



## City Information Note

# Meerut

## EV Readiness



## City overview

Meerut, the biggest city in the National Capital Region (NCR), is in the state of Uttar Pradesh. It is also known as the 'sports city of India'. With proximity to Delhi and availability of 3500 hectares of industrial land, Meerut is fast developing into an important industrial hub with various trade and commerce linkages.

### Demographics



**Population**  
18.7 lakhs (UA)  
15.7 lakhs (MC).



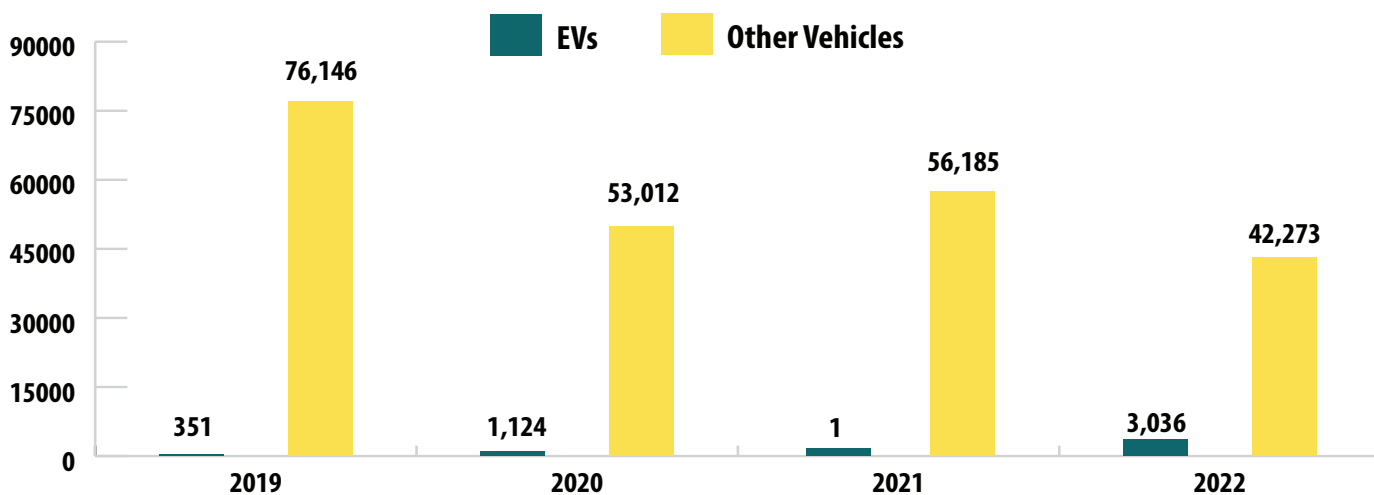
**Area**  
450 sq. km. (MC)



**City Type**  
Tier-II

### Vehicles Registered\*

About 3% of total vehicles registered (2019–2022) are EVs but the number of registered EVs are rising every year inspite of the percentage decrease in the ICE vehicles registered in 2020, illustrating the rising adoption of EVs in Meerut, specifically E-rickshaws. The share of EVs in the year 2022 is more than 7% of the registered vehicles. The registration trend of EVs vs other vehicles from 2019 to 2022 is given below:



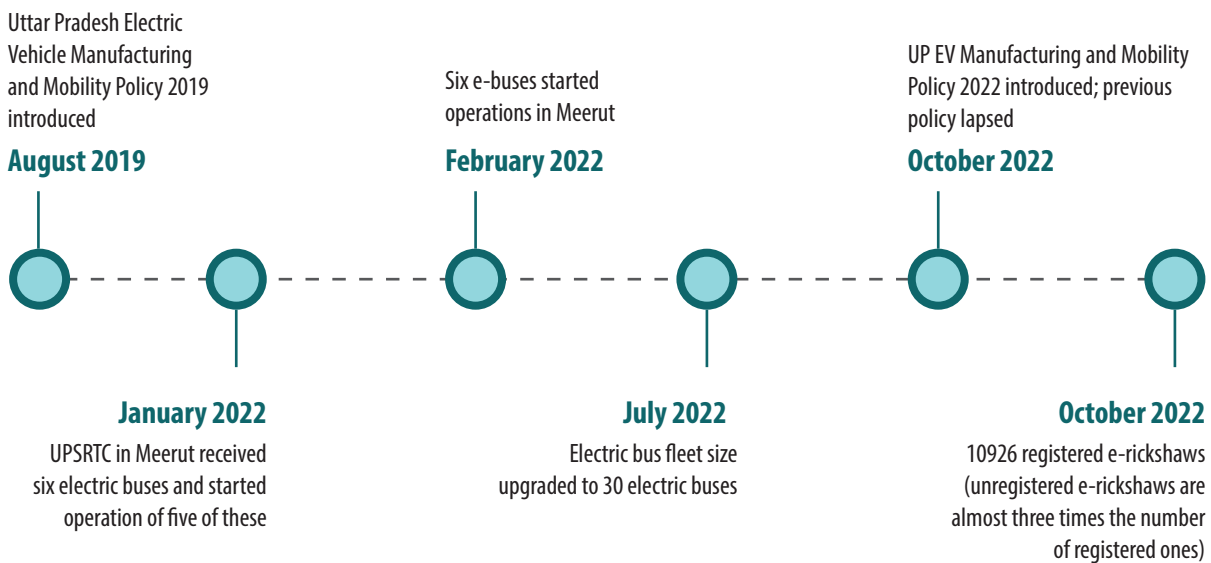
\*Information source- VAHAN Dashboard, accessed on 30th September, 2022

## Background

Electric Mobility revolution is gaining momentum in Indian cities and is being promoted by the central government through various incentives to reduce the country’s reliance on fossil fuels and reduce Greenhouse Gas (GHG) emissions from the transport sector. Indian cities are also aiming to integrate sustainable and low emission alternatives in urban transport. But long-term actions are required for mass adoption of e-mobility in Indian cities. ICLEI South Asia embarked an initiative to “Support Indian Cities in Taking Leadership on Electric Vehicles (EV)” to aid the cities to identify priority interventions and take necessary steps towards accelerated transition to EVs.

This initiative included several interactions and discussions with the city stakeholders during visits to 10 project cities - Coimbatore, Gangtok, Kochi, Lakshadweep, Meerut, Nagpur, Panaji, Rajkot, Shimla and Surat. Consultations with the major stakeholders impacting EV transition in cities included advisory groups, industry experts including the advocacy group, charging infrastructure developers, vehicle technology/OEMs and –financial institutions. As part of the initiative, ICLEI South Asia team visited Meerut on 7 and 8 July, 2022 to interact with the stakeholders and understand the existing EV transition situation, challenges and opportunities and to suggest a way forward for the city.

## EV related developments in Meerut















## Key stakeholders

The stakeholders in Meerut with whom interactions were held during city visit are:

	Stakeholders	Roles
State Government stakeholder	Uttar Pradesh State Road Transport Corporation (UPSRTC)	<ul style="list-style-type: none"> <li>Operates buses in the city</li> <li>Floating tenders for e-bus procurement.</li> <li>Finalising tariff of e-bus</li> </ul>
City Government stakeholder	Meerut Municipal Corporation (MMC)	<ul style="list-style-type: none"> <li>Finalise EV targets for the city</li> <li>Land owner- Demarcates land for charging infrastructure</li> <li>Floating tender for development of charging infrastructure.</li> </ul>
	Pashchimanchal Vidyut Vitran Nigam Ltd. Meerut (PVVNL)	<ul style="list-style-type: none"> <li>Gives approvals for electricity connections</li> <li>Finalises tariff of charging EVs</li> <li>Ensures timebound access of required load of electricity</li> </ul>
	Meerut Development Authority (MDA)	<ul style="list-style-type: none"> <li>Develops policies related to building</li> <li>Approves building plans</li> </ul>
	RTO	<ul style="list-style-type: none"> <li>Registers EVs and prioritises registration process for EVs through single-window clearance.</li> </ul>
Others	Vehicle Technology/ OEMs	<ul style="list-style-type: none"> <li>Manufactures and supply EV and its parts</li> </ul>
	Builders Association	<ul style="list-style-type: none"> <li>Ensures development of EV-ready buildings</li> </ul>
	Industry Association	<ul style="list-style-type: none"> <li>Sensitises the consumers and buyers about EVs</li> <li>Provides research and implementation support</li> </ul>

## State EV Policy

Uttar Pradesh Electric Vehicle Manufacturing and Mobility Policy 2022 is summarised as follows:

 <p>Aims to attract investment of INR 50,000 crore indirect employment to 1 lakh people</p>	 <p>Effective for 5 year</p>
 <p>State endeavors to attain 100% public transport electrification by 2030</p>	 <p>Green routes to be identified</p>
 <p>Focus on 3 pillars for promoting EV industry which include creation of charging infrastructure, faster EV adoption and manufacturing</p>	 <p>Encourage state government employees to transition to EV Certified retrofitted EVs in the state to be promoted</p>
 <p>Invest UP - Nodal Agency - Coordinating and facilitating investment for the construction of charging infrastructure</p>	 <p>20 charging stations and 5 battery swapping station in each district of UP.</p>
 <p>Strong and sustainable ecosystem for battery management, from production stage to disposal stage.</p>	 <p>Exemption from road tax and registration fee for five years.</p>

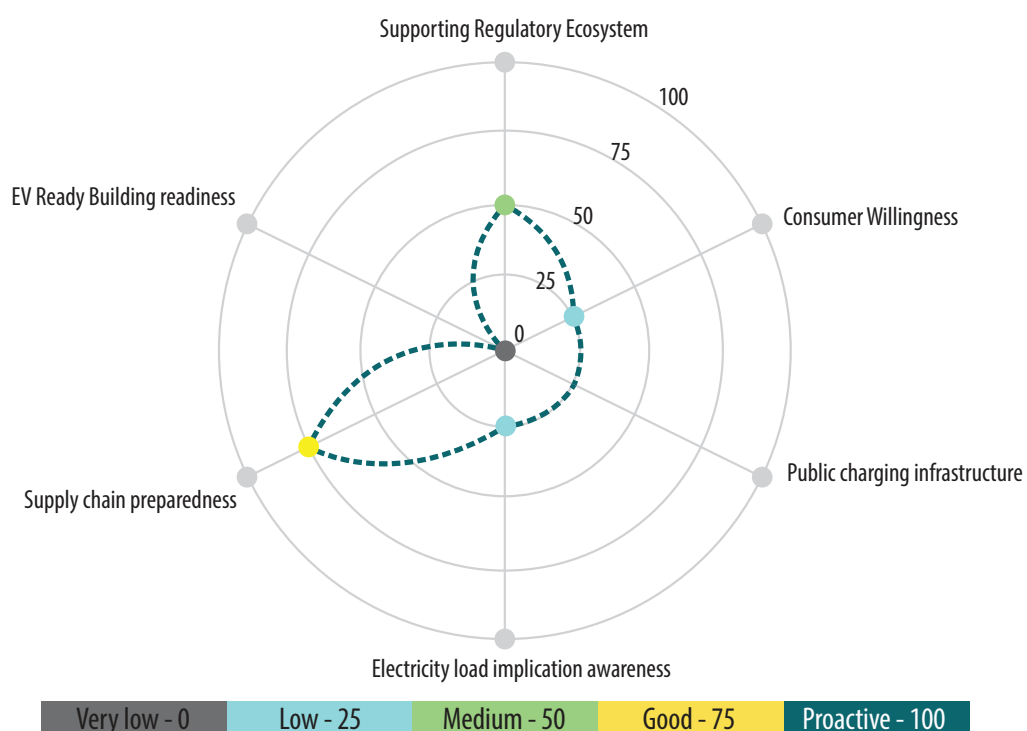
## City- EV related actions-status\*

This information was collected through interactions and discussions with government and private stakeholders related to EVs during a visit to Meerut.

<h3>Policy and Advocacy</h3> <ul style="list-style-type: none"> <li>State-level Policy- Yes</li> <li>City-level Policy- No</li> <li>Initiatives- No</li> </ul>	<h3>Charging Infrastructure</h3> <ul style="list-style-type: none"> <li>Public charging stations- No (absence of DC fast charger)</li> <li>Public transport charging depot-Yes (1 charging station at the Depot in Lohia Nagar)</li> </ul>
<h3>Financial Incentives</h3> <p><b>State level - Yes</b></p> <ul style="list-style-type: none"> <li>Charging infrastructure - 25% subsidy on first 100 station (investment up to 6 lakhs)</li> <li>EV buyer - Exempted from paying motor vehicle tax, registration fee and road tax (100% for E-2W, 75% on other EVs)</li> </ul> <p><b>City level- No</b></p>	<h3>Vehicle Technology - Supply chain</h3> <ul style="list-style-type: none"> <li>Visible missing after sales service</li> <li>High proliferation of non-registered E-rickshaws</li> <li>Safety concerns due to e-rickshaw vehicle design which overturns on collision (E-IPT)</li> </ul>






## City Readiness

Meerut city's EV readiness was synthesized after the parameters that impact the EV transition were assigned scores. **Twenty-five parameters were listed under 6 categories**, which are supporting regulatory ecosystem, supply chain preparedness, consumer willingness\*, public charging infrastructure, EV readiness in buildings and electricity load implication awareness. The scoring of the city was based on the information collected during city visits. The readiness of the city was assessed as follows:



\*Consumer willingness has been rated on the basis of the responses of dealers of EVs and discussions with city government officials.

There is a need for the city and the state government, to give a push to the EV transition by improving the existing EV operations to encourage and sensitise the users, and by encouraging EV ready buildings and grid readiness for the same. The observations from the city readiness assessment includes the following:

	Good supply chain preparedness due to proximity to Delhi from where supply and repairing of EV/ EV parts is easy and swift.
	The regulatory ecosystem is better due to active policies and initiatives at the state level but the push from the city is required for effective EV transition.
	Public charging infrastructure is missing and the awareness among users is missing due to which there is lack of confidence leading to reduced consumer willingness.
	The city officials are slightly aware about the expected electricity load implications but are not prepared for the same.
	The level of awareness and willingness to develop EV ready buildings is very low in the city and requires focus.

## Observations

The Meerut Municipal Corporation has taken steps for electrification of buses (public transport) by including 30 e-buses for intra-city bus operation. E-rickshaws are an important last mile connectivity mode operational in the city with almost two-thirds of these being unregistered and contribute to almost 85% of total EVs registered in the city\*.

Government representatives also want to understand the performance and upcoming demand of EVs along with its implications and take actions accordingly. Regulating the existing e-rickshaws operation, their charging infrastructure and planned e-bus operation will certainly help the city to transition towards EVs efficiently.

The key challenges identified after visiting the city and interacting with the stakeholders are as follows:



Variable e-bus routes leading to lack of confidence among users



Location of charging depot for e-buses at the city periphery will increase the dead km.



Unregulated charging infrastructure for e-rickshaws



Lack of awareness related to grid readiness



Lack of awareness related to EV ready buildings and EV performance



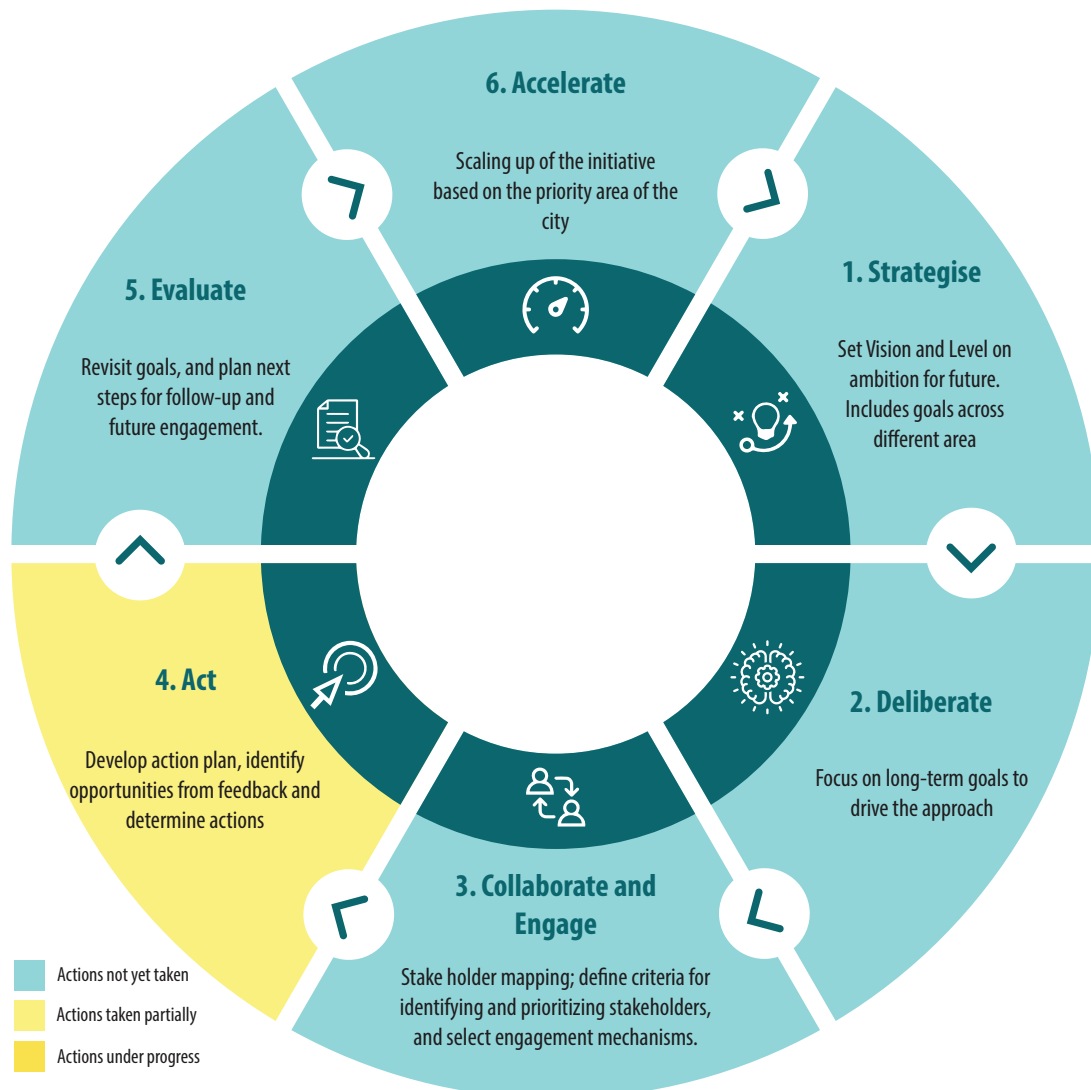
Loss of revenue from fuel based vehicles while transitioning to EVs

## Approach

Discussions and consultations were held with city stakeholders, industry experts and the advisory group were taken to develop the six-step approach:



The six-step approach which Meerut should preferably follow to address the challenges identified above are as follows:

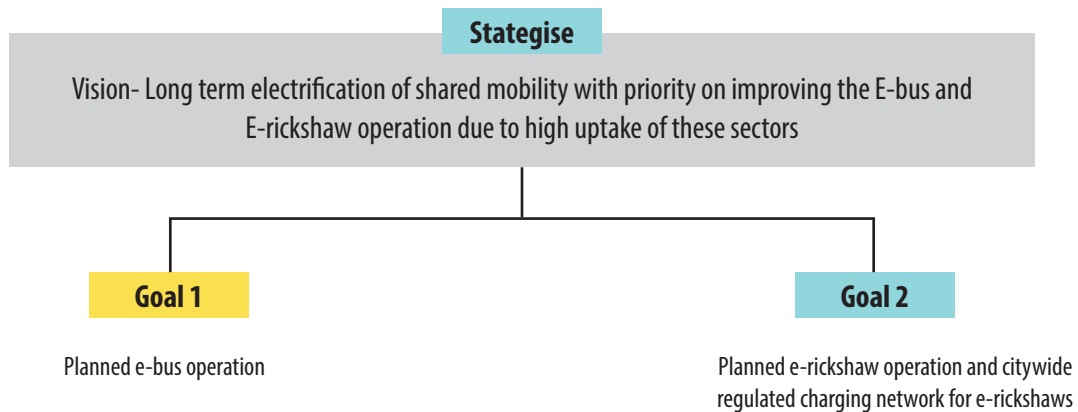


As per discussions, Meerut city is currently focusing on the step of 'act' as evident from the e-bus and e-rickshaws operations and further requires focus on the other steps of approach along with a clear set of targets and strategies.

## Recommendations

The city should appoint a nodal person/ nodal team which leads the EV initiative and is assigned with all the tasks related to EV adoption.

Further, planned e-bus operations and regulated operation and charging facilities for e-rickshaws are two major priority as per the analysis of city readiness, challenges and opportunities. The description of these two strategies as per the 6-step approach recommended for Meerut is as follows:



Goal 1 - Planned e-bus operation				
Deliberate	Collaborate and Engage	Act	Evaluate	Accelerate
Ridership and modal share	<ul style="list-style-type: none"> <li>UPSRTC</li> <li>E-bus operator</li> <li>Meerut Municipal Corporation</li> </ul>	<ul style="list-style-type: none"> <li>Action plan with specific target of converting a %age of existing PT fleet to EV</li> <li>Finalise the financial action plan for long term</li> </ul>	<ul style="list-style-type: none"> <li>Assessing the targets achieved</li> <li>The plan is usable for the targeted tenure or updation as required</li> </ul>	<ul style="list-style-type: none"> <li>Aggressive target for transitioning to EVs</li> <li>Procurment of buses for citywide operation</li> </ul>
Route rationalisation	<ul style="list-style-type: none"> <li>UPSRTC</li> <li>E-bus operator</li> <li>Charging depot developer-operator</li> <li>Pashchimanchal Vidyut Vitran Nigam Ltd. Meerut</li> </ul>	<ul style="list-style-type: none"> <li>Strategy plan for deciding the routes for E-buses, considering the demand</li> <li>Finalise opportunity charging locations with reduced dead km.</li> <li>Analyse the existing area which can be utilised for E-bus opportunity charging and parking</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of people the e-bus routes are catering to.</li> <li>Dead km travelled by the E-bus should be less than 10% of total trip length</li> <li>Plan and finalise locations of charging depot (opportunity charging)</li> </ul>	<ul style="list-style-type: none"> <li>Scaling up through deployment of e-buses at city wide routes as per demand</li> </ul>
Service related aspects	<ul style="list-style-type: none"> <li>UPSRTC</li> <li>Third party service provider</li> </ul>	<ul style="list-style-type: none"> <li>Strategy to improve the reliability of buses using ITMS for users.</li> <li>Information to the users in case of delay</li> </ul>	<ul style="list-style-type: none"> <li>Average waiting time for bus should be 12 minutes (max) at each route</li> </ul>	<ul style="list-style-type: none"> <li>Scaling up the operation of E-buses with ITMS to city wide network</li> </ul>
Last mile connectivity	<ul style="list-style-type: none"> <li>Meerut Development Authority</li> <li>Pashchimanchal Vidyut Vitran Nigam Ltd. Meerut</li> <li>Last mile connectivity mode association E-rickshaw</li> </ul>	<ul style="list-style-type: none"> <li>Last mile connectivity strategy for existing public transport</li> <li>NMT inclusion</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of city area with a radius of 600m from the nearest public transport mode</li> <li>Dedicated NMV track having minimum width of 1.5m or more</li> </ul>	<ul style="list-style-type: none"> <li>Scaling up of last mile connectivity to existing public transport routes</li> </ul>

## Goal 2 - Planned e-rickshaw operation and citywide regulated charging network for e-rickshaws

Deliberate	Collaborate and Engage	Act	Evaluate	Accelerate
Routes and halting spaces	<ul style="list-style-type: none"> <li>E-rickshaw association</li> <li>MMC</li> <li>MDA</li> <li>Traffic Police</li> </ul>	<ul style="list-style-type: none"> <li>Finalise routes/area and halting areas</li> <li>The routes shall be finalised for the e-rickshaws to operate as feeder to the public transport</li> </ul>	<ul style="list-style-type: none"> <li>Assessing the targets achieved</li> <li>The plan is usable for the targeted tenure or updation as required</li> </ul>	<ul style="list-style-type: none"> <li>Aggressive target for transitioning to Evs</li> </ul>
Regulated charging for E-rickshaws	<ul style="list-style-type: none"> <li>E-rickshaw association</li> <li>Charging infrastructure developer and operator</li> <li>MMC</li> <li>MDA</li> <li>PVVNL</li> </ul>	<ul style="list-style-type: none"> <li>Finalise locations for charging e-rickshaws in consultation with MMC, MDA and other stakeholders.</li> <li>Finalise the operational guidelines, tariff, maintenance model and financial implications.</li> <li>Provide land at subsidized rate/ without incentives to the developer.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that demand based targets are fulfilled, charging stations at the public transport routes specially bus routes.</li> <li>Monitor the usage of charging stations</li> </ul>	<ul style="list-style-type: none"> <li>Analyse the economic viability and further take actions for expansion to citywide public charging network for e-rickshaws as per demand</li> </ul>
Service related aspects	<ul style="list-style-type: none"> <li>Traffic Police</li> <li>E-rickshaw association</li> </ul>	<ul style="list-style-type: none"> <li>Organise awareness sessions regarding safety standards</li> <li>Analyse the accidents statistics and existing reasons for challans and penalties on e-rickshaw drivers</li> <li>Ensuring that the e-rickshaw associations are well aware about the regulations, documents required for operations, routes, other rules, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Analyse the penalties and challan statistics and reduction in numbers due to awareness.</li> <li>Improved operation of e-rickshaws with reduced accidents</li> </ul>	<ul style="list-style-type: none"> <li>Awareness sessions for improved awareness among the drivers and operators of e-rickshaws during the time of purchase and through e-rickshaw associations.</li> </ul>

## Way Forward

Meerut should have a clear set of targets and prioritise on the following actions for accelerate EV adoption:



Planned operation of existing e-bus fleet- Data driven scheduling of buses on routes to improve reliability



Integrated kerbside/ regulated operation and charging facilities for e-rickshaws, which serves a main mode of IPT



Electrification of E commerce fleet



Electrification of SWM Fleet- Municipal vehicles



EV ready buildings to cater to rising number of Evs (specially E-2 Wheeler)



Electrification of Government fleet (Municipal Corporation vehicles)



Awareness programme to sensitise public and government officials involved with EV sector

### Acknowledgement

ICLEI South Asia would like to express its sincere gratitude to the officials from Meerut Municipal Corporation (MMC), Uttar Pradesh State Road Transport Corporation (UPSRTC), Meerut Development Authority (MDA), Pashchimanchal Vidyut Vitran Nigam Ltd. Meerut (PVVNL), RTO Meerut and OEMs in Meerut for their insights and guidance. The inputs from the Advisory Group members were crucial in finalising the document.

### Disclaimer

This document includes preliminary recommendations and the way forward, based on interactions, fieldwork and background research and may require detailing as per the dedicated studies.

For more information, please contact:

**ICLEI - Local Governments for Sustainability, South Asia**

C-3 Lower Ground Floor, Green Park Extension, New Delhi 110 016

Tel: +91-11-4974 7200, Fax: +91-11-4974 7201, Email: [iclei-southasia@iclei.org](mailto:iclei-southasia@iclei.org)