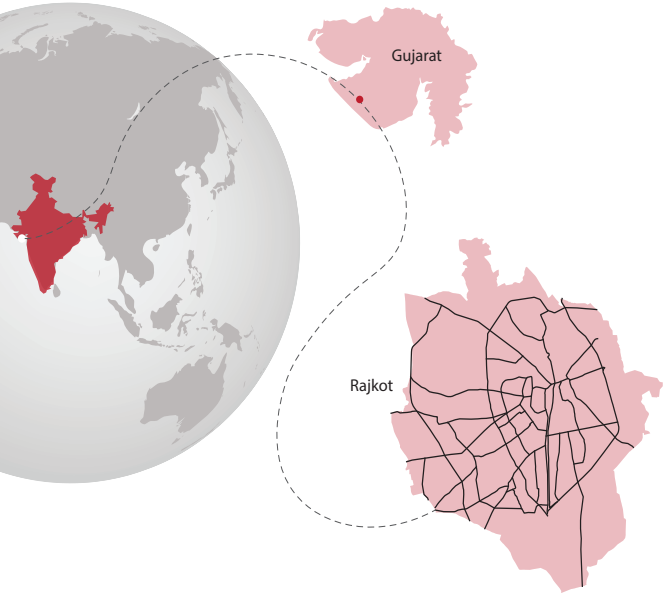
City Information Note

Rajkot

EV Readiness



City overview

Rajkot is the fourth largest city of Gujarat with a strong industrial base and a leading manufacturing centre of machine tools, automative components and auto ancilliaries.
The city is also well known for its traditional handicrafts (silver work, embroidery, and patola weaving).

Demographics

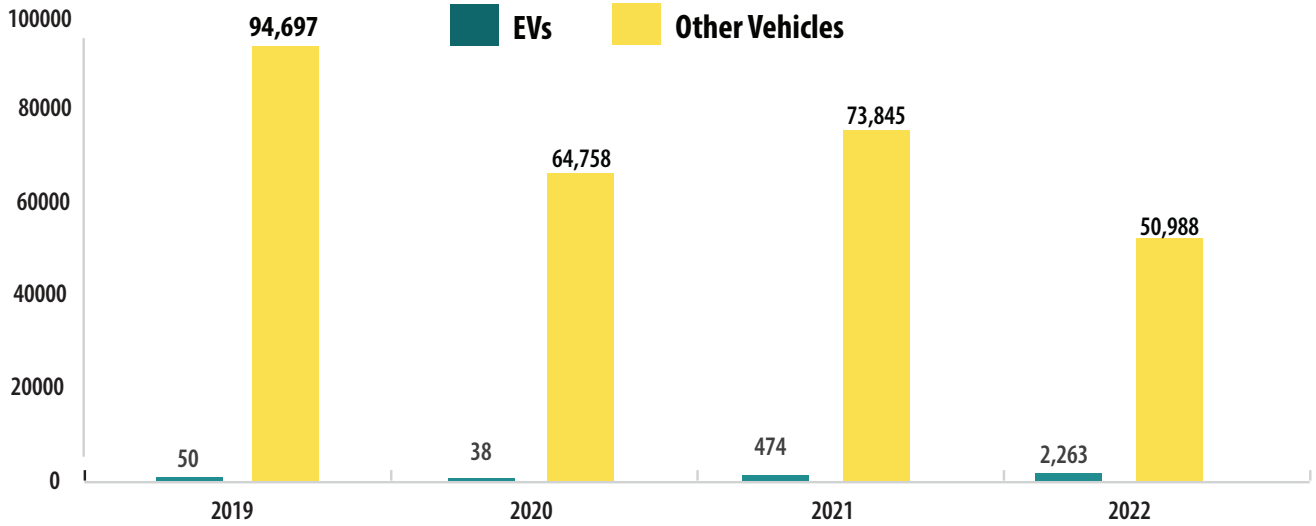
Population
18 Lakhs
(approx)

Area
161.86 sq. km

City Type
Tier II

Vehicles Registered*

Rajkot has been witnessing almost a14% rise in registered vehicles since the pandemic began in 2020. Two wheelers comprise about 71.5% of the total registered vehicles, followed by four wheelers (20%) and freight vehicles (4%) in Rajkot. The registration trend of EVs vs other vehicles from 2019 to 2022 is shown below:



*Information source: VAHAN Dashboard, accessed on 30 September, 2022

This documentation is a part of the ICLEI South Asia's initiative 'Support Indian cities to take leadership on EVs'. Ten cities including Coimbatore, Gangtok, Kochi, Lakshadweep, Meerut, Nagpur, Panaji, Rajkot, Shimla and Surat were visited and the status of EV transition (till September 2022) was documented.

Background

The 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 to 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 on an initiative to "Support Indian Cities in Taking Leadership on Electric Vehicles (EV)" to aid the cities in identifying priority interventions and to 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 were held 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 a part of the initiative, the ICLEI South Asia team visited Rajkot from 30 June to 1 July 2022, 14 September 2022 and then on 11 November to interact with the stakeholders and understand the existing EV transition situation in the city, challenges, opportunities and to suggest a way forward.

EV related developments

August 2019
50 electric buses sanctioned under FAME-II for Rajkot

April 2021
RMC recieved 16 electric buses

June 2021
Gujarat EV policy introduced

October 2021
Electric bus operation started in BRT corridor in Rajkot

February 2022
Electric bus fleet upgraded to 25

July 2022
Tender for additional 100 e-buses awarded to PMI

August 2022
23 electric buses added to the existing fleet of RRL (total 48 e-buses) and Electric bus depot inaugurated.

Key stakeholders

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

	Stakeholders	Roles
City Government Stakeholders	Rajkot Municipal Corporation (RMC)	• Finalise EV targets for the city • Land owner- Demarcates land for charging infrastructure • Operates buses in the city
	Paschim Gujarat Vij Company Ltd.(PGVCL)	• Gives approvals for electricity connections • Finalises tariff of charging EVs • Ensures timebound access of required load of electricity
	Rajkot Urban Development Authority (RUDA) , RMC	• Develops policies related to building • Approves building plans
	Rajkot Rajpath Limited (RRL)	• Operates BRTS buses. • Finalises the routes of BRTS buses.
	Regional Transport Office (RTO), Rajkot	• Prioritises registration process for EVs through single-window clearance.
Others	NGO and Institutions	• Encourages usage of electric public transport among all users though awareness and other interactive sessions. • R&D
	Builders Associations	• Ensures implementation of recommendations proposed in GDCR for EV ready buildings
	Industry Associations	• Promotes and spread awareness on EVs • Ensures implementation of GDCR proposed with green mobility within industrial estate
	OEMs	• Ensures EV and its parts manufacturing and supply

State EV Policy

Gujarat State Electric Vehicle Policy 2021 main points:

- Effective for four years i.e. till 1 July 2025
- Target to support purchase of 2 lakh EVs for four years.
- Promote transition to EVs and develop Gujarat as a manufacturing hub of EVs and ancillary equipments.
- Subsidy for purchase of EVs and capital subsidy on equipment/ machinery for first 250 commercial public charging stations
- Encourage start-ups and investment in the field of electric mobility and related sectors and improve air quality by reducing air pollution.
- Exemption from road tax and registration fee for five years.

City- EV related actions-status*

This information was collected during the city visit through interactions and discussions with the government and private stakeholders in Rajkot.

Policy and Advocacy

- State level Policy- Yes
- City level Policy- Yes (city is working on Draft EV Policy)
- Initiatives- No

Charging Infrastructure

- Public charging stations- No (absence of DC fast charger)
- Public transport charging depot- Yes (14 chargers at the depot in Ram Nagar-12 operational and 2 on standby)

Financial Incentives

State level - Yes

- Charging infrastructure - 25% capital subsidy on first 250 commercial public stations (investment up to 10 lakhs)
- EV buyer - Subsidy as per FAME-II scheme

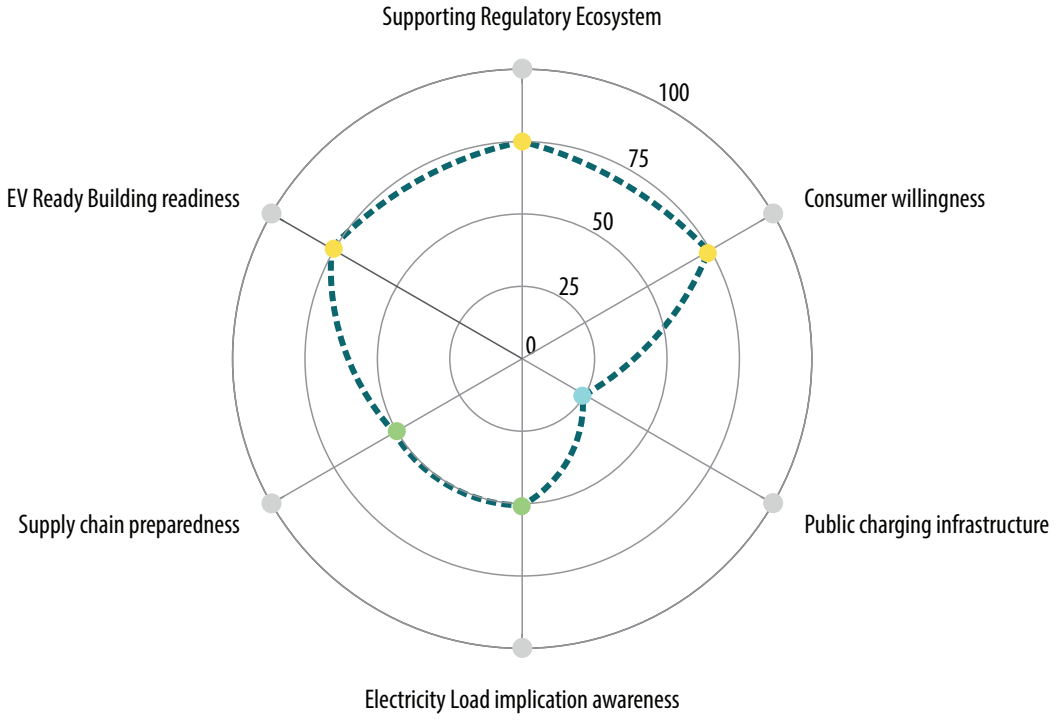
City level- No

Vehicle Technology - Supply chain

- Circuit breakdown
- Tolerence of high temperature
- Manufacturing and supply shortage of electric two wheeler and electric three wheelers

City Readiness

Rajkot city's readiness was synthesized after scoring the parameters impacting EV transition. Twenty-five parameters were categorized under six categories, including supporting regulatory ecosystem, supply chain preparedness, consumer willingness*, public charging infrastructure, EV-ready building readiness 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:



Very Low-0	Low-25	Medium-50	Good-75	Proactive-100

*The consumer readiness is based on the responses from dealers of EVs and the perception of officials.

Rajkot city is taking initaiatives, to encourage users to make the transition to EVs by improving the existing EV operations in the city encouraging EV - ready buildings and grid readiness for the same. The approval of 150 e-buses that will replace existing diesel buses in the city will lead to 100% electrification of public transport (buses) in Rajkot. The observations from the city readiness assessment are:

	The regulatory ecosystem is good due to active policies and initiatives at the state level and the push from the city required for an effective EV transition.
	The willingness among consumers is good, as is evident from the response of dealers related to EV sales
	Public charging infrastructure is missing and its development is under discussion.
	The officials in the city are slightly aware about the expected electricity load implications, but are not prepared for the same.
	Supply chain preparedness is also low due to the time taken in transporting the EV parts to Delhi/ Haryana for repairing and due to the absence of local repair shops.
	The officials and builders are aware and are willing to promote EV-ready buildings in the city.

Observations

The Rajkot Municipal Corporation has taken steps for electrification of buses (public transport) by including 48 e-buses for BRTS and other routes in the city. Two wheelers comprise of about 70%* of the total registered vehicles, showing an opportunity for electrification of two wheelers. Further, the city is keen on electrification of IPT mode/shared mode and chakda(informal mode of transport used for goods movement and passenger movement to/fro the peri-urban areas of the city). The manufacturing of Chakdas has been discontinued in 2019.

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

Absence of EV-ready buildings, makes it difficult to set up charging facilities in residential buildings

Finalising the locations for developing citywide charging network

Ensuring grid readiness with timebound access of required load of electricity for EV charging

Emissions from Chakda (old vehicles, commonly used as freight vehicle for last mile delivery of goods in the city)

Builders apply for minimum electricity load for approval leading to high level related of risks

Last-mile connectivity to/from BRTS corridor

Approach

A series of discussions were held and consultations with industry experts, the advisory group and city stakeholders (during the city visit) were held to develop the approach for cities, discribed below:

Identification of key focus area after consulation and discussion with city stakeholders and industry experts

Development of an engagement framework to select the cities

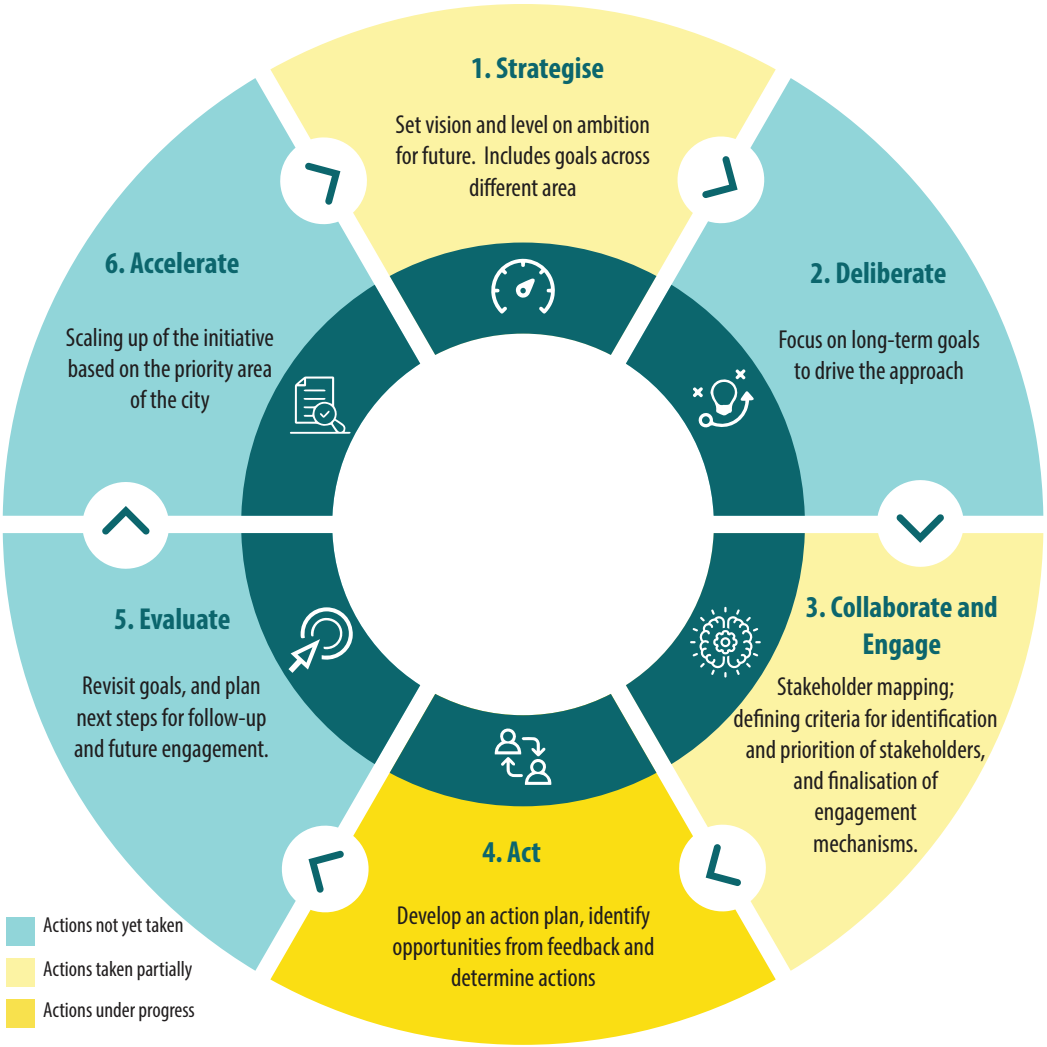
Identification of the principles to guide EV engagement approach

Create linkages between the need for the city's engagement to arrive at the approach

Six-step approach developed and discussed with industry experts and advisory group

Validation of approach through interaction with city stakeholders

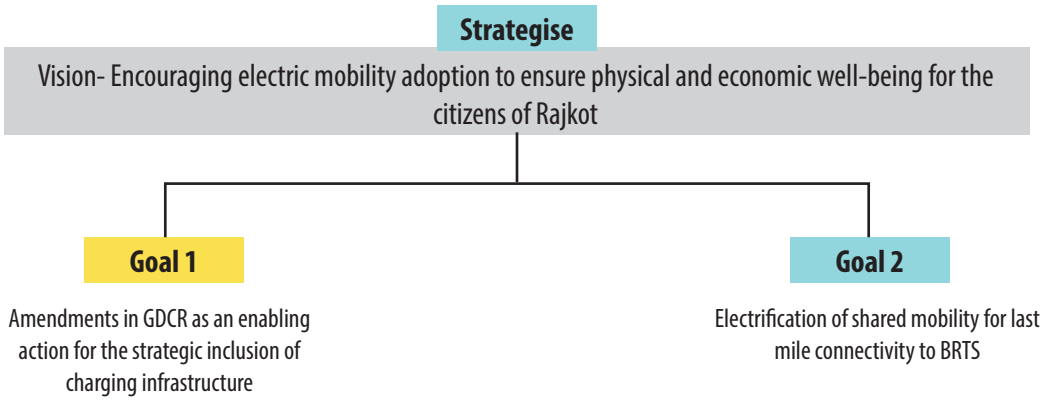
The six-step approach that Rajkot should preferably follow to address the challenges identified above is as follows:



As per the discussions, Rajkot is currently focusing on the step of 'ACT' through procurement of 48 e-buses and their operation in the city. It is partially focusing on the steps of 'STRATEGISE' and 'COLLABORATE & ENGAGE', as the city is working towards city level draft EV policy and discussing the same with the related stakeholders. Rajkot further needs to focus on the other steps of the approach, along with a clear set of targets and strategies.

Recommendations

The city should form a **multistakeholder group/ nodal team** and appoint a nodal person that can lead the EV initiative and is responsible for all tasks related to the EV adoption. Further, amendments in GDCR for EV-ready buildings and planned electrification of municipal fleet are two major recommendations as per the analysis of city readiness, challenges and opportunities. The description of these two strategies as per the six-step approach recommended for Rajkot is as follows:As per the discussions, Rajkot is currently focusing on the step of 'ACT' through procurement of 48 e-buses and their operation in the city. It is partially focusing on the steps of 'STRATEGISE' and 'COLLABORATE & ENGAGE', as the city is working towards city level draft EV policy and discussing the same with the related stakeholders. Rajkot further needs to focus on the other steps of the approach, along with a clear set of targets and strategies.



Goal 1- Amendments in GDCR as an enabling action for the strategic inclusion of charging infrastructure

Deliberate	Collaborate and Engage	Act	Evaluate	Accelerate
Proposed amendments to GDCR for EV-ready buildings/ EV capable building according to the building type	• RMC • RUDA • PGVCL • Builders' association	• Guideline document with recommendations to be incorporated in GDCR • Incentives like fast track approval for EV ready/capable buildings • Projections and scenarios to understand the percentage of EV parking space • Long term recommendations for GDCR • EV responsive guidelines and policies should be incorporated in existing parking policy, DP/ LAP guidelines, etc.	• Reserving 5% of two wheeler charging and 2.5% of four wheeler charging for EV ready parking in multistoried residential buildings	• Increasing the percentage of reserved parking for EVs in multistoried residential buildings as per the demand • Awareness related to the amendment
Electricity connection and additional load	• PGVCL • Architect/ Builder/ Contractor of the building	• Load sanction request considering the additional electricity load due to EV charging. • Design of additional plug connections for charging stations. • Installation of plug points for residents and the visitors ensuring the setbacks of the building • Safety and security of the sockets	• The building premises will have to have an additional power load, equivalent to the power required for all charging points to be operated simultaneously, with a safety factor of 1.25.	• Encourage and advertise EV ready buildings to attact buyers and integrate these in upcoming buildings.
Retrofitting existing building	• PGVCL • Architect/ Builder/ Contractor of the building • Builders' association	• Analysis of existing building type, use, demand • Guideline for design considerations, design solutions for charging infrastructure, accessibility, approvals and tariff for charging • Provision for additional electricity load for EV charging, safety and securtiy of charging eqipments • Requirement of NoC from the PGVCL, CEI and fire inspector for retrofitting	• Efficient tariff collection for EV charging • Well maintained charging station usable by public	• Scaling up the charging network to locations in areas of the city.

Goal 2- Electrification of shared mobility for last mile connectivity to BRTS				
Deliberate	**Collaborate and Engage**	**Act**	**Evaluate**	**Accelerate**
Routes and phase out plan for existing IPT vehicles	• RRL • RMC • E-Auto/ IPT association • Traffic Police	• Finalise priority routes to serve as last mile connectivity to existing BRTS network and other high demand areas. • Green Routes with access to e-auto/ e-IPT • Develop a Phase-out plan/ Strategy based on end of life of registered autos • Awareness and interaction session for IPT operators	• Ensure that the last mile feeder services are provided for areas outside the 600 meters radius from the BRTS stations. • Improved ridership of public transport	• Aggressive target for transitioning to EVs • Encourage IPT operators to transition to EVs
Integrated kerbside charging network for E-IPT	• RMC • PGVCL • Eligible Charge Point Developer (CPOs)	• Data driven methodology to identify the priority locations • FInalising the siting, technical specifications and design for seamless kerbside integration • Ensure safety and security of charging setup • Taking the approvals required • Finalising the operation model.	• Usage of charging points by EV users • The locations as per future demand to setup kerbside charging	• Develop the charging facility as per data driven demand analysis.
Demand aggregation for bulk procurement of E-autos	• RMC • E-Auto/IPT Association • RRL	• Data driven analysis to develop a strategy for demand aggregation and bulk procurment of e-autos • Integrate e-auto operation with ITMS to improve the relaibility.	• Average waiting time for shared should be 10-15 minutes (max) on each route	• Scaling up the deployment of e-autos as a last mile connectivity mode in the city.

Way Forward

Rajkot should finalise and notify its EV policy as a first step, setting up priority targets and actions that will lead to accelarated EV transition, planning for actions and steps accordingly. Rajkot should prioritise the following strategies for an aggressive push towards EVs:

Amendment in GDCR for EV-ready buildings to cater to the rising number of EVs

Focus on generation of electricity from renewable energy sources.

Encorage transition of IPT vehicles to EVs

Planned operation of existing e-bus fleet through data driven scheduling of buses on routes to improve relaibility

Awareness programme to sensitise public for higher EV uptake

Electrification of Government fleet (Municipal Corporation vehicles)

Acknowledgement

ICLEI South Asia would like to express its sincere gratitude to the officials from Rajkot Municipal Corporation (RMC), Rajkot Rajpath Limited (RRL), Rajkot Urban Development Authority (RUDA) RMC, Paschim Gujarat Vij Company Ltd.(PGVCL), RTO Rajkot, Builders Association and OEMs in Rajkot for their insights and guidance. The inputs from the Advisory Group members were crucial in finalizing the document.

Disclaimer

This document includes preliminary recommendations and the way forward, based on interactions, fieldwork and background research. A detailed report, with recommendations, has been developed for Rajkot.

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