- **1,900+ public charging points** have been installed, including fast chargers at key bus depots and metro stations.
- The city's zero-registration fee for EVs and additional state subsidies have made electric two-wheelers and e-rickshaws increasingly popular, especially among delivery workers and commuters.

**Maharashtra: Manufacturing and Market Leadership**

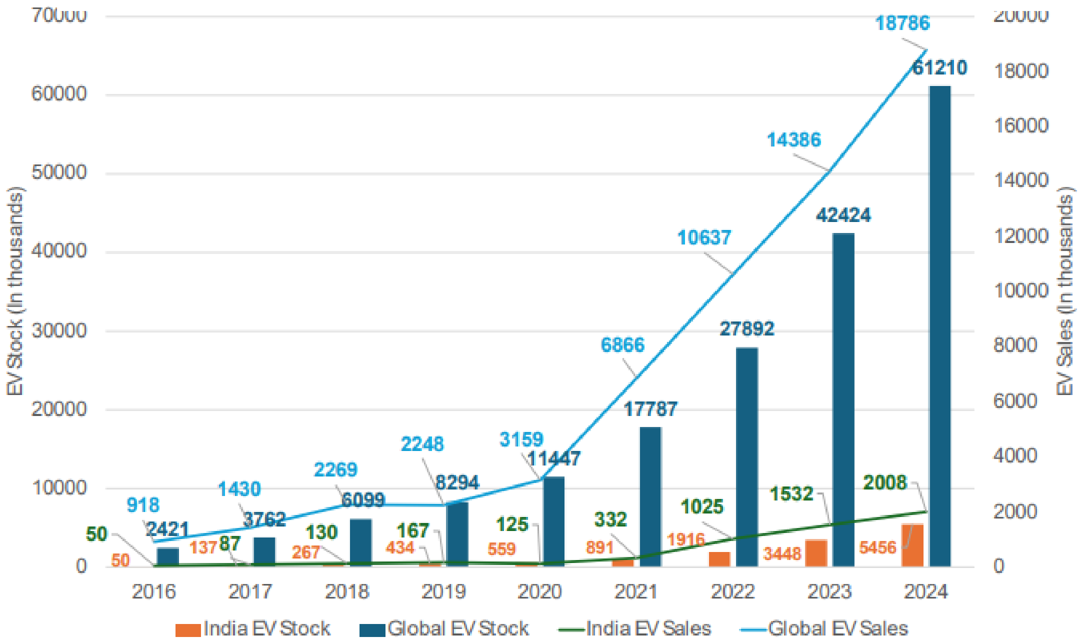
The Maharashtra Electric Vehicle Policy, 2021 aims to promote clean and sustainable mobility while positioning the state as a leading hub for EV adoption and manufacturing. It targets achieving around 10% EV share in new vehicle registrations and 25% electrification of public transport by 2025. The policy provides demand incentives, tax exemptions, and supports charging infrastructure development. It also focuses on strengthening the EV ecosystem through manufacturing, innovation, and infrastructure expansion. Mumbai and Pune have seen a surge in e-2W and e-3W registrations, owing to both central and state subsidies. (Source: Maharashtra Electric Vehicle Policy, 2021)

- The state's EV policy offers capital subsidies for battery manufacturing, attracting investments from Tata AutoComp, Mahindra Electric, and several startups.
- **Pune's pilot of solar-powered charging stations is a model for integrating renewables with e-mobility.**

**4.3 Comparison of electric vehicle adoption in India with other countries –**

NITI Aayog in August 2025 released "Unlocking a $200 Billion Opportunity : Electric Vehicles in India[35]" which identified that in recent years, the global electric vehicle (EV) landscape has experienced remarkable growth. EV sales surged from 918,000 units in 2016 to an impressive 18.78 million in 2024. This explosive rise has fuelled a dramatic expansion in the worldwide EV fleet, which now numbers approximately 61.21 million vehicles as of 2024.

**Figure 4.3: EV Sales and EV Stock over the years (Global and India)**

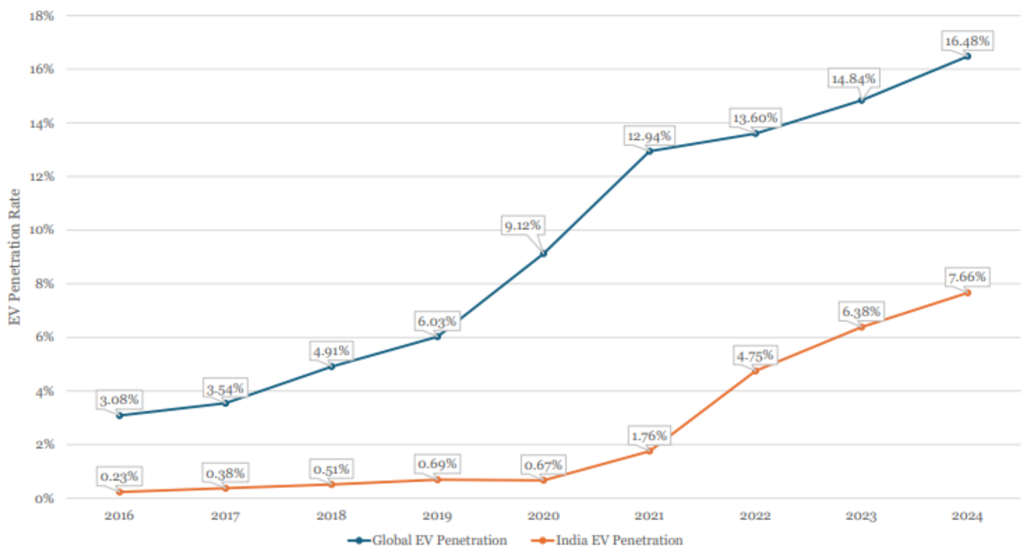



Source: 1) IEA Global EV Data Explorer for global data, 2) VAHAN Portal for India data

India's electric vehicle (EV) fleet has grown significantly, rising from just 50,000 vehicles in 2016 to nearly 5 million by 2024 (109 times increase). In contrast, the global EV stock soared from 2.4 million to an impressive 61 million (25 times) during the same period. In 2024 alone, India recorded approximately 2 million EV sales, while worldwide sales exceeded 18 million. In last 10 years from 2016 sales of EVs grew 40 times in India, which is higher than global growth of 20 times for the same period.

[35] NITI Aayog: August 2025

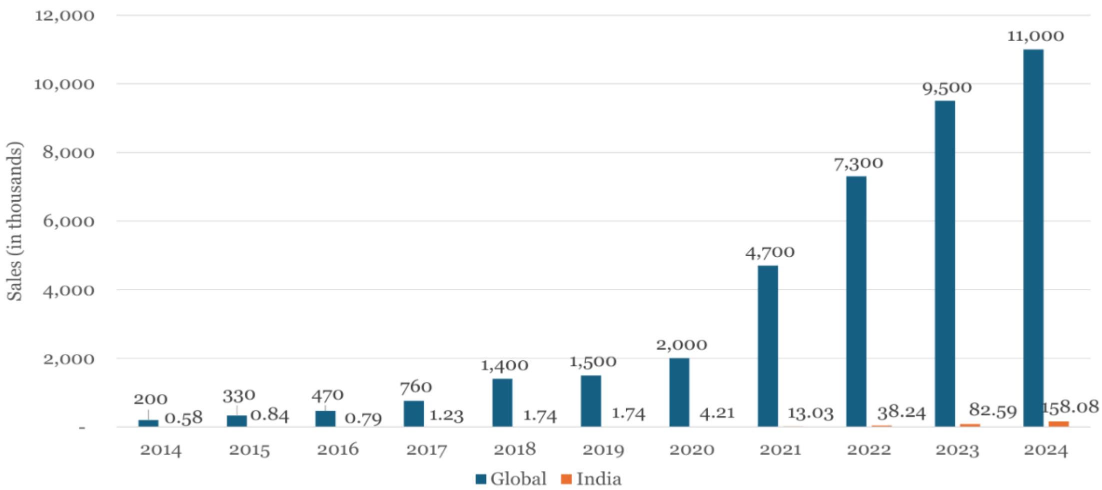
**Figure 4.4: EV Penetration Rate – Global and India**




Source: 1) IEA Global EV Data Explorer for global data, 2) VAHAN Portal for India data

Over the past decade, India has made tangible progress in electric vehicle penetration, with the share of EVs in the total vehicle market climbing from a mere 0.23% in 2016 to an encouraging 7.66% in 2024. While this growth is noteworthy, it still trails the global trajectory, where EV market penetration surged from 3% to more than 16% over the same period.

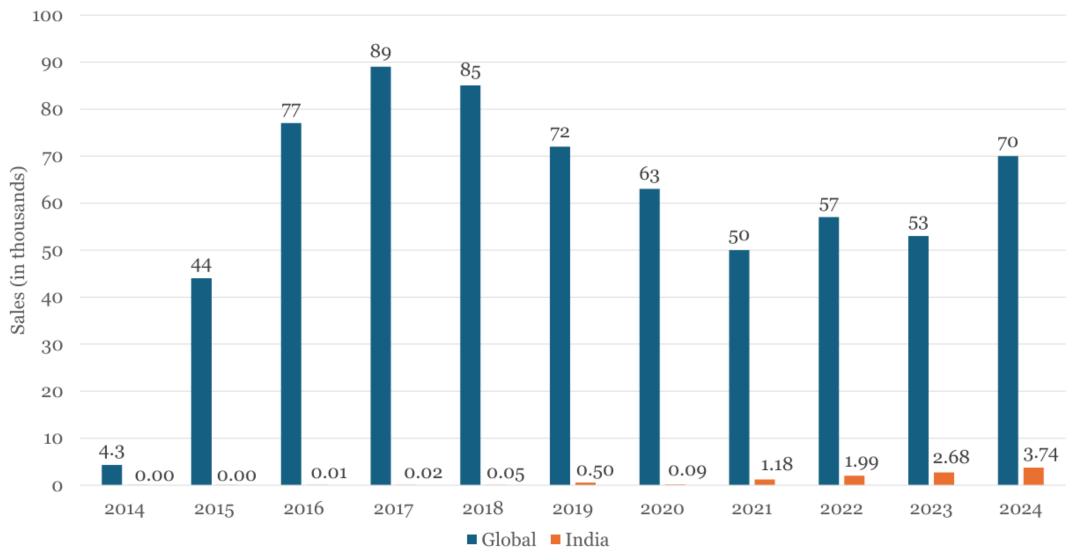
**Figure 4.5: E-4W Sales over the years (Global and India)**




Source: 1) IEA Global EV Data Explorer for global data, 2) VAHAN Portal for India data

Over the past decade, India's electric four-wheeler (E4W) market has seen a steady climb, with annual sales rising from just 580 vehicles in 2014 to 158 thousands in 2024. In sharp contrast, worldwide E4W sales soared from 200,000 units in 2014 to more than 11 million by 2024, underscoring the rapid pace of international adoption.

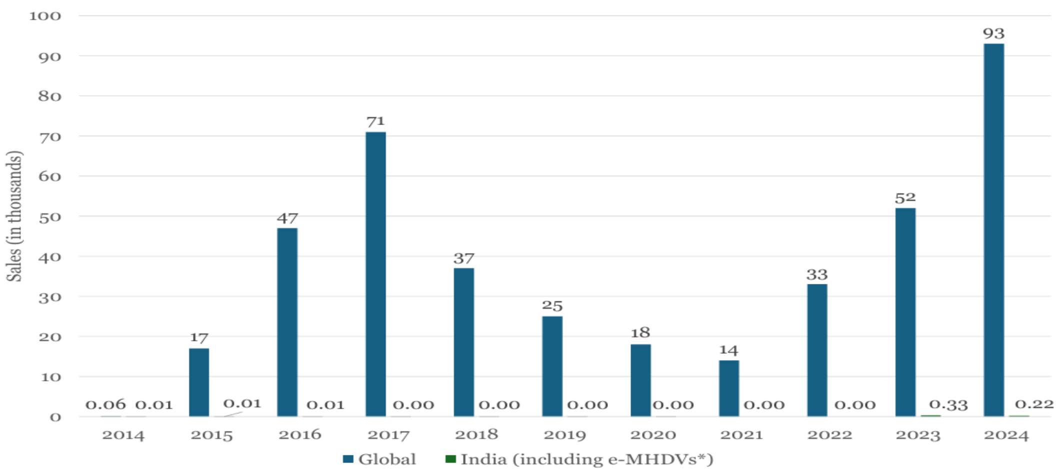
**Figure 4.6: E-Bus Sales over the years (Global and India)**




Source: 1) IEA Global EV Data Explorer for global data, 2) VAHAN Portal for India data

India's journey in electric buses began with less than 100 vehicles in 2016. By 2024, this number had grown substantially to nearly 4,000 electric buses, reflecting the nation's gradual embrace of cleaner public transport. Globally, the electric bus sales surged from 4,300 units in 2014 to an impressive 70,000 in 2024. This remarkable growth highlights the accelerating shift towards sustainable mobility worldwide.

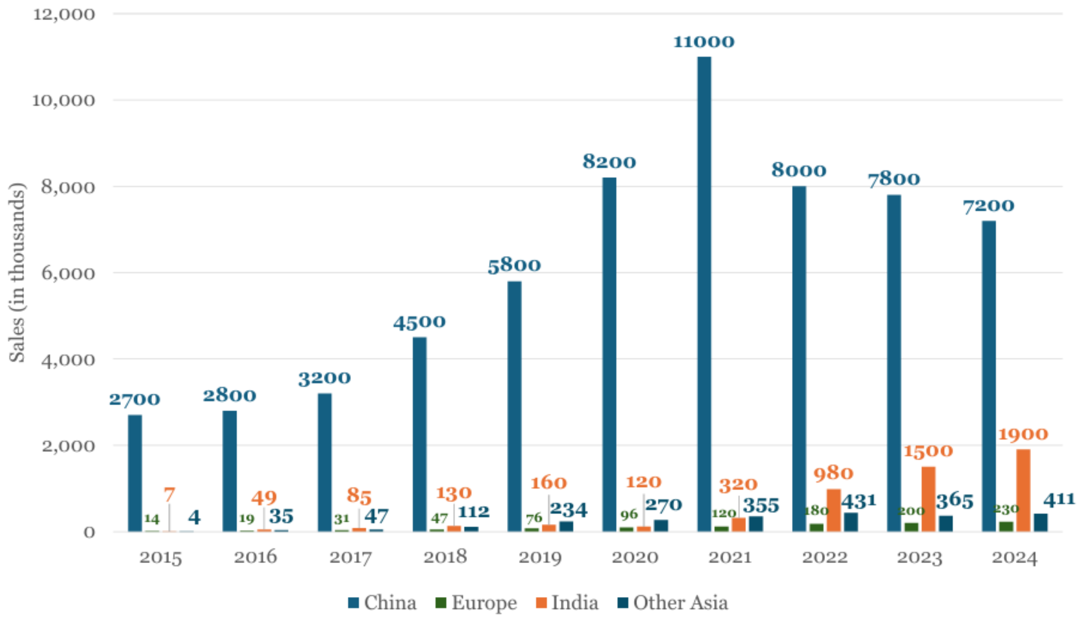
**Figure 4.7: E-Truck Sales over the years (Global and India)**




Source: 1) IEA Global EV Data Explorer for global data, 2) VAHAN Portal for India data

The freight decarbonization in India is still at a nascent stage. India recorded nearly 2200 e-trucks in 2024, compared to 76 thousand in China, 12 thousand in the EU, and 1.7 thousand in the US.

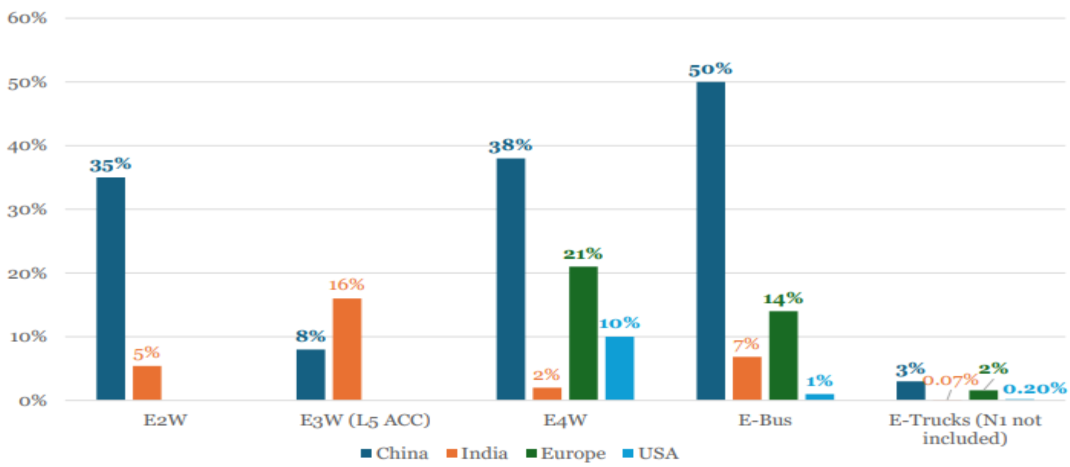
**Figure 4.8: Electric 2/3 wheeler Sales over the years (main 2/3 wheeler markets)**




Source: 1) IEA Global EV Data Explorer for international data, 2) VAHAN Portal for India data

India's distinctive strength shows up here. electric two-wheeler (E-2W)/ electric three-wheeler (E-3W) volumes have ramped up quickly from 7,000 (2015) to 1.9 million (2024) every year, although China remains vastly larger in absolute terms (millions annually). The review insight is that India's structure—short urban trips, price sensitivity, and ubiquitous two-/three-wheeler usage—naturally favours electrification in these formats. India is positioned to lead globally in e-3W and to build a sizeable e-2W market as costs fall further.

**Figure 4.9: EV penetration rate across China, India, Europe & US in different vehicle segments**



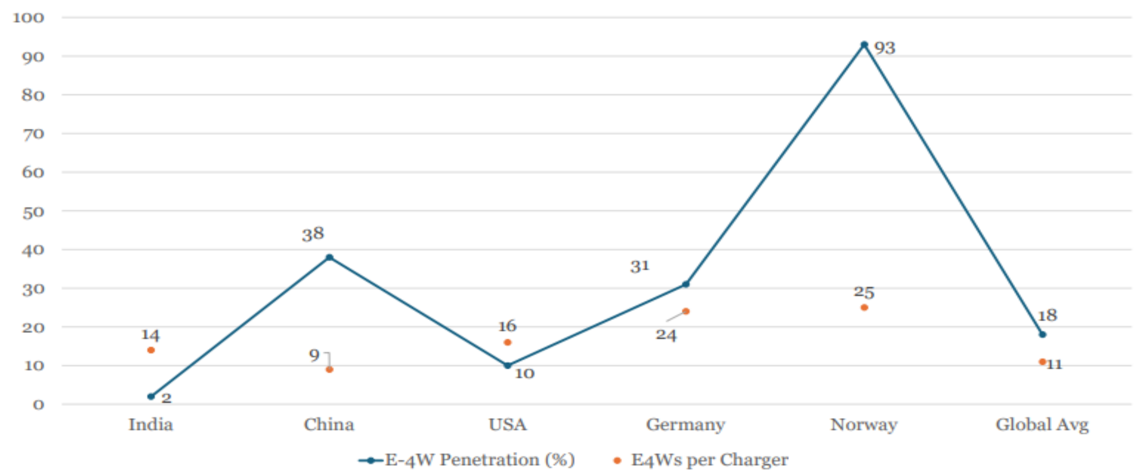

Source: 1) IEA Global EV Data Explorer for international data, 2) VAHAN Portal for India data

India is a global frontrunner in **e-3W penetration with 16% penetration**, ahead of China's 8%, while India is lagging in **e-2W with 5% penetration, China is leading in this segment with 35% penetration**.

In case of e-4W India has only 2% penetration while other global competitors like China, Europe, and USA are leading in this segment by 38%, 21%, and 10% penetration respectively.

China, Europe and USA are having 50%, 14% and 1% penetration in the segment of e-**buses** while India had penetration of 7%.

**Figure 4.10: Charging infrastructure availability Vs 4W EV penetration (2024)**




Source: 1) IEA Global EV Data Explorer for global data, 2) CPO consultation for India

Infrastructure density aligns with penetration outcomes. India shows **2% E-4W penetration** and about **14 cars per EVs charging station**, which is similar to the US (16 EVs/charger) but behind China (9 EVs/charger) where adoption is highest. India's current charger-to-vehicle ratio is not better than the global average, but given its low penetration, the network is thin relative to the growth ambition. Faster roll-out of reliable, well-located DC fast charging—and grid readiness to back it—will be pivotal for scaling four-wheeler uptake.

# Chapter 5: Challenges in the Implementation and Scaling of FAME

India's Faster Adoption and Manufacturing of Electric Vehicles (FAME) programme has been the centrepiece of the country's demand-side push for e-mobility since 2015 and, in its second phase (FAME-II), from April 1, 2019 through March 31, 2024. FAME-II earmarked the bulk of funds for demand incentives across e-2W, e-3W, e-4W, and large public-transport deployments such as e-buses, with a parallel window for public charging infrastructure. In design, it sought to catalyse domestic manufacturing through localisation conditions while creating early demand at scale—an ambitious dual mandate that few large emerging economies attempted. In practice, implementation has been uneven: strong early traction in two- and three-wheelers, meaningful bus procurements, but persistent friction around policy continuity, compliance, disbursal, and infrastructure readiness. These frictions became more visible as FAME-II closed on March 31, 2024 and the government bridged the short-term gap with a smaller, time-bound Electric Mobility Promotion Scheme (EMPS) 2024 focused on e-2W and e-3W. The major challenges[36] faced are as follows:

1. **Charging Infrastructure Development Gaps** – As we have seen earlier that India has only 14 electric vehicles per charger against the global average of 11 electric vehicle per charger. This gap discourages general public in adoption of electric vehicles as it poses challenges in long distance travelling. Further, against ₹839 crore allocated[37] for charging infrastructure under FAME only ₹633 crore was utilised leaving 25 *per cent* fund unutilised. The installation of charging stations under FAME differs from state to state with Tamil Nadu, Andhra Pradesh, Maharashtra, Gujarat, Karnataka, Rajasthan and UP having 59 *per cent* of stations. This difference may cause slower adoption of electric vehicles in other states.
2. **Component Localization Requirements and Supply Chain Constraints** – FAME II promotes indigenous sourcing/ manufacturing of electric vehicles which includes assemblies, sub-assemblies, parts, sub-parts, inputs of the sub assembly. The dependency on imports for advanced batteries, semiconductors, and rare earth magnets creates supply chain vulnerabilities and cost escalations. The enforcement of localization norms has

[36] Parliamentary Standing Committee on Industry, 324th Report on Promotion of Electric Vehicles in the Country
[37] Ministry of Heavy Industries Lok Sabha Reply dated 1 April 2025

resulted in penalties for several EV manufacturers[38] who violated these requirements, leading to subsidy recovery demands and market disruptions. Small and medium EV manufacturers have been particularly affected, with some experiencing sales collapses following FAME II crackdowns.

3. **Policy continuity and predictability** – Parliamentary Standing Committee on Industry presented 324th report on Promotion of Electric Vehicles in the Country in December 2024 in which it was pointed out that initial targets were revised to reduce the number of vehicles supported under the FAME II. The Committee informed that initial target was for supporting 55000 e-4 wheelers which was reduced to 11000. Further, subsidy for e-2wheelers was also reduced with effect from 1 June 2023 which had negative impact on their sales. The committee opined that there were frequent changes in policies relating to electric vehicles which created uncertainties in the market.
4. **Administrative complexity in large public-transport procurements** – FAME-II supported thousands of e-buses through demand aggregation and gross cost contract (GCC) models, yet states and city transport undertakings faced tendering delays, viability gap concerns, payment-security issues, and capacity constraints in contract management. Even where buses were sanctioned, depot electrification, power connection upgrades, and fleet scheduling for range and charging windows required coordination across agencies. The result was a pipeline that looked impressive on paper but converted to deployments more slowly than expected, diluting near-term emissions gains and eroding operator confidence. Central repositories show repeated sanction rounds for buses and charging stations since 2019–20, but translating sanctions into commissioned assets remains a grind in many cities.
5. **Coordination challenges between centre, states, and utilities** – While many states issued EV policies with their own incentives, the stack of benefits is not always predictable at the consumer's point of sale. Differences in registration rules, road-tax waivers, and permit frameworks for commercial three-wheelers create a patchwork that OEMs and financiers must navigate city by city. On the power side, EV-specific tariffs, time-of-day pricing, and dedicated feeder or connection norms vary widely; where tariffs are high or paperwork heavy, chargers under-perform or stall altogether. These frictions multiply for interstate freight pilots and highway fast-charging, where a seamless experience is crucial for adoption.

[38] Economic Times: Article on Smaller EV players nearly wiped out as FAME-II crackdown triggers sales collapse

6. **Supply-chain depth and standards adoption** – FAME-linked localisation aimed to grow domestic value addition, but cell manufacturing remains nascent and dependent on parallel schemes (such as Production-Linked Incentives) that operate on different clocks. This sequencing gap—demand incentives today, deep localisation tomorrow—can squeeze OEM margins and limit model variety in price bands that matter for scale. Simultaneously, rapid updates to safety and performance norms (e.g., for battery packs and thermal safety) are essential but require test-capacity expansion and predictable certification timelines to avoid launch bottlenecks.
7. **Charging infrastructure shortfall** – Government of India set a target of 22,000 fast chargers, but only 7,432 (mostly CCS-2 type) have been sanctioned under FAME II so far. This large gap in charging-station deployment was highlighted as a concern. In sum, the Departmental Standing Committee saw a need for careful subsidy allocation and additional funding to meet the Scheme's goals (e.g. by extending the Scheme's duration and enlarging its scope). Further the Committee identified that FAME-II subsidies for charging stations are paid only to PSUs/Ministries (e.g. oil companies) for specified sites which cause slower progress for charging infrastructure.
8. **Consumer awareness and adoption barriers** – Consumer perception is a major hurdle. While many people who are environmentally conscious consider switching to electric vehicles, however, there is still a large section of population which is not switching to electric vehicles for multiple reasons such as high upfront cost, range anxiety, lower electric vehicle adaption level, lower trust in current technology, fast developing battery technologies etc.

# Chapter 6: Positioning FAME within India's Broader Green and Net Zero Vision

India's commitment to achieve **Net Zero emissions by 2070**, announced at COP26 in Glasgow in 2021, has fundamentally reframed the role of every policy instrument in the energy and mobility space. Among these, the **Faster Adoption and Manufacturing of Electric Vehicles (FAME)** scheme occupies a strategic position as both a demand accelerator and a manufacturing enabler in the country's decarbonisation journey. While its immediate function is to incentivise EV adoption, FAME's long-term relevance lies in how it aligns with India's broader **green growth** agenda and supports the deep structural transitions required to move toward Net Zero.

Even as India's industries and buildings grow more energy-efficient, the transport sector continues to pose stubborn challenges for emissions reduction. Road transport stands out as a major contributor to India's carbon footprint[39]—trucks, which make up just 3% of the nation's vehicles, are responsible for a staggering 34% of road-based $CO_2$ emissions. Similarly, buses, representing less than 1% of the fleet, account for 15% of $CO_2$ emissions, according to official government sources.


According to the Bureau of Energy Efficiency's latest assessment[40], the vehicles sold under FAME between 2018 and 2022 resulted in savings of around 0.042 million tonnes of oil

[39] PIB: Wheels of Change: India's Electric Leap for Green Mobility
[40] BEE: Impact of Energy Efficiency Measures Report 2022-23

equivalent in 2021–22, which translates into 0.269 million tonnes of $CO_2$ emissions avoided. At first glance, these figures might seem modest compared to the hundreds of millions of tonnes saved by industry, but they signal an encouraging shift. Every time an electric two- or three-wheeler or bus takes to the road, it's a real, daily step towards cleaner air and lower emissions. With India's power sector becoming greener [41]with having over 253.96 GW of renewable energy installed capacity by 2025—the environmental benefit is even greater. Today, an electric vehicle in India can cut its carbon footprint by about half compared to its diesel counterpart. By working hand in hand with a cleaner grid, FAME is truly accelerating the transformation of India's transport sector towards a low-carbon future.

FAME is not working in a vacuum—it is part of a much larger, interconnected effort to build a greener India. For example, industrial initiatives like the PAT scheme challenge factories and power plants to use energy more efficiently. Every rupee saved on electricity in these plants means less $CO_2$ released by the grid, which now powers your electric vehicle—a small win that adds up across the nation. Similarly, lighting programmes such as UJALA have freed up electricity by moving households and businesses to energy-saving LED bulbs. This extra power can now be directed towards charging electric vehicles, without the need to burn more coal. The story of UJALA offers a powerful lesson: when one sector becomes more efficient, it opens up "carbon space" for growth in others.

India's push for a "green industry" fits seamlessly into this bigger picture. Production-Linked Incentive (PLI) schemes are a case in point. The ₹25,938 crore PLI for Auto & Auto-Component, launched in 2021, has already attracted commitments of ₹29,576 crore for setting up EV and component factories[42] across the country. Likewise, a separate PLI[43] for Advanced Chemistry Cell batteries promises ₹18,100 crore for reaching a 50 GWh battery manufacturing target, laying the foundation for home-grown battery plants. These industrial policies do more than just boost the number of electric vehicles on Indian roads—they help ensure that more of those vehicles and their parts are made right here in India.

What emerges is a virtuous cycle: incentives from schemes like FAME drive up the demand for electric vehicles, while supply-side policies like PLIs and local content rules nurture a

[41] PIB: Ministry of New and Renewable Energy
[42] PIB: PLI Scheme for Automobile & Auto Components Driving Investments, Employment, and Growth
[43] National Programme on Advanced Chemistry Cell (ACC) Battery Storage

robust domestic EV ecosystem. Together, they are building a future where clean vehicles are made in India, for India—and for the world.

FAME does more than just encourage electric vehicles; it amplifies the success of India's wider climate efforts. The PM-E DRIVE and PM-eBus Sewa initiatives, which build on FAME's momentum to bring electrification to heavy vehicles—directly addressing pollution from trucks and buses. Together, these programmes are moving India's people and goods towards a cleaner, greener tomorrow.

Thus, in India's grand plan for net zero, FAME is the turning of the wheel – literally and figuratively. It complements industrial schemes like PAT, consumer programs like UJALA, and building codes like ECBC by attacking emissions in the transport sector. It meshes with "Make in India" and PLI efforts to green our factories. And it synergizes with renewable expansion (500 GW by 2030) to ensure that clean electrons, not coal, power mobility.

# Chapter 7: Auditing the FAME Scheme — Frameworks, Focus Areas, and Findings

The **Faster Adoption and Manufacturing of Electric Vehicles (FAME)** scheme, since its inception in 2015, has been one of India's flagship interventions for accelerating sustainable mobility. However, given its fiscal magnitude, market impact, and relevance to India's **Net Zero trajectory**, the scheme is not only a policy initiative but also a **public accountability concern**. This makes systematic **auditing of FAME** critical—both to ensure compliance and to assess whether public resources are delivering intended outcomes.

This chapter outlines the **audit frameworks, focus areas, and indicative findings** that emerge from reviewing FAME, while situating it within the broader traditions of **public sector auditing** in India.

**1. Auditing Framework for FAME**

Auditing the FAME scheme requires a multi-dimensional lens that goes beyond financial propriety into performance and compliance. Three interlinked frameworks are most relevant:

A. **Financial Audit** – verifying the correctness of expenditure, subsidy disbursements, and fund flows from the Ministry of Heavy Industries (MHI) to implementing agencies and OEMs.

B. **Compliance Audit** – assessing adherence to scheme guidelines, such as **localisation requirements**, beneficiary eligibility, and reporting obligations by manufacturers and charge-point operators.

C. **Performance Audit** – evaluating whether FAME has achieved its intended objectives in terms of **EV adoption, emission reduction, and domestic manufacturing growth**.

Audit can typically combine these frameworks, supported by risk-based sampling, beneficiary surveys, and triangulation of administrative records with market outcomes.

**2. Auditable Focus Areas**

A review of FAME's structure and implementation highlights specific areas of audit relevance:

**a) Demand Incentives**

- Verification of subsidies disbursed to Original Equipment Manufacturers (OEMs).
- Checking whether vehicles sold under FAME met eligibility norms (e.g., battery size, localisation, range).

- Ensuring timely transfer of benefits to end-users, avoiding over-invoicing or duplicate claims.

**b) Localisation and Manufacturing Targets**

- Assessing compliance with phased localisation requirements.
- Reviewing vendor records to detect misreporting or "screwdriver assembly" practices.
- Mapping the actual growth of domestic value addition relative to policy targets.

**c) Charging Infrastructure**

- Comparing sanctioned vs. commissioned public charging stations.
- Examining delays due to land, utility, or tariff issues.
- Evaluating utilisation rates, uptime, and interoperability of chargers.

**d) Public Procurement of Buses**

- Reviewing e-bus tendering processes for transparency, competition, and efficiency.
- Checking payment security mechanisms under gross cost contracts[44] (GCCs).
- Assessing whether sanctioned buses were delivered, commissioned, and integrated into city fleets.

**e) Environmental and Social Outcomes**

- Estimating actual **emission reductions** from EVs deployed under FAME.
- Comparing realised benefits (fuel savings, air quality gains) with projections.
- Assessing equitable access—whether subsidies reached smaller cities, rural areas, and shared-mobility operators or were concentrated in metros.

**3. Suggested Audit Methodologies**

To strengthen audit outcomes, a combination of traditional and innovative methods is recommended:

- **Digital Forensics:** Application Programming Interface (API) based verification of vehicle registration data (Vahan), subsidy claims, and OEM production records.
- **GIS and IoT Tracking:** Monitoring public charging stations for uptime, usage, and consumer accessibility.
- **Lifecycle Assessment Audits:** Moving beyond adoption counts to measure actual emission savings, battery recycling outcomes, and alignment with Net Zero.

[44] A gross cost contract is a public-private partnership model—commonly used in public transport—where an authority pays a private operator a fixed fee to provide services, usually per kilometer.

- **Stakeholder Consultations:** Incorporating feedback from consumers through surveys, state transport undertakings, and industry players.

**4. Audit Checklist- Key Audit Questions – FAME (Faster Adoption and Manufacturing of Electric Vehicles) Scheme**

**A. Relevance and Objectives**

- Whether the scheme has achieved its desired outcomes in terms of EV adoption, emission reduction, and reduced fossil fuel dependence?
- Were the targets set under FAME I and II (number of EVs, e-buses, charging stations, emission reduction) realistic and aligned with India's Net Zero commitments?
- Has there been a measurable increase in EV penetration in the vehicle market due to the scheme?
- To what extent has the scheme contributed to India's NDC targets and climate goals?

**B. Planning and Scheme Design**

- Were the scheme guidelines clear, measurable, and outcome-oriented?
- Was there adequate consultation with stakeholders (manufacturers, state governments, charging companies, consumers) during scheme design?
- Were the selection criteria for OEMs, EV models, and charging stations transparent and consistently applied?
- Did the design address regional balance (urban vs. rural, metro vs. non-metro areas)?

**C. Financial Management and Subsidy Utilization**

- Were funds allocated under FAME I and II **adequately utilized**?
- Were there **delays in release of subsidies** to manufacturers or beneficiaries?
- Were subsidy reductions (e.g., two-wheeler incentives cut in 2023) justified, documented, and communicated transparently?
- Was there any evidence of **subsidy leakage, misreporting, or fraud** (e.g., non-compliant models claiming incentives)?
- Was budget allocation adequate compared to demand, or were targets compromised due to financial shortfalls?

**D. Implementation and Outputs**

- What is the actual number of EVs, e-buses, and charging stations deployed compared to targets?
- Were sanctioned e-buses delivered and operational within stipulated timelines?
- Were charging stations installed, functional, and maintained as per FAME guidelines?
- Did the scheme cover small cities and rural areas, or was it skewed toward metros?
- Were awareness campaigns and consumer outreach initiatives conducted as planned?

**E. Impact Assessment**

- Did the scheme result in quantifiable reduction in fuel consumption (liters of petrol/diesel saved)?
- What is the actual $CO_2$ reduction achieved vs. projected estimates?
- How does EV adoption under FAME compare with international benchmarks (China, EU, US)?
- Has the scheme improved air quality in targeted cities (any measurable indicators)?

**F. Domestic Manufacturing & Localization**

- Did the scheme succeed in promoting domestic manufacturing of EV components (batteries, motors, controllers)?
- Was localization compliance (minimum domestic content requirement) adhered to by OEMs?
- Has FAME been effectively complemented by PLI schemes and "Make in India" initiatives?
- Did the scheme help reduce import dependence on battery cells and critical components?

**G. Infrastructure & Ecosystem Development**

- Was the targeted number of charging stations sanctioned and installed?
- Are installed charging stations functional, accessible, and geographically distributed?
- Were technical standards (CCS-2, Bharat AC/DC, etc.) implemented consistently?
- Did the scheme ensure adequate support for maintenance, interoperability, and grid integration?

## H. Monitoring, Evaluation & Governance

- Was a robust monitoring mechanism in place to track fund utilization and physical achievements?
- Were progress reports submitted by OEMs, states, and agencies verified independently?
- Did the Ministry of Heavy Industries regularly evaluate scheme performance?
- Was there adequate coordination with state EV policies to avoid duplication/overlap?
- Were audit recommendations from earlier reviews implemented?

## I. Consumer Adoption and Behavioural Change

- Did subsidies make EVs affordable and attractive to consumers?
- Were there significant consumer complaints, delays, or dissatisfaction with the scheme?
- Did the scheme address range anxiety by ensuring visible charging infrastructure?
- Was there an increase in public transport electrification (buses, shared mobility) due to FAME?

## J. Sustainability and Way Forward

- Has the scheme created a self-sustaining EV ecosystem (beyond subsidies)?
- What risks exist for long-term financial sustainability?
- What lessons can be learned from FAME I & II for the design of FAME III?
- Does the scheme align with India's Green Hydrogen Mission, Renewable Energy targets, and Net Zero Vision?

# Chapter 8: Conclusion — FAME, Governance, and the Path to Net Zero

The Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme has emerged as a pivotal instrument in reshaping the country's transport sector. More than a subsidy programme, FAME represents a strategic intervention that aligns environmental sustainability, industrial development, and public policy governance.

FAME has played a catalytic role in initiating this transition by creating demand, supporting infrastructure, and signalling long-term policy commitment. Its phased implementation reflects an evolution from experimentation to scale—beginning with market seeding and moving towards structured ecosystem development.

One of the most notable contributions of the scheme lies in its ability to convert policy ambition into measurable market response. The visible increase in electric vehicle adoption, particularly in two- and three-wheeler segments and public transport systems, indicates that targeted incentives can effectively influence consumer behaviour and industry direction. Equally important has been the scheme's emphasis on public transport electrification, which offers disproportionate environmental benefits relative to private vehicle adoption.

Beyond adoption, FAME has also contributed to the emergence of an electric mobility ecosystem in India. It has encouraged investments in domestic manufacturing, supported technological innovation, and stimulated the development of charging infrastructure. When viewed in conjunction with complementary initiatives such as Production Linked Incentive (PLI) schemes and state-level EV policies, FAME appears as a broader policy architecture.

In the broader context of India's Net Zero commitment, FAME occupies a strategic position. Its success demonstrates how targeted policy interventions can accelerate transitions in hard-to-abate sectors like transport. At the same time, it underscores that such transitions require sustained institutional support, policy coherence, and adaptive governance. The next phase of electric mobility policy in India must therefore build upon the lessons of FAME—expanding its scope while strengthening its governance framework.

The audit of governance in the context of FAME thus becomes essential. Financial audit ensures that public funds are utilised for their intended purposes, minimising leakages and irregularities. Compliance audit verifies adherence to scheme guidelines, particularly in areas such as eligibility criteria, localisation requirements, and reporting standards. Performance audit, perhaps the most critical dimension, evaluates whether the scheme has achieved its intended objectives in terms of emission reduction, market transformation, and ecosystem development.

In conclusion, the FAME scheme represents both a milestone and a learning platform in India's journey towards sustainable mobility. Its importance lies not only in the progress it has enabled but also in the governance insights it offers. As India advances towards its long-term climate goals, the convergence of policy innovation and rigorous audit will determine the effectiveness, credibility, and sustainability of its transition to a greener future.

Annexure I

**State-wise No. of EVs sold under FAME-II Scheme during 01/4/2019 till 31/3/2024**

| State/UT | e-2W | e-3W | e-4W | Total |
|---|---|---|---|---|
| Maharashtra | 299,375 | 10,102 | 3,358 | 312,835 |
| Karnataka | 242,623 | 10,839 | 4,792 | 258,254 |
| Tamil Nadu | 128,265 | 4,073 | 659 | 132,997 |
| Gujarat | 124,301 | 2,948 | 302 | 127,551 |
| Kerala | 96,394 | 7,988 | 229 | 104,611 |
| Delhi | 66,185 | 20,910 | 7,528 | 94,623 |
| Rajasthan | 88,331 | 5,002 | 223 | 93,556 |
| Uttar Pradesh | 57,066 | 34,768 | 738 | 92,572 |
| Telangana | 72,561 | 4,505 | 1,655 | 78,721 |
| Madhya Pradesh | 52,746 | 8,412 | 128 | 61,286 |
| Andhra Pradesh | 55,659 | 5,245 | 58 | 60,962 |
| Odisha | 51,180 | 3,252 | 320 | 54,752 |
| Chhattisgarh | 31,992 | 6,575 | 74 | 38,641 |
| Bihar | 14,577 | 14,470 | 31 | 29,078 |
| West Bengal | 16,477 | 4,512 | 1,390 | 22,379 |
| Haryana | 13,036 | 3,228 | 1,373 | 17,637 |
| Goa | 15,087 | 62 | 19 | 15,168 |
| Punjab | 12,142 | 1,221 | 40 | 13,403 |
| Jharkhand | 9,170 | 3,436 | 215 | 12,821 |
| Uttarakhand | 7,609 | 4,749 | 38 | 12,396 |
| Assam | 3,405 | 8,664 | 86 | 12,155 |
| Tripura | 255 | 7,692 | 7 | 7,954 |
| Jammu Kashmir | 3,076 | 4,575 | 2 | 7,653 |
| Puducherry | 3,913 | 128 | 13 | 4,054 |
| Chandigarh | 2,207 | 441 | 18 | 2,666 |
| Himachal Pradesh | 913 | 249 | 5 | 1,167 |
| Manipur | 58 | 463 | 1 | 522 |
| Meghalaya | 138 | 375 | - | 513 |
| Mizoram | 326 | 2 | - | 328 |
| Dadra & Nagar Haveli & Daman & Diu | 217 | 53 | 1 | 271 |
| Andaman and Nicobar Islands | 22 | - | 8 | 30 |
| Arunachal Pradesh | 7 | 9 | - | 16 |
| Lakshadweep | 14 | 2 | - | 16 |
| Sikkim | 9 | 1 | - | 10 |
| Nagaland | 7 | 1 | - | 8 |
| Total | **1,469,343** | **178,952** | **23,311** | **1,671,606** |

## Annexure II

### State-wise Total Registered Electric Vehicle

| Full State/UT Name | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | Total |
|---|---|---|---|---|---|---|---|
| Andaman and Nicobar Islands | 5 | 105 | 22 | 23 | 36 | 100 | 291 |
| Andhra Pradesh | 1,691 | 3,134 | 15,411 | 31,990 | 36,350 | 56,421 | 144,997 |
| Arunachal Pradesh | 3 | 4 | 0 | 2 | 33 | 138 | 180 |
| Assam | 12,014 | 8,959 | 20,429 | 45,266 | 63,952 | 68,343 | 218,963 |
| Bihar | 14,262 | 13,289 | 28,274 | 62,607 | 96,494 | 114,073 | 328,999 |
| Chhattisgarh | 2,273 | 1,685 | 6,529 | 27,713 | 42,177 | 48,900 | 129,277 |
| Chandigarh | 531 | 407 | 977 | 3,901 | 6,562 | 7,039 | 19,417 |
| Daman and Diu | 24 | 21 | 42 | 162 | 221 | 546 | 1,016 |
| Delhi (National Capital Territory) | 23,684 | 11,808 | 34,502 | 67,124 | 79,257 | 90,302 | 306,677 |
| Goa | 41 | 232 | 1,815 | 7,188 | 11,059 | 10,498 | 30,833 |
| Gujarat | 897 | 1,685 | 19,033 | 81,119 | 88,546 | 75,510 | 266,790 |
| Himachal Pradesh | 161 | 100 | 454 | 1,138 | 1,199 | 2,473 | 5,525 |
| Haryana | 4,674 | 3,029 | 11,845 | 28,716 | 33,605 | 48,377 | 130,246 |
| Jharkhand | 2,169 | 1,537 | 5,277 | 16,075 | 22,344 | 27,298 | 74,700 |
| Jammu and Kashmir | 65 | 180 | 1,556 | 5,640 | 11,672 | 12,628 | 31,741 |
| Karnataka | 7,156 | 12,994 | 46,134 | 113,986 | 170,806 | 182,538 | 533,614 |
| Kerala | 668 | 2,191 | 14,876 | 52,297 | 81,047 | 88,207 | 239,286 |
| Ladakh | 1 | 0 | 12 | 35 | 41 | 7 | 96 |
| Lakshadweep | 1 | 7 | 4 | 2 | 7 | 6 | 27 |
| Maharashtra | 7,393 | 9,401 | 51,456 | 158,695 | 212,692 | 259,096 | 698,733 |
| Meghalaya | 13 | 1 | 11 | 50 | 496 | 579 | 1,150 |
| Manipur | 316 | 16 | 129 | 541 | 269 | 501 | 1,772 |
| Madhya Pradesh | 3,567 | 4,385 | 14,115 | 45,330 | 77,454 | 109,181 | 254,032 |
| Mizoram | 1 | 1 | 1 | 65 | 276 | 682 | 1,026 |
| Nagaland | 13 | 2 | 1 | 3 | 10 | 66 | 95 |
| Odisha | 990 | 1,359 | 10,389 | 32,329 | 51,986 | 66,250 | 163,303 |
| Punjab | 894 | 955 | 6,677 | 16,029 | 32,022 | 48,739 | 105,316 |
| Puducherry (Pondicherry) | 63 | 134 | 747 | 1,739 | 3,249 | 4,734 | 10,666 |
| Rajasthan | 5,928 | 8,197 | 31,387 | 88,307 | 99,726 | 109,434 | 342,979 |
| Sikkim | 0 | 0 | 0 | 0 | 0 | 25 | 25 |
| Tamil Nadu | 4,200 | 11,934 | 39,661 | 71,870 | 101,357 | 143,392 | 372,414 |
| Tripura | 3,176 | 2,409 | 2,566 | 4,389 | 7,567 | 9,851 | 29,958 |
| Uttarakhand | 5,465 | 2,421 | 6,628 | 16,762 | 17,244 | 20,201 | 68,721 |
| Uttar Pradesh | 56,214 | 31,578 | 82,008 | 188,970 | 306,585 | 391,128 | 1,056,483 |
| West Bengal | 15,043 | 8,202 | 6,062 | 13,267 | 26,668 | 53,639 | 122,881 |
| **Total** | **173,596** | **142,362** | **459,030** | **1,183,330** | **1,683,009** | **2,050,902** | **5,692,229** |

## Annexure III

**State-wise share of Electric Vehicle in total registered vehicles (in *Per cent*)**

| Full State/UT Name | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | Total |
|---|---|---|---|---|---|---|---|
| Andaman and Nicobar Islands | 0.06 | 1.84 | 0.40 | 0.31 | 0.44 | 1.19 | 0.66 |
| Andhra Pradesh | 0.15 | 0.32 | 1.75 | 3.77 | 4.01 | 6.37 | 2.57 |
| Arunachal Pradesh | 0.01 | 0.02 | 0.00 | 0.01 | 0.10 | 0.37 | 0.10 |
| Assam | 2.32 | 2.14 | 4.70 | 8.00 | 9.68 | 11.12 | 6.82 |
| Bihar | 1.05 | 1.46 | 2.83 | 5.33 | 7.31 | 8.25 | 4.60 |
| Chhattisgarh | 0.35 | 0.38 | 1.47 | 5.39 | 7.01 | 6.70 | 3.82 |
| Chandigarh | 1.16 | 1.32 | 2.53 | 7.52 | 12.61 | 14.80 | 7.27 |
| Daman and Diu | 0.13 | 0.16 | 0.26 | 0.84 | 0.94 | 2.24 | 0.89 |
| Delhi (National Capital Territory) | 3.89 | 2.72 | 7.73 | 10.52 | 11.83 | 12.52 | 8.71 |
| Goa | 0.06 | 0.52 | 3.58 | 9.44 | 13.37 | 12.43 | 7.55 |
| Gujarat | 0.05 | 0.16 | 1.52 | 4.96 | 4.72 | 3.99 | 2.85 |
| Himachal Pradesh | 0.11 | 0.08 | 0.41 | 0.92 | 0.91 | 1.64 | 0.70 |
| Haryana | 0.55 | 0.52 | 1.89 | 3.72 | 3.83 | 4.80 | 2.77 |
| Jharkhand | 0.37 | 0.34 | 1.19 | 3.20 | 4.04 | 4.63 | 2.38 |
| Jammu and Kashmir | 0.04 | 0.12 | 1.00 | 3.39 | 6.73 | 7.02 | 3.16 |
| Karnataka | 0.45 | 1.12 | 4.00 | 7.10 | 9.37 | 9.85 | 5.82 |
| Kerala | 0.08 | 0.33 | 2.04 | 6.61 | 10.89 | 11.22 | 5.24 |
| Ladakh | 0.04 | 0.00 | 0.33 | 0.58 | 0.78 | 0.13 | 0.38 |
| Lakshadweep | 0.10 | 0.86 | 0.64 | 0.50 | 1.47 | 1.36 | 0.71 |
| Maharashtra | 0.31 | 0.55 | 2.69 | 6.48 | 8.13 | 8.78 | 4.99 |
| Meghalaya | 0.04 | 0.00 | 0.04 | 0.14 | 1.17 | 1.41 | 0.57 |
| Manipur | 0.81 | 0.09 | 0.33 | 1.01 | 1.37 | 1.72 | 0.90 |
| Madhya Pradesh | 0.23 | 0.37 | 1.28 | 3.16 | 5.07 | 6.54 | 2.99 |
| Mizoram | 0.00 | 0.00 | 0.00 | 0.24 | 0.91 | 2.37 | 0.62 |
| Nagaland | 0.05 | 0.01 | 0.00 | 0.01 | 0.03 | 0.25 | 0.07 |
| Odisha | 0.12 | 0.24 | 1.96 | 4.94 | 6.67 | 8.23 | 3.93 |
| Punjab | 0.11 | 0.21 | 1.35 | 2.75 | 4.89 | 6.79 | 2.85 |
| Puducherry (Pondicherry) | 0.11 | 0.31 | 1.72 | 3.41 | 5.53 | 7.12 | 3.35 |
| Rajasthan | 0.39 | 0.82 | 3.01 | 6.50 | 6.34 | 6.74 | 4.22 |
| Sikkim | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.04 |
| Tamil Nadu | 0.22 | 0.81 | 2.74 | 4.15 | 5.37 | 7.40 | 3.58 |
| Tripura | 5.39 | 5.18 | 5.59 | 8.42 | 12.50 | 15.89 | 9.19 |
| Uttarakhand | 2.22 | 1.31 | 3.52 | 6.98 | 6.63 | 7.15 | 4.90 |
| Uttar Pradesh | 1.59 | 1.34 | 2.95 | 6.06 | 8.72 | 10.31 | 5.53 |
| West Bengal | 1.23 | 0.86 | 0.66 | 1.36 | 2.59 | 4.46 | 1.95 |
| Total | 0.71 | 0.81 | 2.49 | 5.30 | 6.83 | 7.81 | **4.26** |