5th World Conference on
Climate Change and Global Warming
07 - 09 March 2025 Vienna, Austria

Understanding Barriers and Psychographic Drivers of Electric Vehicle Adoption in Tier-II Cities: Evaluating Policy Impact and Forecasting Demand in India

Animesh Jaiswal[1], Dr.Arkopal K. Goswami[2] ,Nilanjan Paul[3], Dr. Deepanjan Majumdar[4]

[1,2,3,4]*Indian Institute of Technology Kharagpur, India*

Abstract

India's transition to electric vehicles (EVs) has gained considerable momentum post-COVID-19, driven by a surge in government policies and demand-side incentives aimed at reducing carbon emissions and promoting sustainable transportation. However, as of July 2024, EVs account for only 6.44% of total vehicle sales, with private EV four-wheelers and two-wheelers at 1.74% and 4.93%, respectively—significantly short of the national targets of 30% for private EV cars and 100% for two-wheelers by 2030. Despite substantial policy support, limited fund utilization under schemes such as FAME Phase 1 and Phase 2, at 41% and 19% respectively, reveals a gap between policy objectives and actual market outcomes. This research rigorously examines the factors influencing EV adoption, with a focus on the psychographic characteristics and behavioral tendencies of current EV users in emerging urban markets. In particular, the study assesses the extent to which environmentally conscious values influence consumer decisions in shifting to EVs, providing a nuanced perspective on the alignment between climate consciousness and adoption behavior. Utilizing the Theory of Planned Behavior to explore attitudes, subjective norms, and perceived behavioral control, combined with Structural Equation Modeling (SEM) for relational analysis and the Generalized Bass Model (GBM) for forecasting demand under varied policy conditions, the findings highlight critical psychographic drivers of EV adoption. The study's insights into user satisfaction and policy effectiveness offer actionable recommendations to strengthen climate and energy policy, aiming to foster a resilient low-carbon mobility framework that aligns with India's broader sustainability and decarbonization goals.

Keywords: Consumer Environmental Awareness; Electric Vehicle Market Dynamics; Low-Carbon Transition; Policy Effectiveness; Sustainable Mobility