



Legal Incentives for Sustainable Urban Mobility: Promoting Electric Vehicles and Public Transit

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ABSTRACT :

With air pollution, traffic congestion, and greenhouse gas emissions forming just a few aspects of the environmental challenges posed by rapid urbanization in India, the provision of sustainable options for urban mobility becomes a crucial task. The present comprehensive legal and policy framework promoting electric vehicles in India is reviewed in detail herein. At the national level, schemes like FAME-I & II, the New Electric Vehicle Policy, 2024 combine financial incentives with import duty exemptions and manufacturing obligations to incentivize a domestic EV market and production. At the state level, policies grant emoluments and incentives such as concessions, subsidies, tax exemptions, and regulatory relaxations, showing decentralized legal innovation gradually moving towards national objectives. Further fiscal benefits like lower GST rates, exemptions from road tax, and purchase subsidies are granted, with non-financial incentives aimed at the ultimate convenience of users in terms of parking, lane access, and provision of low-emission zones for EVs. At the significant schemes level, PM e-Drive and PM eBus Sewa are aimed at targeted public transit electrification under the statutory provisions of the Electricity Act, 2003, and Energy Conservation Act, 2001, guaranteeing safe and scalable charging infrastructure. Case studies undertaken in Delhi, Bangalore, Pune, and Ahmedabad offer instances of successful multi-tier governance. While the Indian legal framework has achieved several milestones, the article insists that continuous legal reforms, strict enforcement, institution of interoperability standards, and a sharper clarity in the regulatory space are required to maintain momentum toward achieving just, efficient, and environmentally sustainable urban mobility.

Keywords: Sustainable urban mobility, Electric vehicles, Public transit, FAME scheme, EV policy India, Charging infrastructure, Legal incentives, Smart city integration

Introduction

With an evolving urban landscape in India on track to unwind the culprit traits of rapid urbanization, the modern cityscape finds itself at a crossroads. With increased populations, cities such as Delhi, Mumbai, Bengaluru, and Chennai come under the pressures of existing infrastructure. The environment is hard pressed to keep up with increased air pollution, chronic traffic congestion, and increasing greenhouse gas emissions. With the concentration of particulate matter, especially PM_{2.5}, exceeding quite often the safe limit set by the World Health Organization, respiratory diseases for millions are being aggravated and their quality of life is being compromised. The underlying cause of this degradation of air quality is mainly a transportation system that rests heavily upon vehicles running on fossil fuels. As the urban landscapes expand, the demands for more private vehicles grow in-turn exacerbating environmental degradation while deepening the dependence on imported fossil fuels. Recognizing these pressing concerns, India has pledged to achieve net-zero carbon emissions by 2070. The government has also endorsed the EV30@2030 targets, which envision 30% of private cars, 40% of buses, 70% of commercial cars, and 80% of two- and three-wheelers to be electric by 2030. These ambitious commitments reflect the urgency of adopting sustainable transport solutions that can simultaneously address environmental, economic, and social imperatives.³

Background on Sustainable Urban Mobility in India

Backdrop of sustainable urban mobility in India is shaped by a unique intersection of challenges and opportunities. Urbanization, rapid in nature, has been the mainstay for economic growth but, at the same time, has been a menace towards the environment. Cities like Delhi rank out as the most polluted cities globally, with the Air Quality Index at times crossing the “Hazardous” mark. Vehicular emissions, industrial wastes, and practically unregulated use of fossil fuels are the main culprits for this environmental peril. Lesser-traffic congestion and more fuel consumption seem to be causing air pollution in a mutual contract, turning the whole issue into an environmental disaster with an economic dimension: a marked inefficiency. Against this backdrop arises the need for sustainable transport solutions. Among these solutions EVs and public transportation are worthy candidates for solving the problem. Electric vehicles and transport electrification will not reduce local air pollutants; they also reduce demand for imported crude oil, which constitutes a

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³ Global EV Outlook 2021: Policies to promote electric vehicle deployment, available at: <https://www.iea.org/reports/global-ev-outlook-2021/policies-to-promote-electric-vehicle-deployment> (Visited on February 26, 2025).

major part of India's trade deficit. India's undertakings on the international climate regime, especially the pledge to be net-zero by 2070, thereby force a total reshuffling of the transport sector. EV30@2030 targets serve as a loud reminder of the government's commitment to fast-tracking the electrified mobility pathway, intimating a systemic transition that values sustainability at the expense of short-lived convenience.⁴

Importance of EVs and Public Transit in Urban Areas

Electric vehicles and public transport are actively repositioning the urban mobility scenario in India. The environmental benefits of the adoption of electric vehicles would be enormous, especially for cities suffering from heavy pollution loads such as Delhi, where PM_{2.5} levels are highly erratic in exceeding permissible thresholds. Electric vehicles offer an immediate solution by eliminating tailpipe emissions, thus reducing air pollution that causes respiratory disorders, cardiovascular ailments, and premature deaths. The electric mode of transport would far guarantee economic benefits in return. Setting up of domestic EV manufacturing units in India shall lead to job creation in several sectors such as battery manufacturing, software development, and vehicle assembly. The benefit of not having to import oil further enhances energy security, thereby stabilizing the economy against shocks arising from fluctuating global oil prices. When electrified and modernized, public transit would offer equity and inclusiveness in transportation itself-from a base of marginalization into enhanced access. Cleaner solutions in public transit alleviate the pressure on road infrastructure and vehicle congestion while fostering healthy urban living conditions. Altogether, these factors imply that substantive consideration of EVs and public transit into urban planning is key to providing a full-spectrum solution toward sustainable mobility.

Objective of the Article

This study focuses on deeply analyzing the legal incentives for promoting electric vehicles and public transit systems in India. This analysis attempts to describe the existing legislative and policy frameworks that set in motion the sustainable urban mobility in the country. By way of a critical nexus between these legal instruments, the article intends to gauge the extent to which these laws have actually helped EVs from perceptions to practice and public transport systems moving towards modernization in real terms. Such a critical assessment, going beyond the mere study, also aims to identify the crucial practical challenges that deter implementation of policies and the loopholes present in the legal regime functionally hindering efficient policy measures. Further, the article inquiries into practical recommendations that can assist in scaling up the efficacy of these policy measures and legal frameworks. This study stands on the larger backdrop of India's oil and gas commitments and her goal to balance economic growth with environment stewardship. The study ultimately seeks to develop an enlightenment mechanism on a comprehensive legal perspective for the policy makers, stakeholders, and legal fraternity towards the extant framework's strengths and inadequacies, which may further serve as a foundation for the future roadmap toward a successful policy implementation for sustainable urban mobility.

Legal Framework for Electric Vehicles in India

The legal framework for adoption and promotion of electric vehicles (EVs) in India is composite in structure since it encompasses national policies and schemes on the one hand and state-specific regulations on the other. This three-tier structure reflects the government's commitment to future urban mobility while simultaneously tackling the economic, social, and environmental challenges that come with conventional vehicular transportation. Various incentives, subsidies, and regulatory frameworks have been drawn up very carefully so as to achieve rapid adoption of EVs, reduction of vehicular emissions, and positioning of India as a major actor in the global EV market. These legal instruments seek pre-emptively not just to fulfill the country's climate commitments but also to aid the domestic manufacturing capability under the broader framework of national development goals.⁵

National Policies

On the national level, in India, a series of policies have been put into place to ensure the holistic promotion of electric vehicle adoption. These policies serve as the very foundation of the legal framework meant to provide a common ground for both manufacturers as well as consumers, in matters pertaining to sustainable solutions for urban mobility. These policies are not mutually exclusive; instead, they ensure a holistic approach to the multitude of directions, including considerations on the manufacturing front, infrastructure development, and financial analyzation.

Fame Scheme

In 2015, the Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles in India scheme, or FAME, came into force. This flagship scheme forms the backbone of EV policy for India. The first FAME scheme offered capital subsidies to end users and manufacturers of electric vehicles. Since more than 2.78 lakh EVs were supported under FAME-I, the success of which paved the way for the launch of FAME-II in 2019 and its subsequent extension up to 2024. Under FAME-II, a total budget of Rs 10,000 crore was allocated, including Rs 366 crore as an unspent amount carried forward from FAME-I. These budgets were not only to provide subsidies on EV purchase but to share the burden of building the required basic infrastructure like a charging network. The scheme later supported the commissioning of 2,636 charging stations across 24 States and Union Territories, thus providing one of the much-needed confidence-building measures in EV adoption: adequate infrastructure for charging. Further, FAME-I also supported the deployment of 465 e-buses with the understanding that public transportation has an equally important role to play towards sustainable urban mobility. The FAME-II

⁴ Sumati Kohli, "Pave the way to India's sustainable mobility goals with incentives for cars in PM E-DRIVE", available at: <https://theicct.org/pave-the-way-to-indias-sustainable-mobility-goals-with-incentives-for-cars-in-pm-e-drive-nov24/> (Visited on March 5, 2025).

⁵ Niklas Tilly, Tan Yigitcanlar, et.al., "How sustainable is electric vehicle adoption? Insights from a PRISMA review", 117 *Sustainable Cities and Society* 172 (2024).

incentives aim to stimulate demand as well as supply, giving capital subsidies to manufacturers while lowering the purchase price of an electric vehicle for a customer. The central nodal authority operating under FAME schemes remains under the ambit of national-level policy directives that bless the scheme with statutory backing for budgetary allocations and implementation.⁶

New Electric Vehicle Policy 2024

The EV Policy of 2024 is instrumental in India's objective to become a world centre for EV manufacturing under the larger 'Make in India' campaign. The policy of 2024, approved on 15th March 2024, addresses the issue of long-term sustainable mobility while simultaneously considering economic growth through domestic manufacturing. To this end, the policy sets forth a phased manufacturing roadmap, which would on the one hand help increase domestic production capacities on a gradual scale and, on the other hand, would allow manufacturers some time to realize their operational capacity while simultaneously reducing dependence on imports. The graded tariff system involved would proceed to tariff imports of electric vehicle[s] at a much higher rate unless the importers find they fulfill certain requirements concerning the degree of localization, hence forcing these companies to set up production plants in the country. Thus, by way of law, the policy sets an even playing field with domestic manufacturers protected in their interest and foreign investments being allowed however under well-defined conditions. The import duties have been made graded and thus have binding effect under customs as well as excise laws. Therefore, this legislation shall be particularly enforced when the authorities are through various statutes promulgated in exercise of their powers interested in affecting the cost-benefit analyses of an importer.

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

In line with the larger policy framework, the scheme for manufacturing electric passenger cars in India was also approved on March 15, 2024. This scheme aims to draw massive investments into the domestic EV manufacturing sector, thereby creating an upward demand. For any new greenfield manufacturing facility, it stipulates an investment of at least \$500 million. Further important legal criteria require 50 percent domestic value addition, so that at least half of the components of these vehicles and even the technology go through being sourced and manufactured within India. The scheme permits concessional import duty at the rate of 15 percent on a maximum of 8,000 electric vehicles every year for five years. The attorney incentive structure is designed to attract global EV manufacturers while requiring that they meaningfully contribute in the domestic economy through localization. These concessional import duties are enforceable under customs tariff schedules, thereby providing transparency and predictability to both investors and regulatory agencies.⁷

State-level Policies

While national policies establish a broad legal framework, state governments play a crucial role in customizing incentives by imposing conditions suited to regional requirements and capacities. The diversity of consumer policies at the state level is indicative of the decentralization of power under India's federal scheme; at the same time, it allows a degree of appreciation for the unique economic, environmental, infrastructural needs of varied states. Such state policies are meant to coincide with and complement national efforts by adding legally backed, more localized incentives toward a swift EV uptake within their respective jurisdictions.

Overview of State Incentives and Subsidies

The goal of the state-level EV policies is thus to improve air quality, abate climate change impacts, reduce oil imports, and nurture a strong domestic EV industry. Most states provide capital subsidies to reduce the purchase price electric vehicles in the hands of the consumers. Being among the most common legal provisions, some states may provide some form of exemption from registration fees, road taxes, or parking charges, thereby giving EV owners a bit of financial leverage. A handful of states have gone a bit further and invited them to be subject to purchase tax exemptions, which, in turn, have drastically reduced the purchase price of the vehicle. The statutory instruments that provide these benefits are embedded within their respective state motor vehicle tax laws and their municipal regulations. Thus, they have the full force of law through existing administrative frameworks. The legal structure permits some flexibility in that states may decide to vary these incentive structures in accordance with their financial constraints and policy outlooks.⁸

Examples from Specific States

Different states have adapted innovative legal approaches to the promotion of electric vehicles. For example, Maharashtra established an early-bird subsidy scheme to financially incentivize the first 100,000 EV buyers. The provision gave quick fill initial market penetration, creating an investor community that then went into EV infrastructure and manufacturing. Legal framework in Gujarat provides flat subsidies to all classes of new electric vehicles, from two-wheelers to three-wheelers to four-wheelers, making the policy easy to understand and execute.

In Tamil Nadu, supply-side incentives are more in favor of the State Government. Under the legal provisions of the Tamil Nadu EV Policy, tax incentives are allowable on land purchase, and exemption of utility charges is given to manufacturers for setting up EV production units in the State. These supply-side incentives are directed toward attracting industrial investment and establishing a manufacturing ecosystem for long-term growth. These examples showcase a dynamic interplay of state legal provisions in response to national policy frameworks, replicating a high-synergistic and diversified legal ecosystem promoting electric vehicles in India.

⁶ Urban Mobility Regulatory Reforms in India, available at: <https://shaktifoundation.in/wp-content/uploads/2022/01/Urban-Mobility-Regulatory-Reforms-in-India.pdf> (Visited on March 18, 2025).

⁷ M. Borowska-Stefańska, M. Kowalski, et.al., "Privileging Electric Vehicles as an Element of Promoting Sustainable Urban Mobility—Effects on the Local Transport System in a Large Metropolis in Poland", 14 *Energies* 212 (2021).

⁸ Sarah Lee, "Electric Vehicles: A Key to Sustainable Urban Mobility Policy Strategies for Accelerating EV Adoption in Cities", available at: <https://www.numberanalytics.com/blog/ev-policy-strategies-for-cities> (Visited on April 14, 2025).

Tax Incentives

Reduction in GST for EVs

Legal and policy framework for electric vehicles (EVs) in India comprises various fiscal incentives designed to achieve maximum market penetration and acceptance by the consumer. The biggest fiscal incentives were probably the reductions on Goods and Services Tax (GST) and other taxes on electric vehicles. Accordingly, the Government of India, through powers conferred upon it by the Central Goods and Services Tax Act, 2017, has notified that the GST applicable on EVs is substantially lower at 5%, while the GST chargeable on conventional internal combustion engine (ICE) vehicles stands much higher at 28%. Such preferential tax treatment goes a long way in achieving two objectives: First, it directly serves to bring down the retail price of electric vehicles so that an ordinary buyer may be able to afford it; secondly, by forcing ICE vehicles into the higher tax category, it ensures that such vehicles have very little incentive under the market to continue being powered by fossil fuel. Therefore, this GST exemption has greatly helped alleviate the stressful upfront costs of this technology, such as the costs of lithium-ion batteries and electric powertrain systems, thereby creating an enabling environment for potential consumers to view EVs as a viable option, at least in metro cities where the commute requires a cost advantage. As per Article 279A of the Constitution of India, it is the mandate of the GST Council to review the GST tax structure from time to time to align it with certain objectives laid down in national policies like sustainability and reduced emissions. In this direction, India aims to create, through legal and financial incentives, greener urban air and lower emissions of greenhouse gases, which form a part of its NDCs under the Paris Agreement.⁹

Exemption from Road Tax and Registration Fees

With some central GST concessions available, many Indian states have enacted or amended laws and regulations to add their own incentives financially to electric vehicles. Several state governments have exercised their legislative competency for levies under the “State List” in the “Seventh Schedule of the Constitution of India” to either waive road tax or reduce it considerably for registration fees applicable to electric vehicles. Such state-specific exemptions are important, as road tax and registration fees constitute a sizeable chunk of the vehicle’s on-road price. For example, the Delhi Government, through the “Delhi Electric Vehicle Policy 2020”, has completely exempted road tax and registration fees for battery-operated vehicles. The Government has also set up a unique scrappage policy whereby financial credits will be offered to owners to scrap old ICE-powered auto-rickshaws and replace them with electric versions, providing both an environmental and financial incentive for fleet operators. The legal authority to grant such exemptions emanates from the state-level Motor Vehicle Acts and rules, under which a state can either impose or waive such fees in the interest of public welfare. In addition, Maharashtra, Tamil Nadu, and Gujarat have all promulgated similar legislation, operating under the ambit of the respective state laws and backed by the enabling provisions of the “Motor Vehicles Act, 1988.” These are measures toward making EVs competitively priced, especially in metro areas, where personal transport is usually more of a necessity than a luxury. The more state-level policies that offer financial incentives, the quicker EV adoption takes place, far adding to India’s environmental and urban mobility causes.¹⁰

Subsidies and Grants

Central Government Subsidies under FAME-II

The central government subsidy scheme for electric vehicles acts as the main channel of direct financial assistance to EV consumers and is known as the “Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME India) Scheme Phase II”. Through the powers vesting in the Ministry of Heavy Industries, the scheme defines a clear-cut subsidy on the basis of battery capacity of an EV and also its performance standards. The subsidy may be granted at the rate of almost Rs. 10,000/- per kWh in the case of two-wheelers, while the three-wheelers may attract the highest subsidy of Rs. 20,000/- per kWh of battery capacity, provided they meet the prescribed technical specifications. A statutory underpinning of the “FAME-II” policy framework is that it is founded upon statutory notifications issued under the central government’s rule-making powers conferred on it by the “Allocation of Business Rules, 1961”, so as to create a lawful basis for the disbursement of public funds. The procedural steps for energetic disbursement of these subsidies are subject to stringent eligibility criteria that ensure compliance with safety standards and energy efficiency as well as localization of components under the broader ambit of the “Make in India” program, the intention being to propel domestic manufacturing. The effect of these legalities is witnessed on public interest and safeguarding considerations concerning the state’s purse so that the benefits from the subsidies accrue only to those vehicles which are in line technologically and are environment-friendly. By lowering the purchase price, the central subsidies have been one of the important channels that have legally caused the pull-through of early market demand in developing economies, thereby achieving economies of scale and lowering the cost to the end producer when purchased widely.

State Government Subsidies

State governments have brought into effect certain legislative measures to complement central subsidies, allowing them to support their respective markets and consumer characteristics for local ends. States such as Assam and Kerala have promulgated their own unique legal regimes in the matter of the amount of subsidy reflective of battery capacity or in terms of some percentage of the purchase price of the vehicle. Assam, under its “Electric Vehicle Policy, 2021”, gives graded subsidies for two and three wheelers where the quantum of subsidy varies with battery capacity. Kerala’s policy regime offers percentage-based subsidies which are calculated directly on the ex-showroom price of the vehicle thereby the benefit of subsidy becomes directly visible to the consumer at the point of sale. These state policies are promulgated via government orders and notifications issued with the legal backing of the state transport departments empowered under the provisions of the “Motor Vehicles Act, 1988” and corresponding state legislations. This decentralized

⁹ Vinod Shah, "Electrifying Change: India's Path to Sustainable Urban Mobility", available at: https://urbantransportnews.com/article/electrifying-change-indias-path-to-sustainable-urban-mobility#google_vignette (Visited on April 9, 2025).

¹⁰ Policies for India’s Global Leadership on EV Adoption: Accelerating Commercial Fleet Electrification and Attracting Private Investments in Charging, available at: <https://www.wbcsd.org/wp-content/uploads/2023/10/Policies-for-Indias-global-leadership-on-EV-adoption.pdf> (Visited on March 1, 2025).

approach permits the states to tackle local issues such as disparity of per capita income levels, urban pollution levels, and modes of transport. Thus, with both central and state subsidies, there emerges a multi-tier financial support system providing complete affordability, sure impact of which gets factored into a consumer's buying decision. This elaborate legal and policy framework gives room for flexibility while continuing to be coherent with the national objective of sustainable urban mobility promotion.¹¹

Non-financial Incentives

Priority in Parking and Lane Usage

Legal incentives in India for electric vehicles range from direct financial and non-financial ones, which may enhance convenience and utility for the EV owners. A major non-financial incentive is the availability of priority parking spaces to EVs and preferential access to low emission zones in city centers. Employing their regulatory powers under laws like the "Environment (Protection) Act, 1986" (11) and various state municipal acts, state governments and municipal corporations have carved out dedicated parking spaces exclusively for EVs. Separate areas have been legally set apart for electric vehicles in commercial complexes, government buildings, and public parking in Delhi and Mumbai. Therefore, such laws acting in the present situation are not simply an administrative convenience; they create binding legal obligations that place emphasis on the operational convenience of the EV users. These laws improve the life of an individual EV owner by making sure that easy parking is available in congested spaces. Simultaneously, the provisions fulfill a certain environmental objective to promote clean modes of transport in areas that are worst affected by vehicular pollution. Also, in some places, local traffic management regulations have been promulgated under the enabling provisions of the "Motor Vehicles Act, 1988", to allow the creation of low-emission zones where only zero-emission vehicles like EVs can operate freely. Such enforceable restrictions against ICE vehicles further incentivize arguably contentious pockets of prime urban real estate from being freed up for green transport. Over time, these measures seek to bolster the mainstreaming of EVs in urban environments, thus integrating green mobility in city planning and traffic management.¹²

Access to Bus Lanes and Hov Lanes

Providing preferential access to bus lanes and HOV lanes for EVs is a very strong non-financial incentive, making it one exercise of legislative authority involved in urban traffic regulations along with state-level laws pertaining to transportation. Some Indian cities such as Bangalore and Pune have started pilot programs, which permit EVs to use such restricted lanes under the direction of their respective state transport departments via executive orders. The legal rationale is to reward behavior that benefits the environment whilst simultaneously making optimal use of existing road infrastructure. Normally, bus lanes and HOV lanes are given for the benefit of public transport to discourage traffic build-up on the associated thoroughfares. By providing extra road privileges for EVs, the authorities are in turn recognizing that EVs, in deed, help in curbing emissions, thereby promoting efficient urban mobility. This creates a winning situation for the users as they benefit by way of lesser travel time-a definite benefit accruing to EV users every day, which ICE vehicle users cannot easily physically replicate. The legal framework for designating such lanes and imposing such restrictions is found in the Motor Vehicles Act, 1988, read in conjunction with state-specific traffic management legislations, thereby making these privileges enforceable by law and not discretionary in nature. Most importantly, the purpose of these measures is twofold: to encourage private uptake of EVs and to allow better integration of EVs into the public transit mix, thus laying the foundation for a holistic approach toward urban mobility. Through such legally guaranteed traffic privileges, Indian authorities seek to engineer shifts in urban commuting to make electric vehicles a viable option for a large cross-section of the population.

Electric Buses and Public Transport

Switching to sustainable urban mobility in India highlights a strong emphasis on integrating electric buses into existing public transport systems. This transition has taken place because of the Government's concern of traditional diesel-fueled buses on extreme air pollution, greenhouse gas emissions, and consequent public health crises. Electric buses thus solve an environmental problem, while they also prove helpful for India in fulfilling its commitments on a larger scale under international frameworks like the Paris Agreement. From the government's side, policy and monetary incentives have been created to persuade a switch away from diesel bus fleets toward electric buses. The foremost of these schemes is the "PM e-Drive Scheme (2025)", under which ₹10,900 crore has been allocated for deployment of 14,028 electric buses in major cities of India. The sheer magnitude of this investment clearly conveys the message that the state means to develop modern public transport systems while also reducing emissions and dependence on fossil fuels. Complementing the above, from the PM eBus Sewa Scheme (2023), investments amounting to \$2.4 billion are planned to be made for the further deployment of 10,000 electric buses in 169 cities, with operational rollouts slated for 2024-26. These also are supplemented by Faster Adoption and Manufacturing Hybrid and Electric Vehicles, better known as FAME. The FAME incentives are not only for electric bus procurement; they also support the development of essential charging infrastructure. This coupling of financial incentives with infrastructural development forms the legal and policy framework of electric public transportation in India. The strength of these statutory schemes lies in enabling legislation such as the Electricity Act, 2003, and the Energy Conservation Act, 2001, which provide the legal underpinnings for energy-efficient transport solutions.¹³

¹¹ Sustainable Mobility: The Role of Government Initiatives in Shaping India's Electric Vehicle Landscape, available at: <https://www.ibef.org/blogs/sustainable-mobility-the-role-of-government-initiatives-in-shaping-india-s-electric-vehicle-landscape> (Visited on March 22, 2025).

¹² Uttar Pradesh Electric Vehicle Manufacturing Policy 2022, available at: <https://invest.up.gov.in/wp-content/uploads/2023/02/Uttar-Pradesh-Electric-Vehicle-Manufacturing-Policy-2022.pdf> (Visited on February 24, 2025).

¹³ "Transforming Urban Transport: Can Electric Buses Lead India's Green Transit Revolution", available at: <https://energy.economictimes.indiatimes.com/news/power/transforming-urban-transport-can-electric-buses-lead-indias-green-transit-revolution/112210236> (Visited on April 21, 2025).

Government Initiatives for Electric Buses

The legislative and policy framework steering these initiatives rests on the legal competence of the Union and State Governments under the “Seventh Schedule of the Constitution of India”, especially Entries 13 and 20 of the Concurrent List, which enable legislatures to regulate motor vehicles and economic planning. The schemes brought into operation hence under the constitutional mandate are the PM e-Drive Scheme (2025) and PM eBus Sewa Scheme (2023), further testifying to the role of cooperative federalism in the promotion of sustainable mobility. Capital grants and operating subsidies under these schemes are provided to incentivize STUs and private operators in adopting electric buses, which also carry higher upfront costs than diesel buses. Further, the “FAME Scheme” under the Department of Heavy Industries supplements these efforts through the direct incentivizing route based on criteria relative to the battery capacity and energy efficiency of buses, with clearly laid down eligibility criteria for accountability and the proper utilization of funds. These policy instruments are enhanced by guidelines issued by the Ministry of Power under the “Electricity Act, 2003”, for setting up the charging infrastructure requisite for the large-scale operation of electric bus systems. The Ministry of Road Transport and Highways (MoRTH) has also issued notifications under the “Motor Vehicles Act, 1988”, thereby amending certain aspects of vehicle registration to facilitate the introduction of electric buses into state fleets. The harmonized policy environment thus depicts the active role played by the State in formulating legal incentives to de-risk investments in electric public transit vis-à-vis national-level commitments in the international arena.¹⁴

Case Studies of Cities Implementing Electric Public Transit

Delhi and Bangalore provide concrete instances where these national policies have been translated into sharply focused local programs. Delhi has greatly expanded its electric bus fleet; in 2022-23, a record 900 electric buses were sold. This expansion is facilitated mainly by the Delhi Electric Vehicle Policy, 2020, which sets forth aggressive electric public transport targets. The legal canvas for such a policy is, in general, drawn from the Environment (Protection) Act, 1986, and the rules laid thereunder by the Delhi Pollution Control Committee. The incentive frameworks include the exemption of electric buses from road tax and registration fees with reference to Section 39 of the Motor Vehicles Act, 1988, as amended, so as to encourage private operators to come into the public bus service. In Bangalore, electric bus trials have been embedded in more expansive smart city initiatives under the ambit of the Smart Cities Mission, drawing funds from the National Electric Mobility Mission Plan (NEMMP) 2020. The Bangalore Metropolitan Transport Corporation (BMTC) has embraced public-private partnership models under which operational risks are minimized while keeping service quality ensured. Both cities find expressions in measurable terms, such as reduced vehicular emissions, better air quality, and increased reliability of public transport. While these case studies show how statutory mandates, fiscal incentives, and administrative coordination can combine to foster electric public transit systems for complicated urban ecosystems, the examples concretely walk through these factors in action.

Infrastructure Development

In an electric public transit context, while buses signify a very important element, they are also seen as the other, charging infrastructure: legalized construction. The present sphere handles the technical and regulatory prerequisite so that such electric buses, the other electric vehicle opportunities, are permitted to continue being in terms of grid stability or safety. Involved in this charging infrastructure development and expansion are rather complicated coordination mechanisms among the central ministries, state utilities, and private investors within an overarching legal frame. From the legal point of view, the Electricity Act, 2003, and the Central Electricity Authority (Technical Standards for Connectivity of Distributed Generation Resources) Regulations, 2013, are the statutory backup for the safe installation and operation of EVSE. Moreover, the Bureau of Energy Efficiency (BEE) issues the guidelines on energy-efficient charging under the Energy Conservation Act, 2001. Thus these sets of regulations assure that the charging infrastructure meets the present demand and allows for scalability for future growth.¹⁵

Charging Infrastructure for Public Transit

India, as of 2024, has over 12,146 public EV charging stations in operation, which demonstrates the commitment of the government towards development of the backbone of sustainable public transport. The Central Electricity Authority (CEA) guidelines, issued in 2019 under the ambit of “Section 177 of the Electricity Act, 2003”, hence are pivotal to laying down the technical specifications and safety parameters and licensing requirements for public charging stations. The guidelines prescribe parameters for voltage, power quality, and grid connectivity, as well as for protective systems to save consumer interests/safety and to ensure grid reliability. The government is also working on issuing policy support for battery-swapping stations while paying special attention to two-wheelers and three-wheelers given their peculiar operational profile and land availability in urban settings. The National Mission on Transformative Mobility and Battery Storage under the aegis of NITI Aayog operates under the “Administrative Tribunals Act, 1985” so as to provide streamlined regulatory dispute resolution mechanisms for issues arising out of the deployment of EV infrastructure. The Ministry of Heavy Industries has, in tandem with the Ministry of Housing and Urban Affairs, worked to ensure that support for EV charging infrastructure is incorporated into urban master plans with a legal obligation cast on city planners therewith. These efforts seek not only to incentivize private investment but also to ensure that public charging stations are able to discriminate on grounds of safety, accessibility, and consumer protection as per statutory obligations.¹⁶

Integration with Smart City Projects

Incorporating EV charging infrastructures into Indian smart cities projects views it as an engineering mixture of urban planning, technology, and legal

¹⁴ Handbook of Electric Vehicle Charging Infrastructure Implementation, Version-1, available at: <https://www.niti.gov.in/sites/default/files/2021-08/HandbookforEVChargingInfrastructureImplementation081221.pdf> (Visited on March 11, 2025).

¹⁵ Suhana Islam Murshedd, Kanchan J Modak, et.al., "Electric mobility in India: an aspirational dream or a foreseeable reality?", available at: <https://www.ibanet.org/electric-mobility-India> (Visited on April 6, 2025).

¹⁶ Electrifying Indian Mobility, available at: <https://induslaw.com/publications/pdf/alerts-2022/Electrifying-Indian-Mobility-Report-July-2022.pdf> (Visited on March 29, 2025).

framework in a considered and strategic manner. Cities such as Pune and Ahmedabad became the forerunners in integrating and developing EV charging infrastructures in larger smart city plans under the Smart Cities Mission. This Mission, under the control of the Ministry of Housing and Urban Affairs, derives its legal sanctity from the Smart Cities Guidelines, 2015, which enjoined cities to consider sustainable transport and energy solutions while planning for urban development. Their statutory existence for such integration is, however, derived from the constitutional distribution of responsibilities provided for under the Seventy-Fourth Constitutional Amendment Act, 1992, wherein an urban local body is conferred with special powers to decide upon urban planning and public health. Thus, in accordance with that mandate, municipal corporations are empowered to coordinate with the state and central agencies, private players, and public utilities for planning and implementing EV infrastructure: a situation in concurrence with local mobility choices and urban layouts.

In Pune, installation of electric vehicle charging stations by Pune Municipal Corporation in public parking lots, residential complexes, and transport hubs has tremendously motivated electric vehicle purchase and use for the average commuter. These deployments are carried out under licenses issued under Section 43 of the Electricity Act, 2003, whereupon a distribution licensee is obligated to supply electricity to any consumer on his or her request, thus legally facilitating the physical accessing of electricity for charging infrastructure. In Ahmedabad, fast-charging stations are being set up with funding support under the Gujarat Electric Vehicle Policy, 2021, a policy under which ASCL and private players form a collaboration. Since the Gujarat Electricity Regulatory Commission (GERC) is the regulatory body with concerns over tariff regulations and grid compatibility standards for smooth EV charging operations, the policy also has a legal backing from it. Hence, data-sharing protocols to promote interoperability and real-time monitoring of station usage exist in both cities under the guidelines of the Ministry of Electronics and Information Technology (MeitY).¹⁷

The integration of EV infrastructure with smart city projects sets the basic legally enforceable standards for service reliability and safety, environmental sustainability, and consumer protection, which is a welcome convenience. Employing latest technologies including Geographic Information Systems (GIS), Artificial Intelligence (AI), and Internet of Things (IoT) to map charging demands and optimize grid loads along with pre-empting any blackouts stands firmly under “The Information Technology Act, 2000” and “The Electricity Act, 2003.” These technological enforcements assist regulators such as the Central Electricity Regulatory Commission (CERC) vis-a-vis monitoring violations to punish violators, instituting transparent governance while developing the EV infrastructure. Nevertheless, integrating EV infrastructure into smart city projects also enhances adaptive capacities of cities in the long run by lowering carbon emissions, elevating air-quality, and promoting public health outcomes—these targets India has bound itself to under the UNFCCC as well as other relevant international legal instruments.

One can envision an elaborated legal architecture which organizes centralized policy-making and decentralized execution. Local governments are allowed to develop location-specific solutions on a scheme subject to national legislation. The developments in Pune and Ahmedabad have ensured that scalable solutions for sustainable urban mobility can exist under strong legal frameworks along with organized inter-governmental cooperation and with the aid of technological innovations. Such solutions can serve as examples for other Indian cities and can significantly contribute to international discourse on the legal framework conducive to electric mobility and sustainable urban development.

Conclusion

The long analysis of India’s legal incentives for sustainable urban transport reveals a multi-layered, adaptive approach applied in the country to come to terms with environmental and infrastructural concerns posed by fast urbanization. Cities suffer from serious air pollution, traffic congestion, and GHG emissions; thus, India’s legal and policy framework wisely focuses on EVs and public transport. Important national policies, namely the FAME schemes, New Electric Vehicle Policy 2024, and Scheme to Promote Manufacturing of Electric Passenger Cars in India (SPMEPCI) balance out financial incentives, tax subsidies, and import duty structures so as to set incentives both for local manufacture and consumer purchase. State-level incentives, however, are more tailored, considering road tax waivers, purchase subsidies, and manufacturing incentives that respond to the local economic and environmental settings. This is where the strong backdrop of a legal framework consisting of constitutional mandates, sectoral statutes, and international climate commitments come into view, marking just how seriously India takes this integration of sustainability with urban development.

Simultaneously, the governments’ electrification focus on public transport, under the umbrella of schemes such as PM e-Drive and PM eBus Sewa, manifests a very futuristic approach aimed at emission reduction, while boosting public health and promoting access. Legal provisions governing charging infrastructures, having drawn from laws like the Electricity Act, 2003 and Energy Conservation Act, 2001, ensure that a high technical and safety standard is placed on the deployment of EVs. The incorporation of EV infrastructure into the Smart City projects marks an example of how legal regimes empower technology-driven urban planning that addresses real-time concerns such as grid stability, data interoperability, and consumer protection. Case studies from Delhi, Bangalore, Pune, and Ahmedabad have demonstrated how concerted actions between the central, state, and municipal governments can provide a model of a scalable and replicable nature for sustainable urban mobility. Despite considerable advancement, though, restructuring of the legal frameworks, strict enforcement, and policy reforms will have to take a front seat to confront the remaining issues and make sure that irrespective of their environmental sustainability, the massive mobility revolution in India retains social equity.

Suggestions

According to the detailed discussion on legal incentives for sustainable urban mobility, the following targeted measures could further escalate India’s progress:

1. Setting up a centralized platform to streamline the access to EV subsidies from both Central and State governments will smooth administrative delays and allow transparent disbursement of monetary incentives.
2. There must be a mandate for periodic legal audits at the state level to assess the place of EV policies in national objectives and market realities

¹⁷ Government's EV Policies Driving India's Green Revolution, available at: <https://www.investindia.gov.in/team-india-blogs/governments-ev-policies-driving-indias-green-revolution> (Visited on April 3, 2025).

in flux. These audits will be able to pinpoint gaps in the implementation and recommend amendments to statutes.

3. This needs an expansion in the legal provisions under the Motor Vehicles Act, 1988, whereby ride-hailing services and corporate fleets are to implement mandatory EV quotas. This will promote bulk procurement activities, thereby assuring steady demand for the manufacturers of electric vehicles.
4. Amend building codes under municipal laws to legally require new residential or commercial developments to include EV charging infrastructure. Such a preemptive legal mandate would make urban infrastructure future-proof for increased EV adoption.
5. The legal enforcement of low-emission zones could be strengthened further by introducing stricter punishments for non-compliance by ICE vehicles. This would act as a concrete deterrent for the use of fossil fuel-based transport in already congested city centers.
6. Environmental Laws for Battery Recycling and Disposal Were Formulated under the Environment (Protection) Act 1986. A regulatory framework for end-of-life battery management would reduce the environmental hazards caused by EV proliferation.
7. Developing a national legal framework for interoperability standards in EV charging networks would ensure consumer access to any charging station regardless of the service provider and thereby enhance the convenience for users.
8. Provide tax deductions and grants for incentivizing domestic R&D in EV technologies. Developing local technological capabilities shall reduce dependence on foreign technology and enhance industry resilience.
9. Give cities more legal authority to experiment with innovation in mobility solutions such as electric micro-transit and shared mobility services. This decentralized legal liberty would in effect permit the cities themselves to find solutions to their respective mobility patterns.
10. A statutory public grievance redressal mechanism should be set up under the Ministry of Heavy Industries for any sort of dispute in EVs. Deployment of a transparent legally constituted forum to address consumer complaints will do wonders for the trust consumers have in government incentives and policies.