

Barriers for a transformation to Electric Vehicles in India

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Context - India

Strong enabling policies in India

Focus Area	Action/Target	Policy
Fuel quality standards	Phase in Euro V fuel standards from 2019 onwards	Auto Fuel Vision and Policy 2025
Emission norms for cars	Euro IV (2017) Euro V (2021) Euro VI (2024)	Auto Fuel Vision and Policy 2025
Promoting Electric Vehicles	Subsidies for EV, infrastructure investments and R & D	National Electric Mobility Mission Plan, 2020
Vehicle Fuel Efficiency Program	Passenger vehicle fuel efficiency standards, labelling and penalties	In process of implementation (includes EVs)

Source: Dhar, S., Pathak, M., & Shukla, P. R. 2017. Electric vehicles and India's low carbon passenger transport: a long-term co-benefits assessment. *Journal of Cleaner Production*, 146: 139-148.

Achievement (Cars)

Country	Stock	Market Share
China	648,770	1.4 %
US	563,710	0.9 %
Norway	133,260	28.8 %
India	4,800	0.0 %

Source: IEA. 2017. Global EV Outlook 2017: Two million and counting. Paris: International Energy Agency.

Tender for 10,000 EV cars (EESL)

Objectives of the Study

- Investigate the barriers current users face for electric vehicles (EVs)
- Identify the likely improvements that can improve demand for EVs

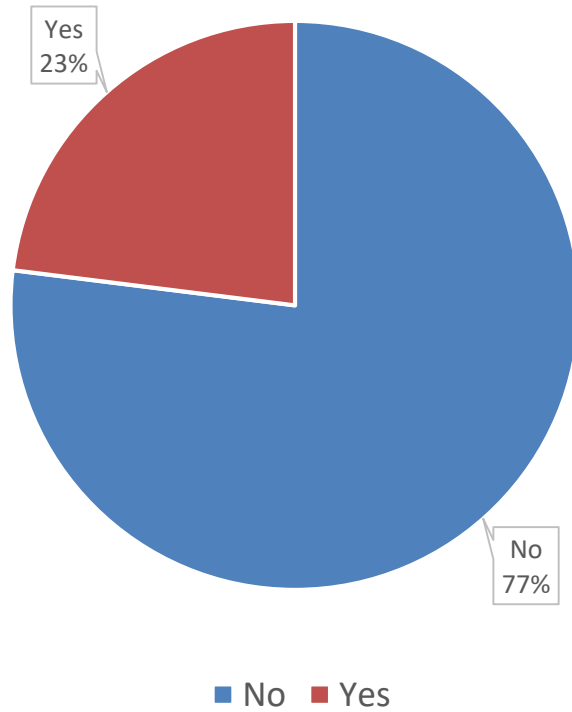
Questions

- Questions asked
 - Socio-Demographics and Vehicle Ownership
 - Travel habits
 - Awareness about Electric Vehicles
 - Preference for charging locations and driving range
 - Barriers perceived
 - Intention to buy an Electric Vehicle
 - Stated choice

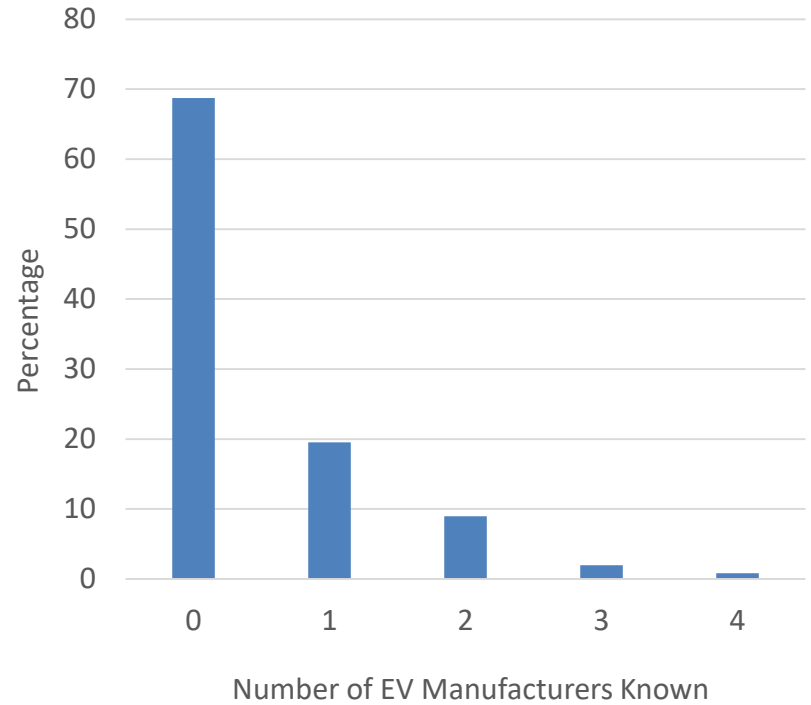
- Analysis of consumer preferences, a market study titled “Study on Electric Mobility in India” was conducted for the city of Hyderabad between May and September 2017
 - 1000 consumers surveyed
 - Public locations
 - Malls/Shopping centres
 - Employees of large public sector undertakings
 - Bank Employees

Awareness

% Aware of Government Policies

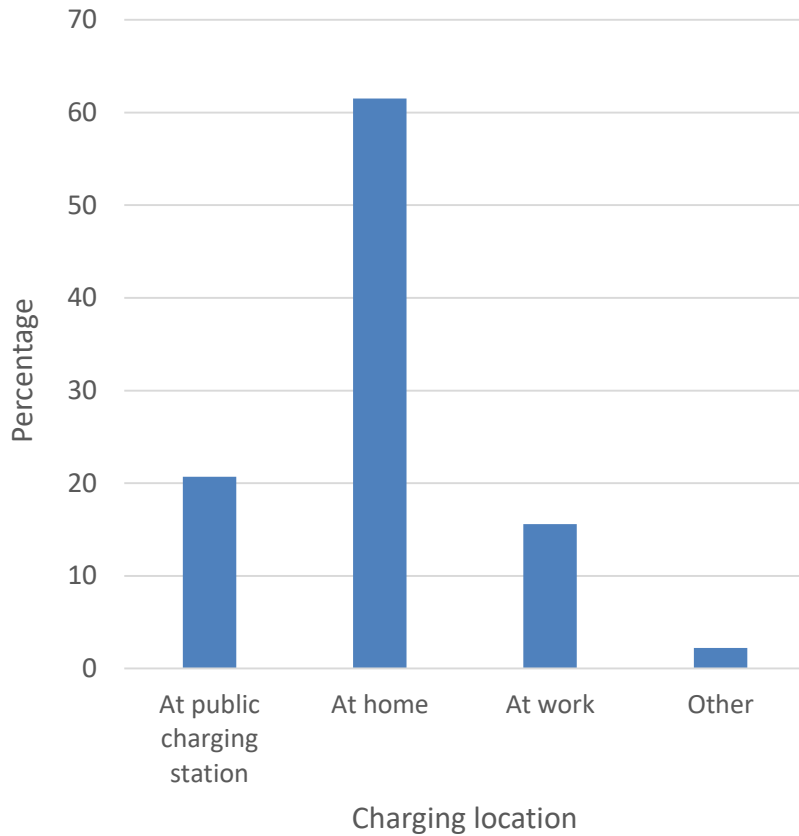


EV Manufacturers Known

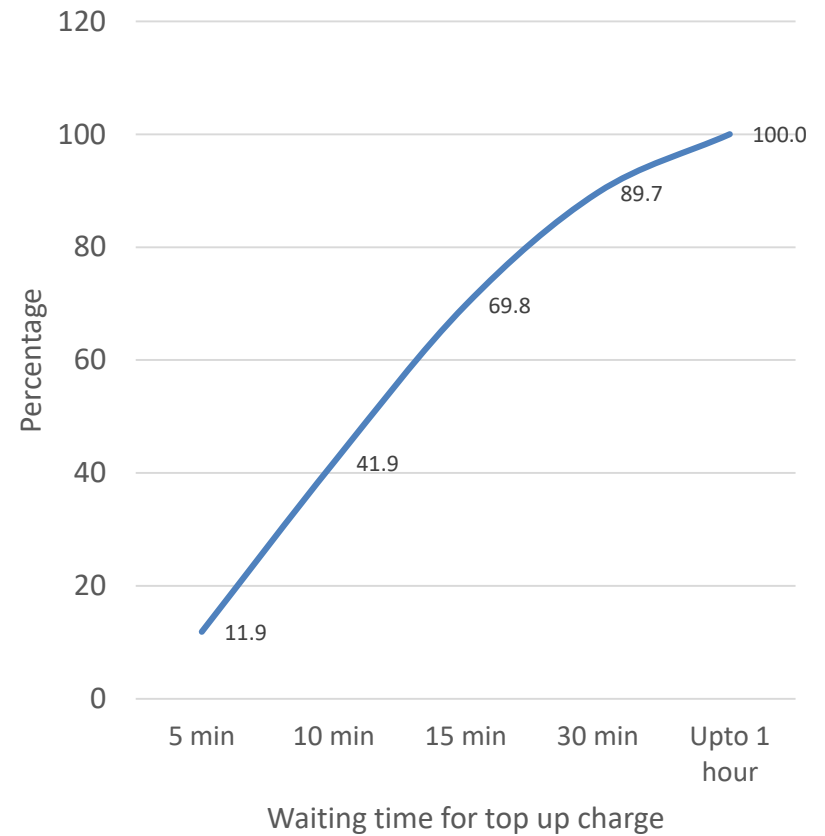


Charging Infrastructure

Preference for charging location

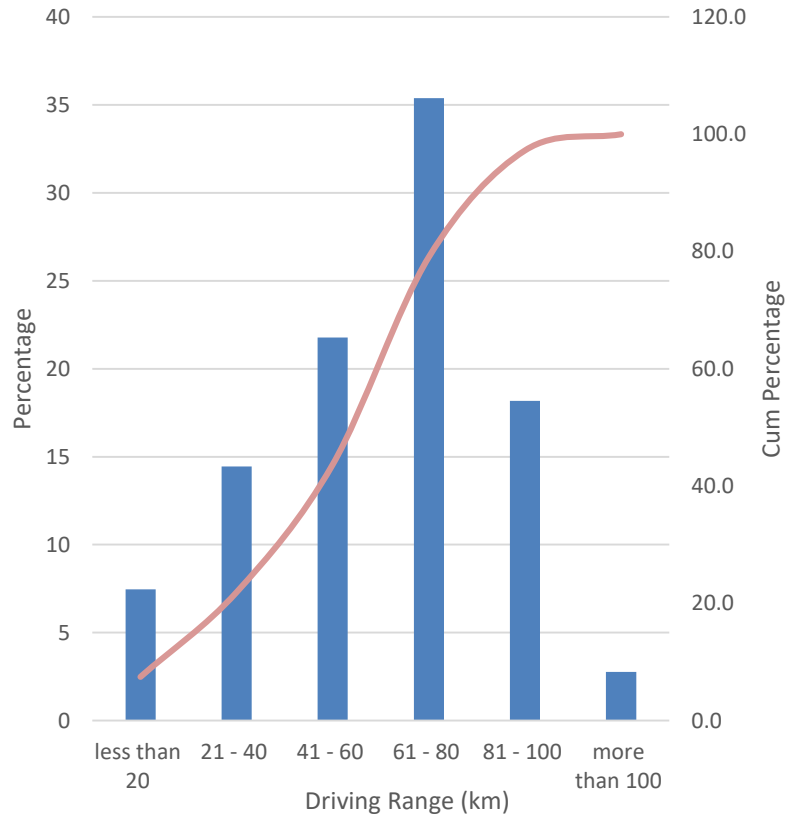


Maximum time for a top up charge

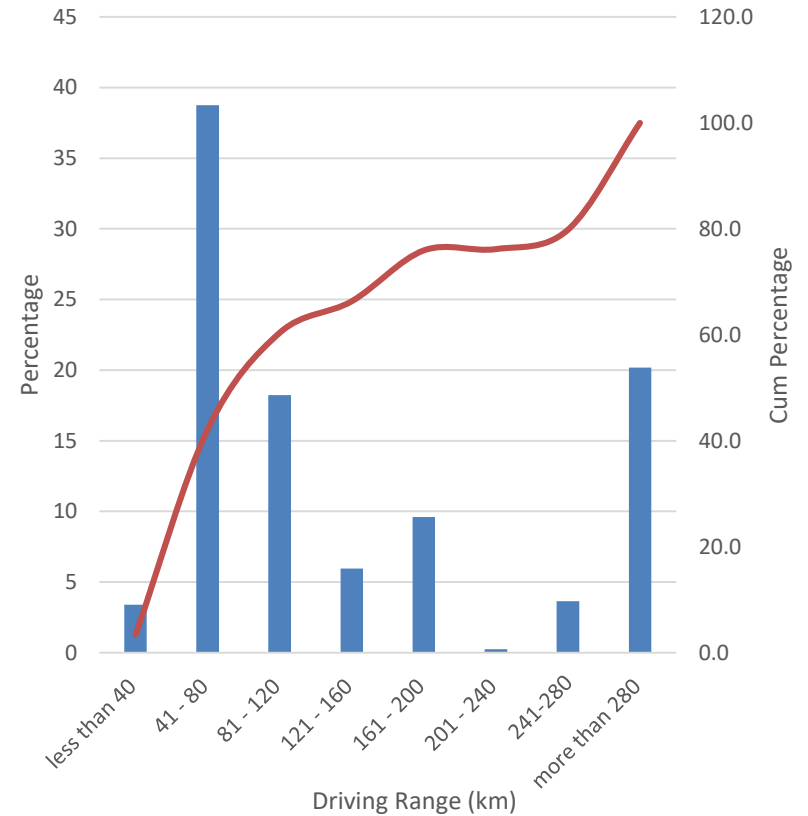


Range Expectation

Acceptable Driving Range - 2 Wheeler

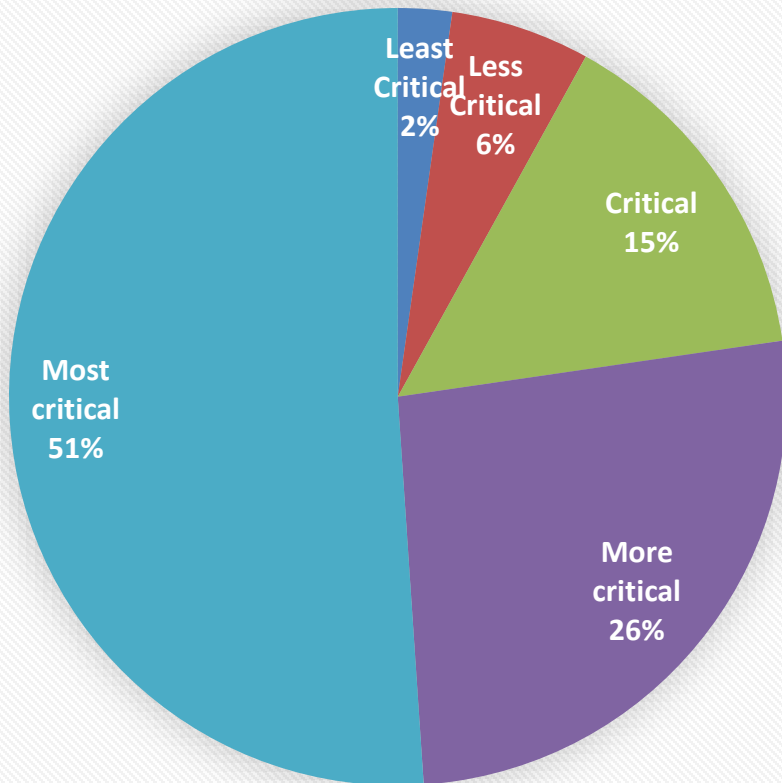


Acceptable Driving Range - 4 Wheeler

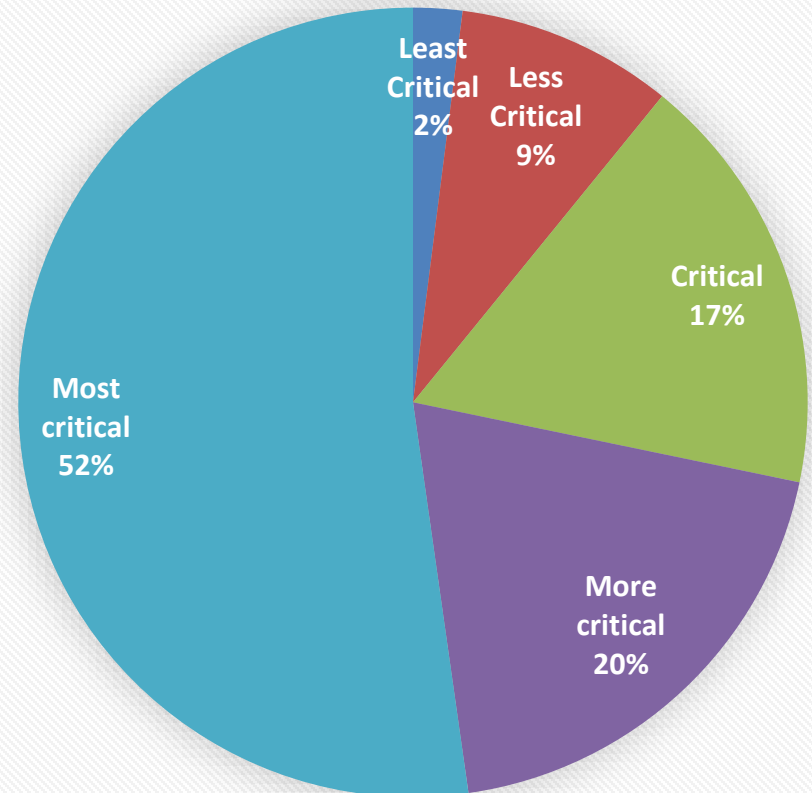


Barriers

Charging infrastructure



Vehicle Purchase Cost



Driving range, Top Speed / Acceleration, Running Cost, Looks, Re-sale value, Environment

Flash Card – 2 Wheeler

	<i>Fuel</i>	Conventional	Electric
Product	<i>Mileage / Range</i>	43 kmpl	60 km on full charge
	<i>Power</i>	102 cc / 6.91 hp	100 cc / 6.71 hp
	<i>Max speed</i>	77 kmph	60 kmph
	<i>Charging time</i>	None	Normal Charge - 7 hrs Quick Charge - 2.5 hrs
	<i>Purchase Price</i>	66 K	1L
Price	<i>Govt. Subsidy</i>	0	22K
	<i>All inclusive Ownership cost</i>	3.09/km	2.52/km

Scenario - Flashcards

Scenario 1

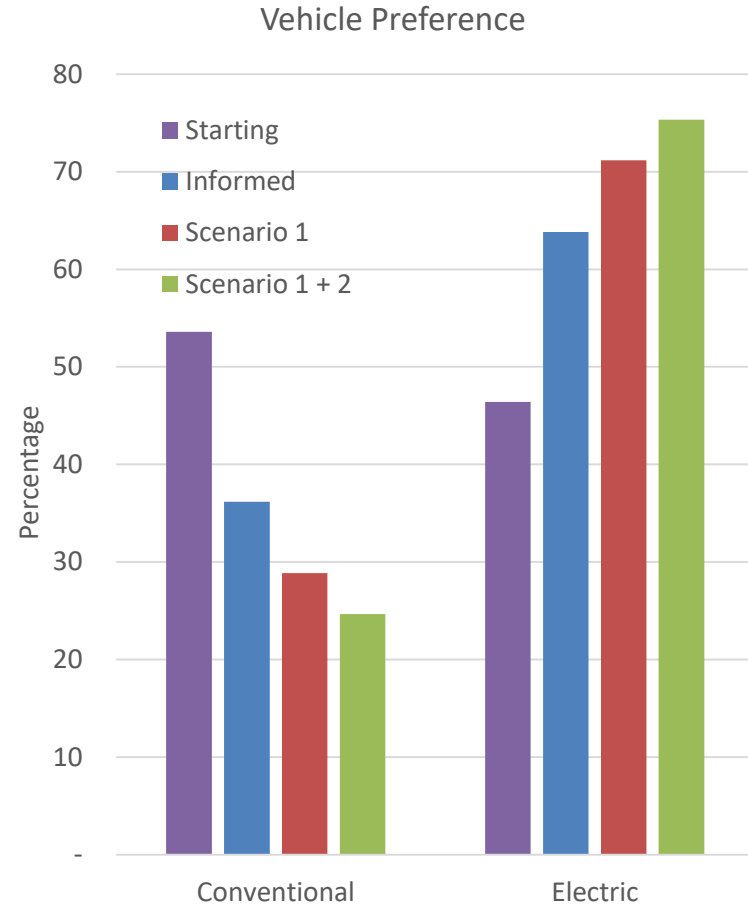
<i>Fuel</i>	Conventional	Electric
<i>Infrastructure</i>	None	No parking fees Priority Parking
<i>Congestion</i>	None	Priority driving lanes
<i>Tolls</i>	As usual	No Tolls
<i>Public Transport</i>	None	Free pass to use public transport
<i>Charging infrastructure</i>	N/A	Setup Quick Charging point at home

Scenario 2

<i>Fuel</i>	Conventional	Electric
<i>Financing (10 yrs)</i>	Regular rate @ 8%	Low rate @ 5%
<i>GST</i>	29%	12%
<i>Road Tax</i>	12%	No road tax
<i>Revised vehicle price</i>	66 K	78.4 K
<i>Revised Ownership cost</i>	3.09/km	1.77/km

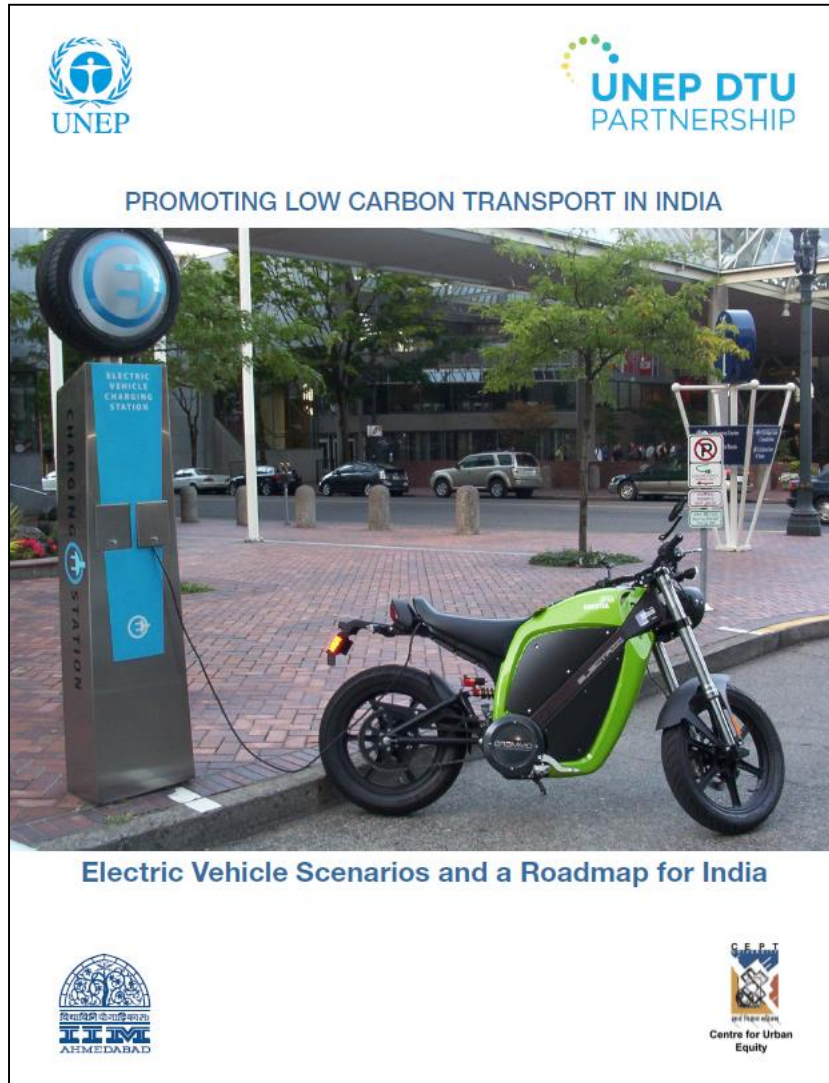
Stated Preference

- High percentage opting for EVs
- Share increase as more information provided (Informed)
- Marginal improvements in share with increased incentives (Scenario 1/2)



Stakeholder Views

- Driving range: may not be a big concern for a large share of consumers since trip lengths in cities are not very long.
- Awareness: is low since OEMs and Dealers not promoting them
- Charging and Parking : Improving charging and parking infrastructure will lead to a further shift towards EV
- Financial incentives: Additional financial incentives can only provide a marginal improvement





UNEP

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PROMOTING LOW CARBON TRANSPORT IN INDIA

Electric Vehicle Scenarios and a Roadmap for India



Centre for Urban
Equity

Study on Electric Mobility in India

