eISSN 2583-6986
IDEALISTIC JOURNAL OF ADVANCED RESEARCH IN PROGRESSIVE SPECTRUMS (IJARPS)
A MONTHLY, OPEN ACCESS, PEER REVIEWED INTERNATIONAL JOURNAL
Volume 05, Issue 05, May 2026

Electric Vehicle Adoption and Consumer Behaviour in India: an Empirical Analysis in the Context of Sustainability

Dr. Ravi Kant[1] & Dr. Anuradha[2]
[1]Assistant Professor in Dept. of Commerce and Management at Govt. PG College Ambala Cantt, (Haryana)
[2]Assistant Professor in Dept. of Commerce and Management at Govt. PG College Ambala Cantt, (Haryana)

Received: 22 May 2026 Accepted & Reviewed: 25 May 2026, Published: 31 May 2026

Abstract

Electric vehicles (EVs) are increasingly recognized as a cornerstone of sustainable transportation, offering a cleaner, more energy-efficient alternative to conventional internal combustion engine vehicles. As part of India's broader push toward environmental responsibility and climate resilience, EV adoption plays a critical role in reducing carbon emissions, improving urban air quality, and supporting the country's sustainable development goals. This paper examines the patterns and determinants of EV adoption in India through an empirical analysis of secondary data, focusing on consumer behaviour, regional disparities, and policy frameworks. The study identifies significant variation in adoption rates across states, driven by socioeconomic factors, infrastructural readiness, and the effectiveness of local incentives. Key behavioural barriers including high upfront costs, range anxiety, and limited public awareness continue to inhibit widespread adoption. The analysis also highlights how EV adoption contributes to national sustainability objectives. Based on these findings, the paper offers seven policy recommendations to strengthen EV uptake, including targeted subsidies, infrastructure expansion, behavioural change campaigns, and inter-state coordination. The study contributes to a deeper understanding of the behavioural and institutional dynamics of electric mobility and outlines actionable strategies for accelerating India's transition to a greener transport future.

Keywords: Electric Vehicles (Evs), Consumer Behaviour, Sustainable Transportation, EV Policy in India, Behavioural Barriers, Regional Adoption Patterns, Sustainable Development Goals (SDGs)

.Introduction

The transportation sector significantly contributes to global greenhouse gas emissions, representing around 24% of direct CO_2 emissions resulting from fuel combustion (International Energy Agency [IEA], 2023). Given the escalating environmental degradation and global commitments to climate mitigation, electric vehicles (EVs) have become an essential element of low-carbon mobility solutions. By providing lower tailpipe emissions and enhanced energy efficiency, EVs are closely aligned with critical sustainability objectives, particularly those specified in the United Nations Sustainable Development Goals (SDGs), such as SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities), and SDG 13 (Climate Action) (United Nations Development Programme [UNDP], 2020). India, recognized as one of the fastest-growing automotive markets globally, is pivotal in the worldwide shift towards electric mobility. In recent years, the Government of India has implemented various national and state-level policies to promote EV adoption, including the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) I and II initiatives, tax incentives, and enhancements to charging infrastructure (NITI Aayog, 2021). However, despite these efforts, the proportion of electric vehicles in total vehicle sales remains relatively low—under 2% as of 2023 (Society of Indian Automobile Manufacturers [SIAM], 2023). This situation highlights a disparity between policy initiatives and consumer engagement, emphasizing the necessity of comprehending the behavioural factors that influence and hinder EV adoption.

Consumer behaviour in this context is influenced by a multifaceted interaction of elements—spanning economic incentives, technological familiarity, environmental awareness, and the availability of infrastructure. Prior studies have shown that adoption choices are affected not only by cost and efficiency but also by perceptions of environmental advantages, societal norms, and trust in technology (Rezvani, Jansson, & Bodin, 2015). In India, where socio economic and regional diversity impacts access to infrastructure and information, these behavioural aspects are especially prominent. This research aims to perform an empirical analysis of consumer behaviour regarding electric vehicles in India, utilizing secondary data sourced from government publications, market studies, and academic literature. The objective is to pinpoint the factors influencing consumer choices and assess their implications for India's overarching sustainability objectives. By connecting adoption behaviour with policy results and sustainable development goals, this research enhances the understanding of EV diffusion in emerging markets. The organization of this paper is as follows: Section 2 offers a summary of selected research on EV adoption and consumer behaviour. Section 3 delineates the research objectives. Section 4 details the data analysis and discussion based on secondary data. Lastly, Section 5 wraps up the paper by highlighting key findings and suggesting avenues for future research.

Review of Literature

CEEW (2022) in a nationwide survey found that over 50% of Indian consumers were unaware of EV-specific government incentives. The report revealed that information asymmetry, lack of exposure to EVs, and scepticism about battery life significantly hinder adoption, particularly among older and rural consumers.

Bansal and Kumar (2021) found that while environmental awareness among Indian consumers is increasing, the high initial cost of EVs, limited resale value, and absence of robust financing options act as significant deterrents. They argue that economic affordability remains the dominant decision-making factor for the middle-class Indian consumer.

Pillai and Jain (2021) assessed consumer trust and found that peer influence, perceived environmental impact, and ease of maintenance were positively associated with intent to adopt EVs, while fear of battery degradation and uncertainty regarding resale were significant inhibitors.

Garg and Sharma (2020) examined state-level differences and found that policy fragmentation and inconsistent implementation slowed EV penetration in India. States with unified incentive frameworks and strong public-private partnerships, such as Delhi and Maharashtra, showed higher rates of adoption.

NITI Aayog and Rocky Mountain Institute (2019) emphasized the infrastructural barriers to EV adoption, especially the lack of accessible public charging infrastructure beyond metro cities. They advocated for a regional approach to infrastructure rollout, focusing on Tier II and Tier III cities to reduce the urban-rural divide in EV accessibility.

Hardman et al. (2018) found that range anxiety, charging infrastructure availability, and financial incentives play a critical role in shaping consumer willingness to switch to EVs. They noted that while financial incentives are essential, non-monetary attributes like driving experience, brand trust, and social status significantly influence purchasing decisions.

Li, Axsen, and Sperling (2017) used discrete choice models in North America to demonstrate that policy incentives are more effective when they align with consumer values and environmental aspirations. They also highlighted the heterogeneity in adoption behaviour across demographic and regional lines.

eISSN 2583-6986
IDEALISTIC JOURNAL OF ADVANCED RESEARCH IN PROGRESSIVE SPECTRUMS (IJARPS)
A MONTHLY, OPEN ACCESS, PEER REVIEWED INTERNATIONAL JOURNAL
Volume 05, Issue 05, May 2026

Rezvani, Jansson, and Bodin (2015) conducted an influential review that identified four main psychological drivers behind EV adoption: environmental concern, perceived usefulness, social influence, and innovativeness. Their findings emphasized the importance of personal norms and trust in technology alongside economic rationality.

Rogers (2003) proposed the **Diffusion of Innovation (DOI) theory** has frequently been applied to understand the slow diffusion of EVs. According to the theory, factors such as relative advantage, compatibility, complexity, trial ability, and observe ability determine the rate of technology adoption. EVs often face challenges related to trial ability (e.g., test driving), complexity (e.g., charging protocols), and observe ability (e.g., visibility in society).

STATEMENT OF THE PROBLAM

Electric vehicle (EV) adoption has received considerable scholarly attention over the past decade, particularly in the context of sustainability and consumer behaviour. Existing research has explored a wide range of factors influencing EV adoption, including economic incentives, environmental attitudes, policy interventions, social norms, and infrastructure development. This section synthesizes relevant global and India-focused studies to provide a conceptual foundation for the present analysis. Globally, Rezvani, Jansson, and Bodin (2015) conducted a comprehensive review of consumer adoption studies and identified key behavioural drivers such as environmental concern, perceived usefulness, and social influence. Similarly, Hardman et al. (2018) emphasized the role of financial incentives, range anxiety, and vehicle performance in shaping consumer preferences. The diffusion of innovation theory (Rogers, 2003) has also been frequently applied to EV research, highlighting the significance of early adopters, communication channels, and perceived advantages in technology acceptance. In the Indian context, EV adoption research has been growing in response to national policy efforts and rising environmental awareness. A study by Bansal and Kumar (2021) found that while consumers are increasingly aware of the environmental benefits of EVs, economic factors such as high initial costs and limited resale value continue to deter potential buyers. Infrastructure gaps, particularly the uneven distribution of charging stations, remain a persistent barrier (NITI Aayog & Rocky Mountain Institute, 2019). Consumer trust in new technology and limited knowledge about EV performance also negatively affect adoption (CEEW, 2022). Policy frameworks have been central to many Indian studies. The FAME I and II schemes have been evaluated for their effectiveness in incentivizing both manufacturers and consumers (Pillai & Jain, 2021). However, scholars have noted that despite generous subsidies, awareness and accessibility remain limited, particularly in Tier II and III cities (Garg & Sharma, 2020). These findings highlight the need for integrated strategies that combine infrastructure expansion, policy incentives, and targeted consumer awareness campaigns.

While much of the literature has examined the macroeconomic and policy-level dynamics of EV adoption, fewer studies have delved into the micro-level behavioural aspects specific to the Indian consumer landscape. There remains a gap in understanding how demographic, psychological, and regional variables shape EV preferences—an area this paper seeks to address using secondary data analysis.

OBJECTIVES

This study aims to investigate consumer behaviour in relation to electric vehicle (EV) adoption in India using secondary data. It seeks to understand how behavioural patterns influence EV uptake and how these dynamics relate to the country's sustainable development agenda. The specific objectives of the study are:

1. To analyze national trends and patterns in electric vehicle adoption in India.

eISSN 2583-6986
IDEALISTIC JOURNAL OF ADVANCED RESEARCH IN PROGRESSIVE SPECTRUMS (IJARPS)
A MONTHLY, OPEN ACCESS, PEER REVIEWED INTERNATIONAL JOURNAL
Volume 05, Issue 05, May 2026

2. To examine key behavioural drivers and barriers
3. To assess the relationship between EV adoption behaviour and India's sustainability goals.
4. To provide evidence-based insights for policy and strategy, aimed at enhancing electric mobility through consumer-focused interventions.

RESEARCH METHODOLOGY

Research Design

This study employs a descriptive and exploratory research design based on secondary data analysis. The research is empirical in nature and aims to understand patterns and behavioural dynamics influencing electric vehicle (EV) adoption in India.

Sources of Data

The research is based entirely on secondary data collected from credible, publicly accessible, and published sources including: Government Publications and Dashboards, Research Institutions and Think Tanks, Peer-Reviewed Academic Literature, Industry Reports and Market Studies

Data Collection and Compilation

Data was compiled through a systematic literature review and policy document analysis. A structured approach was adopted to: Extract numerical data for state-wise EV registrations, policy incentives, and adoption trends. Identify and categorize behavioural factors (barriers and motivators) based on reported findings. Cross-reference policy frameworks and SDG alignments. Synthesize patterns and gaps in consumer knowledge, infrastructure availability, and policy design

Data Analysis Techniques

The following analytical techniques were employed: Descriptive Statistical Analysis, Thematic Analysis, Comparative Policy Analysis, SDG Mapping Framework.

Limitations of the Study

- The study relies exclusively on secondary data, which may limit the granularity and timeliness of consumer-level insights.
- Regional disparities in data availability and reporting consistency across states may affect comparability.
- Behavioural data is inferred rather than directly measured through primary surveys or interviews.
- Rapidly evolving policy and market dynamics may outpace the currency of some secondary sources.

ANALYSIS AND DISCUSSIONS

Section 4 presents a structured analysis of secondary data to explore patterns in electric vehicle (EV) adoption, consumer behaviour, sustainability linkages, and policy responses across India. Drawing on data from government dashboards, state EV policies, and national reports, the analysis addresses each of the research objectives through thematic insights and tabular representation. It begins by examining regional trends in EV registrations to identify disparities in adoption across states. This is followed by an exploration of behavioural barriers that influence consumer decision-making. The subsequent discussion evaluates the alignment of EV adoption with India's sustainability goals, and finally, the section assesses the role of state-level policy instruments in shaping EV uptake. Each table is accompanied by interpretation and discussion, linking the data to broader implications for sustainable transport policy and practice.

eISSN 2583-6986
IDEALISTIC JOURNAL OF ADVANCED RESEARCH IN PROGRESSIVE SPECTRUMS (IJARPS)
A MONTHLY, OPEN ACCESS, PEER REVIEWED INTERNATIONAL JOURNAL
Volume 05, Issue 05, May 2026

Table 1: State-wise EV Registration in India (Top 5 States in 2023)

State	EV Registrations (2023)	Key Drivers
Uttar Pradesh	4,29,000	Low-cost e-rickshaws, rising demand in Tier II/III
Maharashtra	2,42,000	Urban demand, strong state subsidies
Karnataka	1,89,000	Bengaluru tech adoption, charging infra
Tamil Nadu	1,75,000	Manufacturing hub, recent EV policy
Delhi	1,62,000	Fiscal incentives, high awareness

Source: Vahan Dashboard (Ministry of Road Transport and Highways, 2023)

Table 1 presents the top five Indian states in terms of EV registrations in 2023, illustrating significant regional variation in adoption. Uttar Pradesh leads with the highest number of EVs, largely due to the widespread use of low-cost electric rickshaws in semi-urban and rural areas. Maharashtra and Karnataka follow closely, with adoption driven by growing urban demand, better infrastructure, and active policy support. Tamil Nadu's position is influenced by its emergence as an EV manufacturing hub, while Delhi reflects the effectiveness of a comprehensive EV policy and consumer incentives.

These patterns suggest that EV adoption is shaped not only by infrastructure and subsidies but also by the socioeconomic context of each state. While Uttar Pradesh leads in volume, states like Delhi and Maharashtra show more diversified adoption across vehicle segments. The variation highlights the importance of tailored, region-specific strategies to encourage consumer uptake and support sustainable transport goals across different parts of India.

Table 2: Key Behavioural Barriers to EV Adoption in India (Ranked by Impact)

Behavioural Barrier	Description	Impact Level
High Initial Cost	EVs priced higher than ICE vehicles	High
Range Anxiety	Fear of running out of charge during travel	High
Charging Infrastructure Gap	Inadequate public and home charging points	High
Low Technological Awareness	Limited consumer understanding of EV functionality	Medium
Perceived Status Value	View that EVs lack the status appeal of traditional vehicles	Medium
Maintenance and Battery Cost Concerns	Worries about battery replacement cost, service network	Medium

Source: Adapted from Bansal & Kumar (2021); CEEW (2022); Hardman et al. (2018)

Table 2 outlines the major behavioural barriers that influence consumer decisions regarding electric vehicle (EV) adoption in India, ranked by their perceived impact. The most significant deterrents include high upfront purchase costs, range anxiety, and limited charging infrastructure. These factors continue to weigh heavily on consumer preferences, especially in comparison to internal combustion engine (ICE) vehicles, which are seen as more affordable and convenient. Concerns about battery life, resale value, and maintenance costs further reinforce hesitation among prospective buyers.

eISSN 2583-6986
IDEALISTIC JOURNAL OF ADVANCED RESEARCH IN PROGRESSIVE SPECTRUMS (IJARPS)
A MONTHLY, OPEN ACCESS, PEER REVIEWED INTERNATIONAL JOURNAL
Volume 05, Issue 05, May 2026

In addition to economic and practical concerns, psychological and social dimensions also play a role. For instance, limited public awareness and technological unfamiliarity contribute to scepticism, while the perception of EVs as low-status or experimental vehicles reduce their appeal in aspirational markets. These insights point to the need for more targeted awareness campaigns, financing solutions, and confidence-building measures to address consumer hesitation and improve acceptance, particularly beyond metro areas.

Table 3: Contribution of EV Adoption to India's Sustainability Goals

Sustainability Goal (SDG)	Contribution from EV Adoption
SDG 7: Clean Energy	Boosts demand for renewable-powered mobility systems
SDG 11: Sustainable Cities	Reduces air and noise pollution in urban environments
SDG 13: Climate Action	Cuts down CO_2 emissions from the transport sector
SDG 9: Infrastructure	Promotes development of EV charging networks and green tech hubs

Source: United Nations Development Programme (2020); NITI Aayog (2021)

Table 3 maps the alignment of electric vehicle (EV) adoption with key Sustainable Development Goals (SDGs) relevant to India's environmental and developmental priorities. EVs directly support SDG 7 (Clean Energy) by encouraging the shift from fossil fuels to electricity, particularly when powered by renewable. Their role in reducing air and noise pollution, especially in congested urban areas, also advances SDG 11 (Sustainable Cities and Communities). Moreover, EVs contribute to SDG 13 (Climate Action) by lowering transport sector emissions, which are among the fastest-growing sources of greenhouse gases in India.

Beyond environmental benefits, EV adoption promotes industrial innovation and infrastructure development (SDG 9), as seen in the growing deployment of charging networks and the emergence of EV manufacturing clusters. However, the full realization of these goals depends on parallel improvements in grid sustainability, equitable access, and long-term policy consistency. Thus, the integration of EVs into India's transport ecosystem is not only a technological transition but also a pathway to broader sustainable development.

Table 4: Types of Policy Incentives Across Indian States (2023)

Incentive Type	Common States Implementing It	Purpose
Purchase Subsidy	Delhi, Maharashtra, Gujarat, UP	Reduces upfront cost for consumers
Road Tax & Registration Waiver	Delhi, Karnataka, Maharashtra	Makes EV ownership financially attractive
Charging Infrastructure Support	Kerala, Telangana, Tamil Nadu	Expands public charging access
Manufacturing Incentives	Tamil Nadu, Gujarat, Karnataka	Attracts EV industry investments
Battery Swapping Promotion	Delhi, Gujarat	Reduces charging time and builds convenience
Awareness Campaigns	Delhi, Maharashtra	Increases consumer knowledge and trust

Source: Compiled from official State EV Policies (Delhi 2020, Maharashtra 2021, Tamil Nadu 2023, Gujarat 2021, Karnataka 2017) and NITI Aayog EV Dashboard (2023).

eISSN 2583-6986
IDEALISTIC JOURNAL OF ADVANCED RESEARCH IN PROGRESSIVE SPECTRUMS (IJARPS)
A MONTHLY, OPEN ACCESS, PEER REVIEWED INTERNATIONAL JOURNAL
Volume 05, Issue 05, May 2026

Table 4 outlines the major types of policy incentives employed by various Indian states to promote electric vehicle (EV) adoption, categorized by their primary objective. Financial incentives such as purchase subsidies and waivers on road tax and registration are the most widely adopted and directly target cost-related barriers to consumer adoption. Delhi, Maharashtra, and Gujarat have implemented these measures effectively, contributing to higher EV penetration. States like Tamil Nadu and Karnataka have prioritized industrial incentives, attracting manufacturing investments and positioning themselves as EV production hubs.

While fiscal incentives form the foundation of most state EV policies, the table also reveals significant variation in non-monetary support. For instance, Kerala and Telangana have made substantial progress in expanding public charging infrastructure, while Delhi and Gujarat have introduced innovative measures like battery swapping and structured awareness campaigns. This diversity of approaches underscores the importance of a holistic strategy that goes beyond subsidies to address consumer behaviour, infrastructure needs, and long-term ecosystem development.

The four tables collectively illustrate the interconnected dynamics of consumer behaviour, regional policy frameworks, and sustainability outcomes in shaping electric vehicle (EV) adoption in India. Table 1 highlights regional disparities in EV registrations, with states like Uttar Pradesh, Maharashtra, and Delhi emerging as leaders due to a combination of socioeconomic demand and supportive policy environments. This directly supports the analysis of national trends and points to the influence of contextual and infrastructural readiness on adoption patterns. Table 2 deepens this understanding by identifying the behavioural drivers and barriers that influence consumer decisions, such as high upfront costs, range anxiety, and limited awareness—factors that persist even in relatively mature markets and must be addressed through targeted behavioural strategies.

Table 3 links these behavioural patterns to broader sustainability goals, demonstrating how EV adoption contributes to clean energy transition, climate action, and sustainable urban mobility. However, it also reinforces that the full sustainability potential of EVs will depend on inclusive and large-scale adoption. Table 4 shifts the focus to policy instruments, revealing how state-level interventions—ranging from subsidies and tax waivers to infrastructure support and public awareness—vary in scope and effectiveness. Together, the insights from these tables underscore the need for an integrated, evidence-based approach to EV policy that addresses behavioural barriers, promotes equity, and aligns with long-term sustainability objectives.

POLICY RECOMMENDATIONS

1. Targeted Incentive Schemes

Financial incentives should be fine-tuned to reach underserved segments, particularly rural consumers and lower-income groups. Tailored subsidies can help reduce the affordability barrier for electric two-wheelers and small passenger EVs.

2. Strengthening Charging Infrastructure

Investment in accessible, reliable, and regionally distributed public charging infrastructure is crucial. Expanding coverage in Tier II and III cities and along highways can significantly reduce range anxiety and promote daily usability.

3. Behavioural Awareness and Education

National and state governments should implement large-scale, localized campaigns to build trust and familiarity with EV technology. Educational outreach in schools, public transport hubs, and rural areas can demystify EV usage and ownership.

eISSN 2583-6986
IDEALISTIC JOURNAL OF ADVANCED RESEARCH IN PROGRESSIVE SPECTRUMS (IJARPS)
A MONTHLY, OPEN ACCESS, PEER REVIEWED INTERNATIONAL JOURNAL
Volume 05, Issue 05, May 2026

4. **Inter-State Policy Alignment**

Coordination among states through platforms like NITI Aayog can help harmonize EV regulations, share best practices, and reduce market fragmentation. A standardized national framework would improve investor confidence and consumer trust.

5. **Support for Battery Ecosystems and Innovation**

Policy should encourage R&D in battery technologies, promote battery recycling and reuse, and support models such as battery swapping to improve convenience and sustainability across the EV lifecycle.

6. Monitoring and Evaluation Mechanisms

Establishing data-driven monitoring systems at the state and national levels can help track EV adoption patterns, assess policy effectiveness, and identify regional bottlenecks. Regular performance audits and feedback loops will ensure that policies remain responsive to evolving consumer needs and technological developments.

7. Integration with Renewable Energy Sources:

To maximize environmental benefits, EV charging infrastructure should be integrated with renewable energy systems such as solar-powered charging stations. This would not only reduce dependence on fossil-fuel-based electricity but also enhance the overall sustainability of the EV ecosystem.

CONCLUSION- This study has explored electric vehicle (EV) adoption in India through an empirical analysis based on secondary data, focusing on consumer behaviour, regional disparities, sustainability linkages, and policy responses. The findings reveal that while India has made notable progress in promoting EV adoption, the pace remains uneven across states due to variations in policy design, infrastructural readiness, and consumer awareness. States like Delhi and Maharashtra demonstrate the effectiveness of well-integrated incentive schemes and infrastructure support, whereas other regions lag due to limited access and behavioural inertia. Consumer reluctance, driven by concerns such as high upfront costs, range limitations, and unfamiliarity with EV technology, continues to hinder broader adoption. Nevertheless, the role of EVs in advancing India's sustainable development goals is significant. As shown in the analysis, EVs contribute to climate action, cleaner urban transport, and energy efficiency. To realize this potential, a coordinated and inclusive approach is required, one that combines fiscal incentives, infrastructure development, behavioural change, and technological innovation. The study's seven policy recommendations offer a roadmap to support such a transition, enabling EVs to play a transformative role in India's journey toward sustainable mobility.

1.6 REFERENCES

Adhikari, M., Ghimire, L. P., Kim, Y., Aryal, P., & Khadka, S. B. (2020). Identification and analysis of barriers against electric vehicle use. *Sustainability*, *12*(12), 4850.

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Asadi, S., Nilashi, M., Samad, S., Abdullah, R., Mahmoud, M., Alkinani, M. H., & Yadegaridehkordi, E. (2021). Factors impacting consumers' intention toward adoption of electric vehicles in Malaysia. *Journal of Cleaner Production*, *282*, 124474.

Bansal, S., & Kumar, M. (2021). *Understanding consumer behavior for electric vehicles in India: Barriers and enablers*. International Journal of Energy Economics and Policy, 11(4), 560-568.

Bansal, S., & Kumar, S. (2021). Determinants of electric vehicle adoption in India: An empirical study. *Energy Policy, 149*, 112006. https://doi.org/10.1016/j.enpol.2020.112006

Bhalla, N., Kumar, A., & Singh, P. (2022). Factors driving electric vehicle adoption in India. *Energy Policy Journal*, 154, 112–123.

Bhat, F. A., Verma, M., & Verma, A. (2022). Measuring and modelling electric vehicle adoption of Indian consumers. *Transportation in Developing Economies*, *8*(1), 6.

CEEW (2022). *Awareness and Perception of Electric Vehicles among Indian Consumers*. Council on Energy, Environment and Water. [https://www.ceew.in]

CEEW. (2022). *Powering Ahead: India's Electric Vehicle Transition*. Council on Energy, Environment and Water. https://www.ceew.in

Central Electricity Authority (CEA). (2022). *Report on Optimal Generation Capacity Mix for 2029–30*. Ministry of Power, Government of India. https://cea.nic.in

Delhi Government. (2020). *Delhi Electric Vehicle Policy 2020*. Department of Transport, Government of NCT of Delhi. https://transport.delhi.gov.in

Garg, A., & Sharma, R. (2020). Electric vehicle adoption in India: Assessing awareness and challenges. *Renewable and Sustainable Energy Reviews, 133*, 110263. https://doi.org/10.1016/j.rser.2020.110263

Garg, S., & Sharma, M. (2020). *EV policy landscape in India: Challenges and recommendations*. Energy Policy, 144, 111623.

Government of Gujarat. (2021). *Gujarat Electric Vehicle Policy 2021*. Government of Gujarat. https://geda.gujarat.gov.in

Government of Karnataka. (2017). *Karnataka Electric Vehicle and Energy Storage Policy 2017*. Department of Industries and Commerce, Government of Karnataka.

Government of Maharashtra. (2021). *Maharashtra Electric Vehicle Policy 2021*. Government of Maharashtra. https://www.mahadit.gov.in

Government of Tamil Nadu. (2023). *Tamil Nadu Electric Vehicles Policy 2023*. Industries, Investment Promotion and Commerce Department. https://www.investingintamilnadu.com

Hardman, S., Shiu, E., & Steinberger-Wilckens, R. (2018). Comparing high-end and low-end early adopters of battery electric vehicles. *Transportation Research Part A: Policy and Practice, 88*, 40–57. https://doi.org/10.1016/j.tra.2016.03.010

Higueras-Castillo, E., Singh, V., Singh, V. *et al.* Factors affecting adoption intention of electric vehicle: a cross-cultural study. *Environ Dev Sustain* **26**, 29293–29329 (2024). https://doi.org/10.1007/s10668-023-03865-y

International Energy Agency (IEA). (2023). *Global EV Outlook 2023: Catching up with climate ambitions*. https://www.iea.org/reports/global-ev-outlook-2023

Jain, N. K., Bhaskar, K., & Jain, S. (2022). What drives adoption intention of electric vehicles in India? An integrated UTAUT model with environmental concerns, perceived risk and government support. *Research in Transportation Business & Management*, *42*, 100730.

K V, S., Michael, L. K., Hungund, S. S., & Fernandes, M. (2022). Factors influencing adoption of electric vehicles – A case in India. *Cogent Engineering*, *9*(1). https://doi.org/10.1080/23311916.2022.2085375

Li, J., Axsen, J., & Sperling, D. (2017). *Policy options for promoting electric vehicles: Incentives, infrastructure, and education*. Environmental Research Letters, 12(8), 084016.

Masurali, A., & Surya, P. (2018). Perception and awareness level of potential customers towards electric cars. *International Journal for Research in Applied Science & Engineering Technology*, *6*(3), 359-361.

Ministry of Heavy Industries. (2021). *Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME India) Scheme—Phase II*. Government of India. https://heavyindustries.gov.in

Ministry of Road Transport and Highways (MoRTH). (2023). *Vahan Dashboard*. https://vahan.parivahan.gov.in

Mittal, R., & Sharma, S. (2021). Environmental awareness and electric vehicle adoption: A study in urban India. *Journal of Cleaner Production*, 293, 126184.

Monika Jain, Archana Singh, An empirical study on electric vehicle adoption in India: A step towards a greener environment, *Transport Policy*, Volume 156, 2024, Pages 112-125, ISSN 0967-070X, https://doi.org/10.1016/j.tranpol.2024.07.018.
(https://www.sciencedirect.com/science/article/pii/S0967070X24002208)

Mukherjee, S.C., Ryan, L. (2020). Factors influencing early battery electric vehicle adoption in Ireland. *Renewable and Sustainable Energy Reviews* 118, 109504.

NITI Aayog & Rocky Mountain Institute (2019). *India's Electric Mobility Transformation: Progress Report 2019*. [https://www.niti.gov.in]

NITI Aayog & Rocky Mountain Institute. (2021). *Mobilising Finance for EVs in India: A Toolkit of Solutions to Mitigate Risks and Address Market Barriers*. https://niti.gov.in

Noppers, E. H., Keizer, K., Bolderdijk, J. W., & Steg, L. (2014). The adoption of sustainable innovations: Driven by symbolic and environmental motives. *Global Environmental Change, 25*, 52–62. https://doi.org/10.1016/j.gloenvcha.2014.01.012

Pamidimukkala, A., Kermanshachi, S., Rosenberger, J. M., & Hladik, G. (2024). An Exploratory Analysis of Factors Affecting Adoption of Electric Vehicles. In *International Conference on Transportation and Development 2024* (pp. 845-854).

Pillai, S., & Jain, V. (2021). *Trust and intention to adopt electric vehicles: A consumer perspective from India*. Journal of Cleaner Production, 278, 123421.

Rezvani, Z., Jansson, J., & Bodin, J. (2015). Advances in consumer electric vehicle adoption research: A review and research agenda. *Transportation Research Part D: Transport and Environment, 34*, 122–136. https://doi.org/10.1016/j.trd.2014.10.010

Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press.

Shalender, K., & Sharma, N. (2021). Using extended theory of planned behaviour (TPB) to predict adoption intention of electric vehicles in India. *Environment, Development and Sustainability*, *23*(1), 665-681.

Singh, R., Malhotra, K., & Mehta, P. (2020). Consumer perceptions of electric vehicle performance in India. *Transportation Research Journal*, 64(3), 195–208.

Tarei, P. K., Chand, P., & Gupta, H. (2021). Barriers to the adoption of electric vehicles: Evidence from India. *Journal of Cleaner Production*, *291*, 125847.