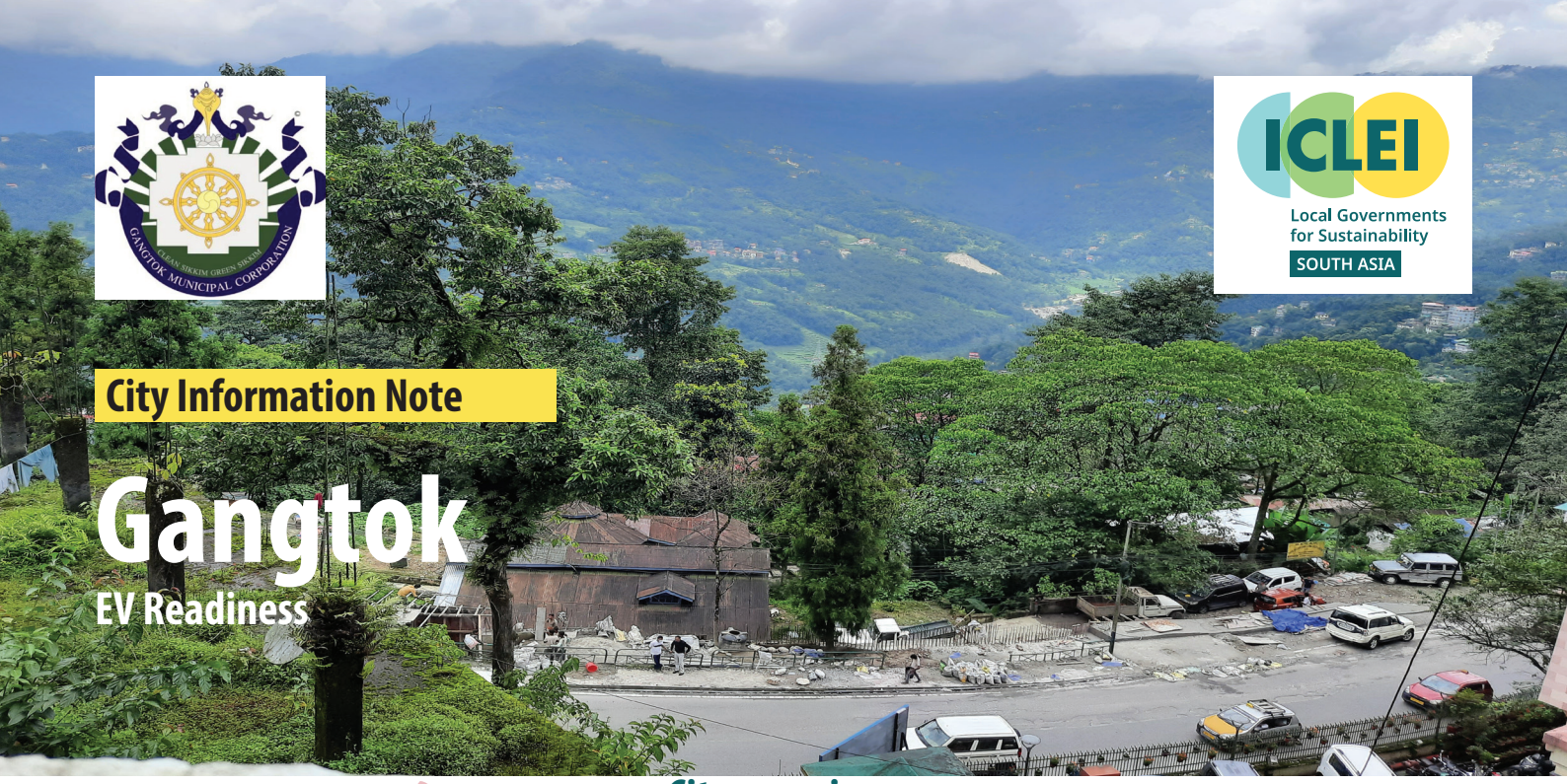
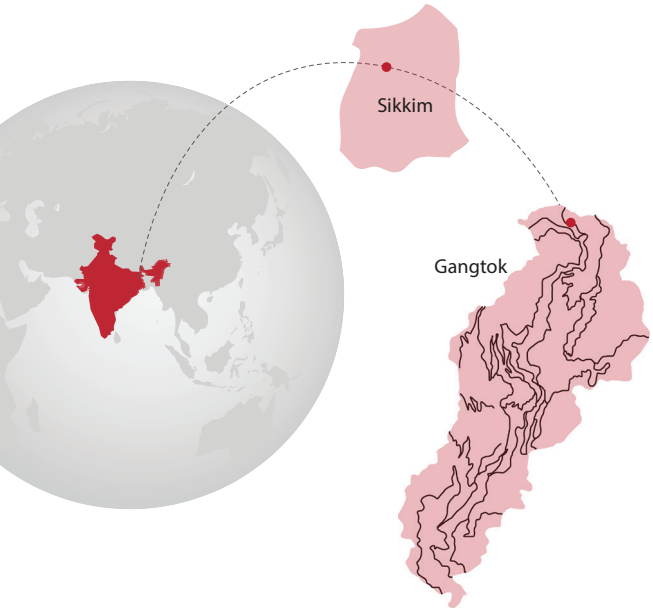


City Information Note

Gangtok

EV Readiness



City overview

Gangtok is the capital and largest populated city of the mountainous North Indian state of Sikkim. It is located in the eastern Himalayan range attracting large number of tourists. It is the centre of Tibetan Buddhist culture and learning, with the presence of several monasteries, religious educational institutions, and centres for Tibetology.

Demographics

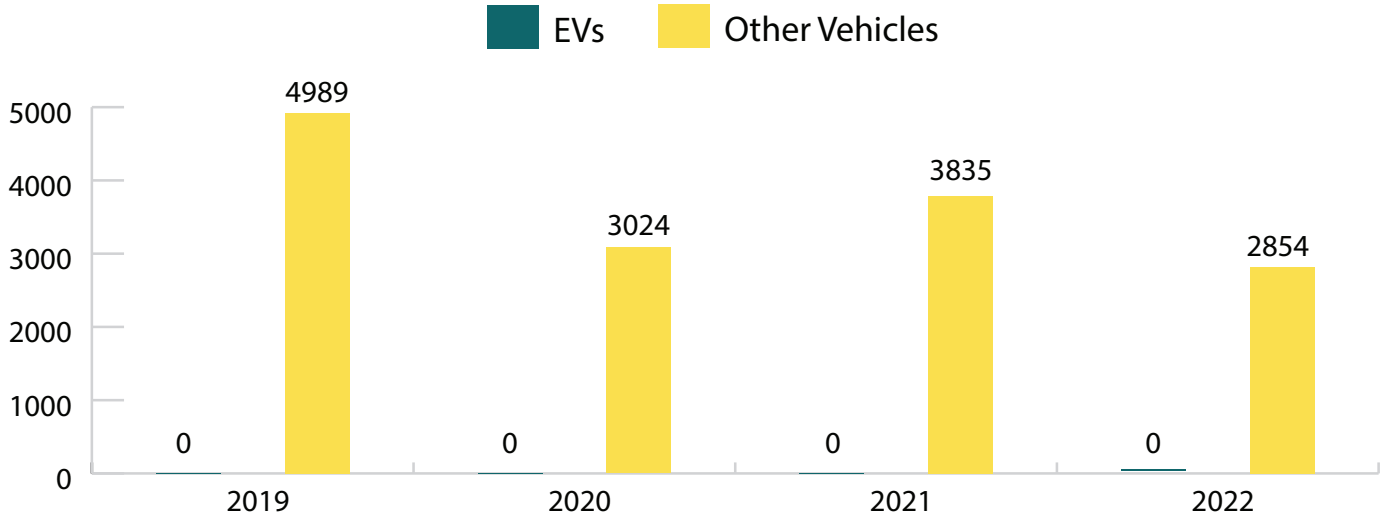
Population
1 Lakhs (MC)
1.16 Lakhs (MC+OG)

Area
19.02 sq. km.

City Type
Tier-II

Vehicles Registered*

Gangtok has only one EV which is an electric four-wheeler being used by the Power Department. While the state is working on the Draft EV policy, no EV can be registered in Gangtok unless it is notified. The registration trend of vehicles in Gangtok from 2019 to 2022 is as below:



*Information source- VAHAN Dashboard, accessed on 30th 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 an 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 major stakeholders impacting the EV transition in cities, such as advisory groups, industry experts including the advocacy group, charging infrastructure developers, vehicle technology/OEMs and financial institutions. As part of the initiative, the ICLEI South Asia team visited Gangtok on 23rd – 24th August, 2022 to interact with the stakeholders and understand the existing EV transition situation in the city, challenges, opportunities and further suggest a way forward for the city.

EV related developments in Gangtok

August 2019
The state government requested central government to put up some heavy ancillary industries in West Sikkim and for 100% subsidy for 100 mini electric buses.

August 2021
State's first electric car flagged off

2021
Developed draft Sikkim EV policy (to be approved)

December 2021
Awareness Programme on EV / Charging Station "GO ELECTRIC" organised by Govt of Sikkim under GMC

October 2022
27 priority locations for charging EVs under discussion

Key stakeholders

The stakeholders in Gangtok which are related to EV transition and with whom interactions were held during city visit are as follows:

	Stakeholders	Roles
State Government stakeholder	Sikkim Nationalised Transport (SNT)	• Intercity and intra city bus operation. • Lead the procurement of e-buses when city decides for the same.
	Power Department, Sikkim	• Electricity generation, transmission and distribution • Approvals for electricity connections. • Ensure timebound access of required load of electricity. • Tariff of charging electric vehicles
	Urban Development and Housing Department, Sikkim	• Regulation of construction of buildings, plans approval, monitoring the constructions process and allotment of housing sites in urban areas • Amendment in building byelaws/rules to include EV provision
City Government stakeholder	Gantok Municipal Corporation (GMC)	• Finalising EV targets for the city • Land Owner- Demarcating the land for charging infrastructure
	RTO	• Registering the vehicles • Prioritisation of EVs through single window clearance
Others	Vehicle Technology/ OEMs	• Manufacturing and supply of EV and its parts
	NGOs	• Catering to the technical trainings and capacity building needs of the officials

State EV Policy

Draft Sikkim Electric Vehicle policy has been developed which has to be approved and notified.

City- EV related actions-status*

This information was collected during the city visit through interactions and discussions with the government and private stakeholders related to EVs in Gangtok

Policy and Advocacy

- State level Policy- No (under discussion)
- City level Policy- No (not required)
- Initiatives- No

Charging Infrastructure

- Public charging stations- Yes (one in the premises of Power Deprtment of Sikkim)
- Electric bus charging - No (no E-buses operational)

Financial Incentives

State level - No

(State is working on the draft EV policy)

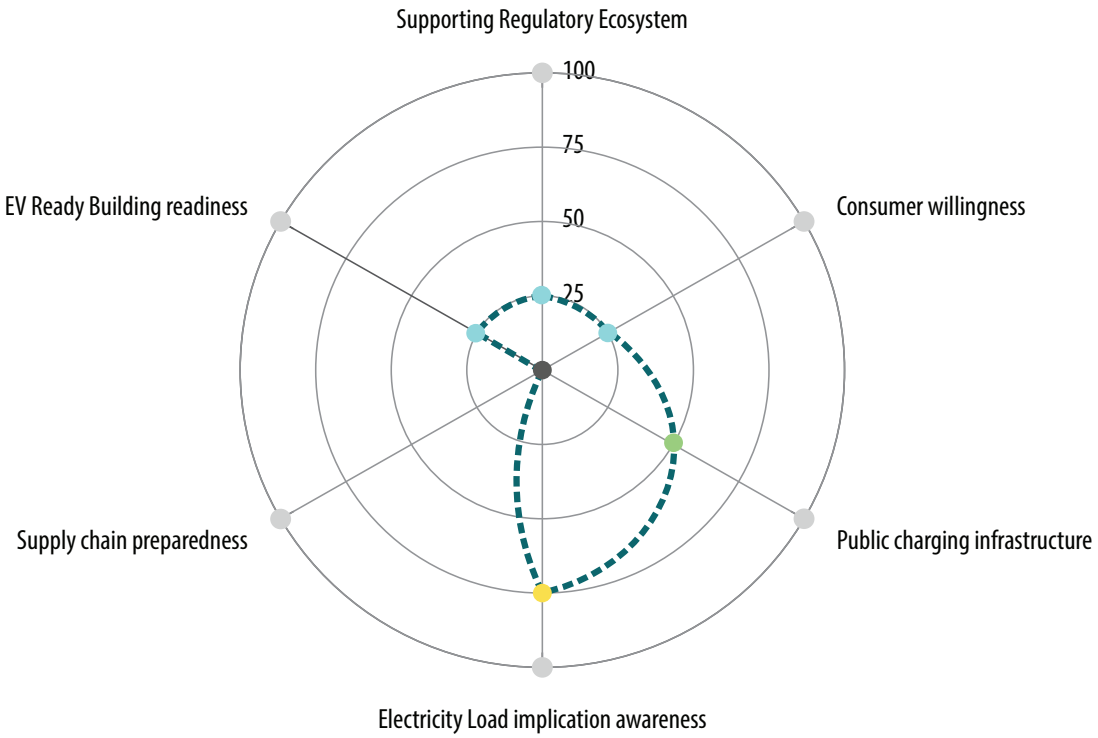
City level- No

Vehicle Technology - Supply chain

- Range issues - An EV covers a shorter distance in Gangtok (100-110 km percharge) than on a plain terrain (about 200 km oer charge)
- Vehicle supply chain

City Readiness

The Gangtok EV readiness was synthesized after the parameters impacting 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 EV and discussions with the city government officials.

There is a need for a push from the state government along with the central government, to encourage users to transition to EVs through developing EV charging infrastructure at major tourist spots in the districts of Sikkim, considering the weather conditions for planning EV adoption and infrastructure development and sensitise the users for EV performance in inclined terrains. The observations from city readiness assessment includes the following:

	The existing regulatory ecosystem will be improved with the approval of Sikkim EV policy and further strategic targets for electrification in Gagtok and tourist places of SIkkim will be useful in EV adoption.
	Consumer willingness is low as there is lack of confidence related to EV performance among users. Awareness sessions are organised by the state and city government, but sesitisation along with pilot project will be useful.
	Discussion related to public charging infrastructure is underway with finalisation of strategic locations.
	The officials in the Power department were well aware about the additional infrastructure required for setting up charging stations and the financial obligations attached to be borne by the charging station developer.
	Supply chain preparedness is missing at present, it will improve with the rise in demand of EVs.
	The need for awareness and willingness to develop EV ready buildings is low and will require training and capacity building sessions for sesitisation.

Observations

Sikkim is the second smallest state of India, so a state EV policy with initiatives focusing on each district will be helpful in targeted EV adoption. The officials have initiated discussion related to the State EV policy, locations of charging stations, awareness and query resolution sessions for the citizens and analysing the performance of one EV operating in the city.
In Gangtok, the operation of EV is impacted by the sloping terrain which reduces the range per charge to almost half of that in plain terrain. The key challenges identified after visiting Gangtok and interacting with the stakeholders are as follows:

Finalising strategic locations of public charging stations

Lack of awareness related to the requirement of additional power infrastructure for charging stations and financial obligations attached.

Challenges related to range and performance of EV on hilly terrain

Lack of confidence among users related to EV performance in hilly terrain

Unapproved state EV policy leading to adoption related challenges

Considerations of weather conditions (heavy rains and extreme cold) in planning for charging stations

Absence of state level committee/ nodal team for EV adoption

Lack of coordination among officials

Approach

Following steps of discussion and consultation with city stakeholders during city visits, industry experts and advisory group was followed to develop the six step approach:

Identification of key focus areas after consulation and discussions with city stakeholders and industry experts

Development of an engagement framework to select the cities

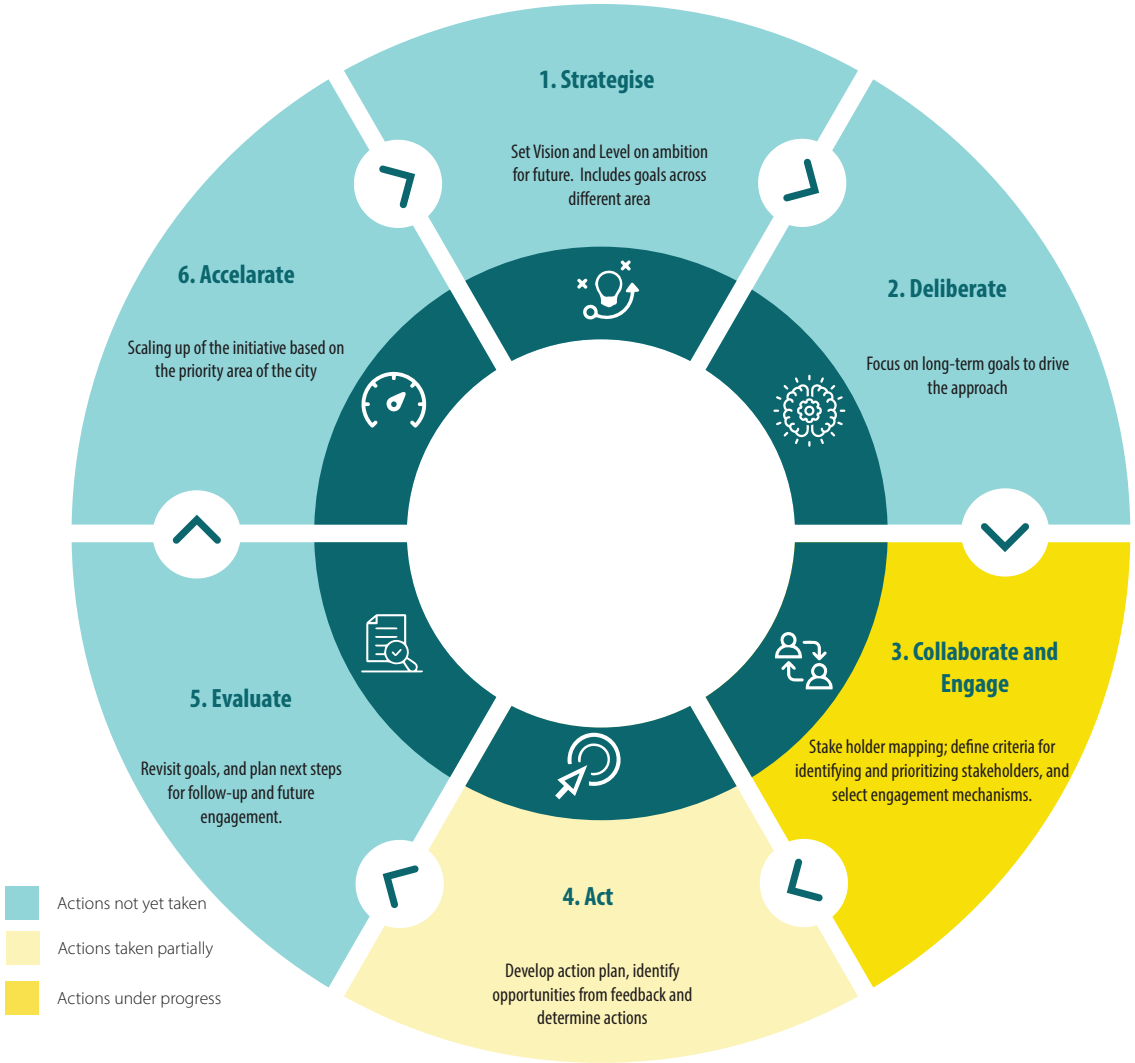
Identification of the principles to guide the EV engagement approach

Create linkages between the need for the city's engagement to identify the steps of 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 Gangtok should preferably follow to address the challenges identified above are as follows:

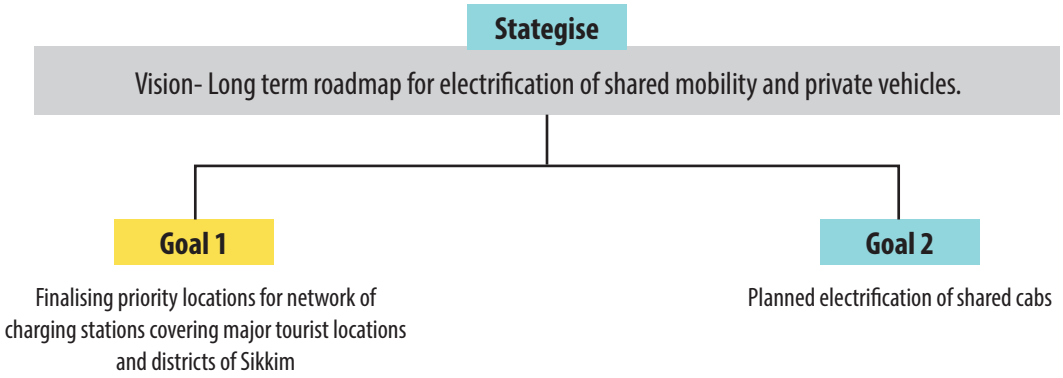


As per discussions, Gangtok is currently focusing on the step of 'COLLABORATE and ENGAGE' with the stakeholders and working towards implementing actions i.e. 'ACT', focus is required on the other steps of the approach along with a clear set of targets and strategies for each city of Sikkim. Approval of EV policy and its notification will advance the city towards the step of 'ACT'.

Recommendations

The Sikkim EV policy notification is the first step which the state can take, followed by a formation of a nodal team/ nodal person which will be responsible for the EV initiatives and all the tasks related to EV adoption. Being a small state, with majority of stakeholders at the national level, the actions at the state level will be implemented at the city level also.

Further, finalising priority locations for a network of charging stations in Sikkim and electrification of shared mobility, 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 Gangtok and adjoining areas of Sikkim is as follows:



Goal 1 - Finalising priority locations for network of charging stations covering major tourist locations and districts of Sikkim				
Deliberate	**Collaborate and Engage**	**Act**	**Evaluate**	**Accelerate**
Location and accessibility	• GMC • Power Department, Sikkim • Urban Development and Housing Department, Sikkim	• Finalising location as per data driven analysis of demand • Locations of charging stations should cover major tourist spots and major districts • Accessibility to the charging locations • Guideline for designing the charging station integrating recreational spaces where the users may wait/utilise their time till their vehicle is charged. • Fast/slow charger installation decision	• Visibility and all time access from roads to the charging stations • Percentage of utilisation by users • Increased percentage of EV adoption	• Scaling up the charging network to locations covering the districts and major tourist spots in Sikkim
Approvals and additional infrastructure	• GMC • Power Department, Sikkim • Urban Development and Housing Department, Sikkim • Charge Point Operators (CPOs) and E-Mobility Service Provider (e-MSPs)	• Ensuring effective electricity grid readiness • Approavals from GMC, power department, Urban Development Department • Additional supporting infrastructure required and its implications on related stakeholders • Awareness and capacity building of officials	• Well connected and operational setup for EV charger • Improved understanding and awareness among officials and operators related to the approvals and additipnal infrastructure	• Scaling up the charging network to locations covering the districts and major tourist spots in Sikkim
Operation and billing	• GMC • CPOs and e-MSPs	• Finalise the tariff of charging • Finalising the operational model • Operation and maintenance • Tariff and tariff collection • Safety and security of equiptment	• Efficient tariff collection • Well maintained charging station usable by public	• Scaling up the charging network to locations covering the districts and major tourist spots in Sikkim

Goal 2 - Planned electrification of government vehicles (four wheelers)				
Deliberate	**Collaborate and Engage**	**Act**	**Evaluate**	**Accelerate**
Demand analysis	• GMC • Government officials	• Analsyse the existing fleet size, age, performance, emissions • Develop a phase out plan/strategy based on the end of life of existing government vehicles of officials	• Impact on the officials of other government departments	• Utilise this transition to develop confidence among the general public
Supporting infrastructure and approvals	• GMC • Power Department • Urban Development and Housing Department • Government department • Charge Point Developer and Operators (CPOs) and E-Mobility Service Provider (e-MSPs)	• Finalise the location for charging the vehicles in parking spaces of offices/ residences • Approvals for charging station development • Awareness related to additional power infrastructure required (if any) and attached financial obligations • Development of charging infrastructure by the CPO	• Charging facility for efficient operation and encourage more officials to shift towards EVs	• Analyse the demand of charging infrastructure and scale up accordingly
Demand aggregation for bulk purchase	• GMC • Power Department • Government departments • OEMs • CPOs and e-MSPs • Third party consultant	• Develop an action plan for phasing out of existing vehicles of government officials with EVs • Awareness and capacity building for the drivers and owners of the EV related to its operation and maintenance • End of life solutions/scrapping incentive/ second hand solution for existing vehicles of government officials	• Pilot projects for increasing confidence among general public and other government departments	• Phasing out the existing ICE vehicles owned by government officials with EVs

Way Forward

Sikkim EV policy is the first step towards encouraging EV transition in cities, also long-term planning with prioritized set of targets in Gangtok will be useful for an aggressive push towards EVs:

Finalising priority location for charging infrastructure network

Promoting reliable EV technology and research for hilly terrain

Grid updation after electricity demand assessment

Electrification of shared mobility- cabs used for daily commute

Awareness programs to sensitise public and government officials related to EVs

Electrification of Government fleet

Acknowledgement

ICLEI South Asia would like to express its sincere gratitude to the officials from Gantok Municipal Corporation (GMC), SIkkim Nationalised Transport (SNT), Urban Development and Housing Department, Sikkim, Power Department, RTO Gangtok, and OEMs in Gangtok and Siliguri 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 the interactions, fieldwork and background research and may require detailing as per the dedicated studies.

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