CUTS International

Accelerating Electric Vehicle Adoption in Rajasthan

Project Advisory Committee Meeting

June 10, 2022

Synthesis Report

Introduction to the Project

Rising transportation activity—the ever-increasing demand to move more people and goods further and faster—is both a cause and an effect of India's rapid economic growth. The growth in personal as well as freight vehicles, and the corresponding surge in fuel use, is expected to continue for the next several decades. As necessary as the increase in mobility may be to boost the standard of living, there are some unpleasant consequences associated with it. These include growing reliance on imported fossil fuels, which are responsible for climate change, and increasing emissions of pollutants responsible for adverse human health effects.

According to the World Health Organisation, India is home to nine out of the ten most polluted cities in the world. A significant contributor to air pollution is the transport sector, in which road transport is the main sub-sector accounting for over 95 percent of the entire transport sector's emissions. During the COP21 Summit held in Paris, the Government of India committed to reducing emission intensity to 33-35 percent by 2030 from 2005 levels. Hence, it is pertinent to introduce alternative means in the transport sector. Electric vehicles, also called Zero-Emission Vehicles (ZEVs), can potentially be a game-changer for the environmental challenges posed by conventional vehicles.

In recent years, an increasing number of states have committed themselves to promote EVs within their strategic mobility planning. State Electric Vehicle (EV) policies have introduced a range of supporting incentives which mainly include consumer demand incentives for buyers, charging infrastructure incentives and industry incentives to meet the supply side gap. States with existing EV policies are now beginning the process of revising and implementing these policies. At the same time, more states aim to draft and notify their EV policies.

The objective of this project was to identify current supply and demand side gaps impeding the transition to EVs in the state of Rajasthan and subsequently suggest a policy roadmap for addressing these gaps. To supplement this, the project also aimed to analyze various policy practices (policy interventions, regulations, non-legislative steps, innovative regulatory mechanisms, collaborative efforts from corporates) in the EV space and draw from best practices of states championing this transition.

To understand the current policy and adoption landscape in India as well as Rajasthan, five cities in Rajasthan i.e., Jaipur, Jodhpur, Udaipur, Kota and Alwar were selected as project locations. After this, an extensive map of stakeholders in each of these five cities was carried out. Following the initial mapping of stakeholders, the PESTEL framework was chosen for capturing the perspectives of the diverse set of stakeholders. Indicators were identified and questionnaires were developed to gauge the relative importance of various factors on the demand and supply side. The survey was divided into three components for effectively capturing the insights and a separate set of PESTEL indicators were developed for Demand-side and Supply- side stakeholders. The data collected for each of these factors (PESTEL and User Satisfaction) was analysed through descriptive statistics.

For supply-side stakeholder analysis, the stakeholders were manufacturers of EVs, their components, and allied equipment such as battery chargers, and other charging equipment across the five selected citie. For getting a demand side perspective for the EV industry, the stakeholders considered were current and potential EV users & EV fleet aggregators.

Having completed these project activities so far, a PAC meeting was organised with the objective of informing the esteemed members regarding the project activities completed so far and seek feedback from them on the findings so far. Furthermore, the meeting also aimed to garner insightful feedback regarding how the team can engage with the state level authorities for effective utilisation of the recommendations.

Key Discussion Points

1. Battery safety for two wheelers

Recent incidents of battery fires and explosions in EV two wheelers have caught considerable public attention. Along with the costs of batteries and range anxiety issues around EVs, safety considerations are also becoming an important issue. As with any new technology, it is important that the industry implements best practices and safety standards and deploys the right combination of battery chemistry, cell design and battery management system to minimize risks of such incidents.

2. Freight electrification

In India, medium and heavy-duty trucks comprise only 2% of the total vehicle population but contribute to 30% of the overall vehicular road transport emissions. Given this disproportionate share of GHG emissions, there is a specific need for increased ambition and a faster transition for medium and heavy-duty freight vehicles. Clear demands for medium and heavy-duty vehicle electrification from businesses in India in key vehicle applications can jumpstart a transition. Early

adoption of zero-emission trucks can be instrumental in not only accelerating its domestic climate imperatives but also supporting global climate action.

3. Need of a Mandate push

There are demand side incentives for potential customers through fiscal measures. Equally important are the supply side measures to encourage investment and manufacturing. There's a need for supply side mandates as well. Supply side incentives need to be located in a global context, given the nature of the industry. Batteries are the most valuable parts of EVs, with estimates putting them at 40% of the total value and China is the major player along the entire lithium-ion cell supply chain. Given this context, there is a need to evaluate and leverage India's strengths and develop the best possible supply side incentives through Production-Linked Incentive Schemes and also individual state government policies.

4. EV in Last Mile Connectivity

While EV market has seen multi-fold growth and adoption, the boost in EVs sales will come through the last-mile delivery segment. There has been an increase in the number of logistics and e-commerce companies committing to go electric, which has been an important driver for EV growth in India. Electric vehicles reduce carbon tailpipe emissions by 13 tons per 100 kilometers. Thus, EVs in the last mile connectivity is a win-win solution for customers as well as the larger society. However, it is important to have vehicles that are reliable and powerful to give a seamless experience throughout its usage.

5. Indigenization of Supply chain

There is a need to achieve high levels of localization of EV manufacturing and for that ecosystem stakeholders need to invest in technology from incumbent OEMs and auto component companies. Also, Policymakers will have to strike a balance between promoting localization while making EVs economical & scaling charging infra to drive adoption and unlock economies of scale.

6. Better utilization of charging infrastructure

The commercial viability of a standalone EV charging stations on places away from areas which have significant number of EVs, is questionable at this point in time given the low numbers of EVs. There are also issues like land price, need for installing HV substation, power backup capacities in case of power failure etc. For estimating the requirements of public charging infrastructure, an EV charging demand assessment should be conducted with a focus on the projected demand for public charging for different vehicle segments. This can help calculate the number of public chargers required, which in turn can be used to set annual targets for public charging infrastructure.

Conclusion and the Way Forward

The primary aim should be to take learning from existing policies of states like Delhi and identify driving factors and a nodal agency to take this initiative forward will result in positive outcome.

As next steps, the following action points are to be considered:

1. Conduct an econometric correlation and rank perception analysis to get more nuanced insights and comparisons between the vehicle segments/cities.
2. Prepare a comprehensive and holistic final report and chart out the roadmap for Rajasthan government in order to promote EV.
3. For final concluding event, Nodal officers from RERC, RIICO and MNRE who are aware of the developments in EV Sector should be contacted.

List of Participants

SI.No	Name	Designation & Organisation
1	A.K Bohra	Former Managing Director, Jaipur Vidyut Vitaran Nigam Limited.
2	Amit Bhatt	Managing Director, International Council on clean transportation
3	Vinit Bansal	Founder and CEO, EV Motors
4	Aishwarya Raman	Associate Director and Head of Research, Ola Mobility institute
5	Pradeep Karuturi	Senior manager, Policy advocacy and Research, Ola Mobility Institute
6	Sucharita Bhattacharjee	Policy Analyst, CUTS International and Deputy Centre Head, CRC
7	Trinayani Sen	Senior Research Associate, CUTS International
8	Akash Sharma	Assistant Policy Analyst, CUTS International
9	Gautam Kumar Sanu	Research Associate, CUTS International
10	Animesh Kumar Tiwary	Research Associate, CUTS International
11	Baishali Lodh Chowdhary	Research Associate, CUTS International