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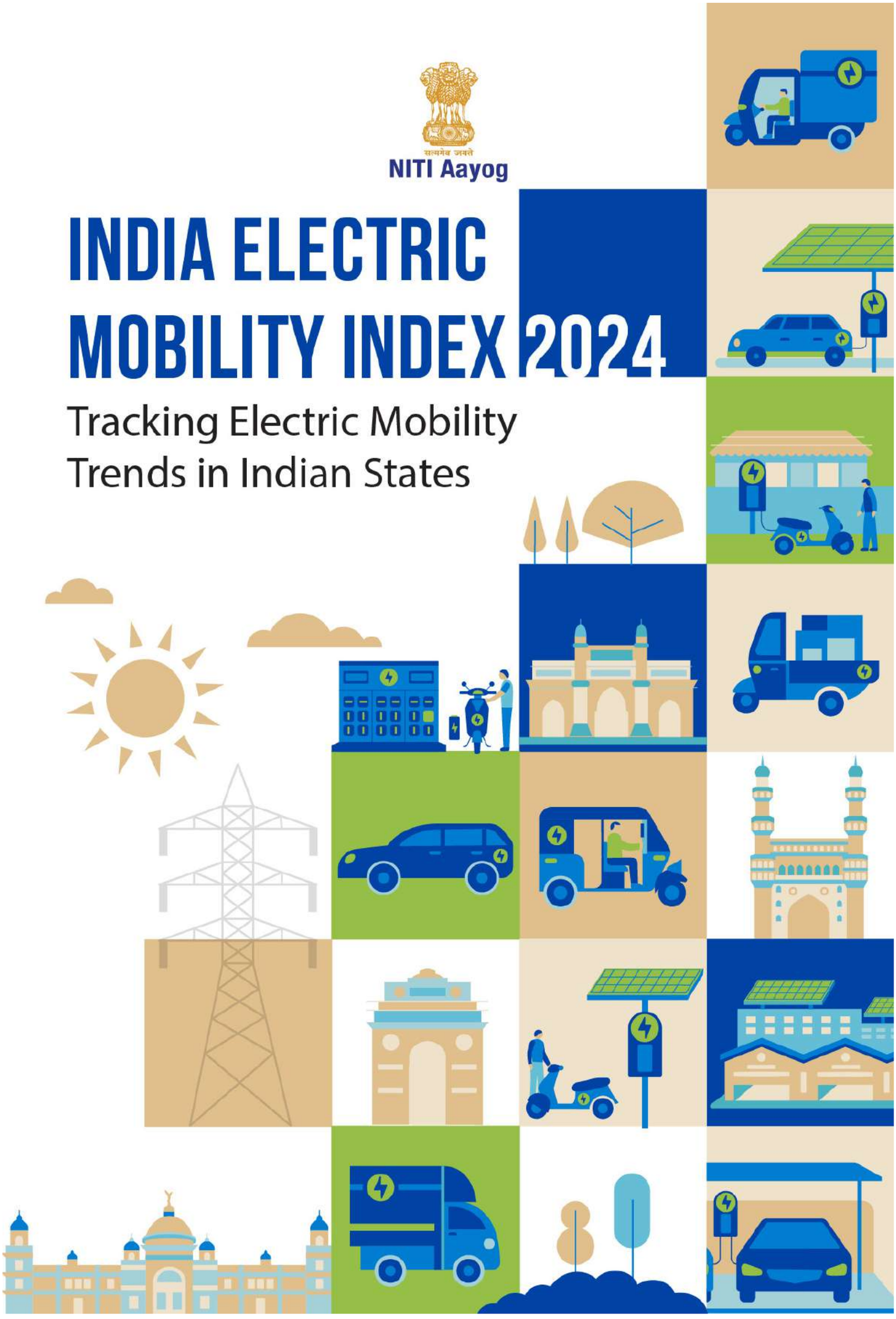
NITI Aayog

INDIA ELECTRIC MOBILITY INDEX 2024

Tracking Electric Mobility Trends in Indian States



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WRI INDIA

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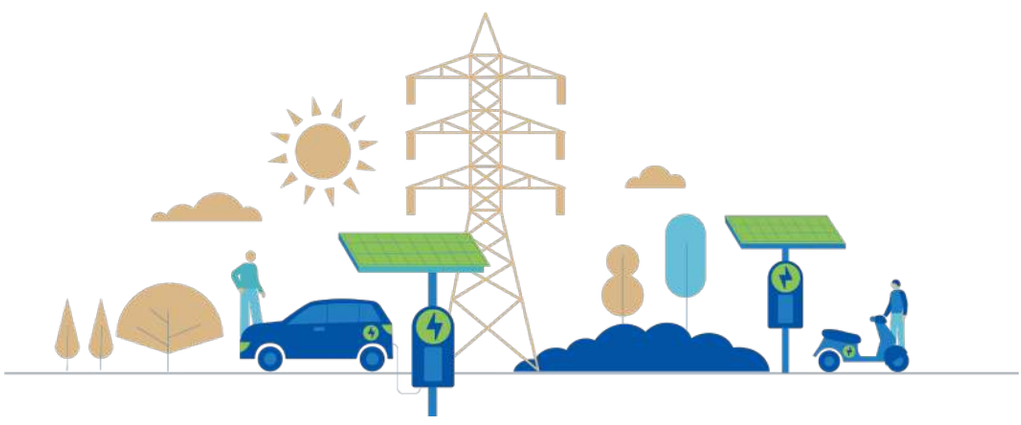
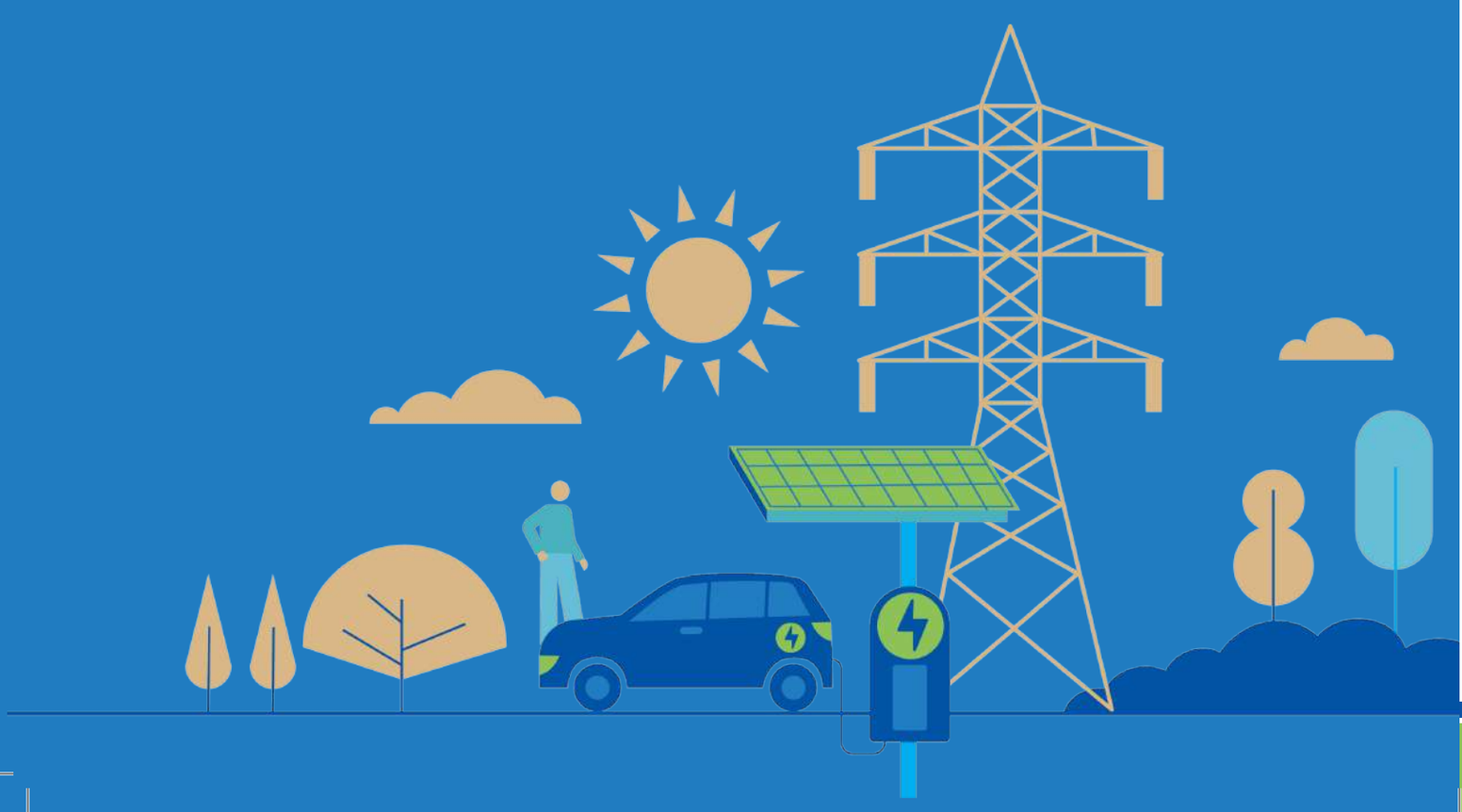


FOREWORD



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सत्यमेव जयते

Azadi Ka Amrit Mahotsav

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NITI Aayog, Parliament Street,
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FOREWORD

India stands at the cusp of a transformative mobility revolution. The global momentum towards sustainable transportation presents a timely and compelling opportunity for our nation to leapfrog conventional trajectories and position itself as a frontrunner in clean, connected, and shared mobility solutions. At the forefront of this transition lies electric mobility—a vital enabler for advancing our energy security, climate commitments, and industrial aspirations.

The Government of India has taken bold and strategic measures to accelerate the adoption of electric vehicles (EVs), deploying targeted policy interventions, financial incentives, and mission-driven initiatives. Programmes such as the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) Scheme, the Production Linked Incentive (PLI) Scheme for Advanced Chemistry Cells, and concerted efforts to localise battery manufacturing underscore our resolve to build a robust and future-ready transport ecosystem. Encouragingly, several Indian states have emerged as trailblazers, crafting forward-looking EV policies, investing in charging infrastructure, and fostering innovation and investment at the local level. This growing synergy between central and state-level action is essential to the creation of a coherent and scalable EV ecosystem.

The India Electric Mobility Index (IEMI) is a pioneering initiative designed to bolster electrification efforts at the sub-national level. By evaluating the progress of electric mobility across states and union territories, the IEMI captures the richness of state-level strategies and the strength of regional ambition. It serves as a valuable tool for policymakers, providing insights that can inform targeted action and drive collaborative progress.

I extend my sincere appreciation to the Electric Mobility team at NITI Aayog and the World Resources Institute (WRI) for their vision, diligence, and partnership in developing this important dashboard and its robust methodology. We look forward to working closely with states to harness the insights of the IEMI and accelerate India's journey towards a cleaner and more sustainable transport future.

Suman Bery

स्वच्छ भारत
एक कदम स्वच्छता की ओर

राजीव गौबा
Rajiv Gauba
Member
सदस्य

सत्यमेव जयते

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Foreword

India's transition to electric mobility is a defining pillar of our climate and development strategy. As we work towards sustainable economic development, the role of states and union territories is more critical than ever. The India Electric Mobility Index (IEMI) is a strategic tool designed to empower policymakers with the insights needed to drive impactful, data-informed decisions.

With 33 states and UTs having notified EV policies, the momentum is strong—but the path ahead demands deeper collaboration, innovation, and accountability. The IEMI provides a transparent, comparative framework to assess progress across key themes such as electrification, infrastructure, and innovation. It enables states to benchmark their efforts, identify gaps, and learn from each other's successes.

IEMI is not just a dashboard—it is a platform for peer learning, policy refinement, and ecosystem development. It also offers valuable insights for our international partners and peers into India's policy landscape, investment readiness, and innovation potential. I commend NITI Aayog and WRI India for their efforts towards developing this initiative. It will serve as a valuable resource for policymakers to align local action with national ambition and accelerate India's clean mobility transformation

(Rajiv Gauba)

New Delhi
August, 2025

NITI Bhawan, Parliament Street, New Delhi - 110 001

बी. वी. आर. सुब्रह्मण्यम
B.V.R. Subrahmanyam
मुख्य कार्यकारी अधिकारी
Chief Executive Officer

सत्यमेव जयते

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FOREWORD

India aspires to become a developed nation by 2047 –Viksit Bharat – a vision that necessitates a concerted push for Zero-emission vehicles for a sustainable future. Coupled with our net-zero goal for 2070, the transport sector, responsible for 12% of India's GHG emissions, emerges as a high-impact area for sustainable transformation. India's progress on electrification of the transport sector has already been commendable, with a CAGR of 49%, spurred by an increasing adoption of electric 2/3-wheelers and e-buses.

2. The India Electric Mobility Index (IEMI) aims to catalyse the ongoing EV transition across all states. A first-of-its-kind initiative, the Index will serve as a repository to foster knowledge sharing and best practices, while encouraging a healthy competitive spirit among states.

3. Capturing dynamic and fast-paced progress across 28 States and 8 Union Territories, the Index aims to promote cross-sectoral collaborations while highlighting the pivotal role of action at the state level in meeting national priorities. The comparative analysis provides a comprehensive snapshot of state level progress that can bolster innovation and enhance private sector investment.

4. NITI Aayog has already been at the forefront of enabling the ongoing EV revolution. This Index is another effort by NITI Aayog to propel India towards its vision of a decarbonized and energy-secure future. I believe that platforms and initiatives like these will also push the needle on the global stage and set the narrative of India's leadership in the decarbonization of the transport sector.

5. I would congratulate the NITI Aayog team, working under the guidance of Dr. O.P. Agarwal, Distinguished Fellow of NITI Aayog and leadership of Shri Sudhendu Sinha, Programme Director for their sustained efforts towards the conceptualization and development of this dashboard. I would also like to acknowledge and appreciate WRI India for their dedicated effort towards the development of the Index framework and dashboard.

Dated: 23rd July, 2025

(B.V.R. Subrahmanyam)

स्वच्छ भारत
एक कदम स्वच्छता की ओर

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Foreword

India's aspiration to emerge as a global leader in clean and inclusive growth is closely intertwined with the transformation of its urban transport systems. As our cities expand rapidly, transitioning to sustainable urban mobility is essential—not only to cut emissions and improve air quality but also to ensure equitable access to transport for all citizens.

Electric mobility stands at the heart of this transformation. It offers a scalable solution that aligns with India's climate goals, strengthens our energy security, and supports an innovation-driven economy. As of June 2025, India has registered over 6.5 million electric vehicles (EVs)—a testament to the strong momentum and growing public trust in this transition.

At this critical juncture, coordinated and concerted action is more important than ever—to scale infrastructure, nurture innovation, and ensure that the benefits of this transition are accessible across all geographies and communities.

The India Electric Mobility Index captures this national ambition. It provides a data-driven framework to measure the progress of states and union territories across key dimensions such as electrification, charging infrastructure, and innovation. The Index serves as a powerful tool to guide evidence-based policymaking, spotlight best practices, benchmark progress, and identify areas that need targeted interventions.

I commend the leadership of Shri Sudhendu Sinha and the dedication of the WRI India team in developing this impactful framework. Their effort towards the development of the IEMI dashboard further strengthens India's electric mobility journey and will serve as an indispensable tool to chart a clear path toward a cleaner, more connected, and inclusive future for all.

(Dr. O P Agarwal)

स्वच्छ भारत
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India's Electric Mobility revolution presents a transformative opportunity for India to lead in mobility innovation, manufacturing, and sustainable growth. The India Electric Mobility Index (IEMI) is a pioneering initiative that offers clarity and confidence to the private sector by showcasing the readiness and ambition of states and union territories. It serves as a comprehensive repository to inform and shape policymaking that leverages learnings and good practices of states to drive India's EV revolution.

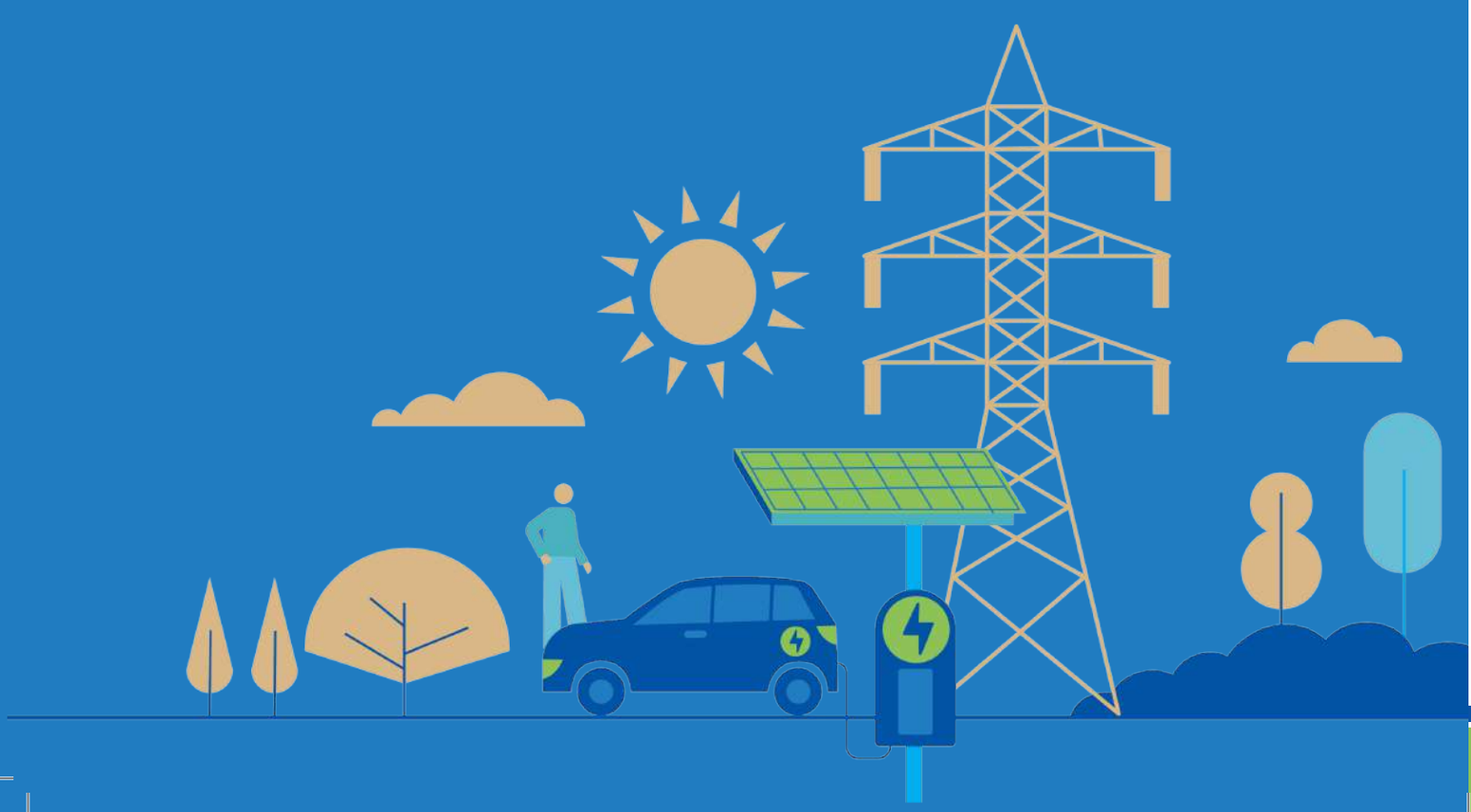
As the EV ecosystem evolves rapidly, the IEMI provides a structured, data-driven view of progress across 16 indicators, including charging infrastructure, policy support, and research capacity. This transparency helps businesses identify high-potential markets, align with state-level priorities, and invest strategically in emerging opportunities.

The IEMI also fosters a competitive yet collaborative environment that encourages innovation and public- private partnerships. It bridges the information gap between government and industry, enabling more targeted interventions and efficient capital deployment.

I am delighted to launch this forward-thinking initiative spearheaded by NITI Aayog and supported by WRI India. The IEMI will play a pivotal role in shaping India's clean mobility landscape and positioning the country as a global hub for electric vehicle innovation and investment.

(Sudhendu J. Sinha)

MESSAGES



WRI INDIA

MESSAGE

Madhav Pai
Chief Executive Officer
WRI India

India is one of the prominent global voices for advancing the adoption of electric vehicles to achieve a net-zero carbon economy. As electrification gathers pace impressively across the country, there is a lot for states to learn from each other. With most states and UTs having notified EV policies of their own, sub-national implementation efforts are yielding impressive results for EV adoption, charging infrastructure development and technology innovation. With the IEMI, the aim is to inform policy at the state level and enable the creation of a holistic and conducive ecosystem to promote EV adoption.

As India strives to achieve 30% EV sales by 2030, knowledge sharing towards shared goals assumes greater significance. The IEMI is a platform to acknowledge the impressive progress achieved by states and showcase their best practices that can serve to enable peer-to-peer learning between states. By highlighting impactful fiscal and non-fiscal incentives and policies, the IEMI aims to bridge the information asymmetry for policymakers, investors, and innovators. The Index will also help states benchmark their progress and inform the government on allocating appropriate public funds to promote clean mobility.

WRI India is proud to be supporting this landmark initiative spearheaded by NITI Aayog. I firmly believe that by strengthening sub-national decarbonization aspirations and turning ambition into action, we can position India as a leader on the global stage for achieving impactful outcomes and enunciating the role of EVs in our journey towards a decarbonized future.

INDIA RESOURCES TRUST

Dated: 28th July, 2025

(Madhav Pai)

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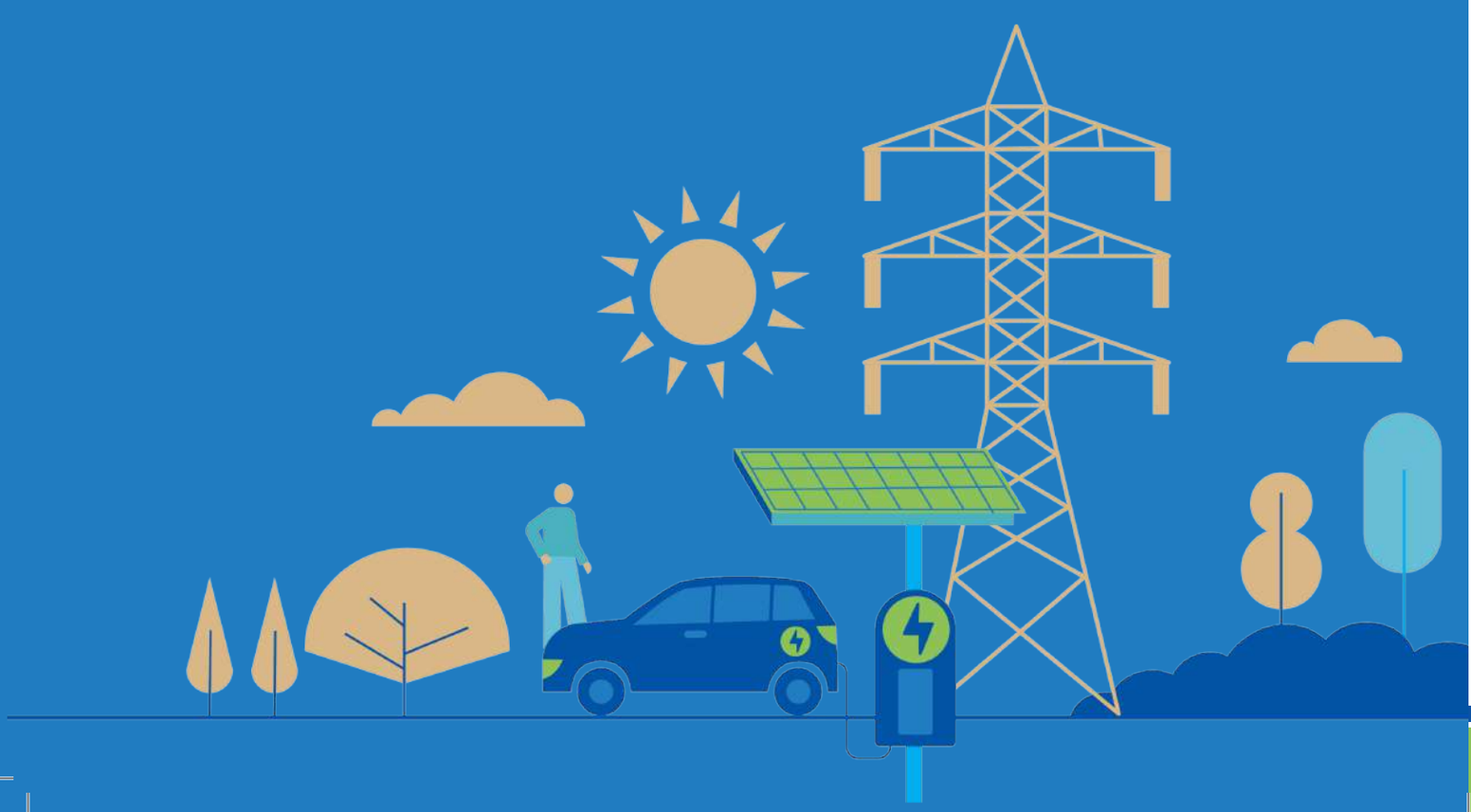
ACKNOWLEDGEMENT



The IEMI was made possible through the efforts of many individuals and organisations that generously contributed their expertise and insights to the development of this essential initiative.

First and foremost, we would like to thank the CEO, NITI Aayog, Shri BVR Subrahmanyam, for championing the IEMI and supporting its development. We would like to thank Shri Rajiv Gauba, Member, NITI Aayog, for his timely guidance in refining the index. We would like to express our sincere appreciation tto Dr. O.P Agarwal, Distinguished Fellow, NITI Aayog and Shri Sudhendu Sinha, Programme Director - E-Mobility NITI Aayog, for providing their inspiration and continued support for the IEMI, and for leading efforts to help states with their electric mobility ambitions. We would also like to appreciate the dedicated efforts of the electric mobility team at NITI Aayog, including Dr. Shikha Juyal, Amarjeet Singh, Amit Kumar Yadav, Gaurav Nemade, Ghanshyam Thakur, and Shadab M. Khan. They have been instrumental in the successful development of the index.

Further, we would like to thank the Ministry of Road Transport and Highways, Bureau of Energy Efficiency, Central Electricity Authority, Ministry of Heavy Industries, Office of the Controller General of Patents, and other relevant ministries and departments whose policies, programs and open data platforms have made this assessment possible. We appreciate their unwavering efforts, strategic initiatives, and sustained dedication that have significantly advanced the country's transition towards electric mobility.

We extend our heartfelt thanks to the many state departments, electricity distribution companies, nodal agencies, and other field-level stakeholders for their inputs and engagement, which played a crucial role in capturing the ground realities of electric mobility readiness across states. We would also like to thank the industry stakeholders and e-mobility experts from across the ecosystem that shared their valuable feedback and insights to strengthen the IEMI.

Finally, the development of the IEMI is the outcome of dedicated work by WRI India, under the guidance of NITI Aayog. We would like to thank Madhav Pai, CEO, WRI India and Pawan Mulukutla, Executive Director- Integrated Transport, Clean Air and Hydrogen, WRI India for their leadership and guidance to the WRI India team. We would also like to acknowledge the persistent efforts of Chaitanya Kanuri, Arvind Manickam, Ankita Rajeshwari, Iranna Koppad, Mitasha Duggal, and the other WRI India colleagues who helped shape the index with inputs from the ecosystem stakeholders. We also gratefully acknowledge the technical support provided by Trupti Deshpande, Narayankumar Sreekumar and Priyadarshini Alok from Shakti Sustainable Energy Foundation whose contributions to the index were invaluable. We deeply appreciate the support of all the distinguished experts that contributed to the IEMI. We hope that the index is a useful resource for all stakeholders in the electric mobility ecosystem.

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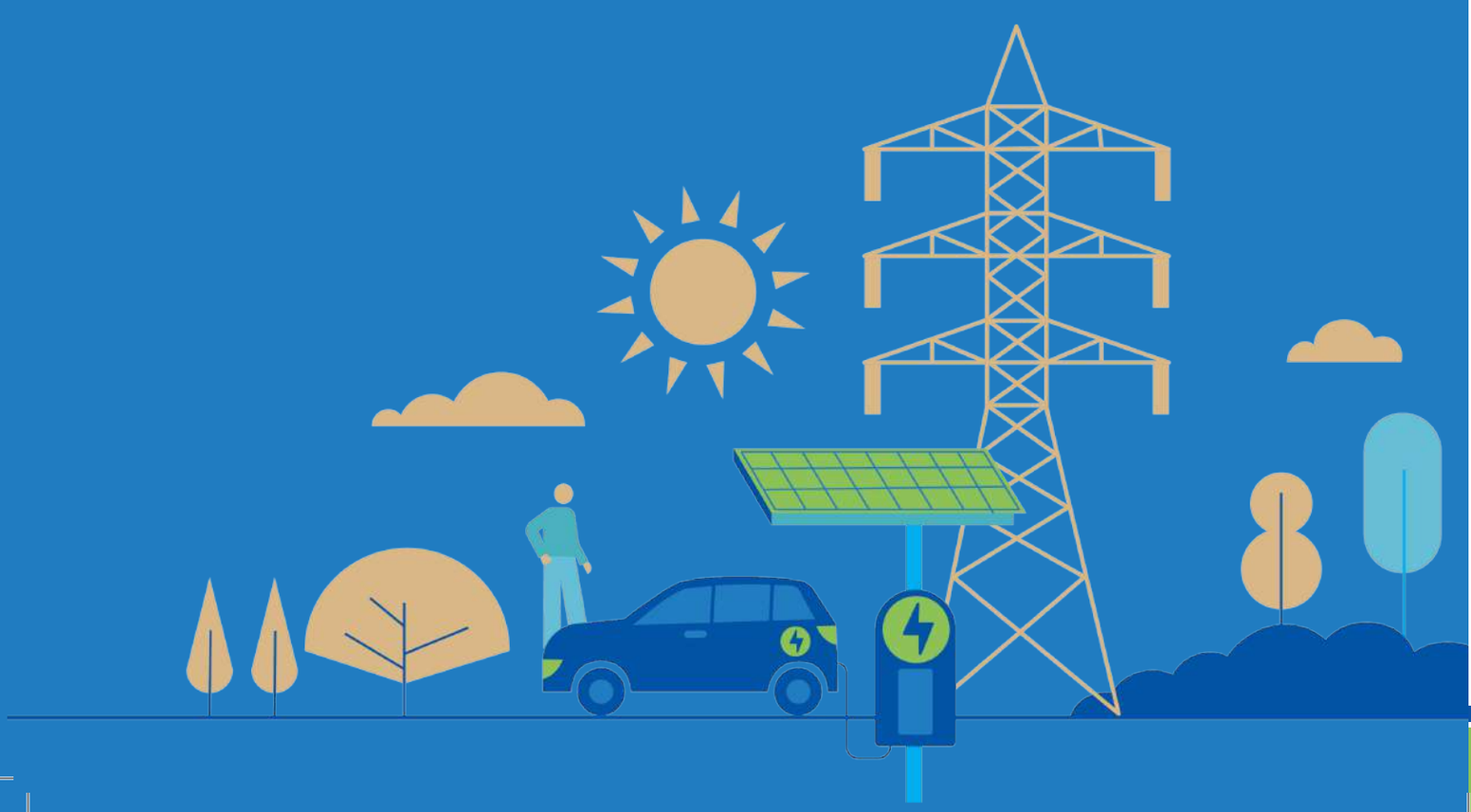
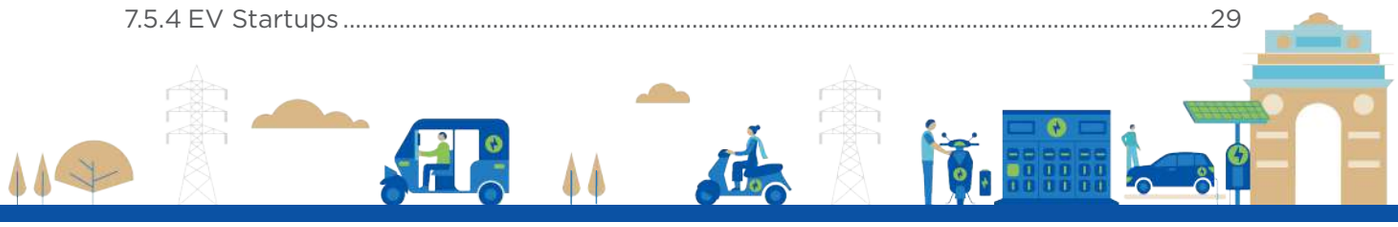
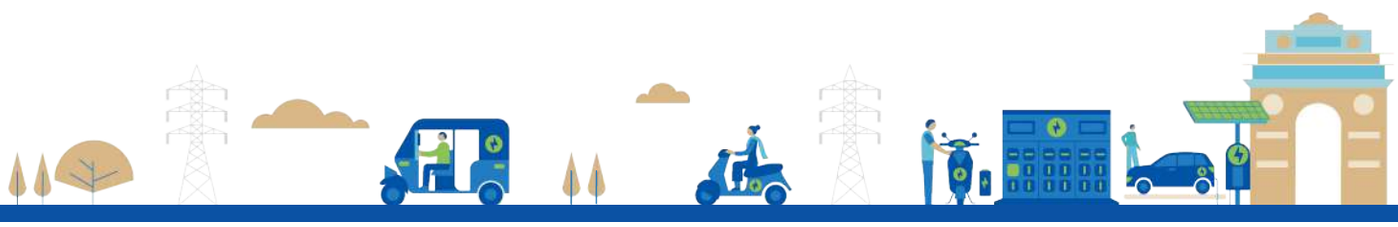




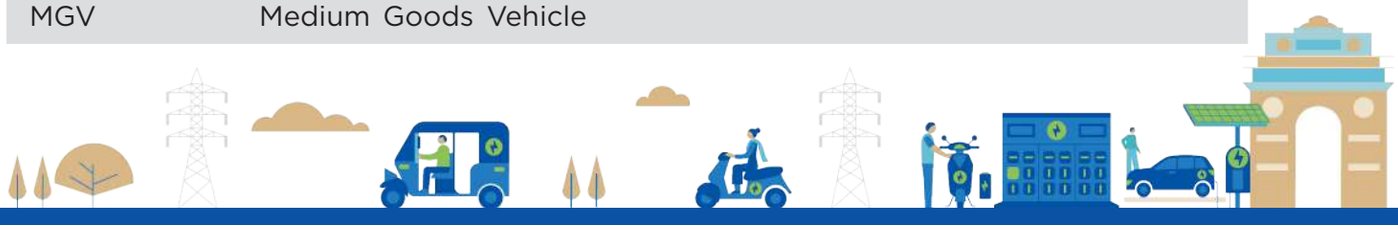


TABLES

FIGURES

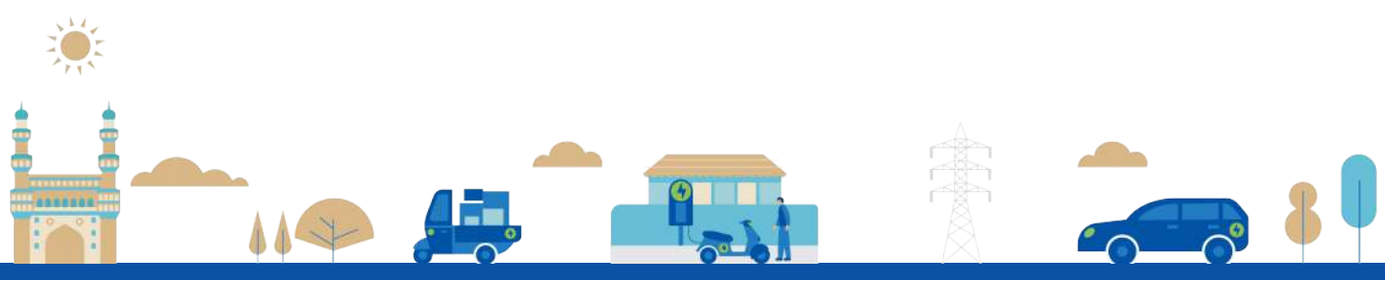
LIST OF ABBREVIATIONS

2-W	Two-wheeler
3W	Three-wheeler
4W	Four-wheeler
BEE	Bureau of Energy Efficiency
BOV	Battery Operated Vehicle
CEA	Central Electricity Authority
CGPDTM	Controller General Patents, Designs & Trade Marks
CoE	Centre of Excellence
DD & DNH	Daman & Diu and Dadra and Nagar Haveli
e-2W	Electric 2-wheeler
e-3W	Electric 3-wheeler
e-4W	Electric 4-wheeler
e-HGVs	Electric Heavy Goods Vehicle
e-LGV	Electric Light Goods Vehicle
e-MGV	Electric Medium Goods Vehicle
e-mobility	Electric mobility
e-taxi	Electric Taxi
EV	Electric Vehicle
FAME	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India
FY	Financial Year
GDP	Gross Domestic Product
GSDP	Gross State Domestic Product
HGV	Heavy Goods Vehicle
ICE	Internal Combustion Engine
IEMI	India Electric Mobility Index
INR	Indian Rupee
LGV	Light Goods Vehicle
MGV	Medium Goods Vehicle



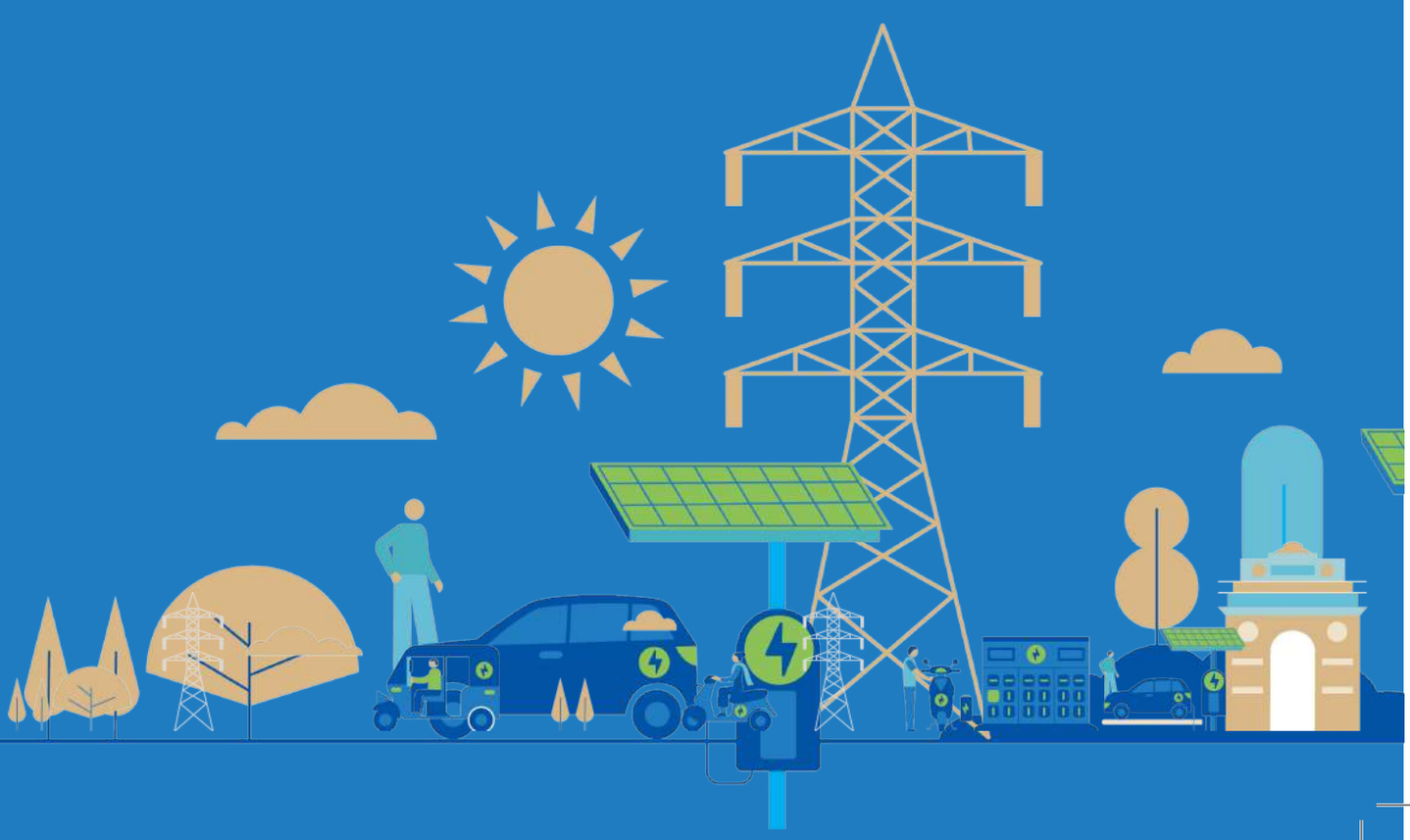
LIST OF ABBREVIATIONS

MoSPI	Ministry of Statistics and Programme Implementation
NT	Non-transport
PM	Particulate Matter
PM e-DRIVE	PM Electric Drive Revolution in Innovative Vehicle Enhancement
R&D	Research and Development
RBI	Reserve Bank of India
RE	Renewable Energy
UT	Union Territory
USP	Unique Selling Point



1

INTRODUCTION



Rising vehicle ownership in India has significantly intensified the environmental burden posed by the transport sector. With over 310 million vehicle registrations in the past 15 years[1], the transport sector accounts for about 12% of India's energy-related carbon dioxide emissions, with road transport responsible for over 92% of these emissions[2]. Moreover, the sector is a major contributor to air pollution, accounting for 20-30% of the urban air pollution in Indian cities[2], predominantly from road transport. The combustion of fossil fuels in vehicles releases significant quantities of particulate matter (PM2.5 and PM10), nitrogen oxides and other pollutants, severely deteriorating urban air quality and adversely impacting public health. Addressing these issues requires a shift toward cleaner transport solutions. These include vehicle electrification, improvement of public transit, and the enforcement of stricter emissions regulations.

At the same time, India's automotive manufacturing sector is a cornerstone of its economy, contributing approximately 7.1% to the national gross domestic product (GDP) and accounting for 49% of the country's manufacturing GDP[3]. India is the second-largest manufacturer of two-wheelers (2W), largest manufacturer of three-wheelers (3W) and third-largest manufacturer of passenger cars (four-wheelers [4Ws]) in the world[4]. It is also ranked as the third-largest automobile market globally in terms of sales[5]. The sector employs around 19 million people directly or indirectly and plays a vital role in job creation[6]. Figure 1 presents the total number of vehicles registered by type in financial year (FY) 2023-24[1].

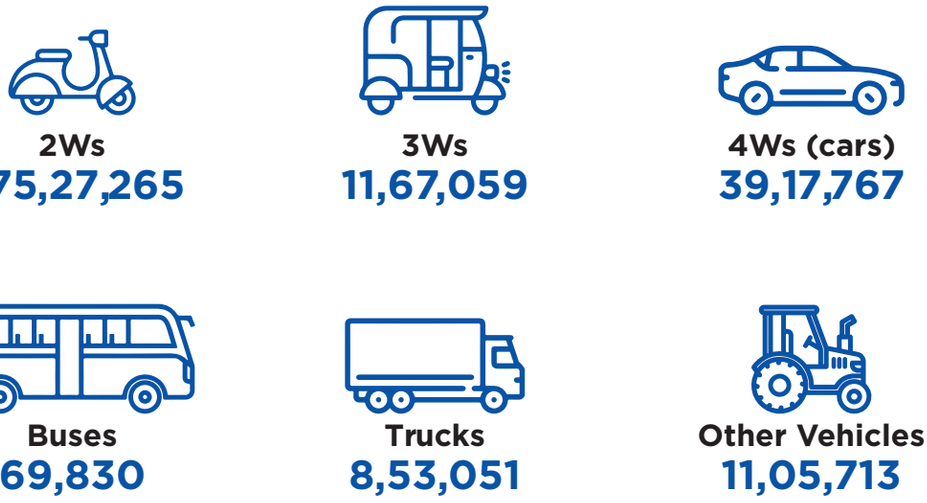


Figure 1: Vehicles Registered in FY 2023-24

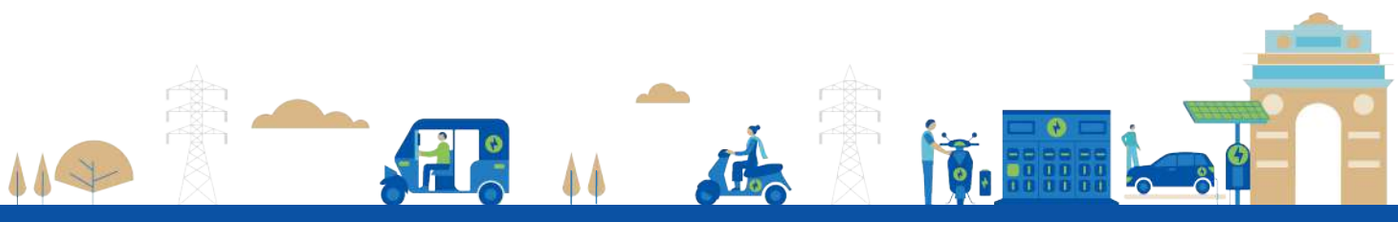
Electric mobility (e-mobility) plays a crucial role in decarbonising India's transport sector. By shifting from internal combustion engine (ICE) vehicles to electric vehicles (EVs), India can significantly reduce its dependence on fossil fuels and cut urban air pollution, especially in rapidly growing cities. With rising concerns over climate change, energy security and public health, clean mobility is increasingly seen as a 'sunrise sector'—one with immense potential for innovation, investment and job creation. Government policies such as the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME) scheme, production-linked incentives for advanced chemistry cells and state-level EV policies underscore the strategic importance of clean mobility. As battery costs decline and charging infrastructure expands, the e-mobility sector is expected to catalyse

economic growth while advancing India's commitment to achieve net-zero emissions by 2070 and meets its Paris Agreement targets of reducing emissions intensity by 45% and achieving 50% electric power capacity from non-fossil sources by 2030[7].

With the notifications for the PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM e-DRIVE) scheme (2024) and for the Scheme to Promote Manufacturing of Electric Passenger Cars (2024) in India, India continues to demonstrate its commitment to the e-mobility transition. However, an accelerated transition that enables rapid decarbonisation gains and helps India enhance its competitiveness in the automotive sector requires cross-sectoral partnerships with active participation of the subnational governments.

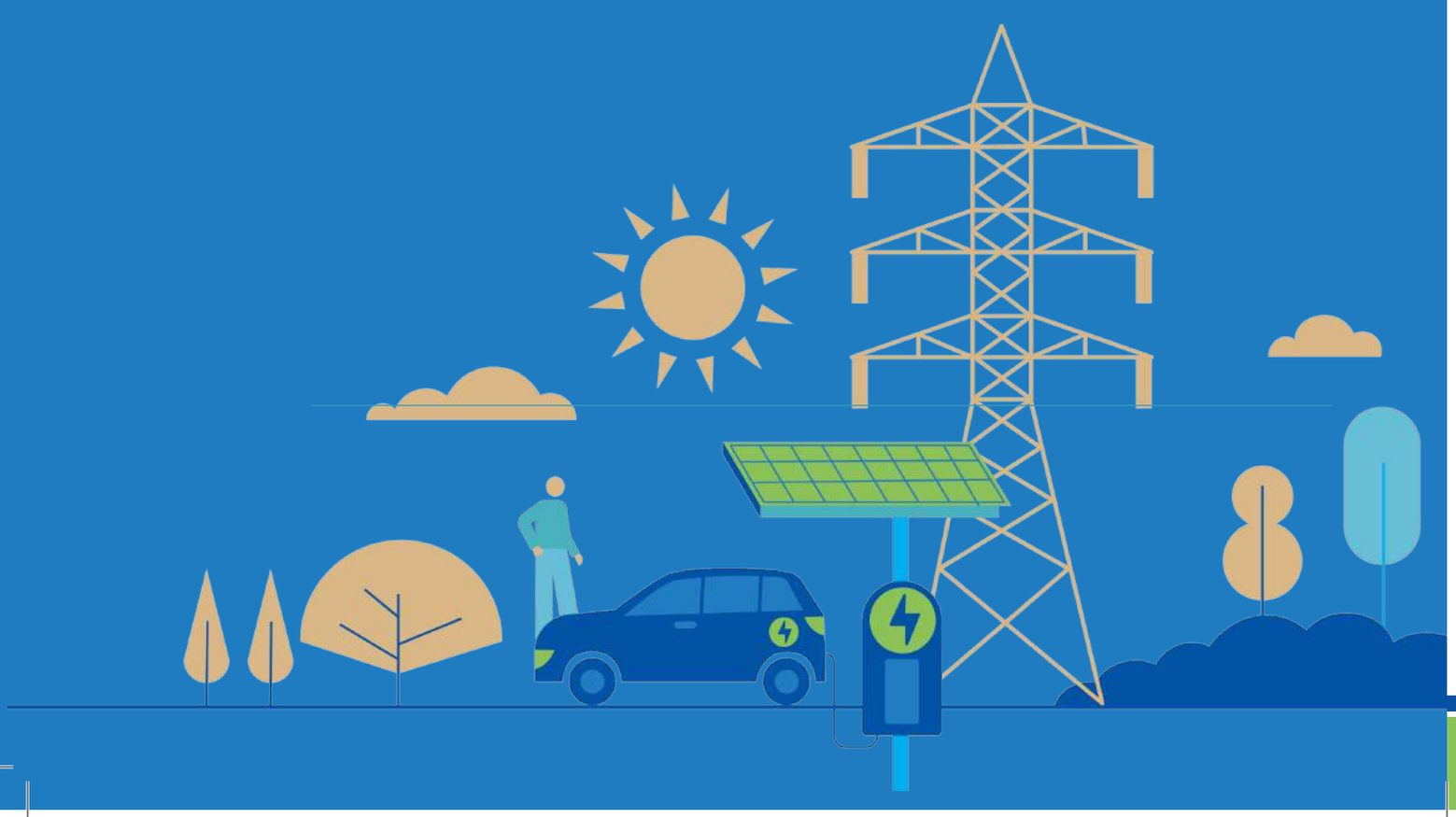
As of 1 June 2025, 29 states and union territories (UTs) have notified their EV policies, and another four states have draft policies under consideration. Supporting the effective design of state EV policies and enabling impactful state-level action for e-mobility can significantly improve EV adoption. This, in turn, can accelerate the development of a domestic manufacturing industry for EVs and EV components, reducing the country's reliance on imports and positioning India as a global hub for EV manufacturing.

This report presents the rationale, approach and methodology for the India Electric Mobility Index (IEMI), a tool to support states in achieving a robust and effective e-mobility transition. The IEMI assesses performance of the 28 states and 8 union territories in their ambition and progress in accelerating the e-mobility transition. The index will provide a comparative and ongoing evaluation of e-mobility development in Indian states, that identifies key enablers leading to effective outcomes. This will allow states to engage in peer learning and deploy policy and regulatory interventions with demonstrated impact and will also enable more private sector investments based on states' performance and potential for future growth.



2

INDIA'S E-MOBILITY ECOSYSTEM



India's e-mobility sector has undergone a significant transformation over the past decade. Once accounting for just 0.5% of total vehicle sales in 2018, EVs rose to 7.7% of new vehicle sales in 2024, with over 6.5 million EVs operating on Indian roads as on June 2025. This growth has been fuelled by a combination of policy incentives, private sector investment and consumer demand for cleaner and more affordable mobility. In calendar year 2024 alone, EV sales grew by 27% year-on-year to reach 2.03 million units, with 2Ws continuing to dominate the market at 59% of total EV sales[1]. The growing market share reflects the increasing acceptance of e-mobility, especially in urban and peri-urban transport.

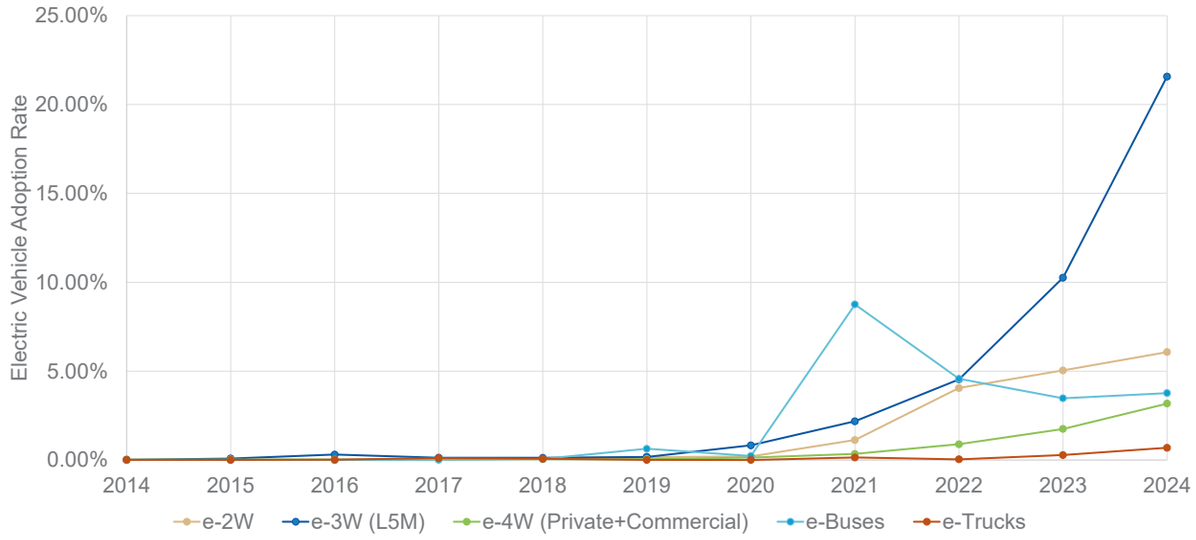


Figure 2: e-2W, e-3W, e-4W, e-Buses and e-Trucks adoption rate trend since 2014

Source: Vahan Dashboard[1]

Government-led initiatives have played a central role in accelerating this transition. The FAME-II scheme, launched in 2019, has been instrumental in supporting demand incentives for electric 2Ws (e-2Ws), electric 3Ws (e-3Ws) and electric 4Ws (e-4Ws), particularly for commercial use. FAME-II has also provided funding for charging infrastructure and electric buses (e-buses) for public transport. Building on this, the recently launched PM e-DRIVE scheme further reinforces the government's long-term commitment to e-mobility. With continued support for e-2Ws, e-3Ws, e-buses and charging infrastructure, and by introducing purchase incentives for segments such as electric trucks and electric ambulances, the scheme aims to accelerate EV adoption across all road transport vehicles.

India is a signatory to the global EV30@30 campaign under the Clean Energy Ministerial, an international forum that promotes policies and programs to advance clean energy. Accordingly, it is committed to achieving 30% EV penetration in new vehicle sales by 2030. However, achieving this target will require not only ambitious policies but also coordinated efforts to address persistent structural challenges in the ecosystem.

Charging infrastructure is one of the most critical enablers of EV adoption. As of October 2024, India had 25,000 public EV charging stations, with Karnataka leading in installations, followed by Maharashtra and Delhi[8]. While this marks significant progress, the availability and density of charging stations presents opportunities across states and urban-rural geographies. Fast-charging options, which are vital for long-haul and commercial fleets,

are still limited. Planned charging networks, enhanced grid integration, standardised charging technologies, and streamlined payment systems present key opportunities to improve user experience and support the scalable growth of e-mobility.

Manufacturing capacity has expanded with the support of initiatives such as the Production Linked Incentive (PLI) Scheme for Automobile and Auto Components, Production Linked Incentive for National Programme on Advanced Chemistry Cells and Battery Storage, Scheme to Promote Manufacturing of Electric Passenger Cars in India and the Phased Manufacturing Programme under the PM e-DRIVE scheme. Moreover, India has seen increased investment in vehicle assembly, battery manufacturing and localisation of key parts such as motors and controllers. Nevertheless, the country needs to address issues on imports for lithium-ion cells and other critical raw materials, exposing the sector to global supply chain risks. In addition to the ongoing domestic mining and mineral processing efforts there is a need for long-term strategies to ensure material recycling, innovation in battery technologies and secure access to raw materials. According to a NITI Aayog–Green Growth Equity Fund report, India's cumulative lithium-ion battery stock is projected to reach 600 GWh by 2030, generating 128 GWh of recyclable battery volume. Strengthening material recovery systems, local recycling infrastructure, and battery innovation will help India reduce reliance on imports, enhance supply chain resilience, and support sustainable growth in its EV ecosystem.

State governments have emerged as important actors in India's e-mobility push. Many states have released dedicated EV policies that offer demand-side incentives, support for manufacturing and subsidies for charging infrastructure. Delhi has made notable progress in promoting e-2Ws and e-3Ws, while Tamil Nadu and Karnataka have attracted substantial investments in EV manufacturing. While significant progress has been made, there are opportunities to strengthen policy implementation by ensuring longer tenures of state EV policies, enhancing coordination with electricity distribution companies, and streamlining institutional mechanisms. Strengthening state-level governance, aligning transport and energy planning, and ensuring consistency in incentive structures will be essential for a more integrated EV ecosystem.

India's e-mobility transition also presents unique opportunities. The large and growing domestic vehicle market provides a favourable environment for developing scalable, low-cost EV solutions suited to the Global South. Greater electrification of public transport, freight and delivery services, combined with digital platforms for fleet and energy management, could yield substantial economic and environmental benefits. Financing mechanisms such as leasing models, battery-as-a-service and green credit instruments can help overcome affordability barriers, particularly for small businesses and lower-income consumers. Expanding domestic research and development (R&D) and skilling ecosystems will also be critical for enhancing industrial competitiveness and ensuring a just and inclusive transition.

While India's EV journey is still progressing, the convergence of ambitious national schemes such as FAME-II and PM e-DRIVE, supportive state action and a growing market appetite positions the country to play a leading role in the global shift toward e-mobility. Addressing infrastructure gaps, reducing import dependencies and ensuring long-term policy consistency will be key to sustaining this momentum and achieving India's climate and development goals.

3

IMPORTANCE OF STATE ACTION

States play an important role in India's transition to e-mobility. They govern critical sectors such as road transport, power distribution, manufacturing and urban planning, each of which is foundational to the development of a robust EV ecosystem. From designing local policies to enabling infrastructure on the ground, the effectiveness of the EV transition hinges on state-level leadership and coordination.

Various state departments—transport departments, electricity regulatory commissions, industries departments, and education and skill development departments—play a pivotal role in enabling state level EV transitions. Moreover, achieving this transition requires strong state capacity and an integrated approach, with states playing a key role in policy implementation, infrastructure deployment and ecosystem development. Coordinated efforts must address infrastructure gaps, skilling and affordability while ensuring inclusivity, so that the benefits reach all sections of the society equitably.

As of now, 29 states and Union Territories have notified EV policies. These states focus on developing various aspects of the e-mobility ecosystem, including demand generation, supply-side support, skill development, employment and innovation. They achieve this through a combination of fiscal and non-fiscal incentives. The EV policies help in transitioning to e-mobility with a comprehensive approach involving incentives, programmes, partnerships and a robust implementation plan. Figure 3 presents the status of EV policies across India's states and UTs.

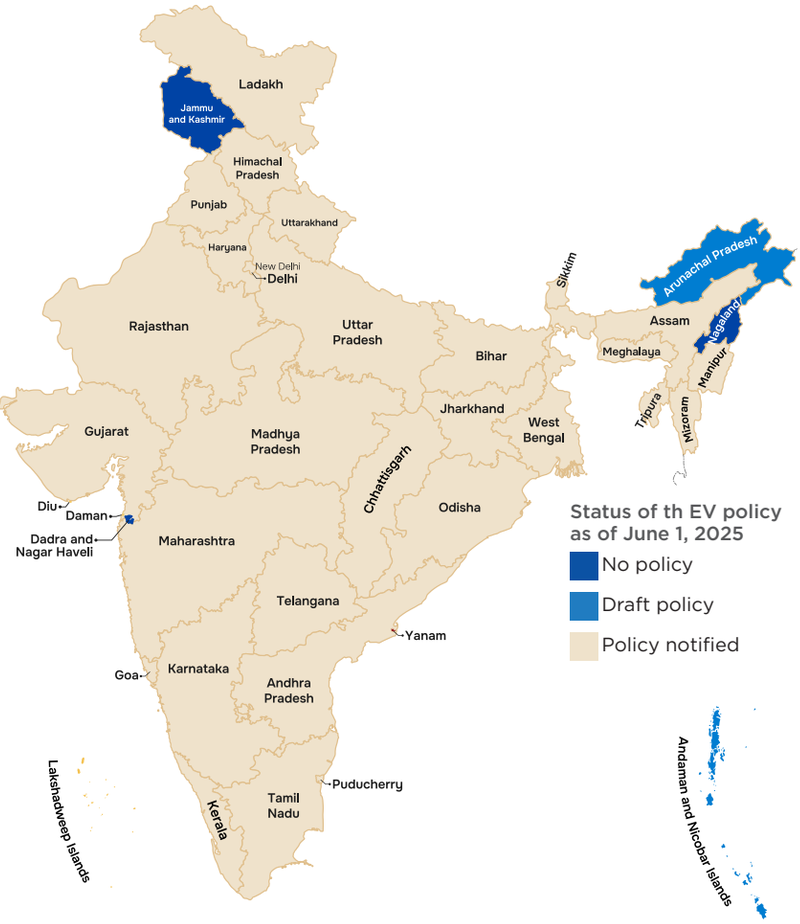


Figure 3: EV Policy Status of States and UTs

Given the diversity of approaches being adopted across the country, facilitating the exchange of knowledge and best practices among states holds significant value. Learning from peers through policy initiatives, innovative approaches or implementation strategies can help states adopt effective measures to accelerate their progress.

In addition to supporting evidence-based decision-making and foster accountability, there is a pressing need for a robust feedback mechanism to assess the impacts of deployed policies. A dedicated platform is needed to bridge the states' knowledge gaps, that assesses state-level e-mobility performance, highlights effective policymaking and guides investment decisions.

Achieving India's sustainable transportation goals requires innovative and informed policy design, effective implementation and continuous peer-to-peer learning between states. This highlights the urgent need for the following:

i. **A Dynamic Tool for States in the EV Ecosystem**

- There is a strong need for a well-designed tool that can support key stakeholders in the e-mobility landscape, including government officials, manufacturers, investors and researchers. This tool should provide real-time data, useful insights and clear analyses to support informed decision-making. It should help align state-level and national efforts, making it easier to plan, implement and track e-mobility initiatives across the country.

ii. **Recognition of High-Performing States**

- Identifying and showcasing states that excel in e-mobility adoption, infrastructure development and policy implementation is vital. Recognising such states can encourage healthy competition, inspire others to implement the contextualised solutions and promote innovation across the sector.

iii. **Sharing of Successful Initiatives and Innovations from Leading States**

- Creating a central platform to collect and share successful policies, programmes and innovations from different states can benefit the entire country. By learning from what has worked elsewhere, states can adopt similar measures, avoid common challenges and speed up the development of their own e-mobility systems. This will enable replication and accelerate EV ecosystem growth across India.

iv. **Identification of Key Success Factors in E-Mobility Development**

- Evaluating policy effectiveness and the needs for financial incentives, charging infrastructure and R&D can help pinpoint drivers of e-mobility. This will guide states and stakeholders to focus on the areas of impact for targeted development.

v. **Encouragement for States to Adopt Proactive Approaches**

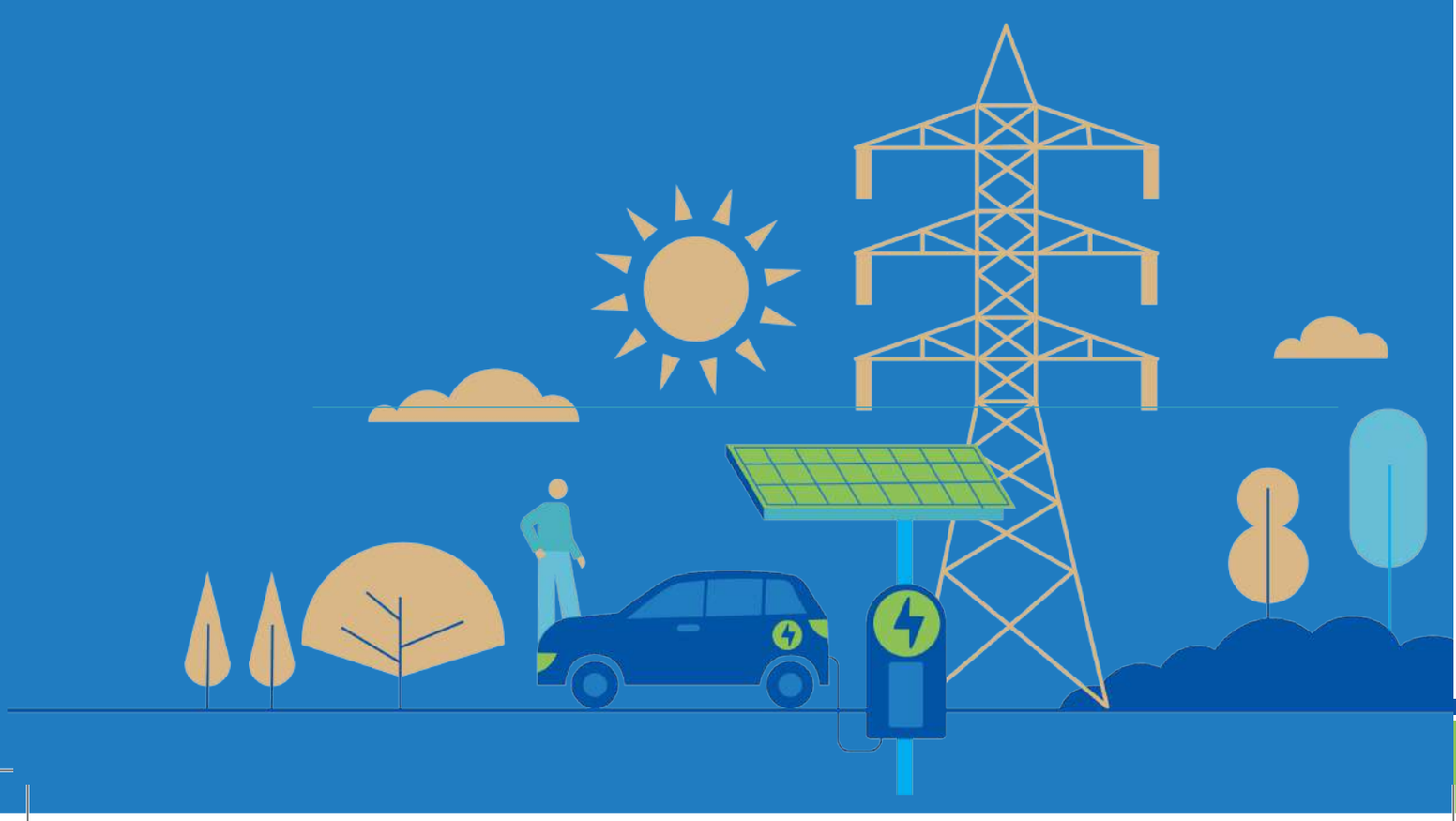
- Performance assessments can motivate states to adopt forward-looking strategies, such as setting ambitious EV targets, investing in infrastructure and engaging private players to foster innovation and growth.

vi. **Aid to Policymakers in Making Informed Decisions**

- By identifying trends, infrastructure gaps and critical intervention areas, assessments can empower policymakers to create region-specific strategies, optimise resource use and ensure equitable and inclusive EV adoption.

4

ABOUT IEMI



The IEMI is a first-of-its-kind government initiative. It uses open datasets and government datasets to capture the rapid changes taking place in the fast-evolving EV ecosystem. It also reflects the subnational level progress, challenges and opportunities that states and UTs face in their performance while transitioning to e-mobility.

Developed by NITI Aayog in partnership with WRI India, the IEMI is grounded in the core principles of comprehensiveness, data-driven assessment, actionability, inclusivity and transparency. It will enable states to benchmark their progress, inform public fund allocation to promote clean mobility and foster peer learning. Additionally, it will guide the private sector by highlighting state performance and growth potential.

The IEMI recognises the linkages between different aspects of the e-mobility ecosystem and the need for a comprehensive evaluation framework. The index identifies critical enablers—such as supportive policies and initiatives, robust governance processes, public sector investments, and private sector innovation and R&D—in accelerating and strengthening the e-mobility transition in India. It also highlights the impacts of these enablers on the desired outcomes, including increased EV adoption, charging infrastructure development and strengthened technology innovation in the EV sector. By selecting mutually distinct parameters for evaluation, the IEMI ensures comprehensive coverage of the factors driving e-mobility while avoiding redundancy. Additionally, by leveraging transparent monitoring and evaluation methods, the platform objectively assesses state-level performance, offering actionable insights to guide targeted policy interventions and foster sustainable development. The following subsections discuss the IEMI's significance, objectives and features.

4.1 Need for the IEMI

The IEMI is a dynamic platform to evaluate the progress of states and UTs in their endeavours to accelerate the shift toward e-mobility. Globally, the IEMI is the first subnational-level e-mobility index, providing a comparative and ongoing evaluation of e-mobility development in Indian states.

This index evaluates the advancement of e-mobility and identifies key factors contributing to a successful transition. The index facilitates peer learning among states, which helps them make informed policy decisions, drive impactful interventions and attract private sector investment. The development of this index involved a meticulous process, including a review of global indices, inputs from key stakeholders, pilot testing and feedback collection.

4.2 Objectives of the IEMI

i. **To recognise states that are performing well in this sector:** The IEMI aims to highlight states that have made significant progress in adopting and promoting e-mobility. This includes achievements in policy implementation, EV sales, charging infrastructure deployment and financial incentives. By identifying top-performing states, the index provides benchmarks for others to follow and fosters a spirit of healthy competition.

ii. **To identify key success factors that have an outsized impact on e-mobility development:** The index helps determine the most critical elements driving e-mobility adoption, such as policy frameworks, financial inducements and infrastructure investments. Understanding these success factors allows policymakers and industry stakeholders to prioritise their efforts effectively. It also helps states learn from the best practices and adapt strategies to accelerate EV adoption.

iii. **To encourage states to take a more proactive approach to e-mobility:** By assessing and ranking states, the index creates a sense of accountability and motivates states to improve their policies and implementation strategies. It serves as an instrument to identify areas that need additional focus and investment. Additionally, the index facilitates knowledge sharing and collaboration between states, helping lagging regions adopt best practices.

iv. **To support evidence-based policymaking for sustainable EV growth:** The index provides data-driven insights that enable state governments to design more effective e-mobility policies. It helps policymakers understand regional gaps, infrastructure gaps and market readiness, leading to targeted interventions. By promoting transparency and data-backed decision-making, the IEMI contributes to a more structured and sustainable EV ecosystem in India.

4.3 Key Features of the IEMI

Key features of the IEMI include the following:

i. The IEMI is a dynamic platform that **assesses performance of the 28 states and 8 UTs** in India along with their ambition and progress in accelerating the e-mobility transition.

ii. The IEMI tracks and evaluates **16 indicators across three themes:** Transport Electrification Progress, Charging Infrastructure Readiness and EV Research and Innovation Status. The IEMI is designed as a simple and transparent index, allowing for adaptation and enabling the addition or modification of indicators to the evolving e-mobility environment. The indicators are selected based on the data's availability, reliability and consistency. The selection process aims to minimise bias, ensuring a fair and evidence-based assessment of e-mobility across states.

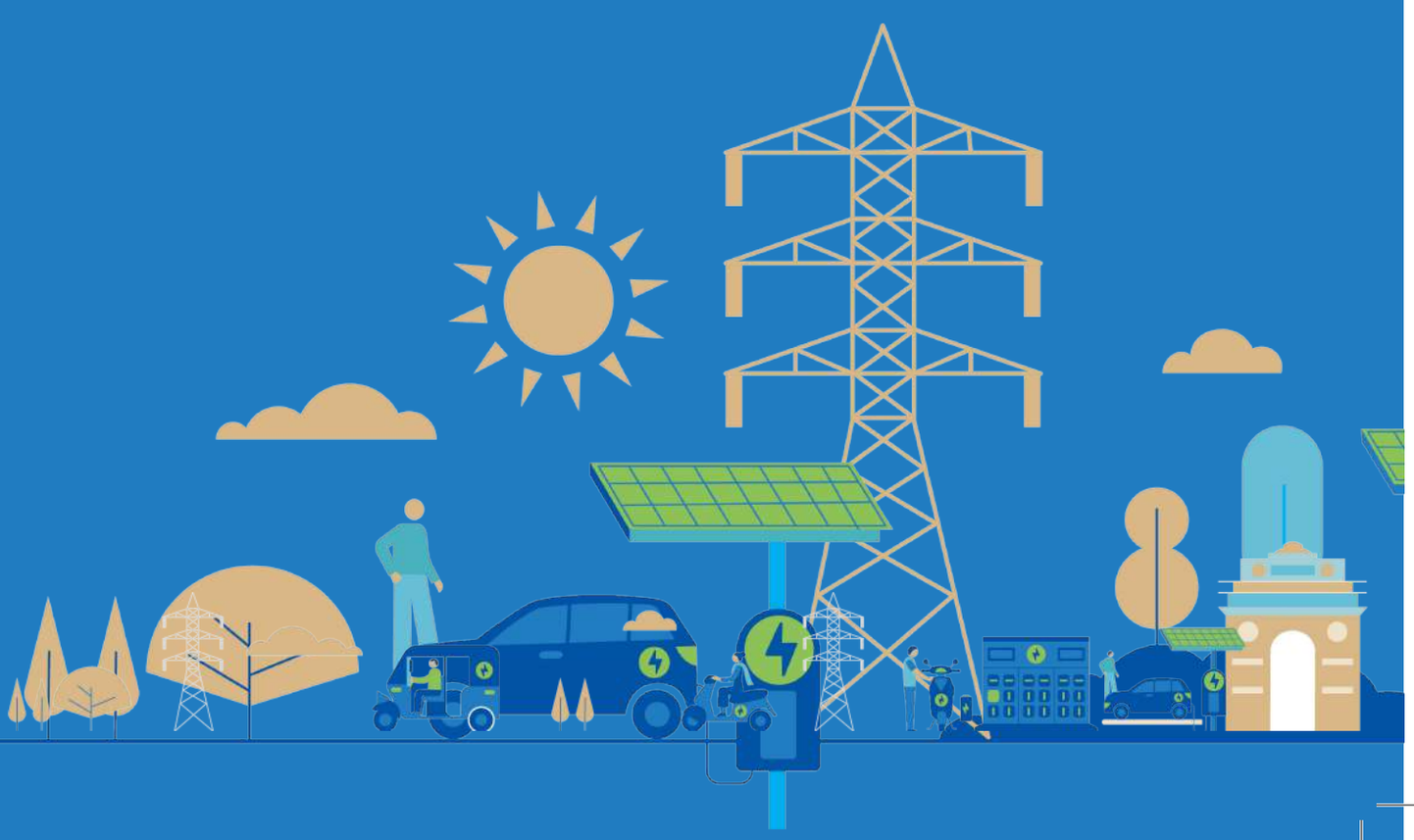
iii. The index provides **a comparative analysis between Indian states** so they can engage in peer learning and deploy policy and regulatory interventions with a demonstrated impact. This enables more private sector investments based on states' performance and increases the potential for future growth.

iv. The index provides **recommendations to states and UTs** based on their initiatives and performance. These recommendations outline the critical actions they must take to advance e-mobility.

v. The IEMI platform provides **a library of external tools for analysis,** including total cost of ownership, EV market insights, EV charging tools and other resources, all aimed at assisting users and investors in making informed decisions.

5

IEMI FRAMEWORK



The IEMI is a collaborative initiative, the structure of which was developed with insights from the central government ministries, state government departments, industry stakeholders as well as domestic and global e-mobility experts. The IEMI themes comprise of the demand drivers (Transport Electrification), supply-side ecosystem (EV Research and Innovation) and allied infrastructure (Charging Infrastructure) required to support e-mobility progress. The three themes encompass 16 performance indicators (parameters), categorised as enablers and outcomes. Outcomes are metrics that measure the tangible results or impacts of policies, actions and initiatives aimed at promoting e-mobility. Enablers refer to the conditions, resources, policies, actions and initiatives supporting and driving e-mobility. Figure 4 presents the IEMI theme structure.

Figure 4: The IEMI Theme Structure

5.1 Transport Electrification Progress

The Transport Electrification Progress theme primarily addresses the market absorption of EVs, capturing critical metrics that reflect adoption and utilisation. It is assigned the highest weight as the most significant theme within the IEMI, playing a pivotal role in determining the overall success of electrification efforts.

This theme's importance stems from the fact that widespread EV adoption, both private and commercial, is the ultimate indicator of consumer acceptance, market readiness and effectiveness of policy interventions. Thus, EV adoption stimulates the manufacturing industry, R&D and investments in R&D. Moreover, the EV adoption rate directly influences the economic viability of EV manufacturing and infrastructure development, creating a reinforcing cycle of demand and supply. A robust demand for EVs drives economies of scale, technological innovation and cost reductions, thereby accelerating the transition from ICE vehicles to sustainable alternatives.

By combining measurable outcomes with enablers such as governance initiatives, financial incentives and infrastructure readiness, this theme provides a comprehensive view of how demand-side factors catalyse the electrification of transport.

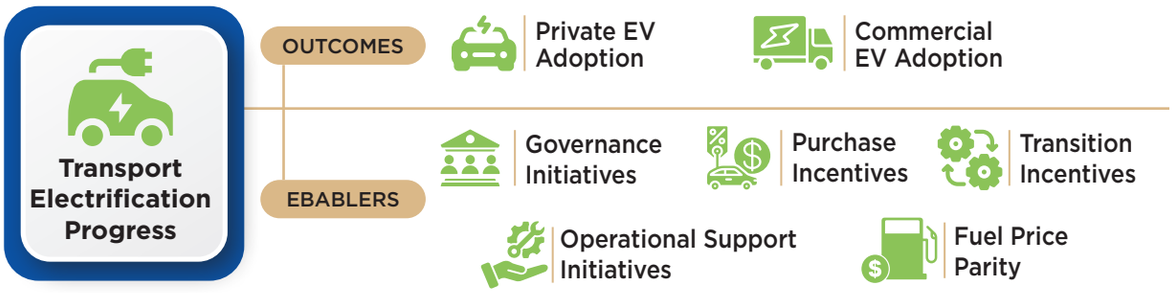


Figure 5: Transport Electrification Progress Theme Structure

The Transport Electrification Progress theme includes the following indicators –

1. The indicator **private EV adoption** refers to the share of private EVs in the total private vehicles registered in the state during the assessment period. The assessment considers two vehicle types: two-wheelers (2Ws) and four-wheelers (4Ws).

2. The indicator **commercial EV adoption** refers to the share of commercial EVs in the total commercial vehicles registered in the state during the assessment period. The assessment considers five vehicle types: commercial 3Ws, taxis, buses, light goods vehicles (LGVs), medium goods vehicles (MGVs) and heavy goods vehicles (HGVs).

3. The **governance initiatives** are substantial initiatives taken at the governance level to plan, regulate and accelerate EV adoption in the state. This includes three initiatives –
   a. The State EV Policy mandates an interdepartmental committee for e-mobility (Yes/No)
   b. A State EV Policy was notified and is currently active (Yes/No)
   c. A state website or portal for EV awareness is available (Yes/No)

4. **Purchase incentives** are financial incentives to create demand and encourage EV adoption by reducing upfront costs, making them more competitive than internal combustion engine (ICE) vehicles. This indicator denotes the annual per capita subsidy allocation, determined by the maximum subsidy per vehicle and the maximum limit on the number of vehicles. This includes state subsidies on EVs and fee exemptions. This estimate is measured in INR and does not include tax exemptions.

5. **Transition initiatives** refer to fiscal incentives offered by state governments to encourage the scrapping of ICE vehicles in exchange for EVs and stimulate demand for converting and retrofitting existing ICE vehicles to EVs. The indicators are measured as number of initiatives present in the EV policy to promote EV transition. This includes -
   a. The EV policy mandates the provision of vehicle scrapping incentives for EVs. (Yes/No)
   b. The EV policy mandates provision of EV conversion kit/retrofitting incentives. (Yes/No)

6. **Operational support initiatives** refer to the initiatives taken by the government to ease the usage of EVs in the state. These initiatives are usually enjoyed by the users of the vehicles, regardless of the buyers during their journeys or trips. The initiatives are measured as number of initiatives present in the EV policy to support EV operations. This includes,
   a. The EV policy mandates the provision of reserved parking spaces or parking charge exemptions. (Yes/No)
   b. The EV policy mandates the development of low emission zones in the state. (Yes/No)
   c. The EV policy mandates permit exemptions for commercial EVs. (Yes/No)

7. The **Fuel Price Parity** is the ratio of petrol cost per litre to the public EV charging electricity cost per unit for charging an EV. This indicates the units of electricity that can be purchased at the cost of 1 litre of petrol in the state.

5.2 Charging Infrastructure Readiness

The Charging Infrastructure Readiness theme evaluates the progress made in developing and integrating charging infrastructure across states in India. It encompasses state-driven initiatives and incentives aimed at facilitating the establishment of robust charging networks. Additionally, it emphasises the promotion of renewable energy (RE) sources to ensure the sustainability of e-mobility solutions.

Development of an accessible and reliable charging infrastructure is pivotal for accelerating the adoption of EVs in India. A well-established charging network not only addresses range anxiety but also encourages a shift away from conventional ICE vehicles.

Furthermore, states that implement supportive policies and incentives for charging infrastructure attract investments, stimulate local economies and create jobs in the clean energy sector.

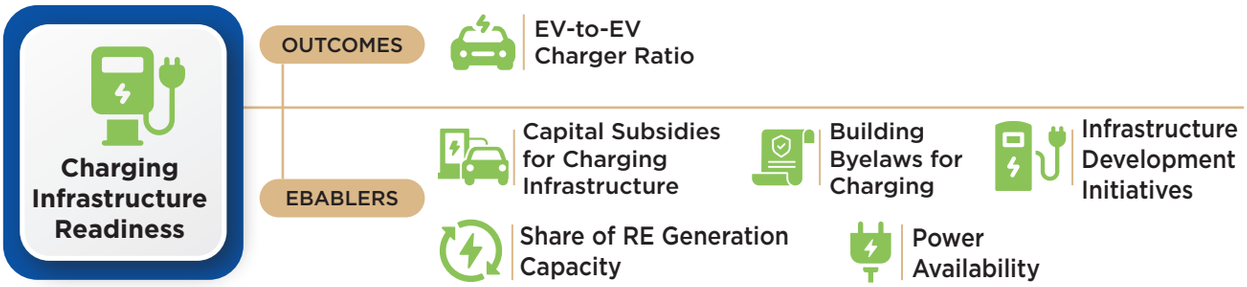


Figure 6: Charging Infrastructure Readiness Theme Structure

The Charging Infrastructure Readiness theme includes the following indicators –

1. The **EV-to-EV charger ratio** is the total number of EVs registered per public EV charger in the state.
2. **Capital subsidies for public charging infrastructure** refer to financial support from state governments to set up public charging infrastructure. The indicator is evaluated based on EV policy mandates for provision of capital subsidies for setting up public chargers in the state.
3. The **Charging Infrastructure Development Initiatives** are the steps taken by the state government to accelerate the approval process (and incentives) in setting up public chargers in the state. The indicator evaluates the presence of following initiatives by the state,

    a. The policy mandates a “single window system or fixed lead time for approvals for

charging infrastructure connections. (Yes/No)

b. The policy mandates the provision of concessional rates for land for public charging. (Yes/No)

c. The state/UT has a nodal agency for charging infrastructure. (Yes/No)

4. The **building bylaws and mandates** refer to the initiatives taken by the government to promote and integrate public and private charging of EVs with the development control regulations in the state. This includes,

   a. The state EV policy mandates the building bylaws for the integration of EV charging in new buildings. (Yes/No)

   b. The state EV policy recommends EV charging installation in existing buildings. (Yes/No)

5. The indicator is the **share of renewable energy generation capacity** of the state's total installed electricity generation capacity.

6. The **power availability** is measured in terms of the deficit between power demand and power supply for states and UTs.

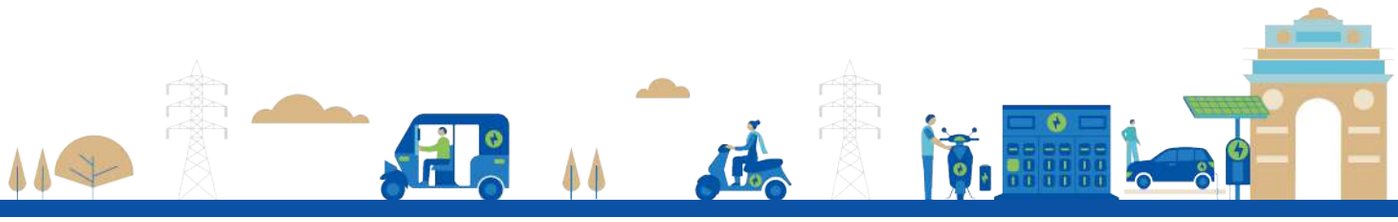
5.3 EV Research and Innovation Status

The EV Research and Innovation Status theme evaluates the efforts of states to foster R&D and innovation in the e-mobility ecosystem. This theme emphasises the role of local innovation ecosystems, research collaborations and skill development programmes in driving technological advancements and enhancing the adoption of EVs.

By fostering collaborations between academic institutions, research organisations and industry stakeholders, states can accelerate breakthroughs in battery technology, charging solutions and EV manufacturing processes.

Additionally, initiatives such as innovation hubs, skill development programmes and state-funded research grants ensure that local talent is equipped to meet the growing demands of the EV sector.

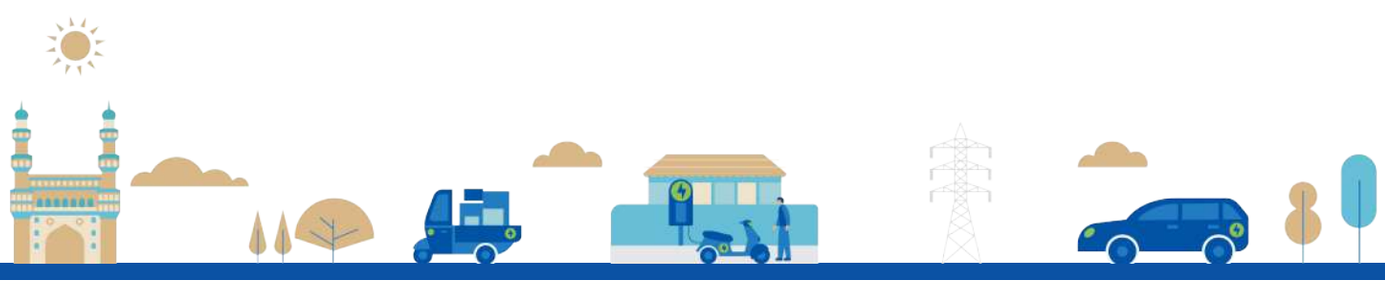
Figure 7: EV Research and Innovation Status Theme Structure



The EV Research and Innovation Status theme includes the following indicators –

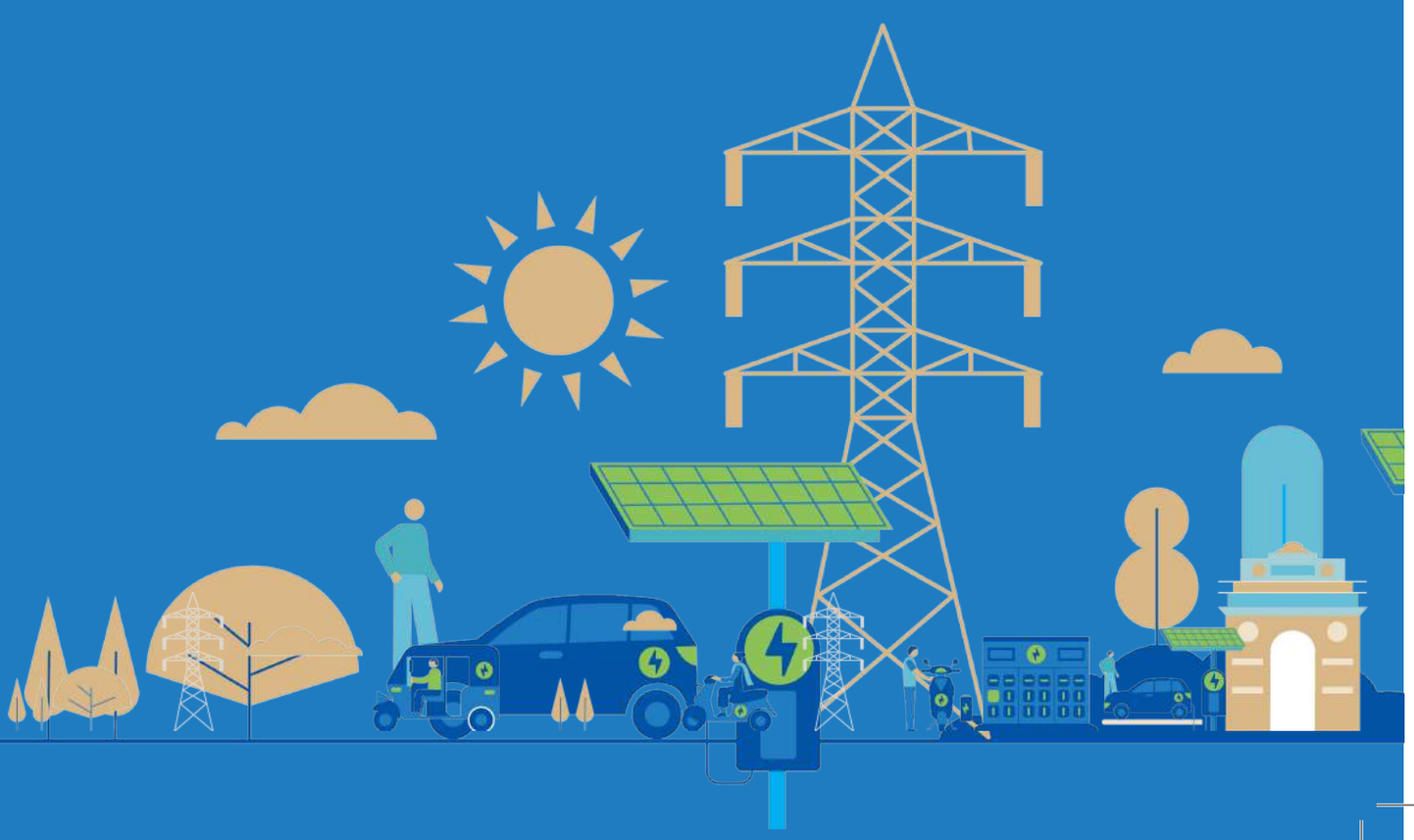
1. The total number of startups in the state, which are recognized as EV startups by Startup India, normalized with Gross State Domestic Product (GSDP). The indicator is measured as Startups per ₹ trillion Gross State Domestic Product (GSDP).
2. R&D initiatives are actions taken by the state government to promote R&D in e-mobility through fiscal and non-fiscal measures. This includes,
    a. The EV policy mandates initiatives on setting up of R&D centers for skill development.
    b. The EV policy mandates the provision of establishing a Centre of Excellences (COE) in the state.
    c. The EV policy mandates the setting up of polytechnic or short-term courses on e-mobility.
3. The total number of patents related to EV in force by Intellectual Property (IP) India, normalized with GSDP. The indicator is measured as number of Patents per ₹ trillion GSDP.

Data sources and evaluation methodologies for all indicators listed across the three themes above are documented in Annexure 2.



6

METHODOLOGY OVERVIEW



The IEMI methodology involves the selection of indicators, data collection and evaluation of states. This section details the technical notes and scoring methods adopted in the IEMI.

6.1 Technical Notes

6.1.1 Selecting Indicators

The selection of indicators focuses on the demand, supply and allied infrastructure. Indicators are chosen based on their relevance, alignment with the local context and availability of reliable data. The indicators are designed to evaluate state-level efforts and outcomes across various dimensions of the e-mobility ecosystem. Each indicator is assessed using one or more datapoints to ensure a comprehensive understanding of the ecosystem's performance.

The indicators were developed through multiple stakeholder consultations with government and industry stakeholders and e-mobility researchers and experts. Key stakeholders include, central government ministries, state government and UT departments, industry representatives including auto manufacturers, fleet operators and charge point operators, and experts from academic institutions and research thinktanks.

Subsequently, the pilot index was tested in five states: Delhi, Karnataka, Andhra Pradesh, Haryana and Tamil Nadu. The IEMI framework was further developed through insights from state-level workshops, assessment of data availability, and extensive feedback from multiple stakeholders.

Detailed information on the indicators is available in Annexure 2.

6.1.2 Collecting Data

The data for evaluation is sourced from open-source platforms and Central Government agencies, and they also include publicly available data from reliable third-party organisations. These datasets are updated on a monthly, quarterly or annual basis, depending on the source. This approach ensures continuous monitoring and evaluation and contributes to building a more robust and comprehensive dataset. To ensure a comprehensive evaluation, IEMI 2024 was evaluated using data from all four quarters of the year.

6.1.3 Dealing with Missing Values

In the IEMI, missing values in the dataset are addressed using a combination of strategies to ensure data integrity and consistency. When missing datapoints are identified for a specific indicator or state, efforts are made to retrieve the information from alternative secondary sources. These include open-source platforms, Central Government databases and other reliable third-party sources that could provide the most up-to-date and relevant data.

In instances where alternative sources for missing data are not available, the previous period's datasets are used. This approach ensures that the dataset remains as comprehensive and reliable as possible, supporting accurate evaluations of state progress in the e-mobility transition.

6.2 Scoring

The evaluation involves calculating the indicator, theme and index composite scores for each state. Each theme comprises indicators that can be categorised into outcome indicators or enabler indicators. Each indicator is scored based on targets set for each key performance indicator. The indicator weightages are designed such that the outcome indicators account for 50% of the overall index score. Figure 8 presents the detailed weightage distribution of the themes and indicators.

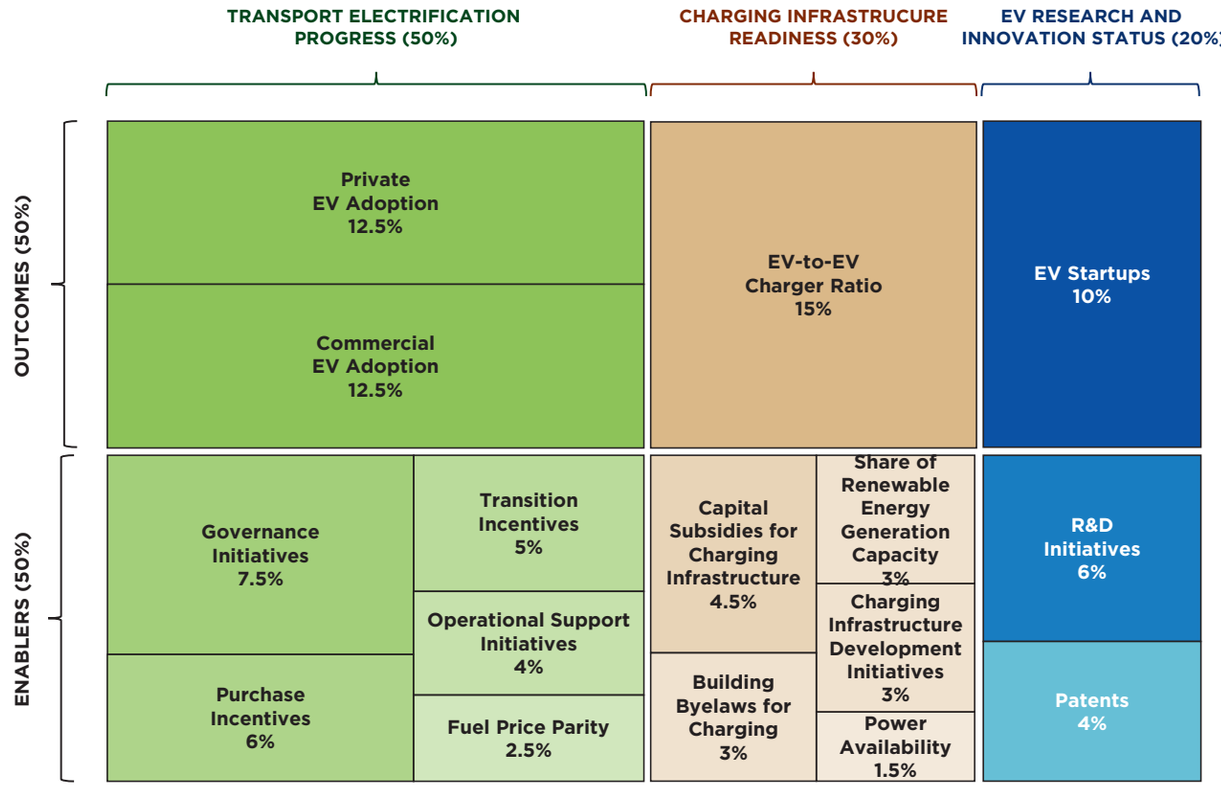


Figure 8: IEMI Theme and Indicator Weightages

The states and UTs are evaluated at three levels—the IEMI, theme and indicator scores—assessed on a 0-100 scale. This section presents the scoring methodology for the three levels in detail.

6.2.1 The IEMI Score

The IEMI score is a composite score indicating the overall performance and efforts of the state or UT in terms of development of the e-mobility ecosystem. The IEMI score is ascertained based on the theme score and weightages assigned to the themes of the index. The IEMI structure includes three themes. Table 1 serves as a reference for the variable notations related to theme weightages and theme scores.

Table 1: Theme Weightages and Theme Score Notations

Theme	Theme Weightage	Theme Score
Transport Electrification Progress	50% (T_1)	S_1
Charging Infrastructure Readiness	30% (T_2)	S_2
EV Research and Innovation Status	20% (T_3)	S^3

For any state or UT,

$$IEMI\ score = T_1S_1 + T_2S_2 + T_3S_3.$$

6.2.2 Theme Score

The themes include a varying number of indicators, categorised as enablers or outcomes. The theme score is assessed based on the indicator score and weightage assigned to the indicators. Table 2 serves as a reference for the notations related to indicator weightages and indicator scores within a theme.

Table 2: Indicator Weightage Notations

Indicator	Indicator Weightage	Indicator score
Indicator 1	(I_1)	K_1
Indicator 2	(I_2)	K_2
Indicator n	(I_n)	K_n

For any state or UT,

$$Theme\ Score = \frac{\sum_{i=1}^{n} I_i K_i}{W_T}, I_i \in T,$$

where

W_T is the theme weightage of theme T and

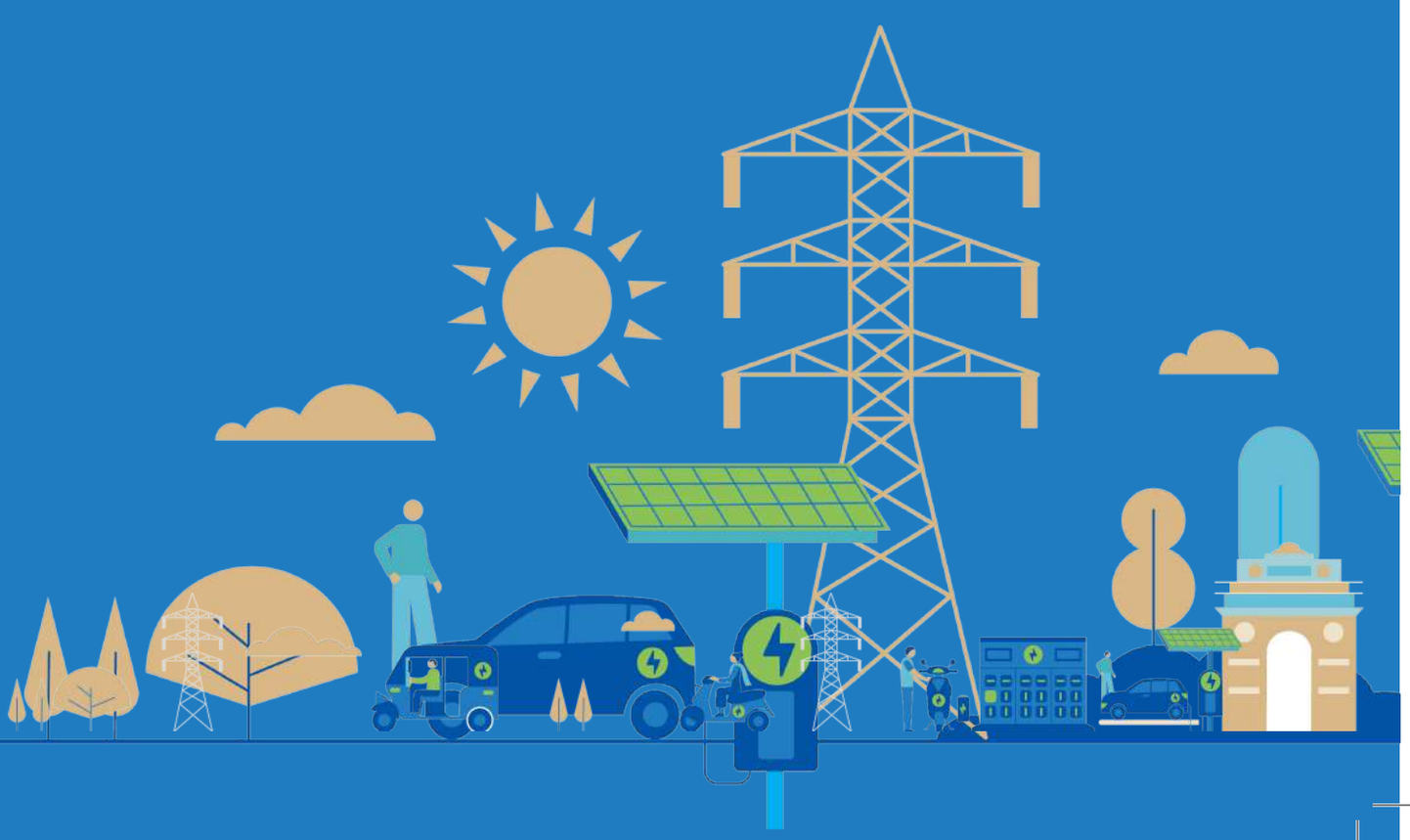
$I_i \epsilon T$ epresents indicator i belonging to theme T.

6.2.3 Indicator Score

The indicators are evaluated based on two scoring methods: absolute and relative scoring. In the absolute scoring method, a state is scored based on the number of given initiatives it is implementing. In the relative scoring method, a state is scored in comparison with the performance of other states and UTs. Relative Scoring Indicators are private EV adoption, commercial EV adoption, purchase incentives, fuel price parity, EV-to-EV charger ratio, share of renewable energy generation capacity, power availability, EV Startups and EV Patents. Absolute or Binary scoring Indicators are governance initiatives, transition initiatives, operational support initiatives, charging infrastructure development initiatives, building bylaws and mandates and R&D initiatives. Each indicator's scoring method is tailored to rationalise the evaluation process. Annexure 2 describes the indicator scoring methods.

7

IEMI RESULTS 2024



The IEMI results provide a holistic overview of the performance and progress of states and UTs in advancing their e-mobility transition. The overall IEMI score indicates performance across the EV ecosystem as a whole, while scores for the three themes highlight strong performances in specific aspects of e-mobility. Outcome-level scores, for the outcome indicators, provide quantitative measures of subnational performance on key indicators such as EV adoption rates, EV charging infrastructure availability and levels of innovation in the e-mobility ecosystem. This chapter details the IEMI, thematic and outcome-level scores.

7.1 The IEMI Score

The IEMI score is determined by analysing the performance of each state/UT across all indicators, alongside the weight attributed to the indicators and the overarching themes of the index. This score reflects a state's progress in advancing its e-mobility ecosystem. A higher IEMI score indicates relatively strong performances across the three themes of EV adoption, charging infrastructure readiness and EV technology and innovation. Based on IEMI scores, states are categorised into frontrunners (leading with robust ecosystems), performers (making progress) and aspirants (requiring intervention).

Frontrunners: Delhi, Maharashtra and Chandigarh.

Performers: Karnataka, Tamil Nadu and Haryana

Aspirants: Odisha, Rajasthan, Chhattisgarh, Uttar Pradesh, Ladakh, Andhra Pradesh, Telangana, Punjab, Goa, Gujarat, Manipur, West Bengal, Kerala, Jharkhand, Tripura, Himachal Pradesh, Meghalaya, Mizoram, Madhya Pradesh, Bihar, Assam, Puducherry, Arunachal Pradesh, Lakshadweep, Uttarakhand, Andaman & Nicobar Islands, Sikkim, Nagaland, Jammu & Kashmir, and DD & DNH. Figure 9 presents the score of each state and UT.

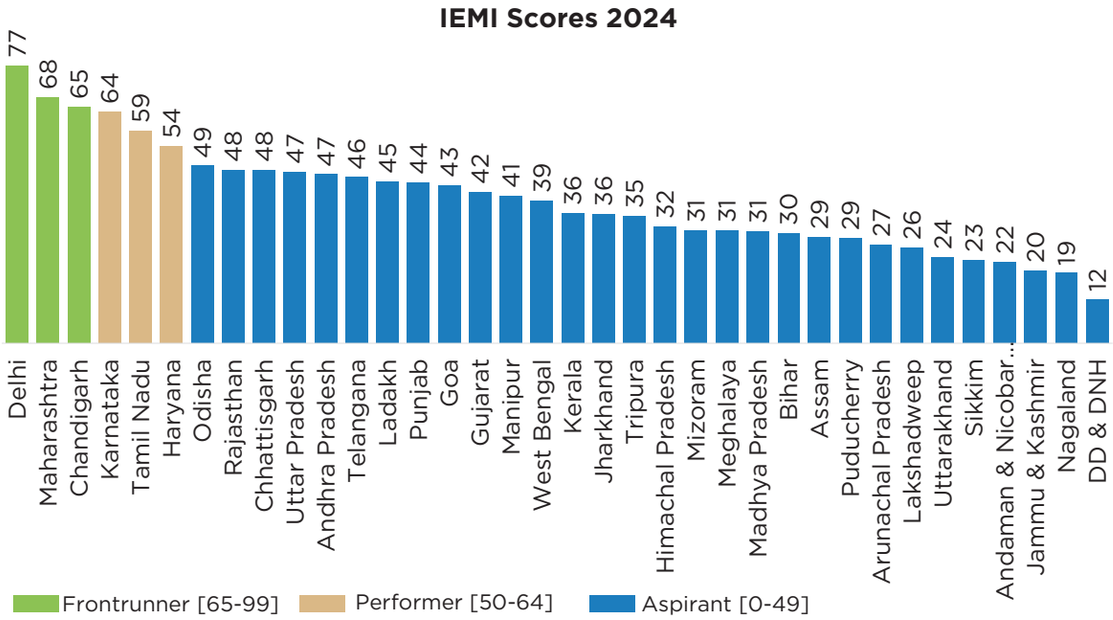


Figure 9: IEMI Score for 2024

7.2 Transport Electrification Progress

Transport Electrification Progress primarily revolves around state-led efforts to promote the adoption of EVs by incentivising EV purchases and operations. The theme evaluates the implementation of policies, initiatives and incentives to encourage consumers to shift from traditional ICE vehicles. The theme score reflects a state's progress in fostering the adoption of EVs through initiatives and policy support.

Frontrunners: Chandigarh, Delhi and Maharashtra

Performers: Chhattisgarh, Uttar Pradesh, Odisha and Goa

Aspirants: Punjab, Assam, Rajasthan, Telangana, Karnataka, Andhra Pradesh, Tamil Nadu, Bihar, Tripura, Jharkhand, Gujarat, West Bengal, Ladakh, Kerala, Puducherry, Madhya Pradesh, Uttarakhand, Manipur, Haryana, Jammu & Kashmir, Meghalaya, Mizoram, Himachal Pradesh, Lakshadweep, DD & DNH, Sikkim, Arunachal Pradesh, Andaman & Nicobar Islands, and Nagaland. Figure 10 presents the scores of each state and UT.

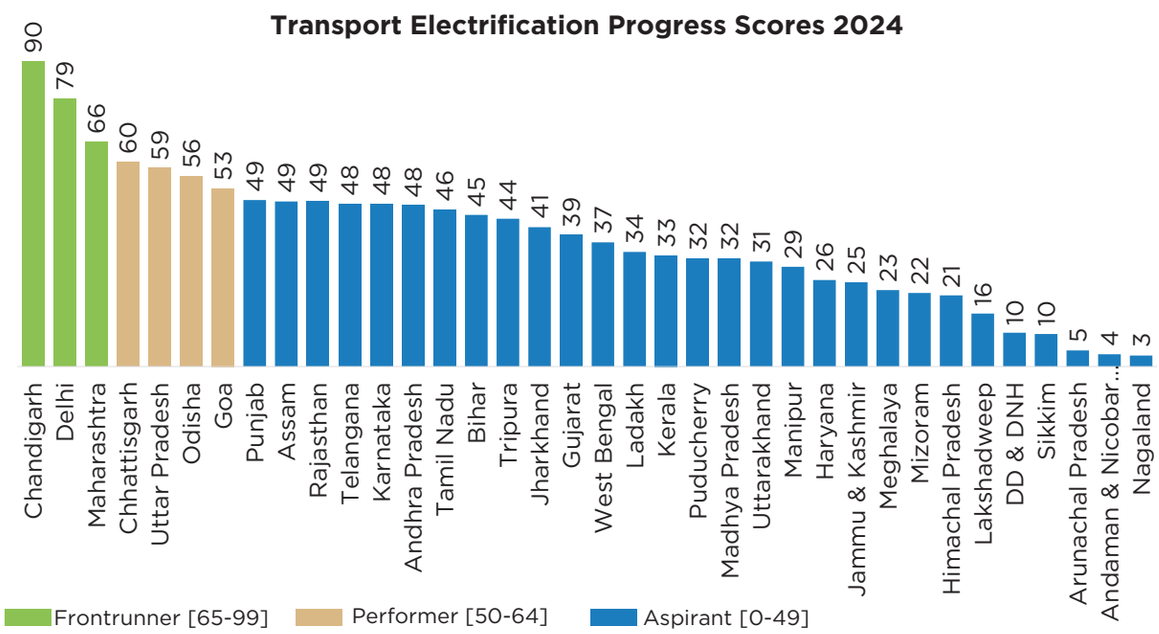


Figure 10: Transport Electrification Progress Theme Scores for 2024

7.3 Charging Infrastructure Readiness

Charging Infrastructure Readiness focuses on the advancement of charging infrastructure development and integration within the state. The theme evaluates state-led initiatives and incentives designed to support the establishment of charging networks and promote RE generation.

Frontrunners: Haryana, Kanataka, Ladakh and Himachal Pradesh.

Performers: Himachal Pradesh, Manipur, Arunachal Pradesh, Delhi, Lakshadweep, Sikkim, Meghalaya, Nagaland, Maharashtra, Mizoram, Andhra Pradesh and Tamil Nadu

Aspirants: Odisha, Rajasthan, Gujarat, Andaman & Nicobar Islands, Punjab, Goa, West Bengal, Chhattisgarh, Kerala, Chandigarh, Jharkhand, Telangana, DD & DNH, Tripura, Puducherry, Uttar Pradesh, Madhya Pradesh, Uttarakhand, Jammu & Kashmir, Bihar, Assam, Sikkim, Meghalaya, Nagaland, and Tamil Nadu Figure 11 presents the theme scores of states and UTs.

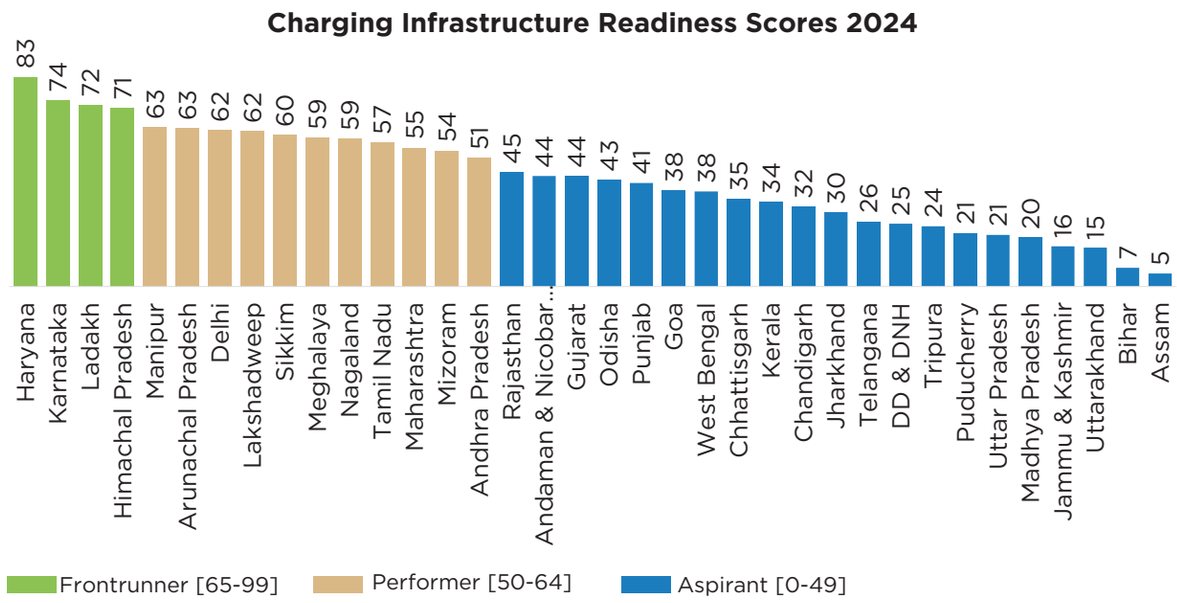


Figure 11: Charging Infrastructure Readiness Theme Scores for 2024

7.4 EV Research and Innovation Status

The EV Research and Innovation Status focuses on the growth of EV R&D initiatives. It examines government policies, incentives and initiatives aimed at promoting EV R&D. The theme evaluates e-mobility-related startups, patents and EV courses that foster R&D in EV technology.

Frontrunners: Delhi, Tamil Nadu, Maharashtra, Karnataka, Haryana and Telangana

Performers: Chandigarh, Uttar Pradesh

Aspirants: Odisha, Gujarat, Kerala, Rajasthan, West Bengal, Madhya Pradesh, Andaman & Nicobar Islands, Manipur, Punjab, Andhra Pradesh, Chhattisgarh, Jharkhand, Puducherry, Goa, Tripura, Ladakh, Arunachal Pradesh, Bihar, Mizoram, Uttarakhand, Assam, Jammu & Kashmir, Meghalaya, Himachal Pradesh, Lakshadweep, DD & DNH, Sikkim, and Nagaland Figure 12 presents the score of each state and UT.

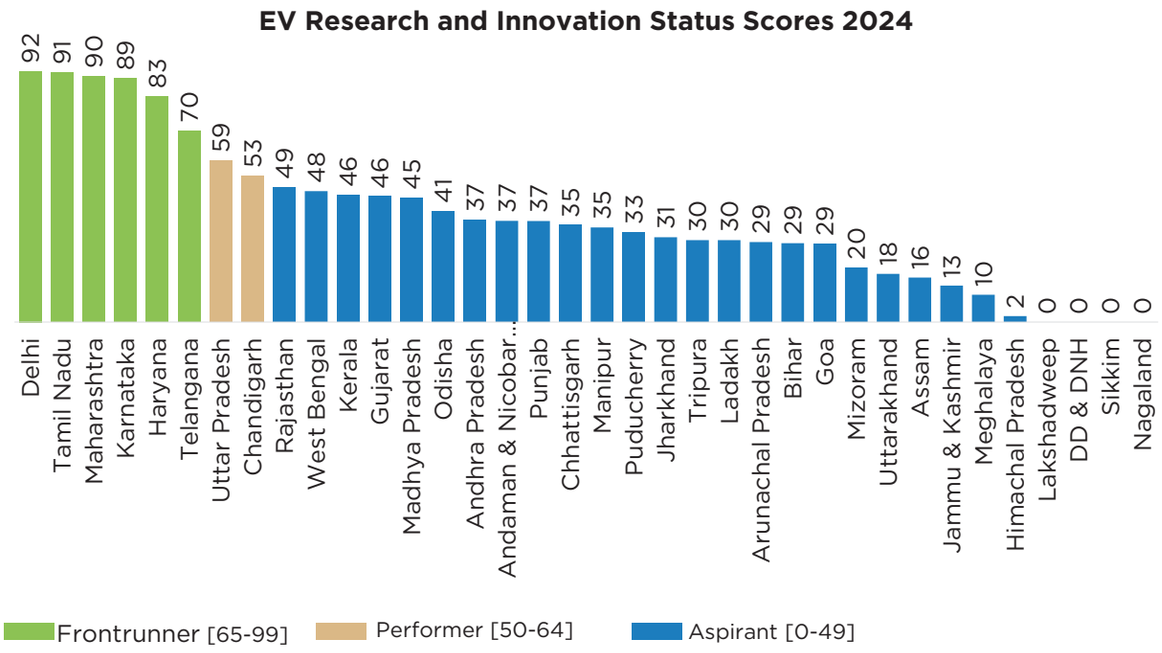


Figure 12: EV Research and Innovation Status Theme Scores for 2024

7.5 Outcome Indicators

The IEMI outcome indicators are essential to understand how effectively states are progressing toward a robust EV ecosystem. These indicators directly reflect real-world impacts such as EV adoption rates, charging accessibility and EV technology innovation. A high score signals strong on-ground performance and a mature EV environment, while a low score indicates limited adoption and the need for targeted policy and infrastructure interventions.

7.5.1 Private EV Adoption

A state's private EV adoption rate refers to the share of private EVs among the total private vehicles registered in a state during the assessment period, as sourced from the Vahan database or official state portals. Higher scores indicate stronger consumer confidence in e-mobility, widespread awareness and effective state-level incentives leading to significant uptake of EVs by individuals. Figure 13 presents the score of each state and UT.

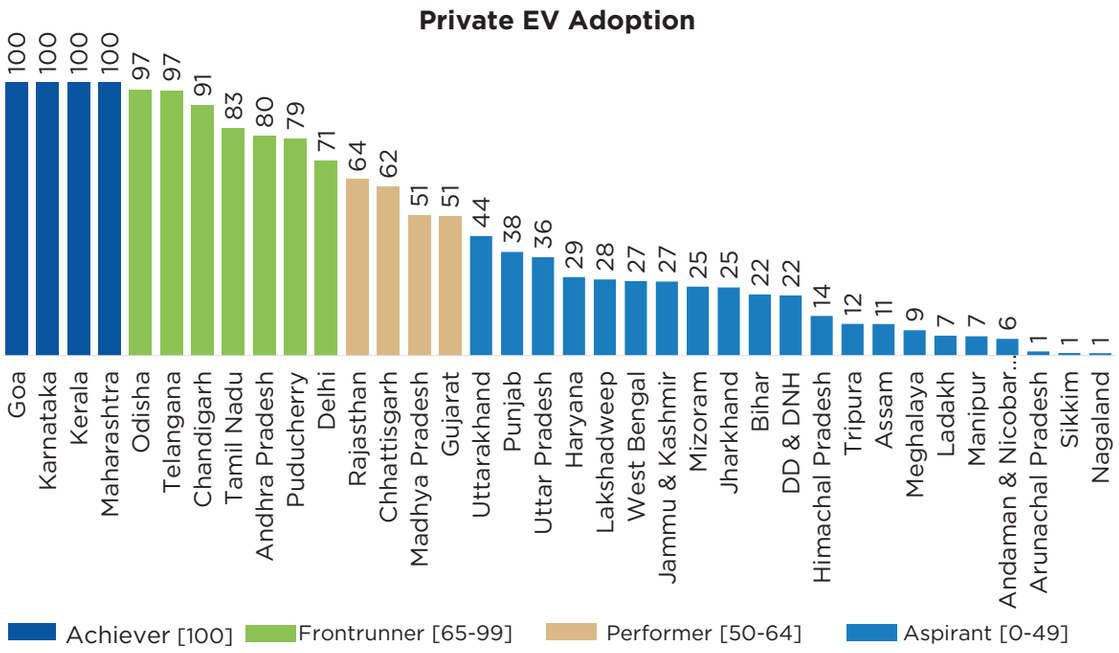


Figure 13: Private EV Adoption Indicator Score for 2024

7.5.2 Commercial EV Adoption

A state's commercial EV adoption rate refers to the share of commercial EVs in the total commercial vehicles registered in the state during the assessment period, as sourced from the Vahan database or official state portals. Higher scores suggest successful electrification of commercial fleets such as taxis, delivery vehicles and public transport. This is driven by supportive policies, cost savings and operational efficiency. Figure 14 presents the score of each state and UT.

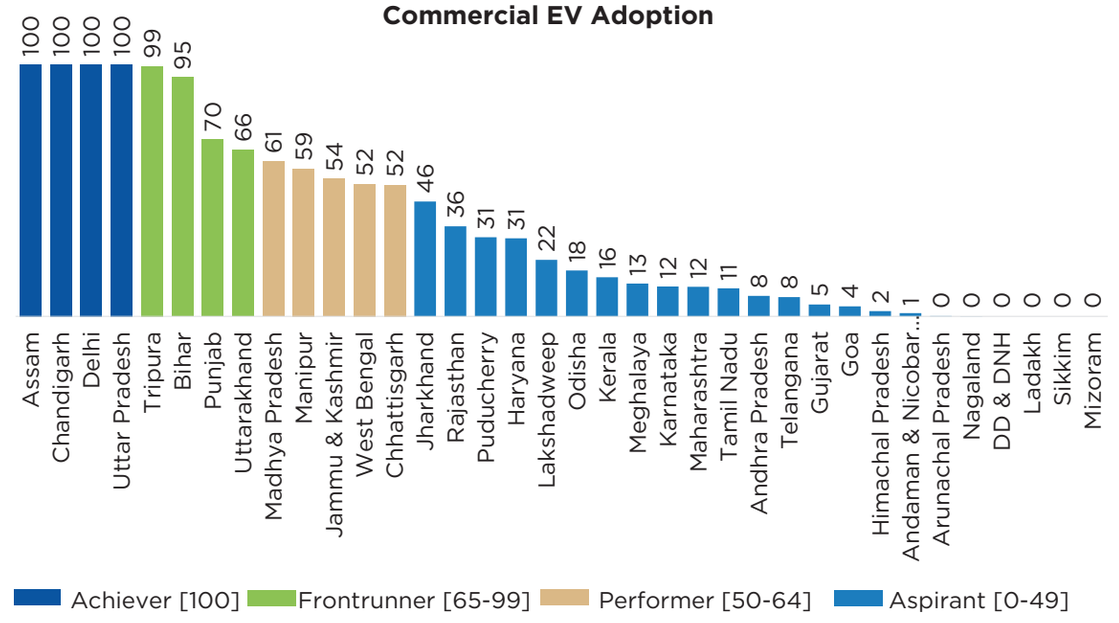


Figure 14: Commercial EV Adoption Indicator Score for 2024

7.5.3 EV-to-EV-Charger Ratio

The EV-to-EV-charger ratio represents the total number of EVs available per public EV charger in the state. A higher score indicates better charging accessibility, meaning that fewer EVs are sharing each charger, leading to reduced wait times and greater user convenience. A lower score, on the other hand, suggests charger scarcity, potential congestion at stations and the need to expand charging infrastructure to keep pace with EV growth. Figure 15 presents the indicator score of each state and UT.

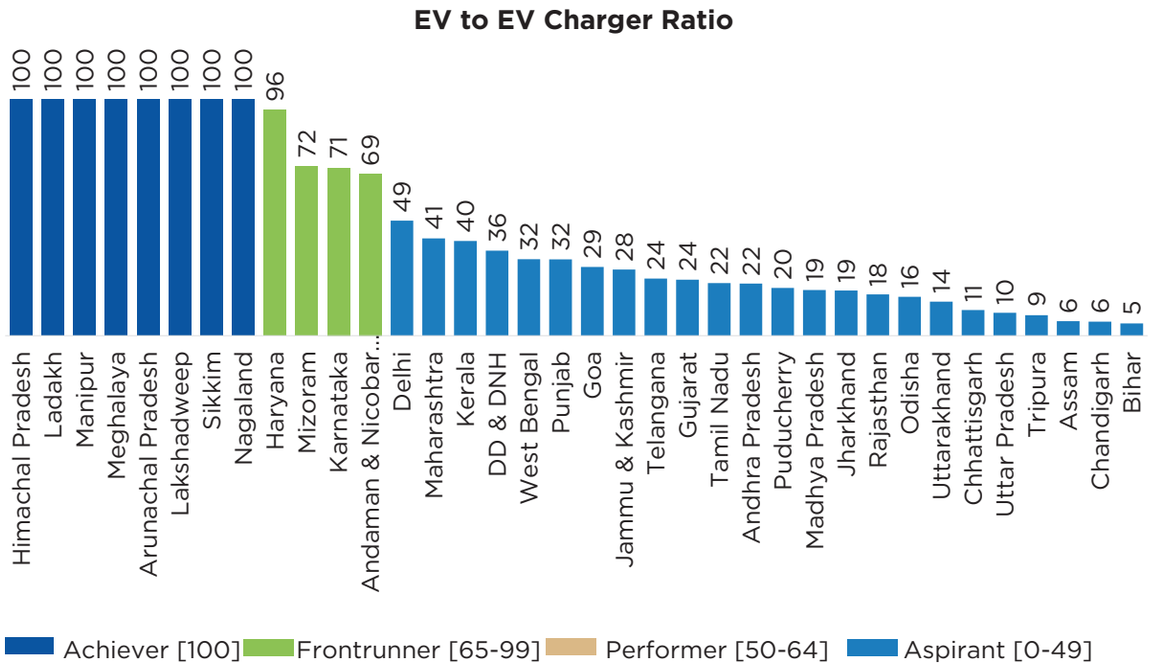


Figure 15: EV-to-EV Charger Ratio Indicator Score for 2024

7.5.4 EV Startups

EV startups are measured as the total numbers of EV startups in the state per trillion INR of the gross state domestic product (GSDP). The data are sourced from the Startup India website. The indicator measures the number of EV startups relative to the size of the state's economy, providing insights into the innovation and entrepreneurial activities in the e-mobility space. A higher score suggests a vibrant startup ecosystem and stronger innovation per unit of economic output, while a lower value may indicate limited EV-specific entrepreneurial growth and the need to strengthen support systems for startups. Figure 16 presents the score for each state and UT.

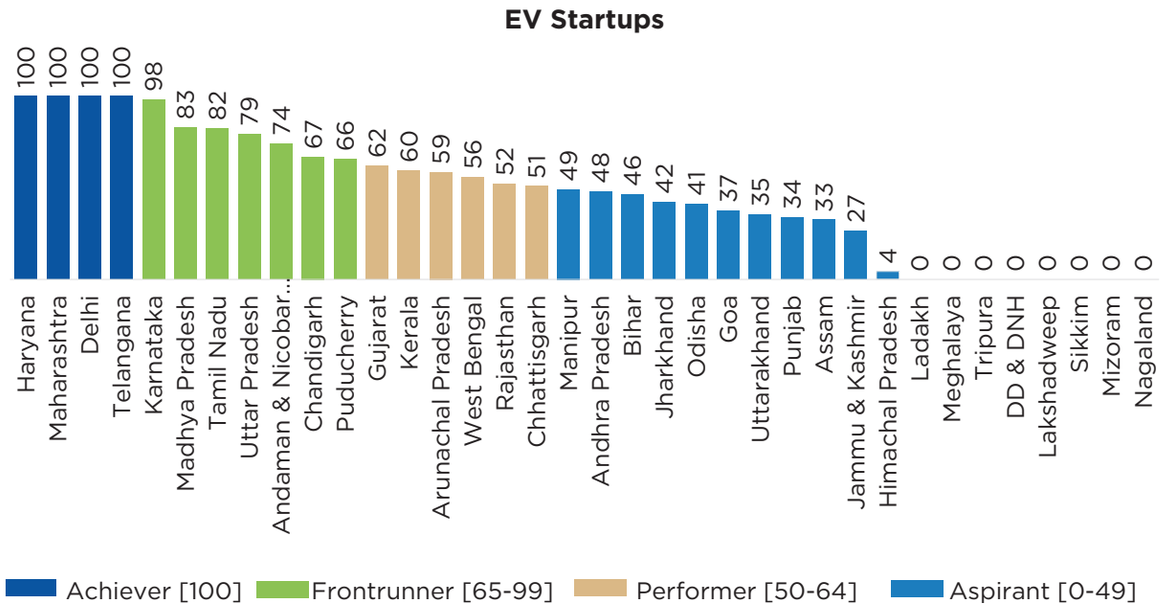
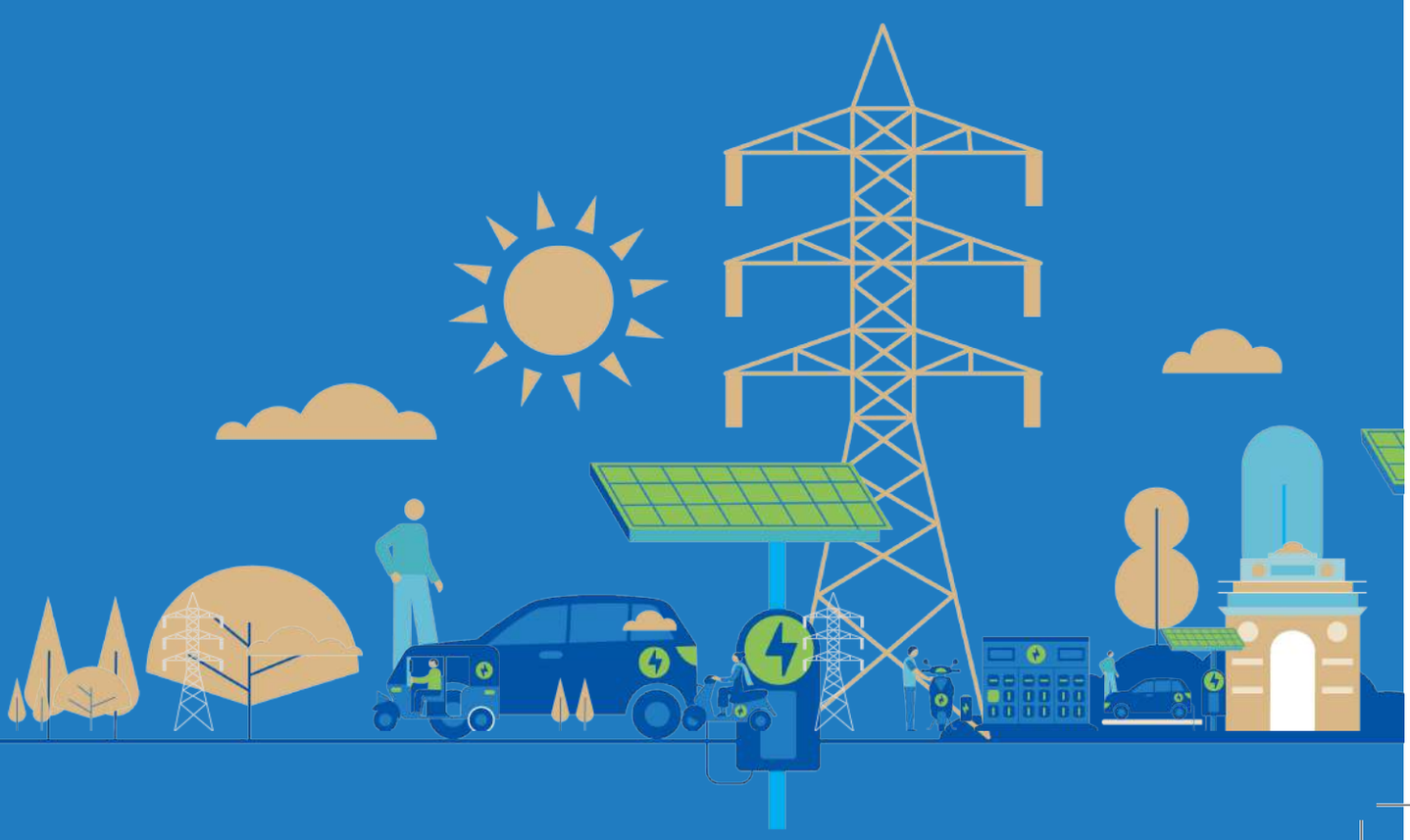


Figure 16: EV Startups Indicator Score for 2024

8

QUARTERLY STATE PROGRESS



Quarterly assessments, distinct from the annual evaluation, highlight the performance of states and UTs for each quarter, helping track consistency over time. This section highlights the comparative performance of states and UTs under the IEMI across all four quarters. This analysis provides insights into the advancements made during the period, reflecting the evolving priorities.

8.1 State Performance Trends

The state performance trends highlight the progression of states in strengthening their e-mobility ecosystems over time. It reflects continuous improvements in EV adoption, infrastructure development and supportive policy measures, showcasing a state's growing commitment to sustainable transportation.

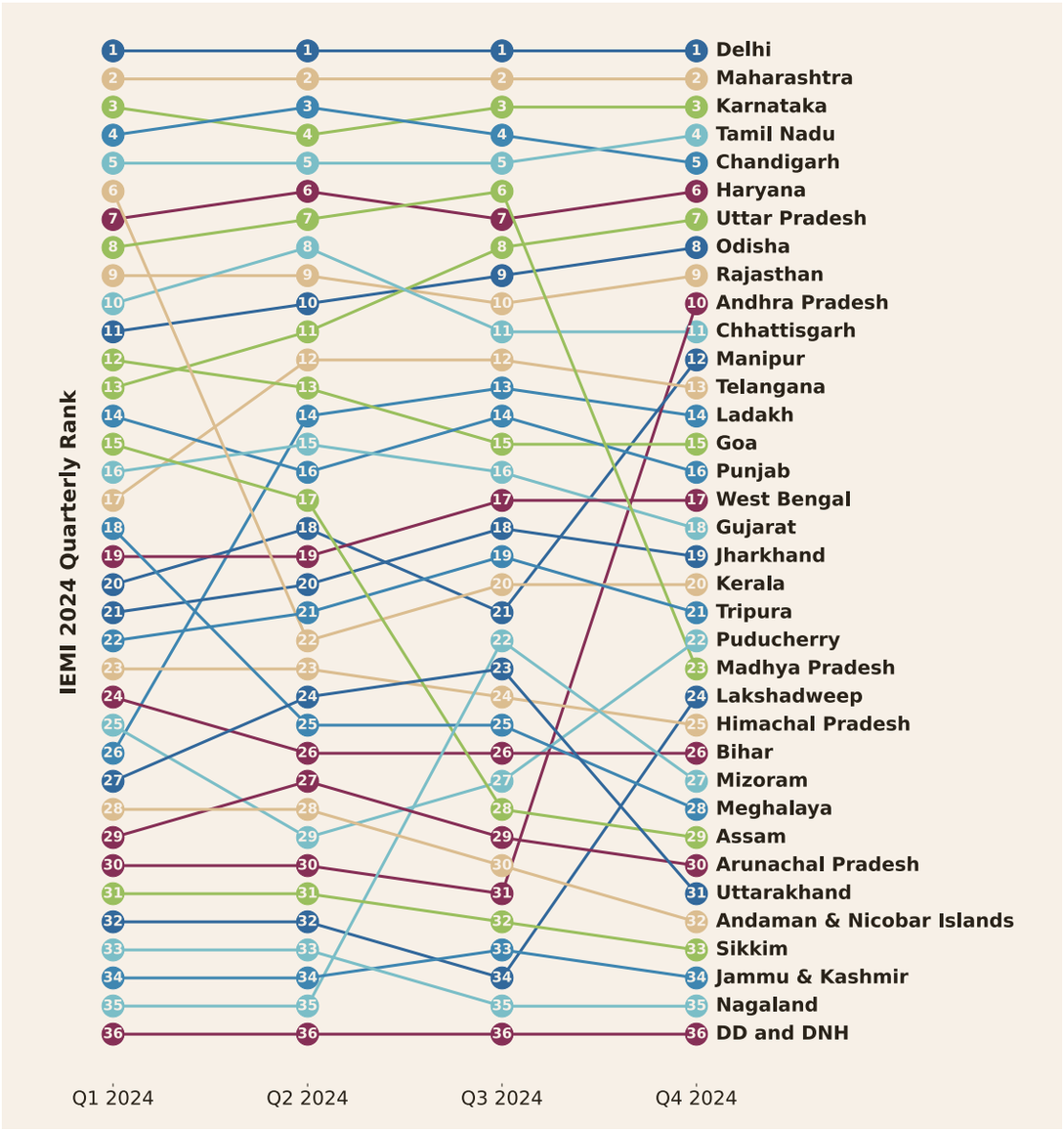


Figure 17: Quarterly State Rankings for 2024

Figure 17 illustrates the quarterly rankings of states and UTs in the IEMI for the four quarters of 2024. It provides a dynamic visualisation of how states have progressed or regressed in key performance themes. The rankings highlight **Delhi, Maharashtra** and **Karnataka** as consistent leaders, while other states showed varied performance trends. **Manipur, Andhra Pradesh, Ladakh** and **Lakshadweep** demonstrated the biggest gains over the year, while states such as Kerala and Assam receded.

8.2 State Performance Trends: Q3 and Q4 2024

Figure 18 illustrates the comparative analysis of state and UT scores under the IEMI for Q3 and Q4 of 2024. It highlights significant progress across regions, with notable improvements in states such as **Andhra Pradesh, Manipur** and **Lakshadweep**. **Delhi, Maharashtra** and **Karnataka** continued to lead the rankings, maintaining consistent performance, while states such as **Nagaland** and **DD & DNH** showed opportunities for growth and strategic interventions. States such as **Maharashtra, Chandigarh, Madhya Pradesh** and **Uttarakhand** showed a decline in overall performance, which may indicate a slowdown in private EV adoption, reduced investment in charging infrastructure or policy implementation gaps.

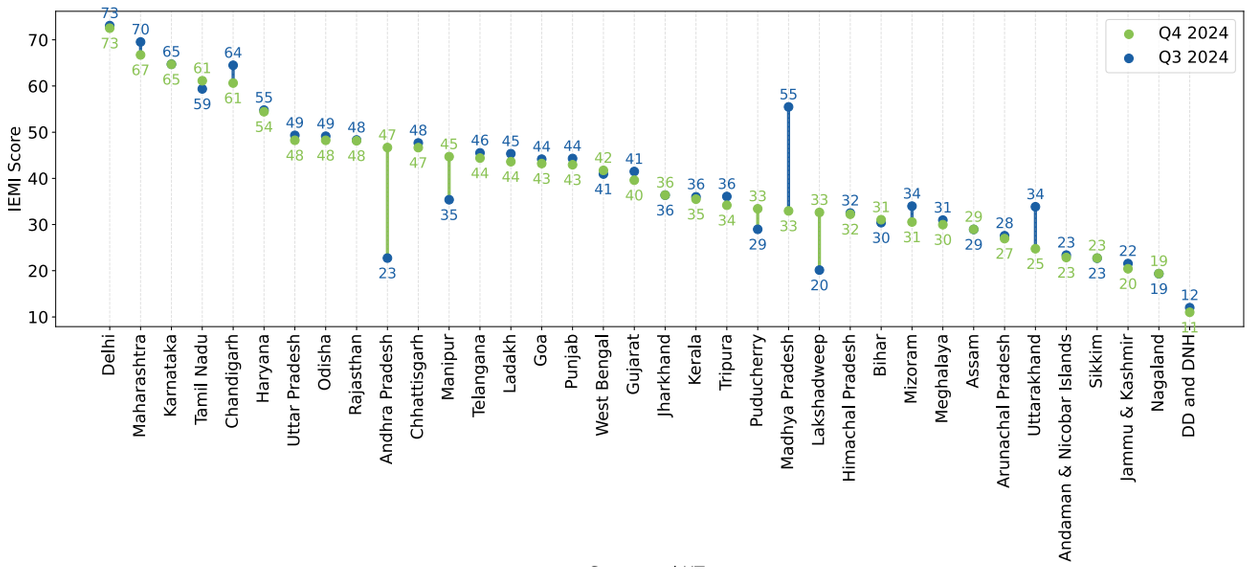


Figure 18: IEMI Score: Comparison between Q3 and Q4 of 2024

8.3 IEMI Theme Scores

The charts in this section compare the progress scores of all three themes—Transport Electrification Progress, Charging Infrastructure Readiness, and EV Research and Innovation Status—across all 36 states and UTs for Q3 and Q4 of 2024. **Andhra Pradesh, Puducherry, Manipur** and **Lakshadweep** significantly improved their performance, reflecting their progress in EV adoption. In contrast, states and UTs such as **Chandigarh, Maharashtra, Ladakh, Uttarakhand** and **Madhya Pradesh** showed a decline, indicating potential

slowdowns in EV adoption and policy execution. Figure 18 provides a clear snapshot of the developments in the sector during the two quarters.

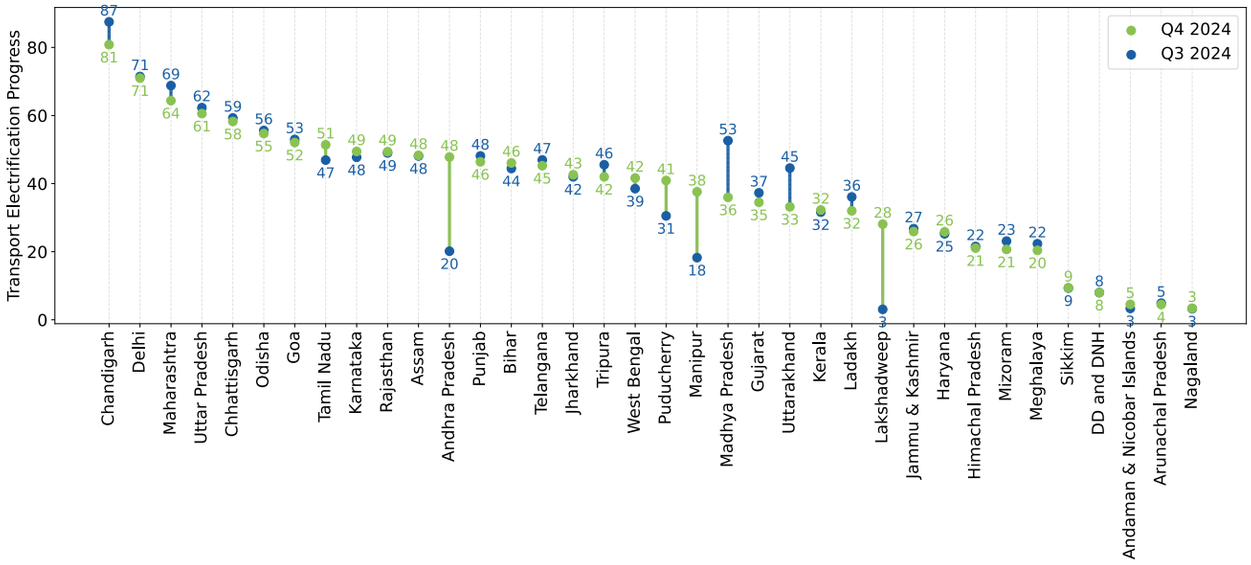


Figure 19: Transport Electrification Progress Score: Comparison between Q3 and Q4 of 2024

Haryana, Ladakh and **Karnataka** consistently remained as the forerunners in Charging Infrastructure Readiness. **Andhra Pradesh** also showed significant improvement in Charging Infrastructure Readiness, reflecting its focused efforts in expanding EV support systems. On the other hand, states and UTs such as **Mizoram** and **Madhya Pradesh** experienced a decline, suggesting the need to accelerate infrastructure development and policy implementation. Figure 19 provides a clear snapshot of the developments in the sector during the two quarters.

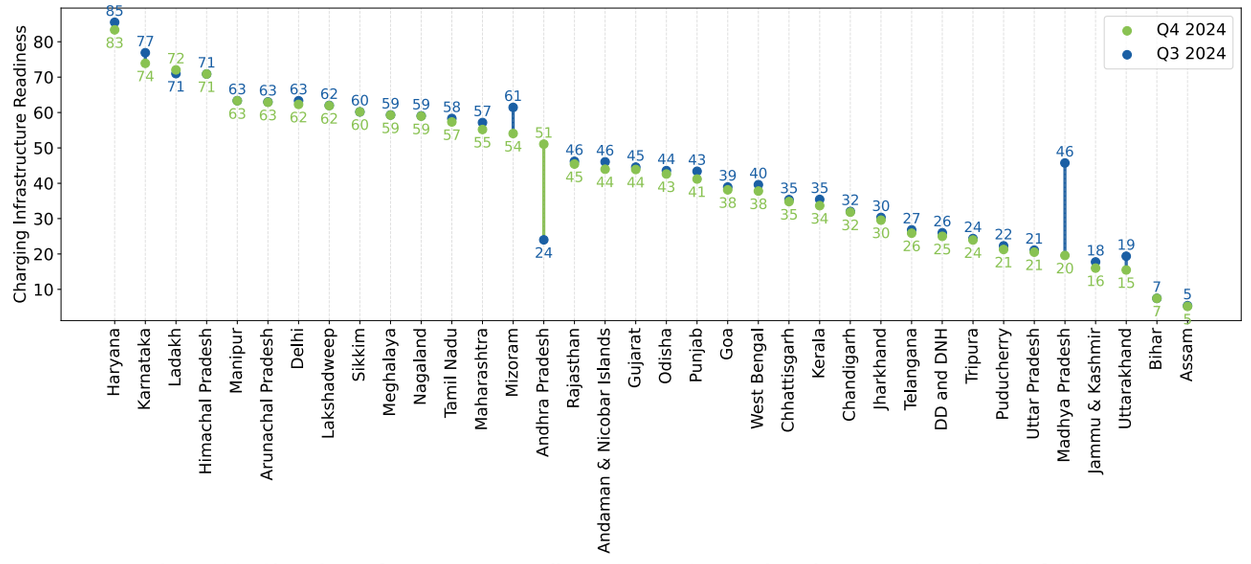


Figure 20: Charging Infrastructure Readiness Score: Comparison between Q3 and Q4 of 2024

Delhi, Tamil Nadu, Maharashtra, Karnataka and **Haryana** consistently remained as frontrunners in EV Research and Innovation, demonstrating strong institutional support and technological advancement. Additionally, **Andhra Pradesh** showed notable progress in this area, while **Madhya Pradesh** and **Uttarakhand** experienced a decline, indicating the need for renewed focus on innovation-driven initiatives. Figure 21 provides a clear snapshot of developments in the sector during the two quarters.

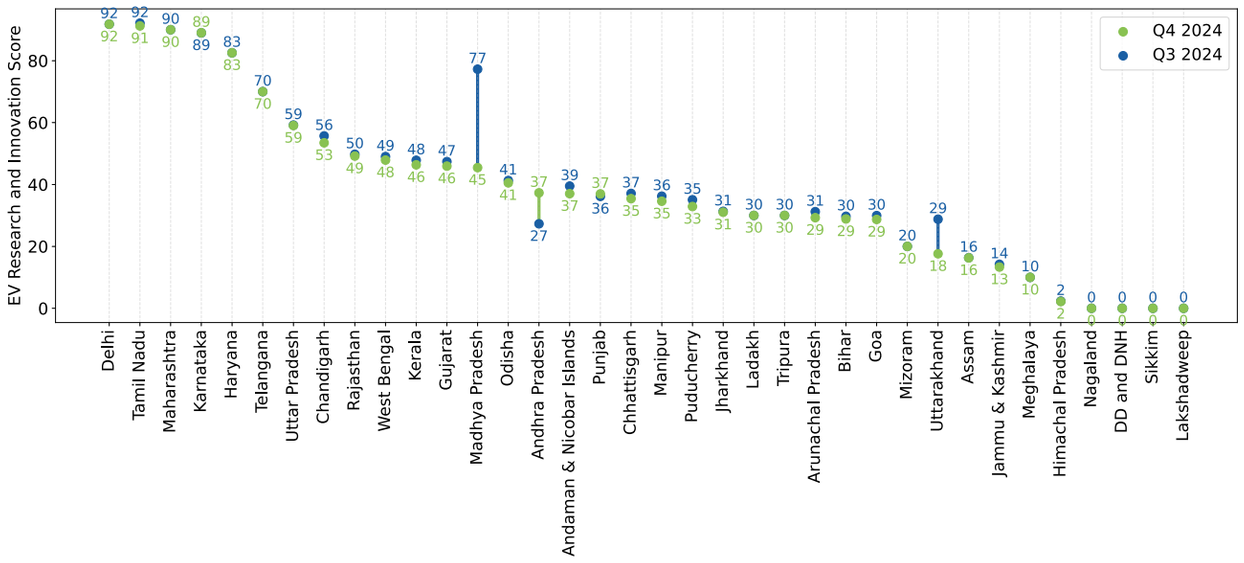
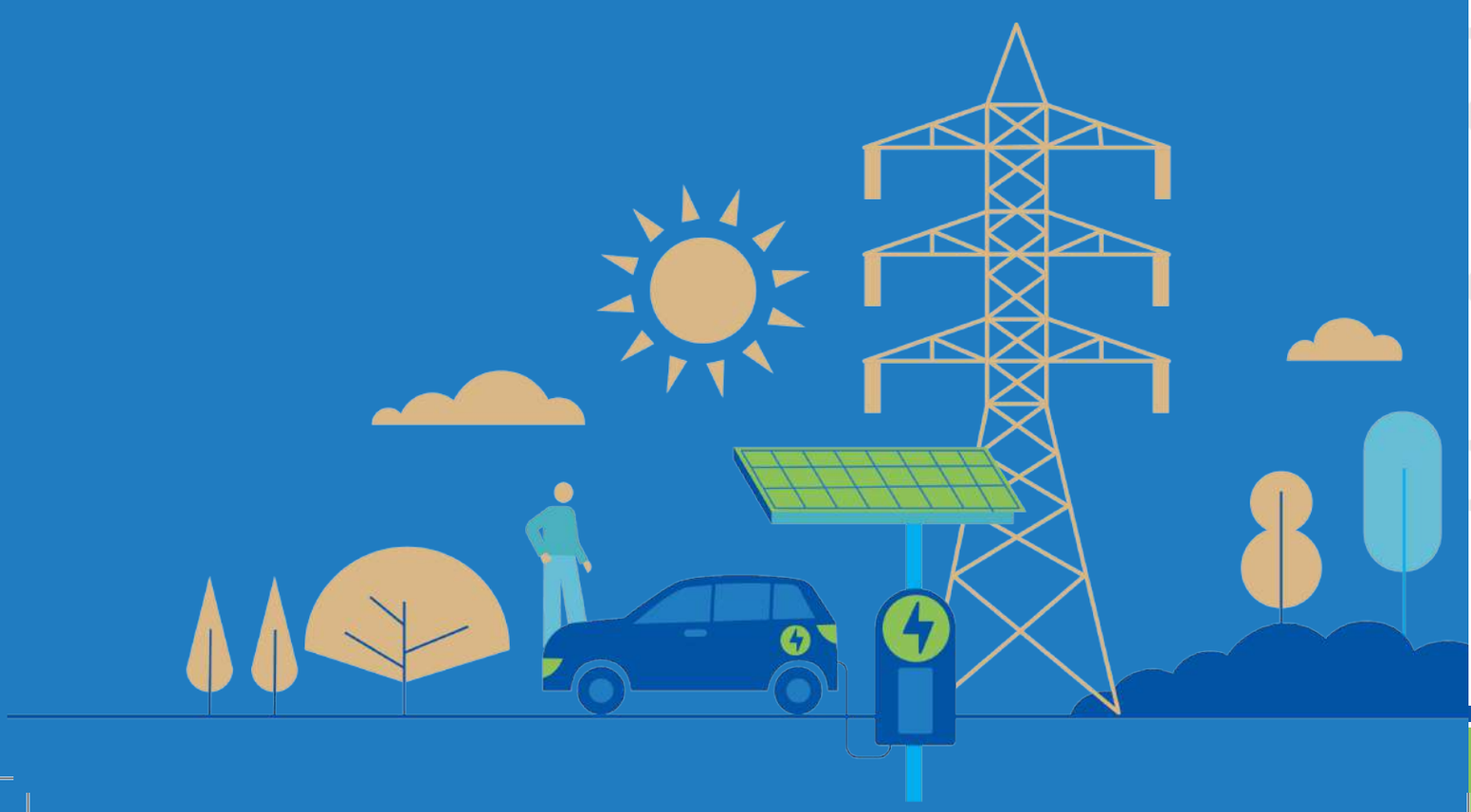


Figure 21: EV Research and Innovation Status Score: Comparison between Q3 and Q4 of 2024

9

STATE AND UNION TERRITORY PROFILES 2024



The state profiles provide a detailed overview of electric mobility performance across all states and UTs for 2024. They highlight state ranks and scores, theme and indicator scores, recommendations and Unique Selling Points (USPs). This section offers a comprehensive, data-driven assessment of each state and UT's progress in advancing electric mobility. It also presents quarterly progress to track momentum over time and assess consistency in implementation efforts. Furthermore, each profile outlines the key highlights of the state's approach to promoting electric mobility and offers targeted recommendations to identify areas with potential for further improvement. Together, these insights offer a holistic view of each state's strengths, challenges, and ongoing trajectory in building a robust electric mobility ecosystem.

Recommendations under the IEMI are tailored based on the evaluation of the India Electric Mobility Index scores, which reflect the performance of states across sixteen selected indicators in 2024. The insights and potential of each state are framed as recommendations to scale up EV adoption, expand public and private charging infrastructure, and accelerate innovation and integration within the electric mobility ecosystem.

9.1 Andaman & Nicobar Islands

The Andaman and Nicobar Islands cover an area of 8,249 km^2, with a population of 4 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹8099 crore[11].

State Score

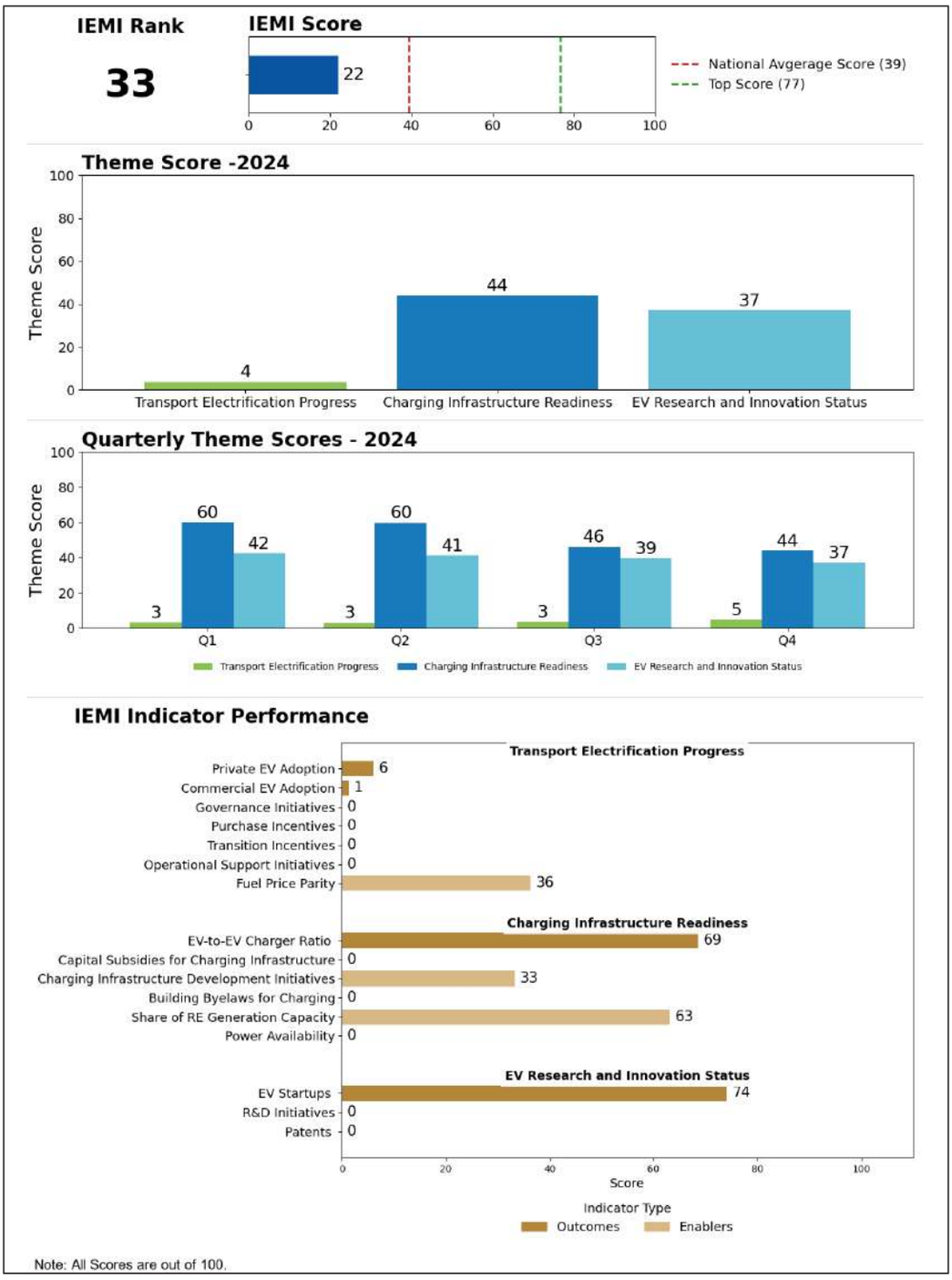


Figure 22: IEMI Rank and Score, Theme and Indicator scores for Andaman & Nicobar Islands

Highlights and USPs

- A penalty of ₹1,00,000 is imposed for improper disposal of EV batteries.
- Clean fuel and pollution cesses apply to petrol, diesel sales and new fossil fuel vehicles.

Recommendations

- Frame and notify electric vehicle policy to enable comprehensive and integrated approach to electric mobility.
- To boost adoption, consider initiatives like a purchase subsidies, scrapping and conversion kit incentives, parking charge exemptions, low-emission zones, and permit exemptions for commercial EVs.

- Consider e-mobility courses for skill development.

9.2 Andhra Pradesh

Andhra Pradesh covers an area of 1,62,975 km^2, with a population of 534 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹8.7 lakh crore[10].

State Score

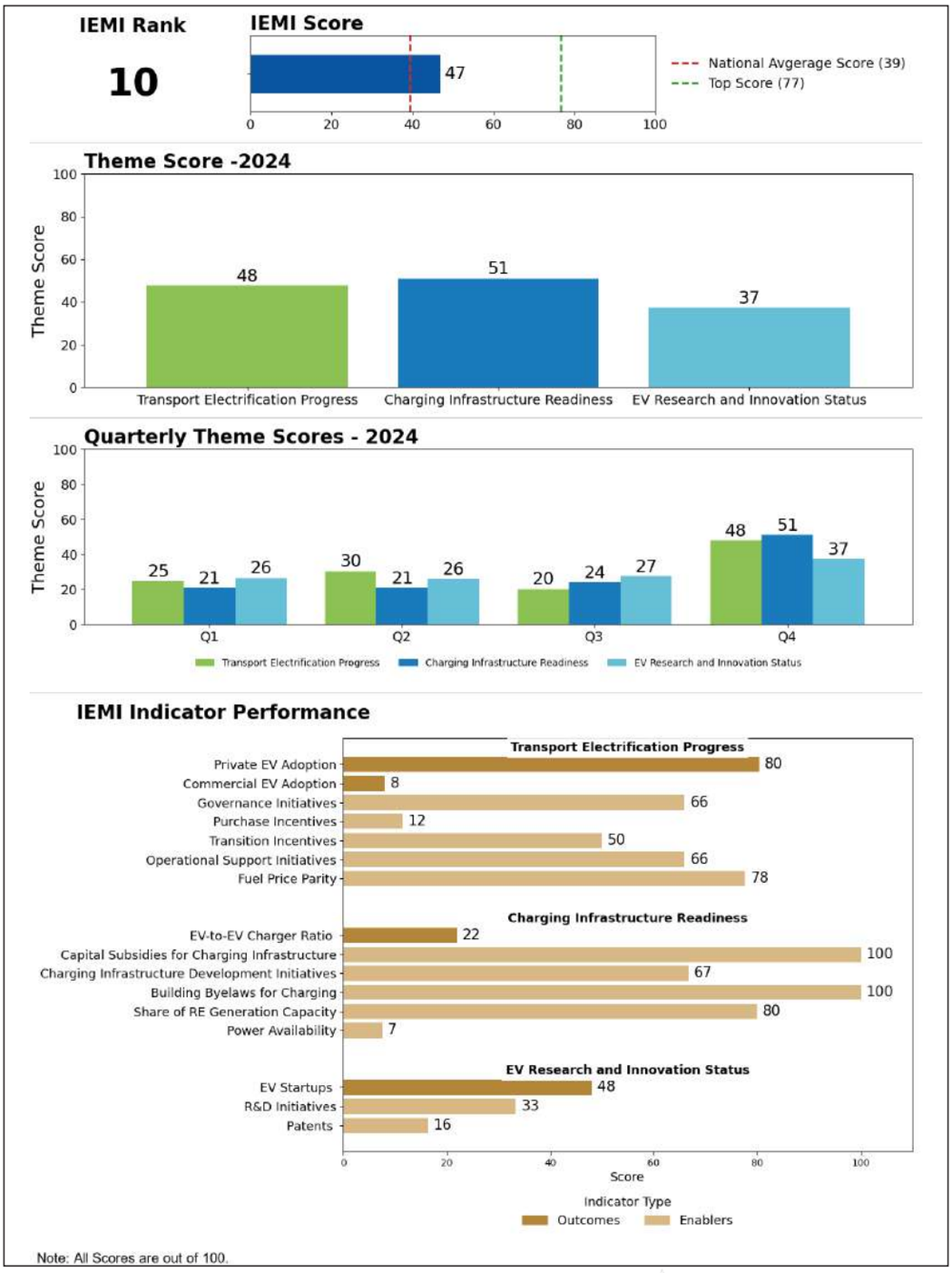


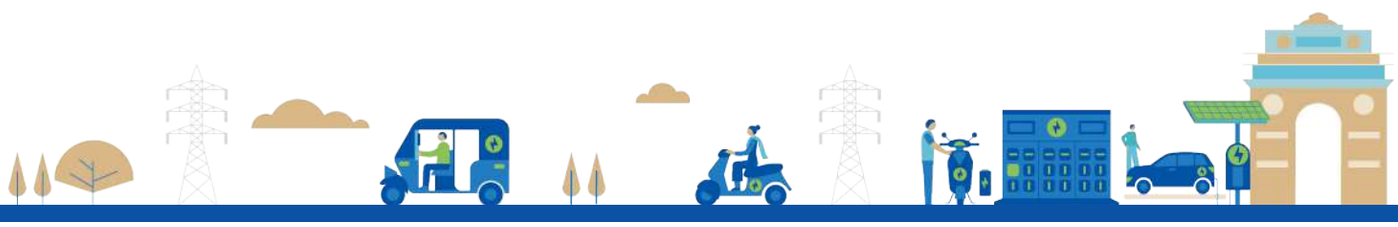
Figure 23: IEMI Rank and Score, Theme and Indicator scores for Andhra Pradesh

Highlights and USPs

- The state has committed to one lakh EVs to government employees through Equated Monthly Installment (EMI) programs, with road tax and registration fee waivers.

Recommendations

- Increase commercial EV adoption by implementing parking and permit exemptions and reduced tariffs for public charging.
- Set up a high-level interdepartmental committee, to steer the development of planned electric mobility ecosystem.
- Establish COE, and e-mobility courses for skill development.



9.3 Arunachal Pradesh

Arunachal Pradesh covers an area of 83,743 km^2, with a population of 15.6 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹20,491 crore[11].

State Score

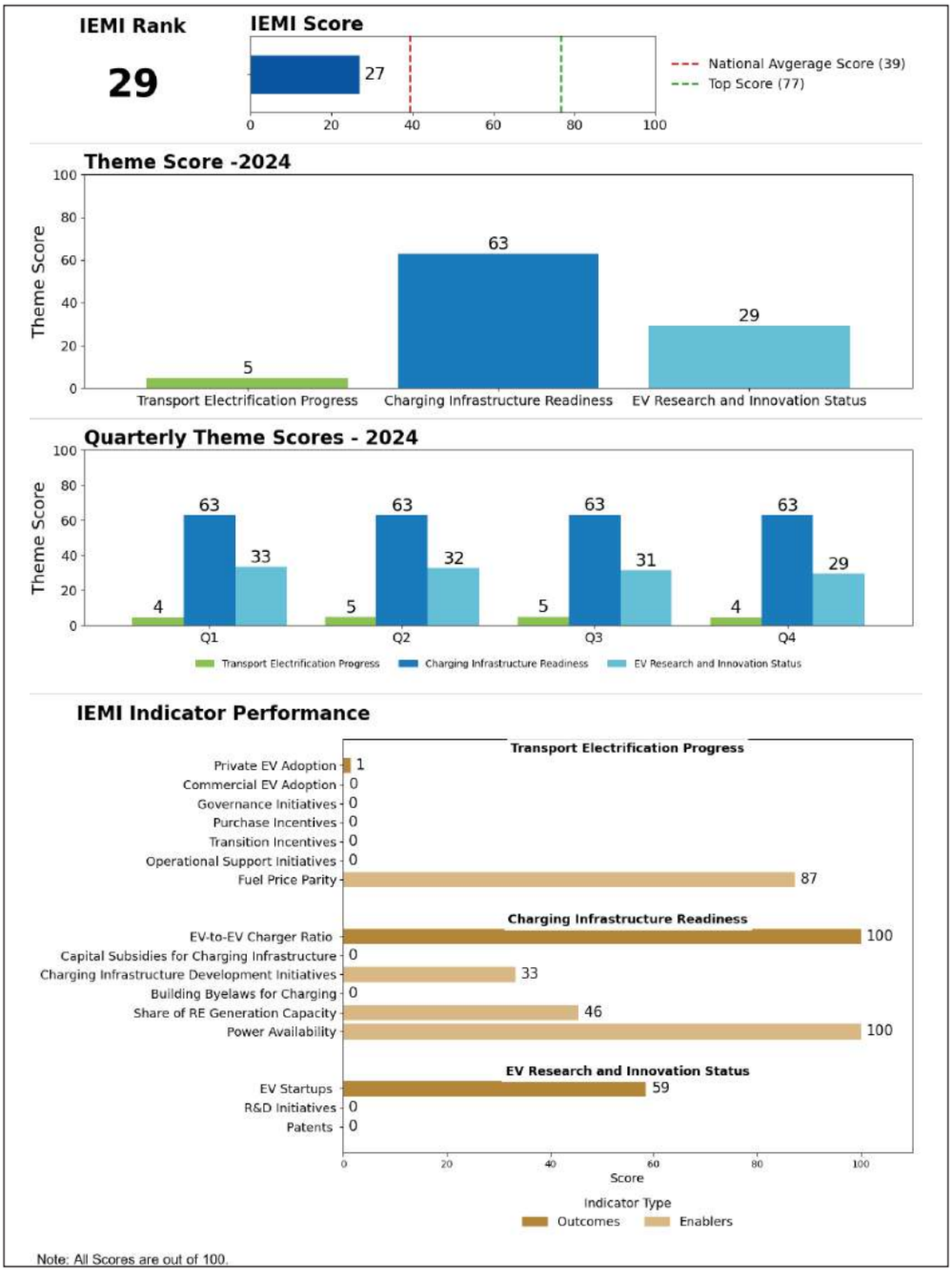


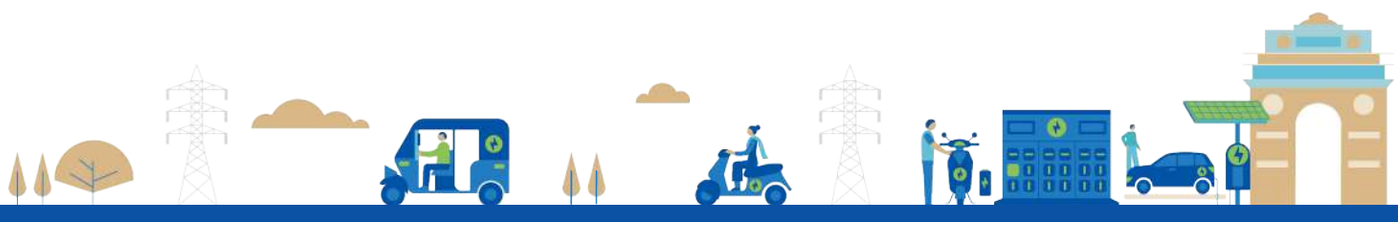
Figure 24: IEMI Rank and Score, Theme and Indicator scores for Arunachal Pradesh

Highlights and USPs

- Arunachal Pradesh deployed electric bus fleet in Itanagar, Namsai, and Pasighat.

Recommendations

- Notify the draft electric vehicle policy to enable the roadmap for a comprehensive and integrated electric vehicle ecosystem in the state.
- Increase EV adoption by offering purchase subsidies, scrapping and conversion kit incentives, dedicated EV parking, designating low-emission zones, exempting commercial EVs from permits.
- Consider e-mobility courses for skill development.



9.4 Assam

Assam covers an area of 78,438 km^2, with a population of 362 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹3.4 lakh crore[10].

State Score

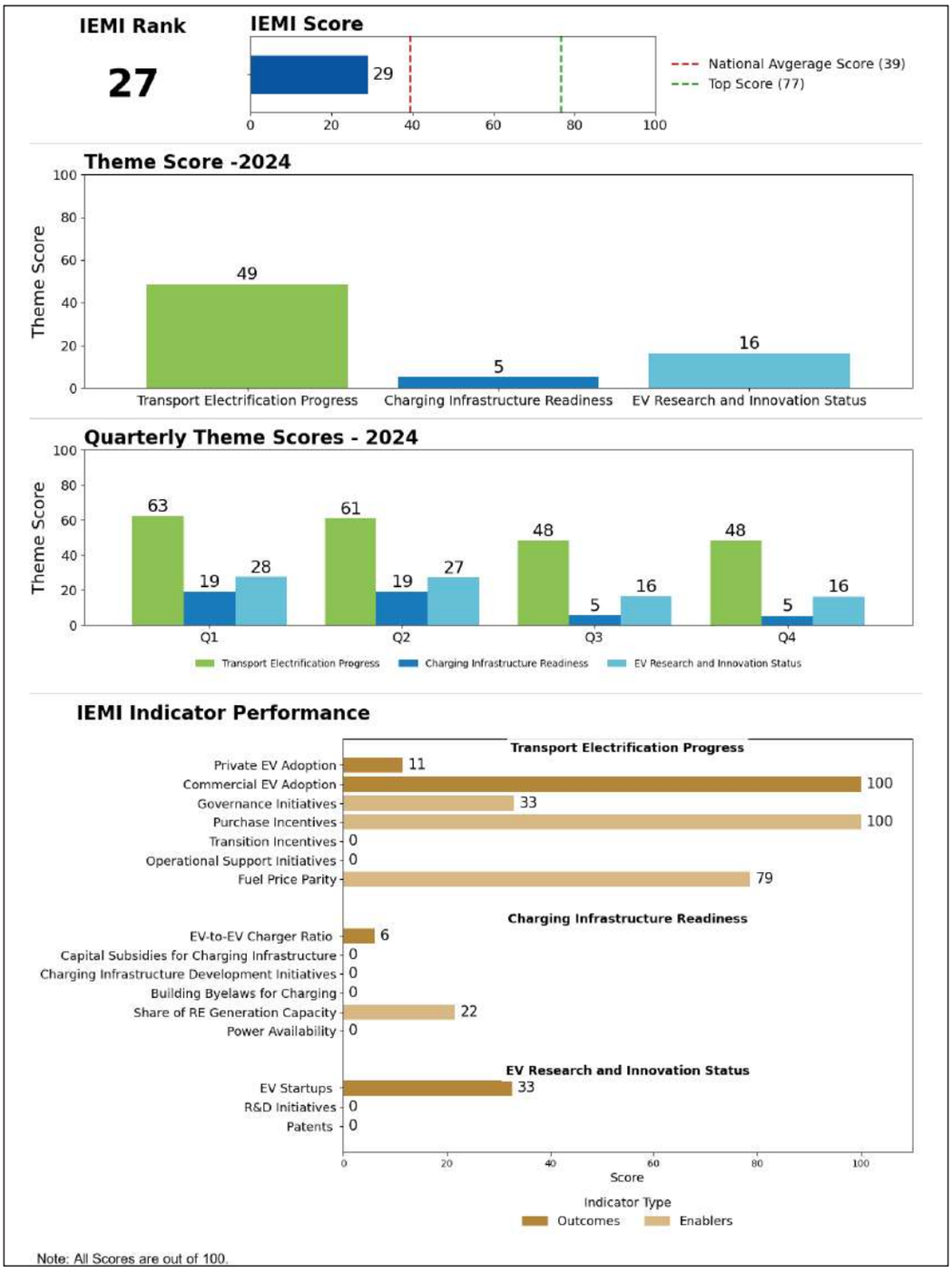


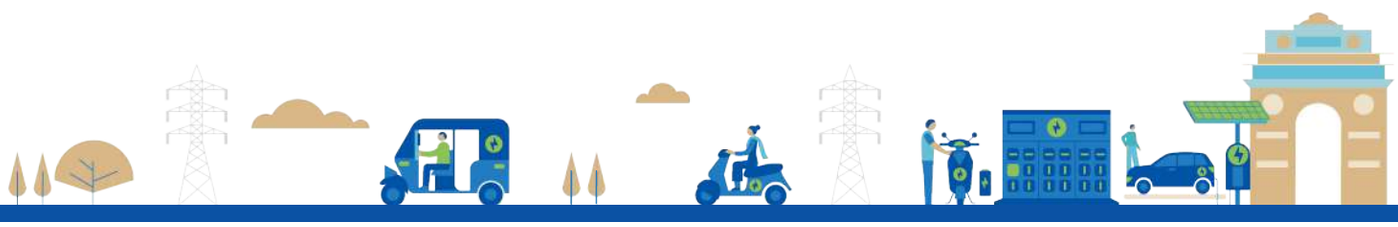
Figure 25: IEMI Rank and Score, Theme and Indicator scores for Assam

Highlights and USPs

- Over 85% of three-wheelers registered in Assam in 2024 are electric, driven by strong government incentives with road tax and registration fee waivers.
- Assam government launched one of India's first app-based e-bike taxi service - 'Baayu'. It is a fully electric and decentralized bike taxi service.

Recommendations

- Implement governance initiatives like setting up a state website for EV awareness.
- Promote EV adoption by introducing vehicle scrapping incentives, low emission zones and commercial EV permit exemptions.
- Setup a nodal agency for charging infrastructure and improve streamlined approval processes, concessional land rates for charging stations and consider recommending EV charging infrastructure in building bylaws.
- Establish R&D centres for skill development and introduce e-mobility courses.



9.5 Bihar

Bihar covers an area of 94,163 km^2, with a population of 1278 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹4.7 lakh crore[11].

State Score

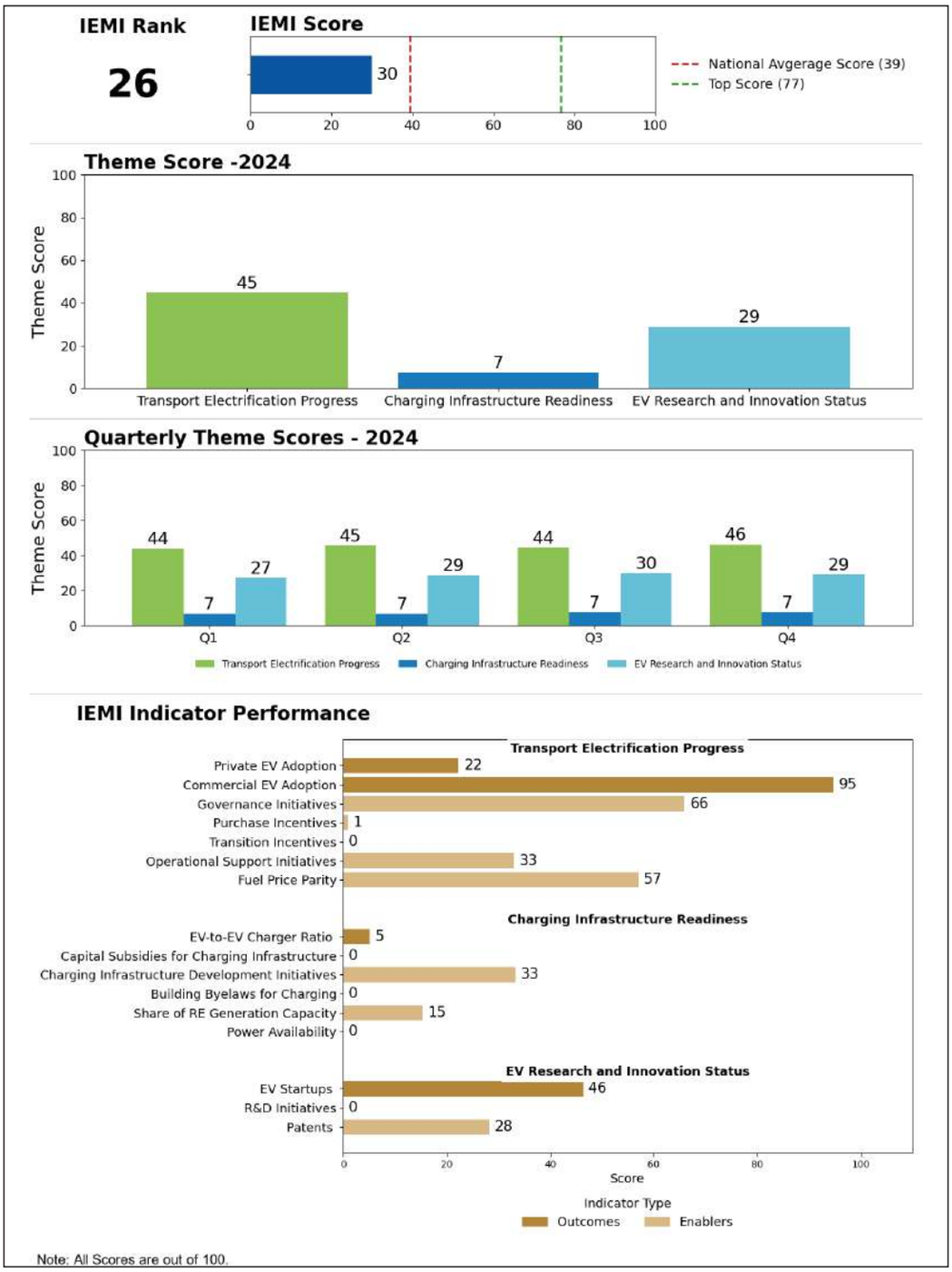


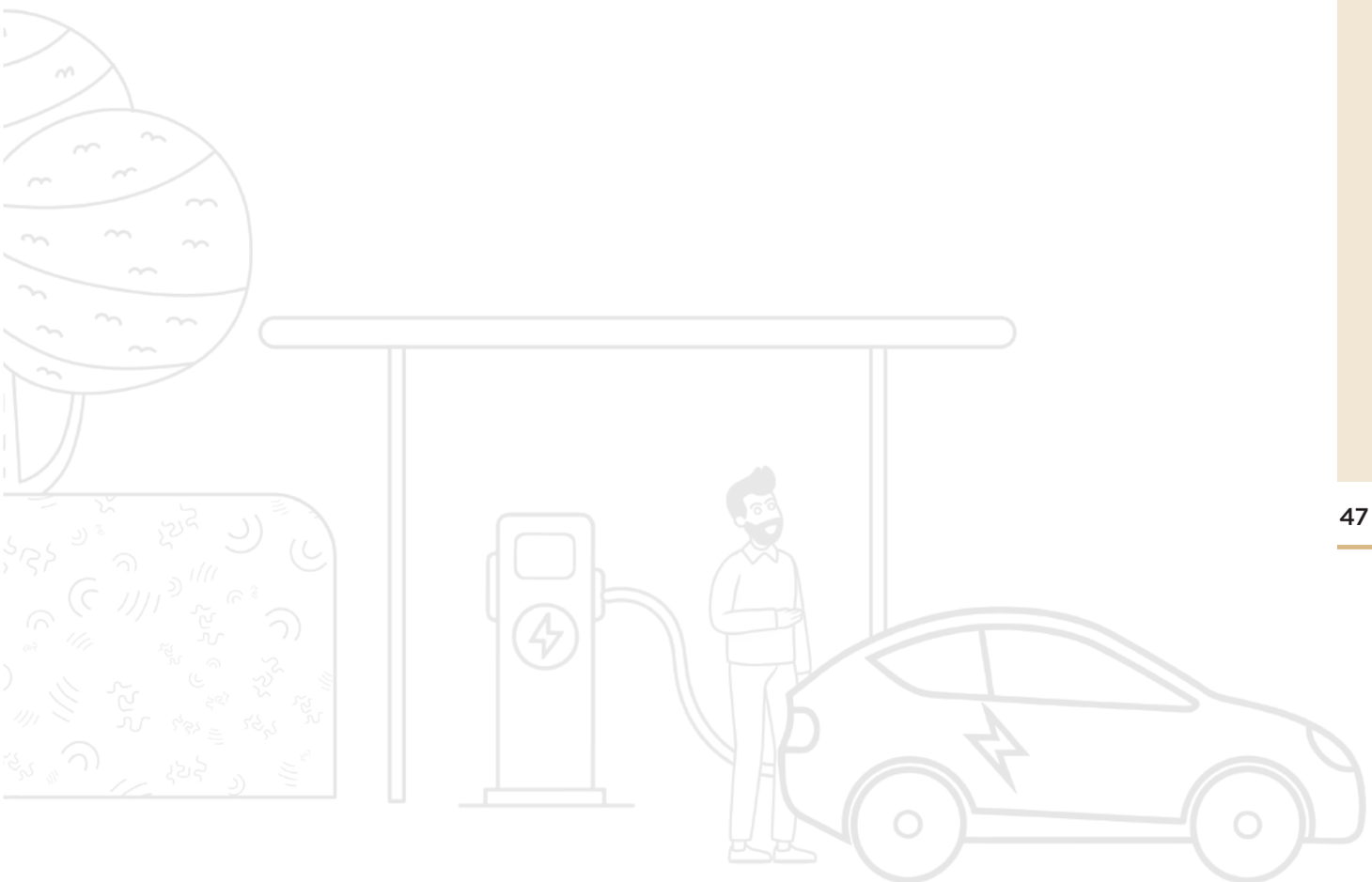
Figure 26: IEMI Rank and Score, Theme and Indicator scores for Bihar

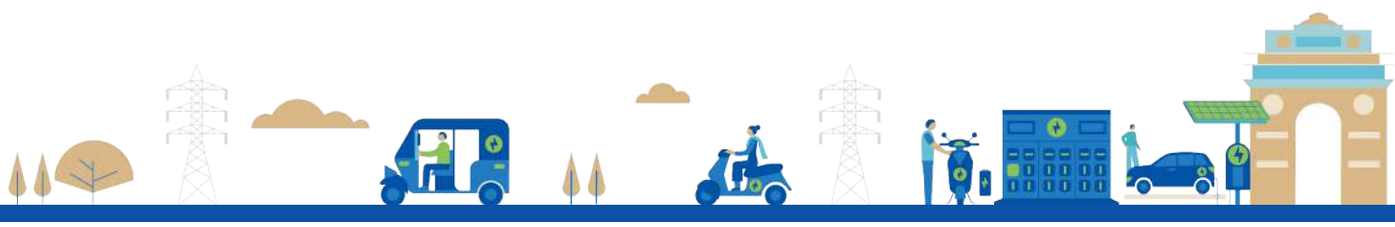
Highlights and USPs

- Electric vehicle (EV) adoption in Bihar grew significantly in FY 2024–25, with registrations nearly doubling from 10 thousand EVs in the previous year to 23 thousand EVs.

Recommendations

- Consider promoting EV awareness via State EV awareness website.
- To boost EV adoption, consider purchase and transition incentives.
- Improve EV charging infrastructure by prioritizing capital subsidies for installations, streamlining approvals through a single-window system, and integrating charging requirements into building bylaws.
- Establish R&D centres, COE, and e-mobility courses for skill development.





9.6 Chandigarh

Chandigarh covers an area of 113 km^2, with a population of 12 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹35,851 crore[11].

State Score

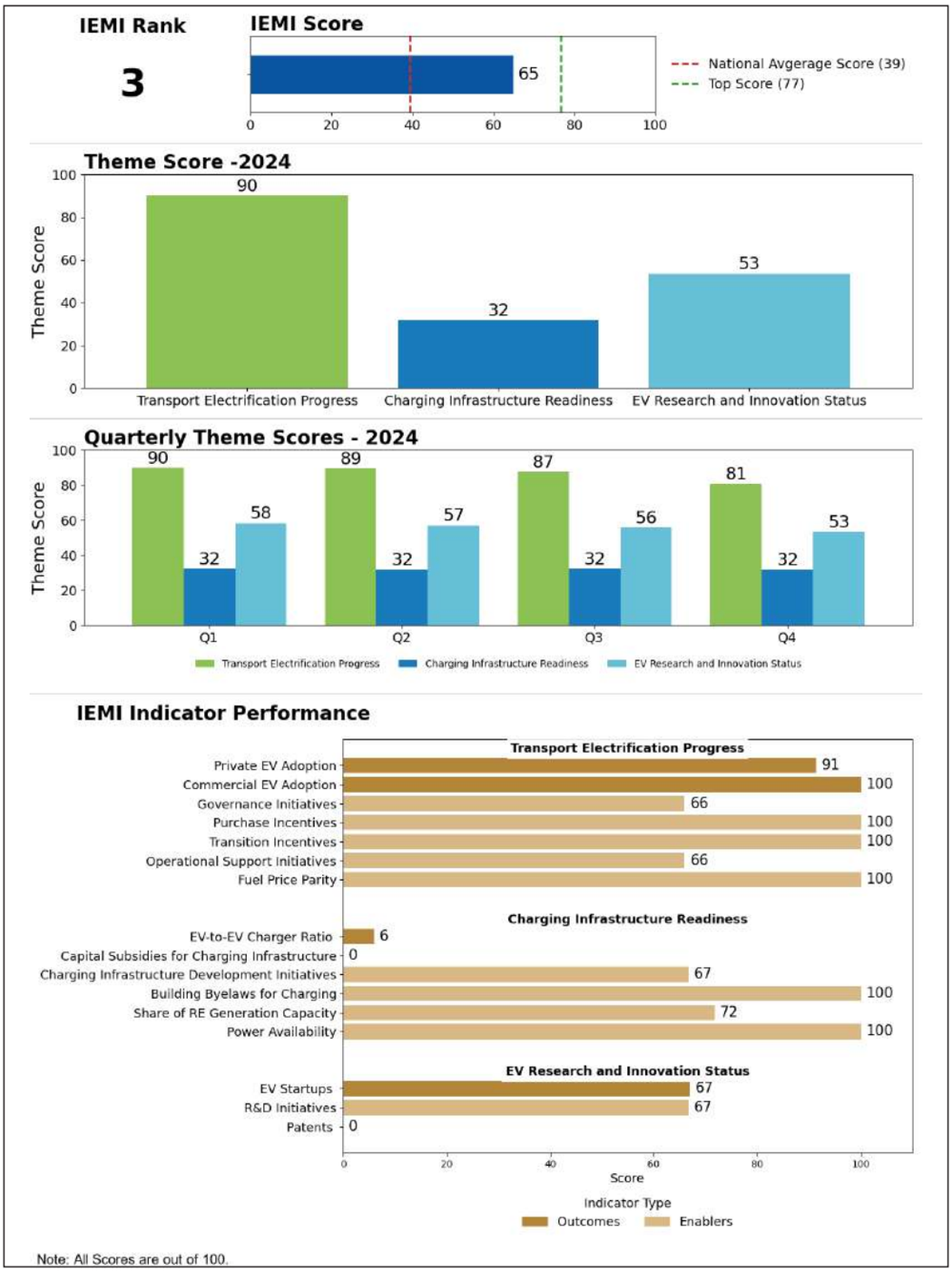


Figure 27: IEMI Rank and Score, Theme and Indicator scores for Chandigarh

Highlights and USPs

- Chandigarh offers exclusive incentives on the purchase of e-bicycles, promoting sustainable urban mobility.
- In 2024, Chandigarh led in commercial EV adoption with a rate of 65%.
- In 2024, Chandigarh recorded the highest electric three-wheeler adoption rate at 91.75%, driven by strong incentives.
- In 2024, Chandigarh also achieved the highest electric four-wheeler adoption rate at 5.35%, supported by policies encouraging a shift from petrol and diesel vehicles.

Recommendations

- Provide capital subsidies and offer concessional land rates for strengthening public charging stations.

9.7 Chhattisgarh

Chhattisgarh covers an area of 135,192 km^2, with a population of 307 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹3.3 lakh crore[10].

State Score

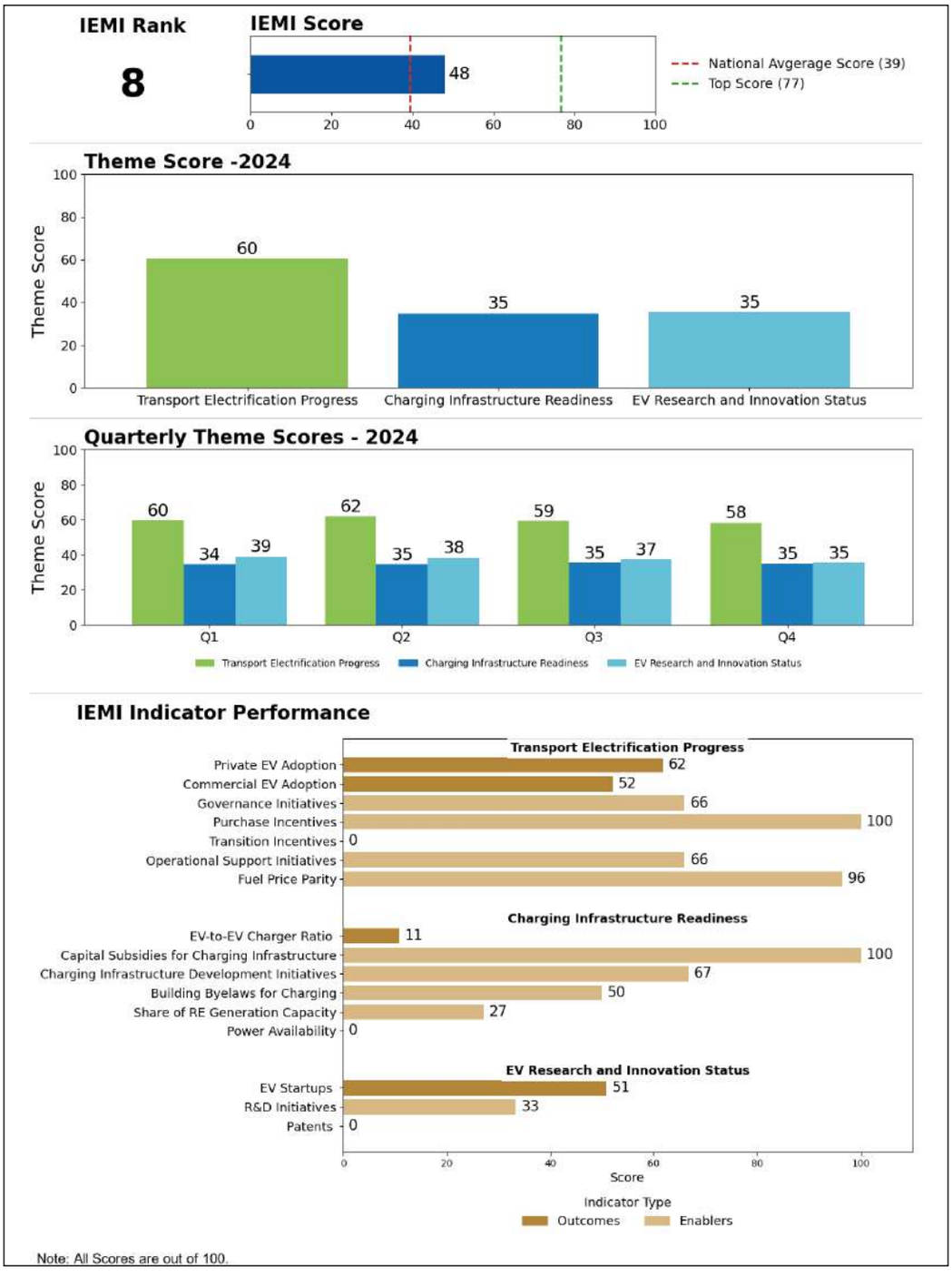


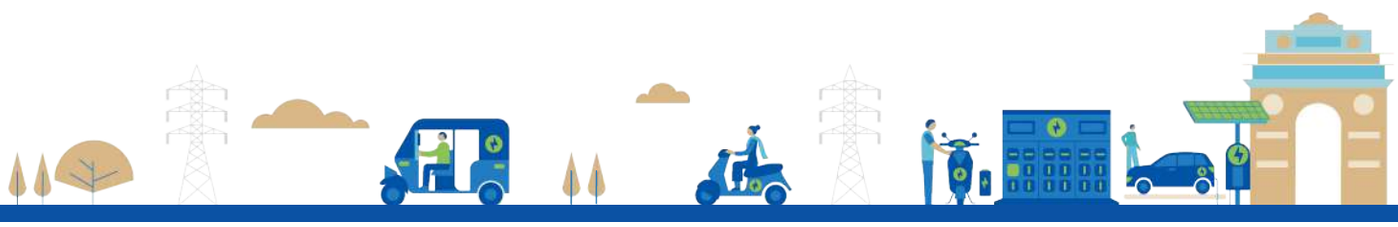
Figure 28: IEMI Rank and Score, Theme and Indicator scores for Chhattisgarh

Highlights and USPs

- The state will provide 50% subsidized parking for all personal electric vehicles by municipal corporations.
- Chhattisgarh State Electricity Regulatory Commission (CSERC) proposes amendment to Electricity Supply Code 2025 to boost rooftop solar and EV charging In Chhattisgarh. This amendment allows separate EV charging connections and ease of setting of EV chargers.

Recommendations

- Consider promoting EV awareness via State EV awareness website.
- To boost adoption, the state should introduce an EV awareness website, scrapping incentives, conversion kits and low-emission zones.
- Initiatives like concessional land rates for public charging stations and mandating EV charging points in new and existing buildings are recommended.
- With a growing number of EV startups and R&D centres, focus can be placed on establishing a COE and introducing courses on e-mobility for skill development.



9.8 Dadra and Nagar Haveli and Daman and Diu

Dadra and Nagar Haveli and Daman and Diu cover an area of 602 km^2, with a population of 6.6 lakh as of 2024 as per UIDAI estimates.

State Score

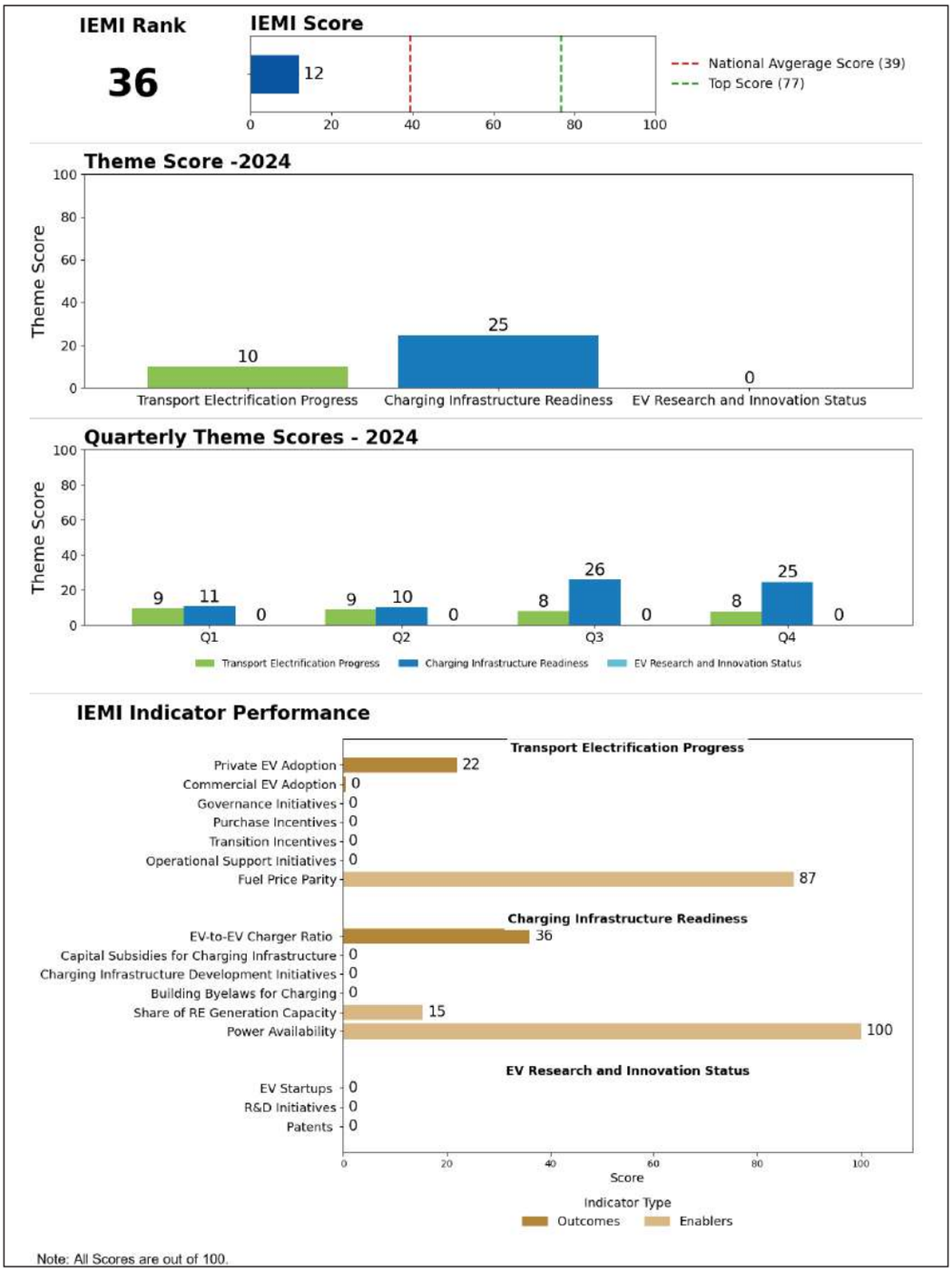


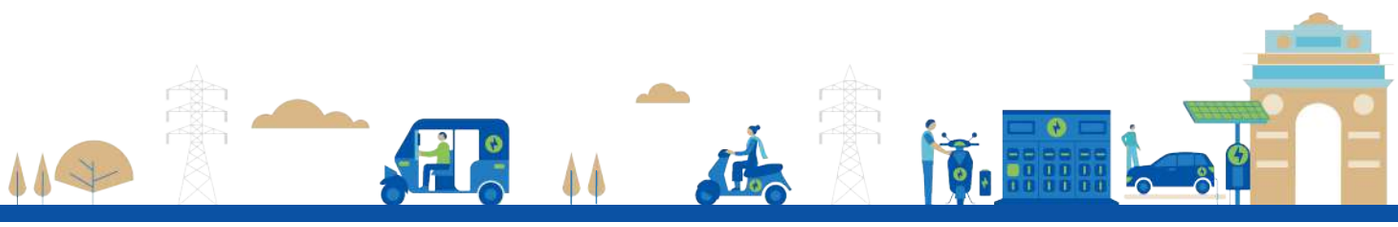
Figure 29: IEMI Rank and Score, Theme and Indicator scores for DD & DNH

Highlights and USPs

- Diu focus on clean energy has made it India's first fully solar powered and energy surplus Union territory.

Recommendations

- Frame and notify electric vehicle policy to enable comprehensive and integrated approach to electric mobility.
- Introduce purchase subsidies, scrapping and retrofitting incentives.
- Improve public charging infrastructure by offering capital subsidies, streamlining approvals, providing concessional land and creating a Nodal Agency.
- Consider e-mobility courses for skill development.



9.9 Delhi

Delhi covers an area of 1,484 km^2, with a population of 215 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹6.7 lakh crore[11].

State Score

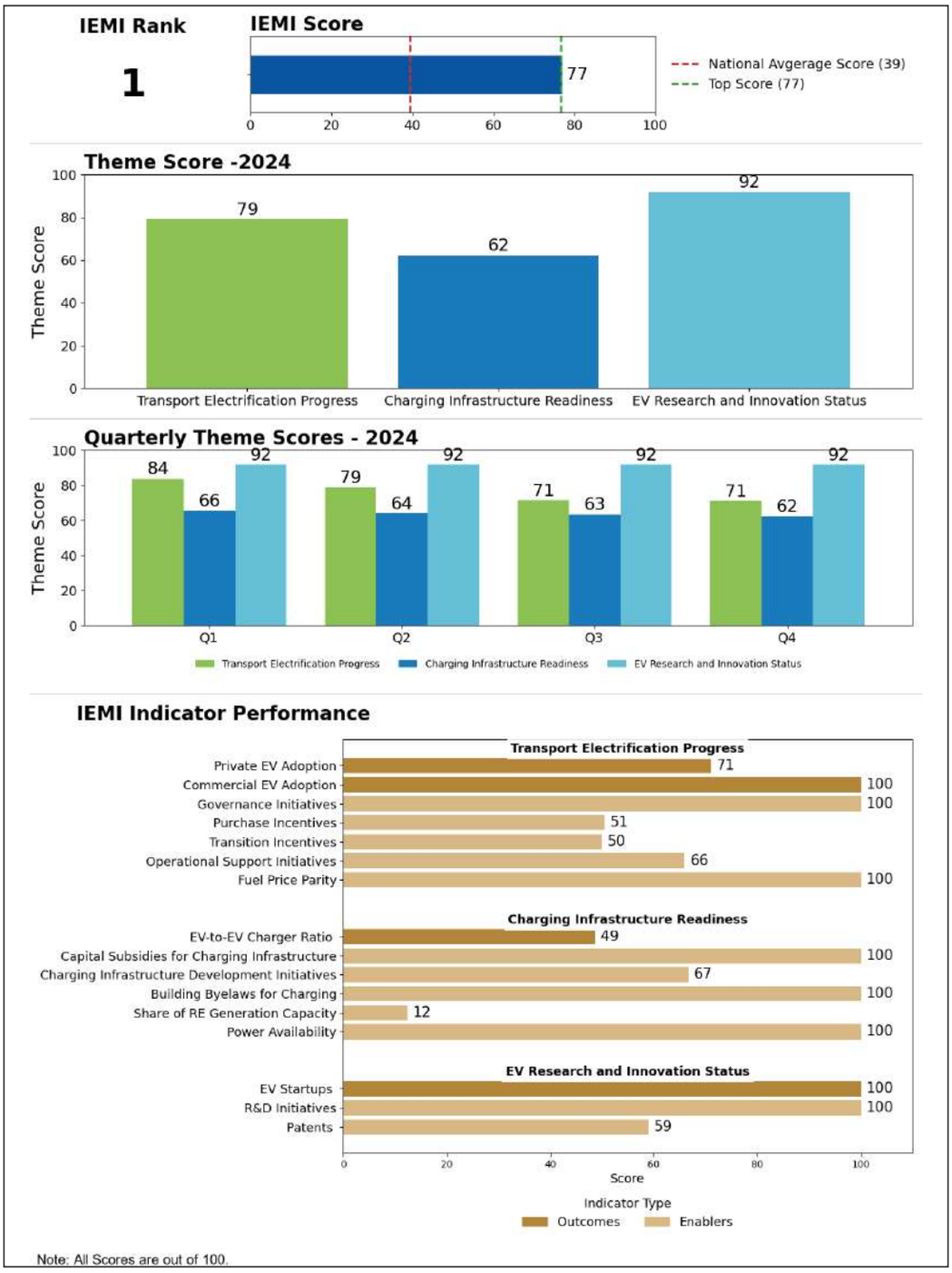


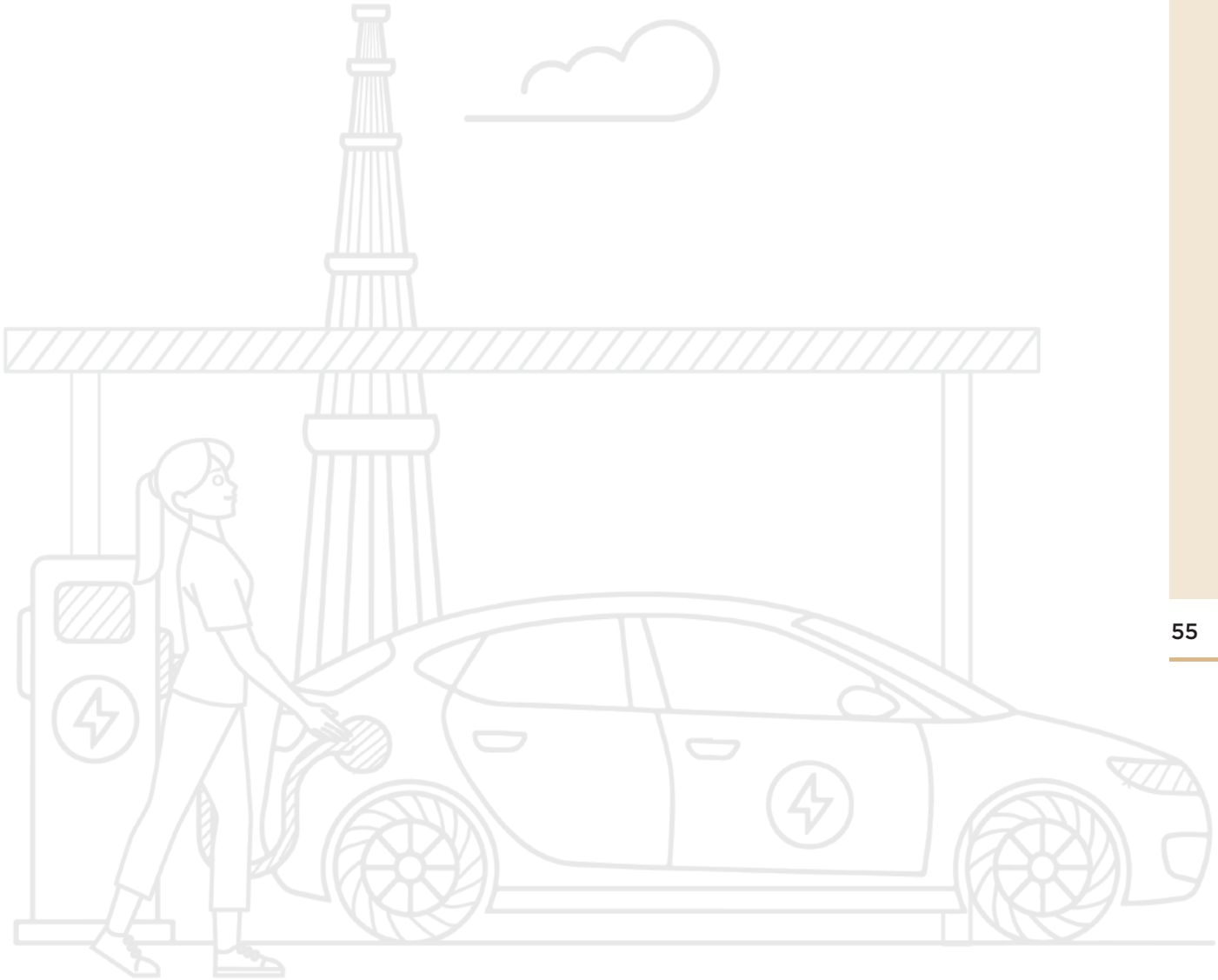
Figure 30: IEMI Rank and Score, Theme and Indicator scores for Delhi

Highlights and USPs

- Delhi leads with 2500 electric buses, making up 33% of its fleet, India's highest.
- As of January 2024, subsidies totalling ₹179 crore have been disbursed on purchase of electric vehicles.
- Delhi is the first state to provide subsidies for electric cycles.

Recommendations

- Delhi can consider incentivizing EV conversion kits and promote low emission zones.
- Recommend provision of concessional rates for land for public charging stations.



9.10 Goa

Goa covers an area of 3,702 km^2, with a population of 16 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹64,137 crore[11].

State Score

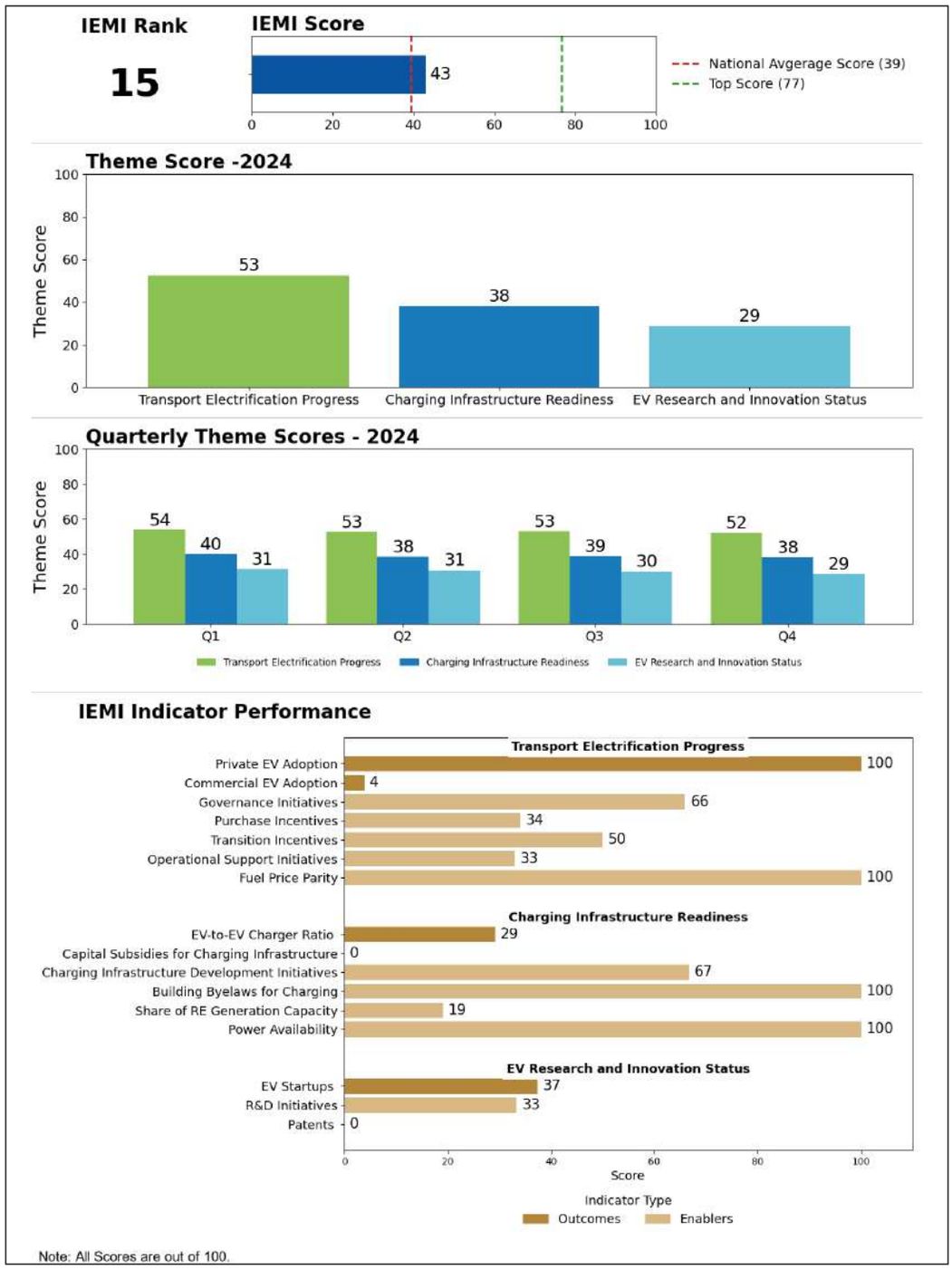


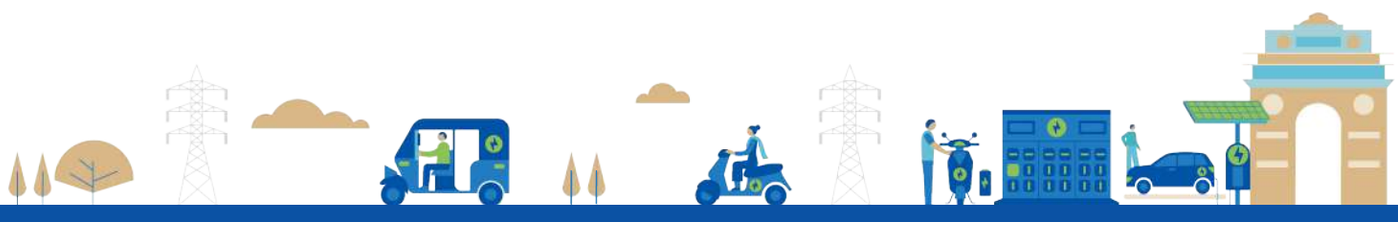
Figure 31: IEMI Rank and Score, Theme and Indicator scores for Goa

Highlights and USPs

- The state ranks second in overall EV adoption in India, achieving a 13.6% adoption rate in 2024.
- The state provides a capital subsidy to set up public charging infrastructure covering electricity infrastructure costs for charging stations, up to ₹8 lakh.
- Specific areas such as Panjim Smart City, heritage zones, tourist zones, airports, and railway stations will be identified to transition to 100% mandatory electric vehicles.

Recommendations

- Provide capital subsidies and offer concessional land rates for strengthening public charging stations.
- Consider e-mobility courses for skill development.



9.11 Gujarat

Gujarat covers an area of 196,024 km^2, with a population of 720 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹16 lakh crore[11].

State Score

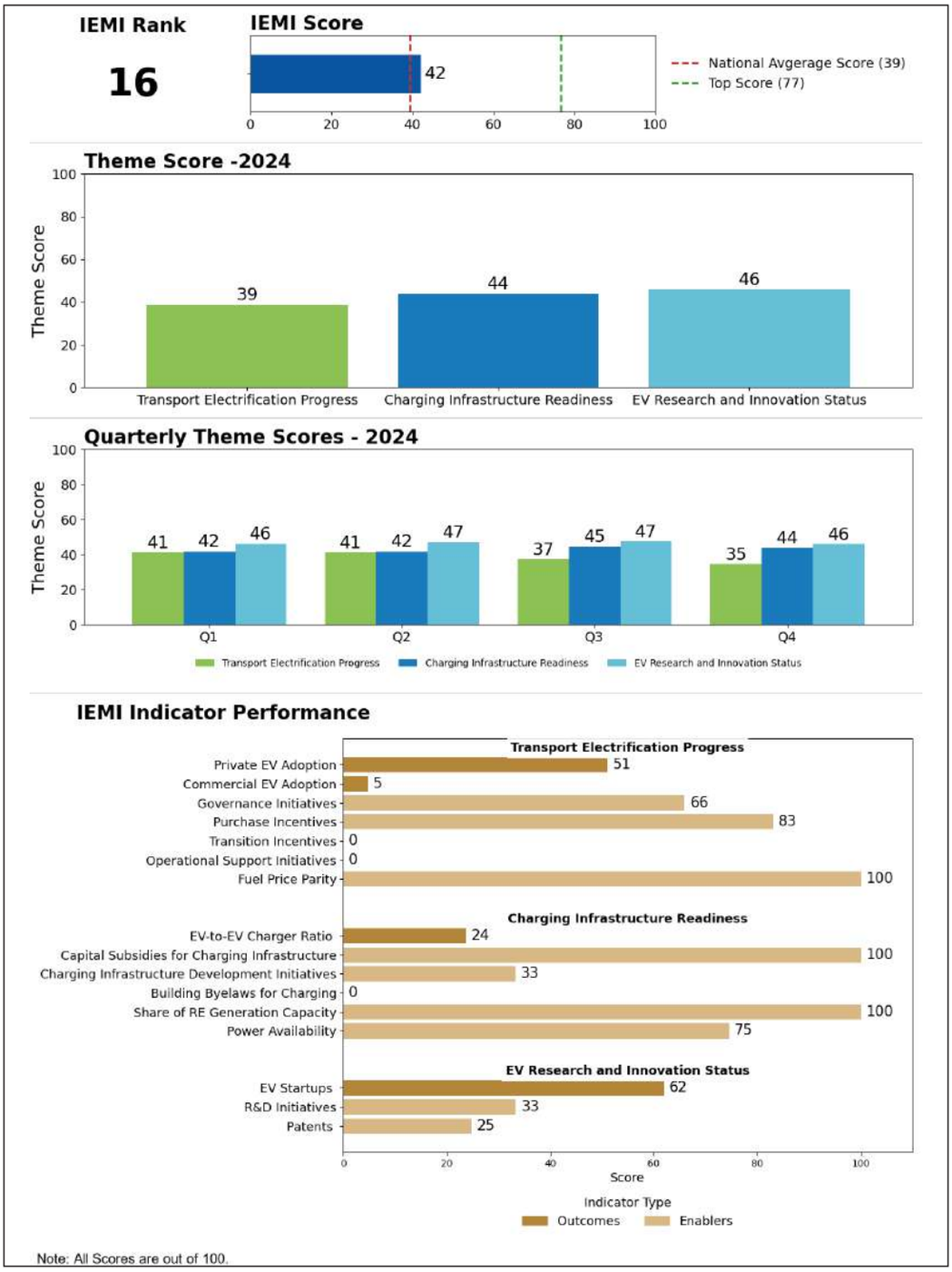


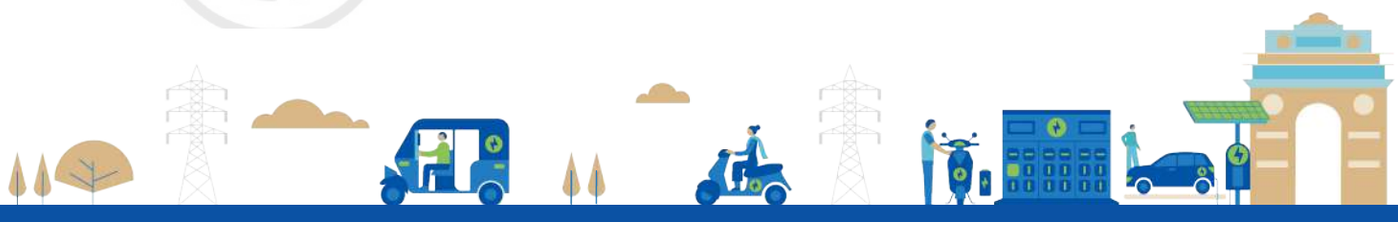
Figure 32: IEMI Rank and Score, Theme and Indicator scores for Gujarat

Highlights and USPs

- Until June 31, 2025, EV charging stations will be exempt from 100% electricity duty.

Recommendations

- Set up a high-level interdepartmental committee, to steer the development of planned electric mobility ecosystem.
- Focus on offering vehicle scrapping incentives, reserved parking, low-emission zones, and permit exemptions for commercial EVs.
- Improve EV charging infrastructure by offering a single-window system, concessional land for public stations, and recommending charging points in existing buildings.
- Establish R&D centres, COE, and e-mobility courses for skill development.



9.12 Haryana

Haryana covers an area of 44,212 km^2, with a population of 307 lakh as per MoSPI for the year 2024-25 and an estimated GSDP of ₹6.8 lakh crore[10].

State Score

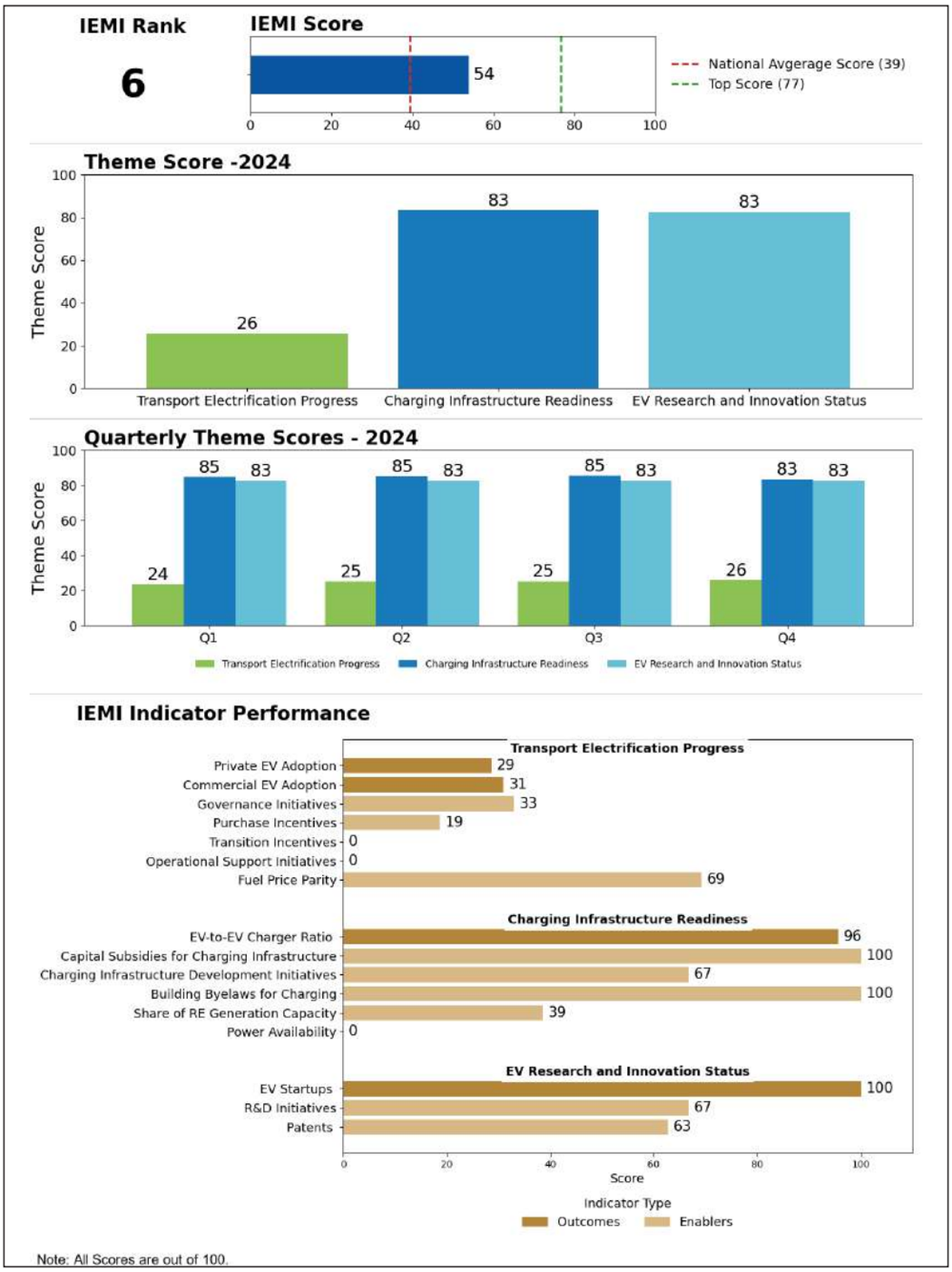


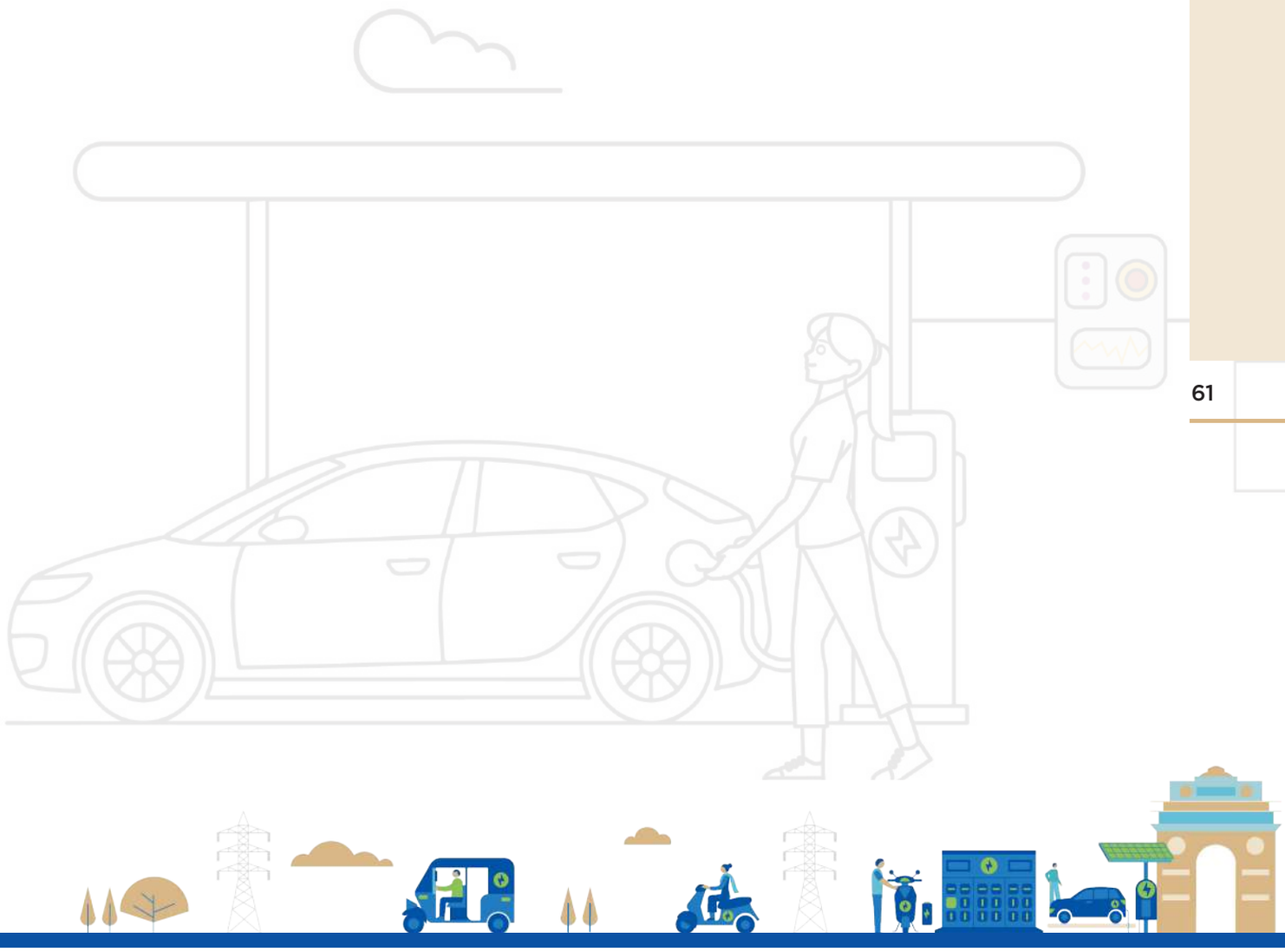
Figure 33: IEMI Rank and Score, Theme and Indicator scores for Haryana

Highlights and USPs

- EV manufacturers will be reimbursed 100% of patent registration costs, up to ₹25 lakh, for both domestic and international filings.
- As an employment generation subsidy, eligible manufacturing units will receive ₹48,000 per employee annually for 10 years for hiring Haryana residents, with valid ESI/PF.
- Large and Mega units must establish battery disposal, recycling, and material recovery facilities at their proposed plants to claim incentives under the EV policy.

Recommendations

- Set up a high-level interdepartmental committee, to steer the development of planned electric mobility ecosystem.
- Promote EV awareness in the state through EV awareness website.
- To boost EV adoption, consider vehicle scrapping incentives, reserved parking, low-emission zones, permit exemptions for commercial EVs, and enhanced subsidies.



9.13 Himachal Pradesh

Himachal Pradesh covers an area of 55,673 km^2, with a population of 75 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹1.5 lakh crore[10].

State Score

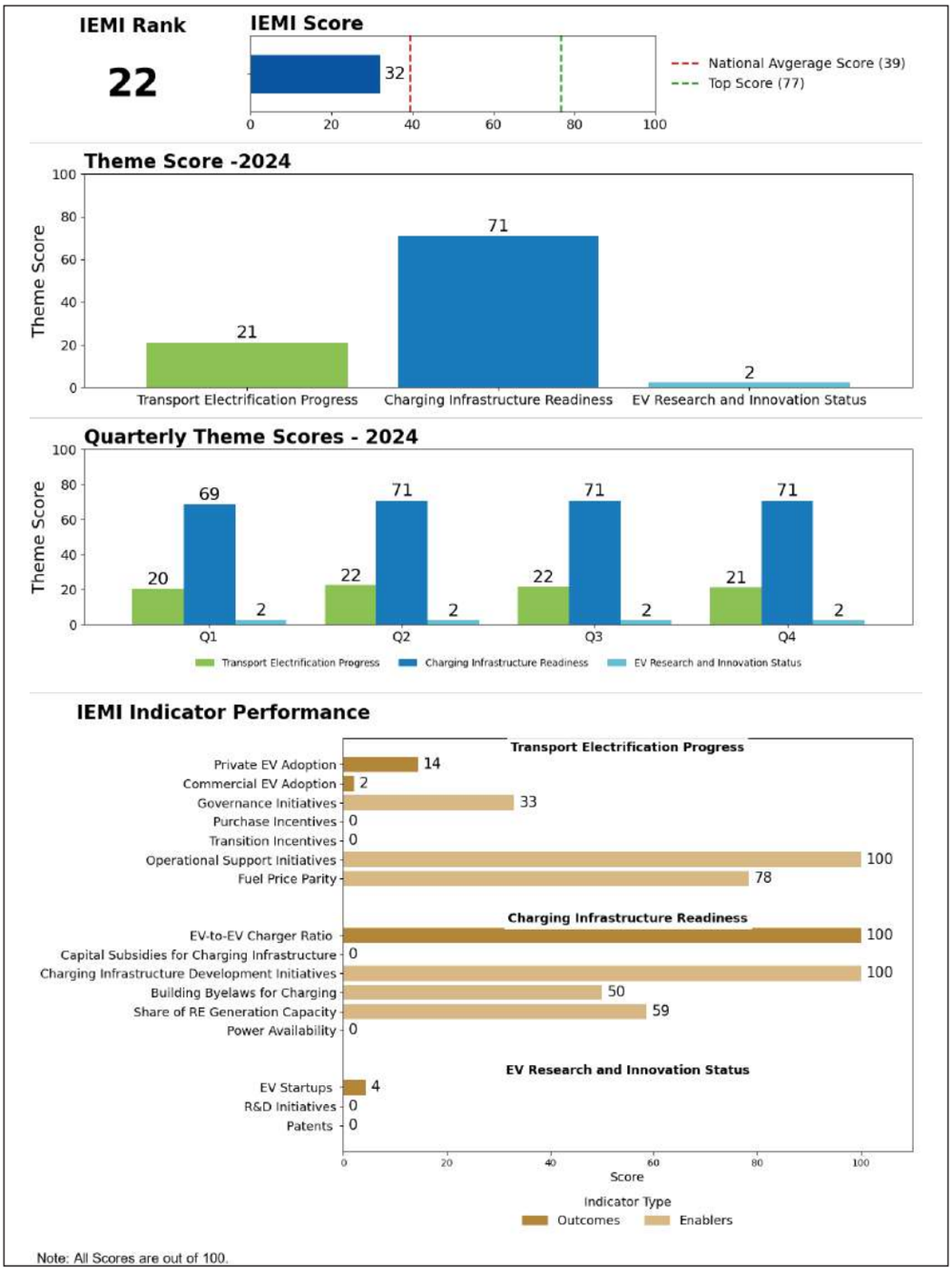


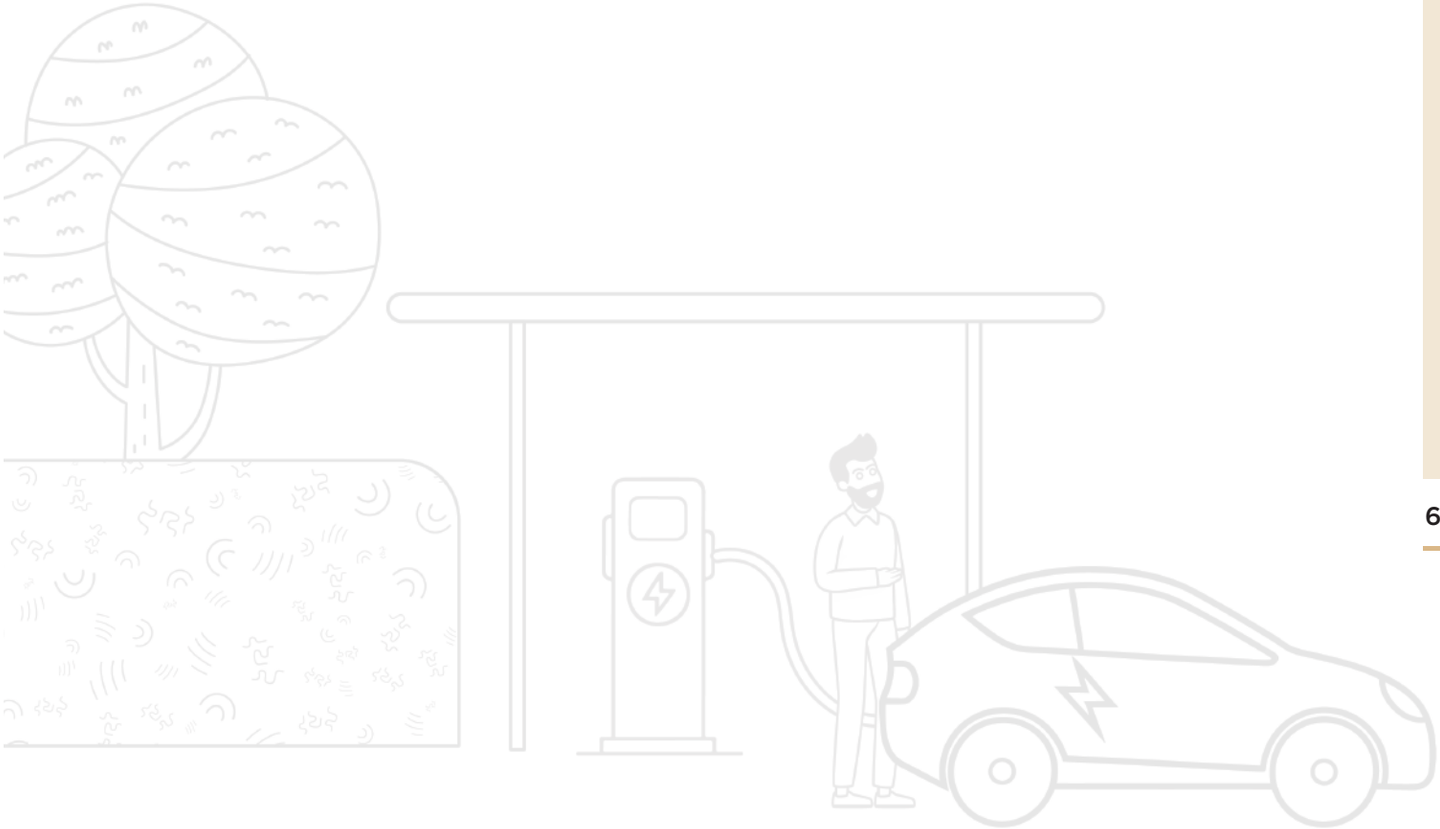
Figure 34: IEMI Rank and Score, Theme and Indicator scores for Himachal Pradesh

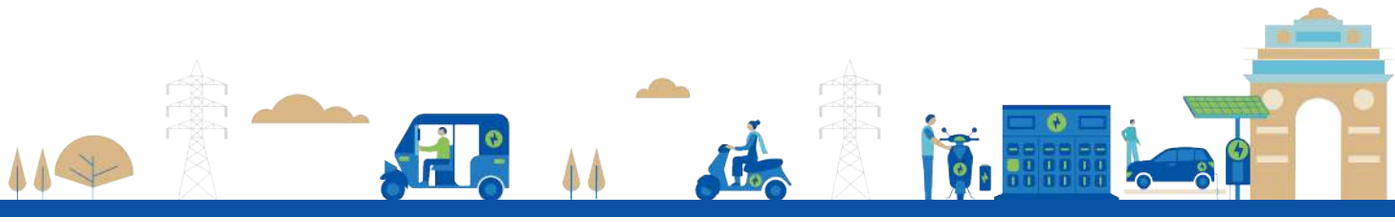
Highlights and USPs

- A 50% loan subsidy for unemployed youth to purchase e-taxis and e-buses, promoting employment and green transport.

Recommendations

- Set up a high-level interdepartmental committee, to steer the development of planned electric mobility ecosystem.
- Promote EV awareness in the state through EV awareness website.
- To boost EV adoption, introduce purchase subsidies and offer incentives for vehicle scrapping and conversion kits.
- Establish R&D centres, COE, and e-mobility courses for skill development





9.14 Jammu & Kashmir

Jammu and Kashmir covers an area of 42,241 km^2, with a population of 137 lakh as per MoSPI in the financial year 2024-25 and an estimated GSDP of ₹1.4 lakh crore[10].

State Score

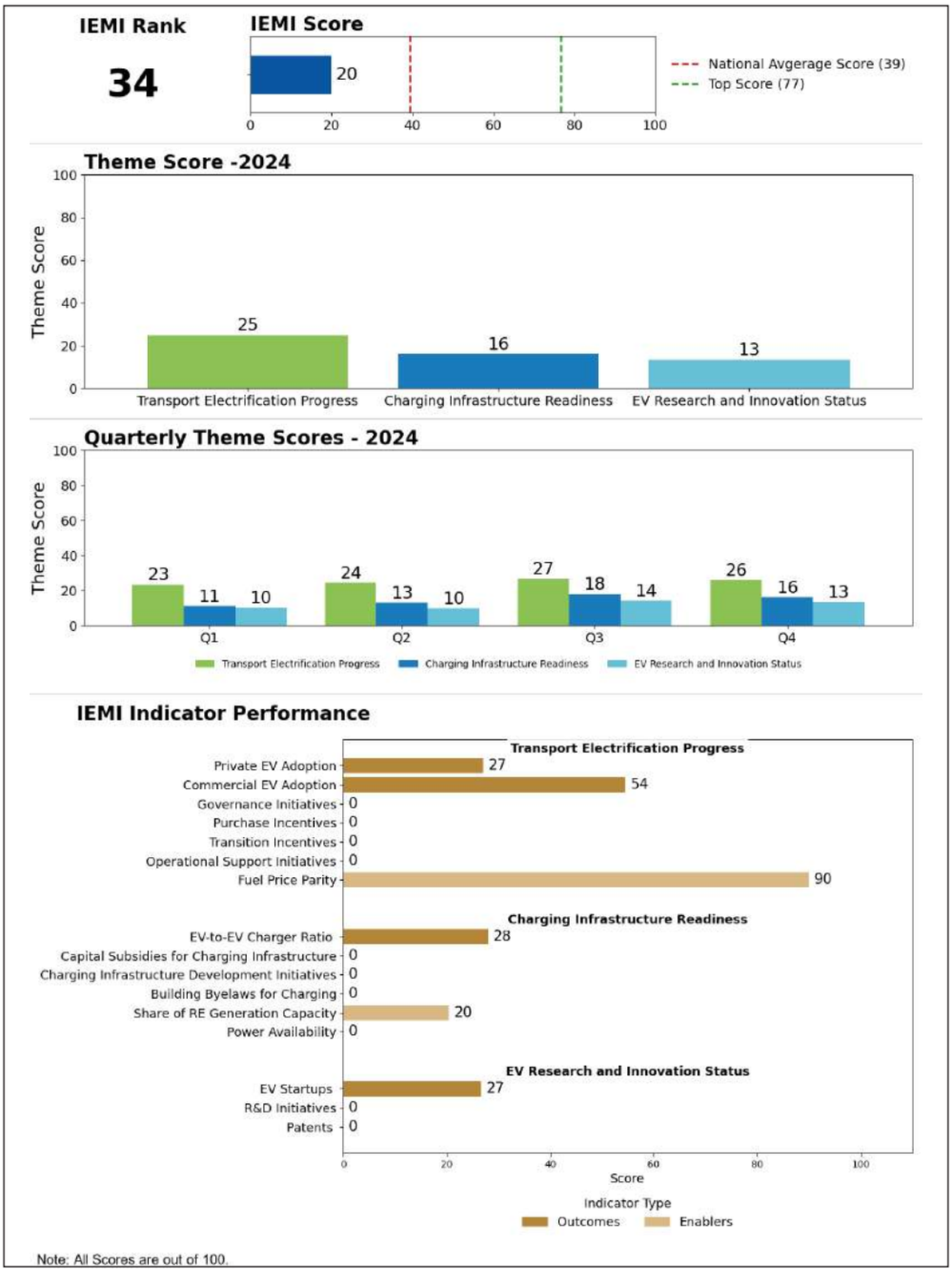


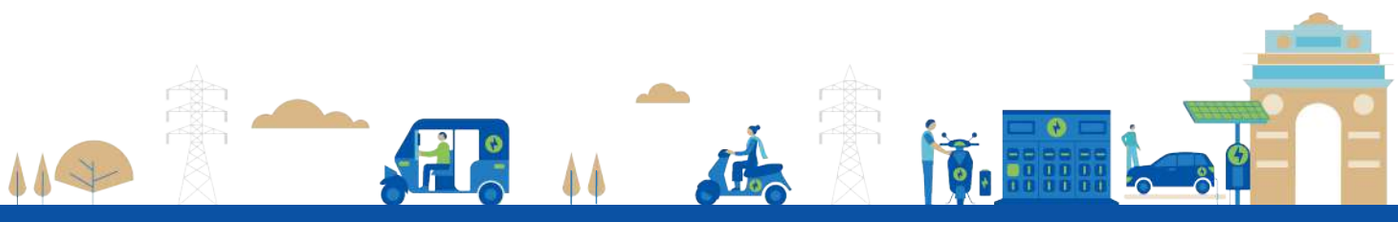
Figure 35: IEMI Rank and Score, Theme and Indicator scores for Jammu & Kashmir

Highlights and USPs

- Rapid expansion of e-buses across Jammu and Kashmir, with 200 already deployed and another 200 currently being implemented.

Recommendations

- Frame and notify electric vehicle policy to enable comprehensive and integrated approach to electric mobility.
- Set up a high-level interdepartmental committee, to steer the development of planned electric mobility ecosystem.
- Promote EV awareness in the state through EV awareness website.
- To enhance EV adoption, offer incentives for vehicle scrapping, conversion kits, retrofitting, reserved parking, low emission zones, and enhancing subsidies for commercial EVs.
- To improve EV charging infrastructure, consider streamlined approval through a single-window system.
- Establish R&D centres, COE, and e-mobility courses for skill development.



9.15 Jharkhand

Jharkhand covers an area of 79,716 km^2, with a population of 397 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹2.9 lakh crore[11].

State Score

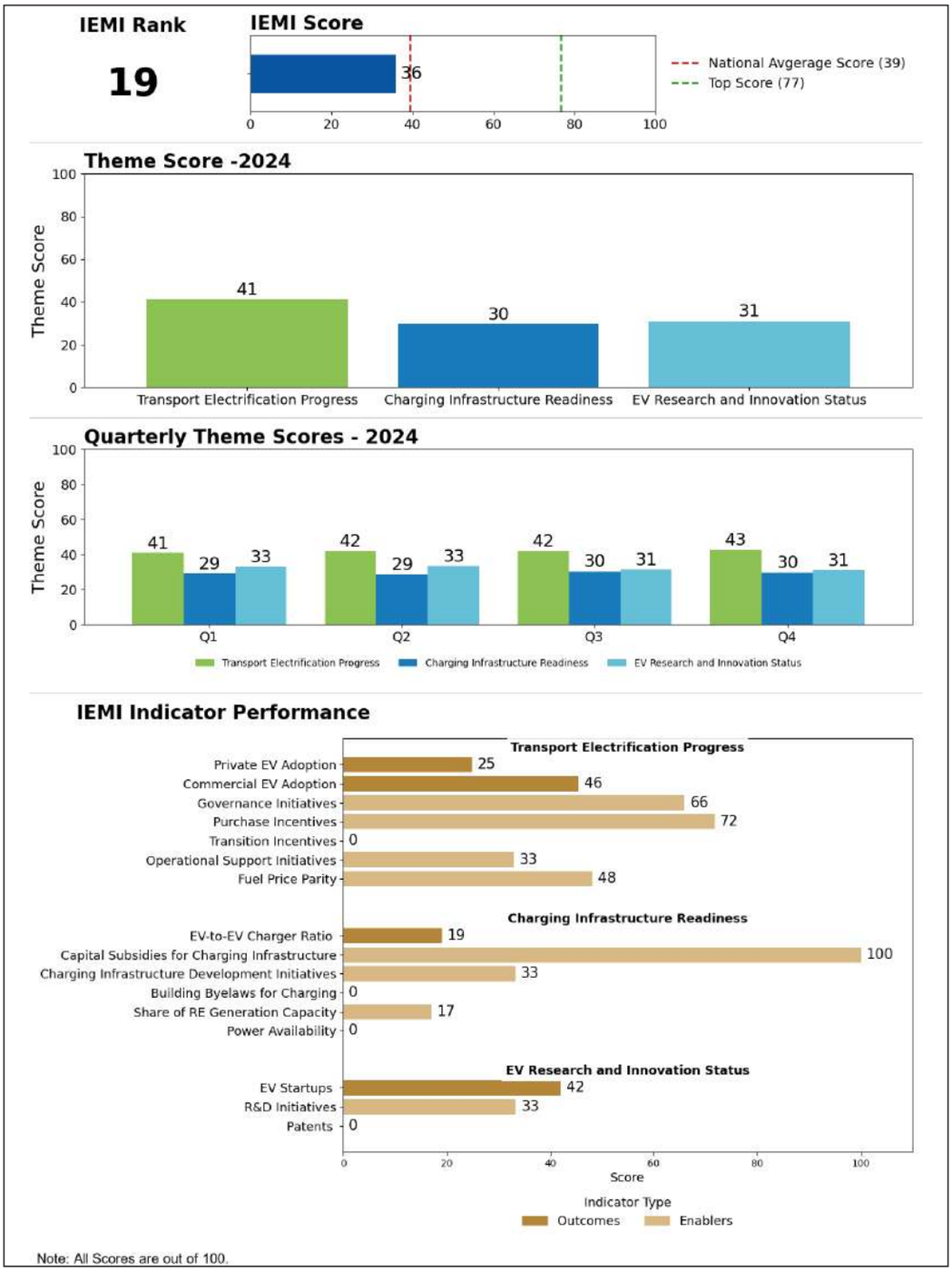


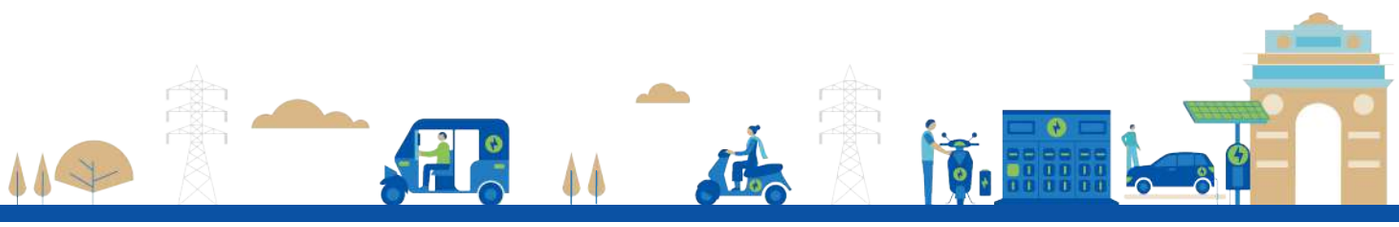
Figure 36: IEMI Rank and Score, Theme and Indicator scores for Jharkhand

Highlights and USPs

- The state provides interest-free loans for government employees to purchase their first EV.
- In 2024, Jammu Smart City Limited (JSCL) provided an upfront subsidy to the tune of ₹50,000/- for L5 vehicle and ₹40,000/- for L3 vehicle.

Recommendations

- Promote EV awareness in the state through EV awareness website.
- To boost EV adoption, key initiatives include scrappage and conversion incentives, developing low emission zones, allowing commercial EV exemptions, introducing purchase subsidies, and reducing electricity tariffs for charging stations.
- To improve EV charging infrastructure, the state should provide concessional rates for public charging lands, and integrate charging needs into building bylaws, while enhancing its overall energy infrastructure.
- Establish R&D centres and e-mobility courses for skill development.



9.16 Karnataka

Karnataka covers an area of 191,791 km^2, with a population of 683 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹15.7 lakh crore[10].

State Score

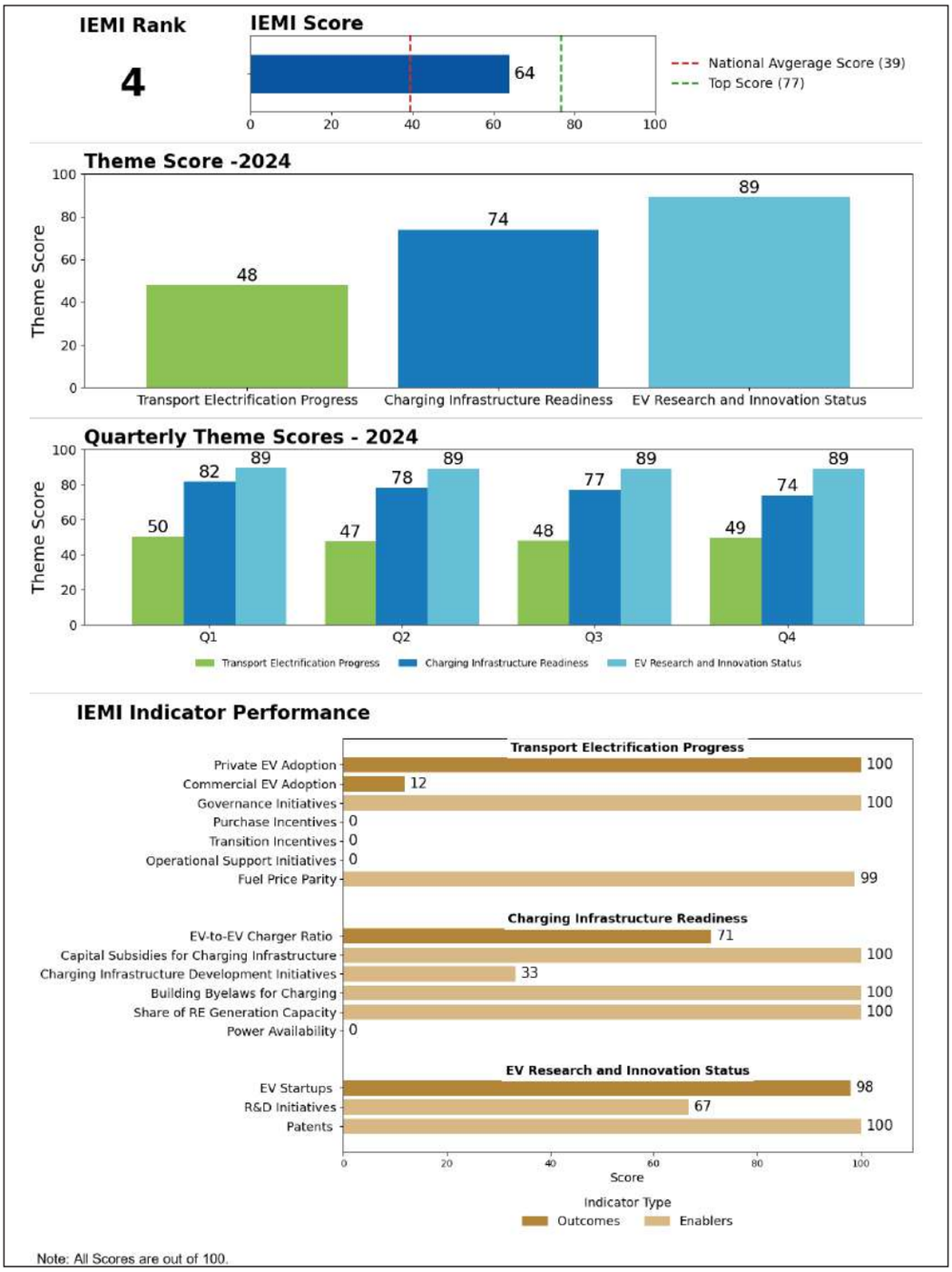


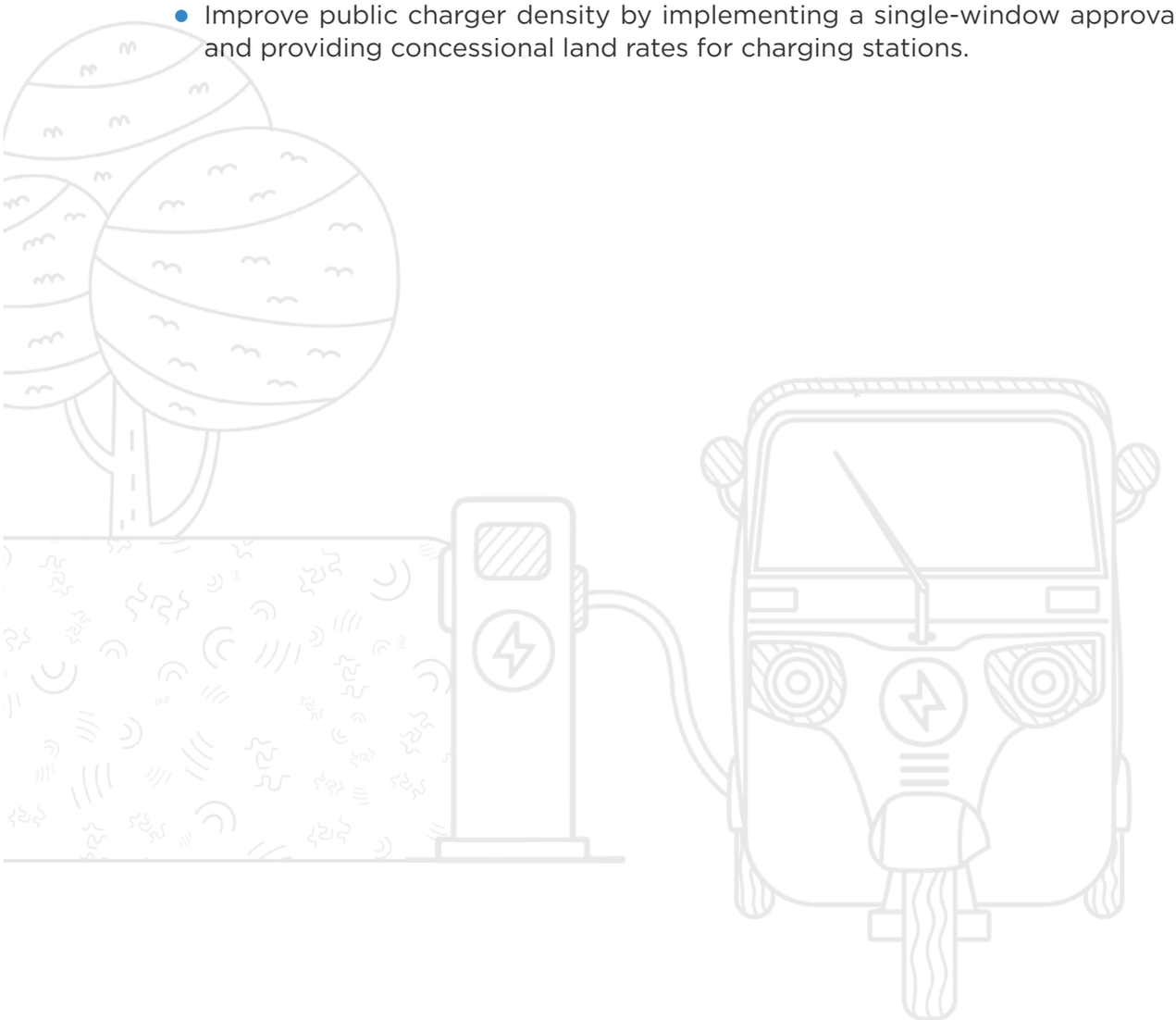
Figure 37: IEMI Rank and Score, Theme and Indicator scores for Karnataka

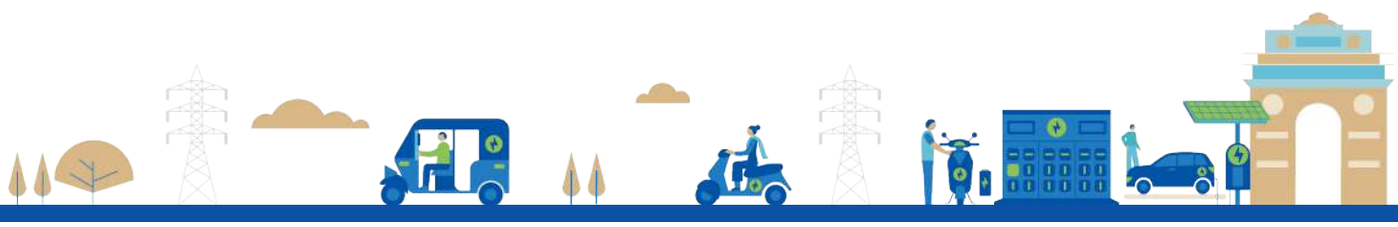
Highlights and USPs

- Highest number of public EV charging stations (5,880), of which 4,000+ are in Bengaluru.
- State government established EV Mobility COE and Innovation at the JSS Academy of Technical Education campus in Bengaluru.
- The state has attracted Rs 25,000 crore in investments across the EV value chain, covering manufacturing, components, Original Equipment Manufacturers (OEM), and infrastructure, with an additional Rs 15,000 crore expected for research and development.

Recommendations

- Boost EV adoption by offering incentives for EV purchase, scrapping, conversion kit and EV parking exemptions.
- Improve public charger density by implementing a single-window approval system and providing concessional land rates for charging stations.





9.17 Kerala

Kerala covers an area of 38,863 km^2, with a population of 360 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹6.3 lakh crore[11].

State Score

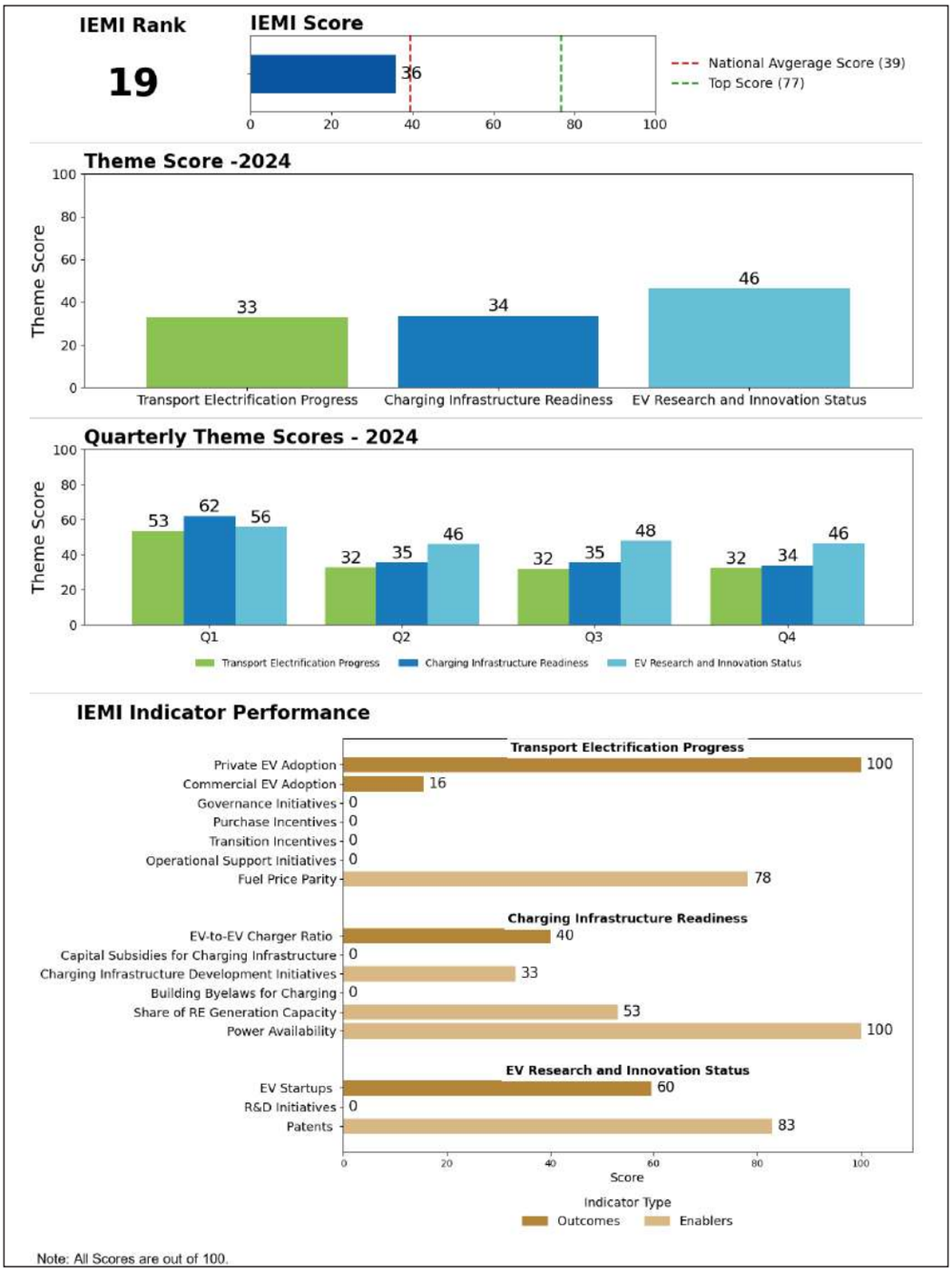


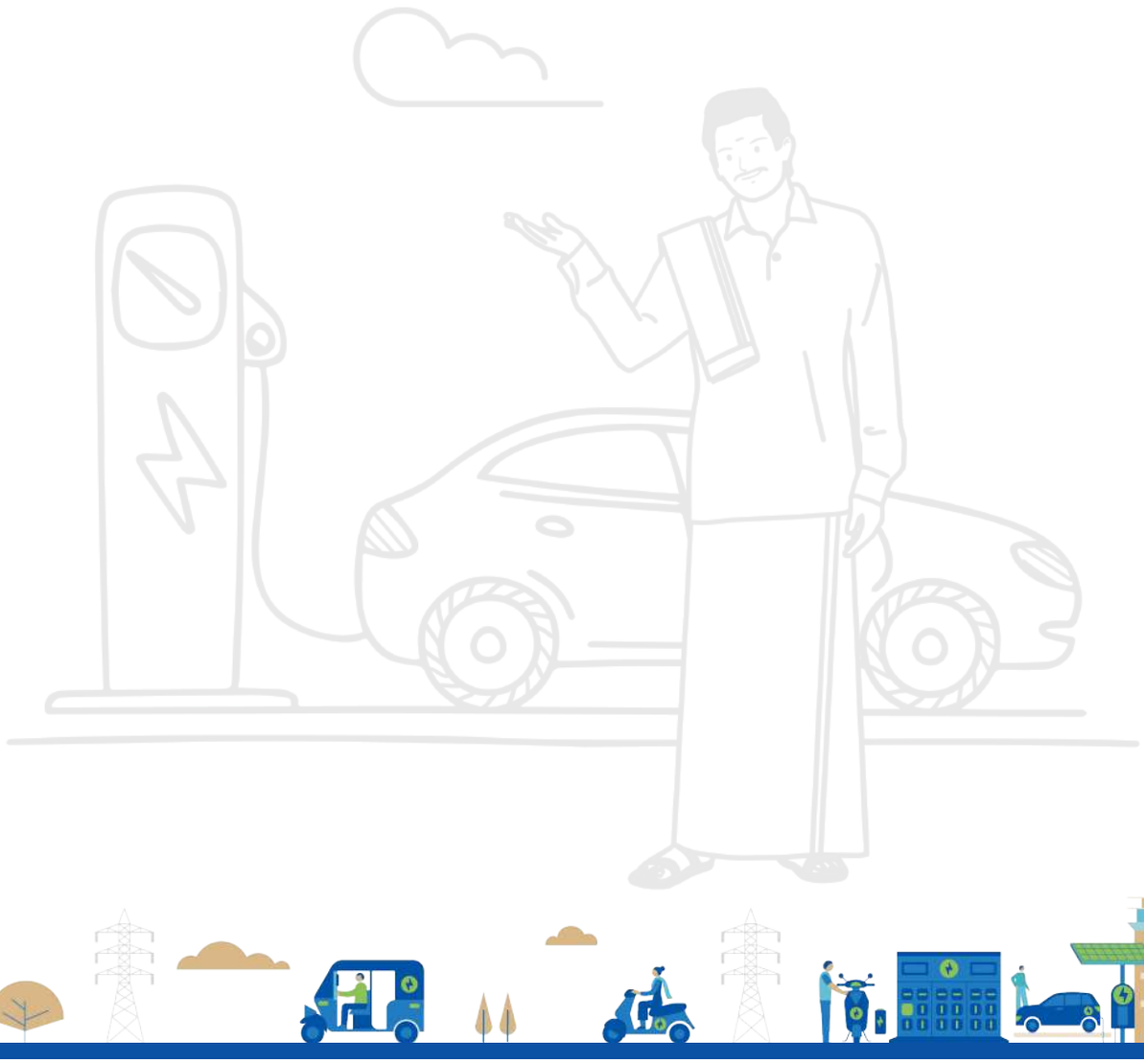
Figure 38: IEMI Rank and Score, Theme and Indicator scores for Kerala

Highlights and USPs

- Highest electric car penetration rate at 9.1% in March 2025 due to increasing awareness on total cost of ownership and lower operational costs of EVs.
- The Vikram Sarabhai Space Centre (VSSC) and the State public sector undertaking Travancore Titanium Products (TTPL) have developed a lithium titanate (LTO) prototype battery is a big step forward for the e-mobility programme.
- All new and renovated non-residential buildings with more than 10 equivalent car spaces (ECS) will have at least 20% of EV Ready ECS spots with conduits installed.

Recommendations

- Prioritize key initiatives including vehicle scrapping incentives, retrofitting support, low emission zone policies, and enhanced purchase subsidies.
- Improve public charging infrastructure by implementing a single-window system for charging infrastructure approvals, providing capital subsidies and offering concessional land rates for public charging stations.
- Establish R&D centres, COE, and e-mobility courses for skill development.



9.18 Ladakh

Ladakh covers an area of 59,146 km^2, with a population of 3 lakh as per MoSPI in the financial year 2022-23.

State Score

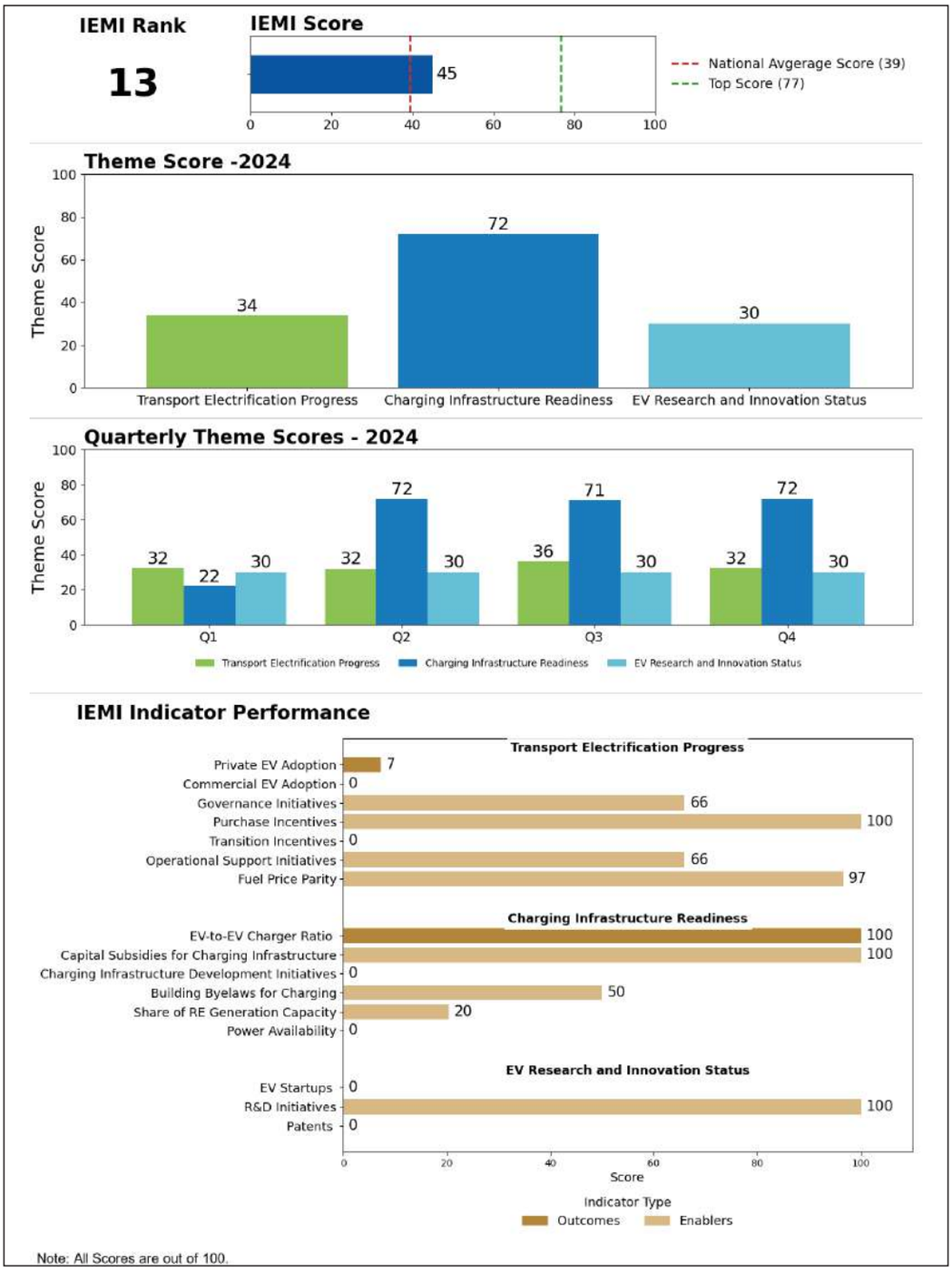


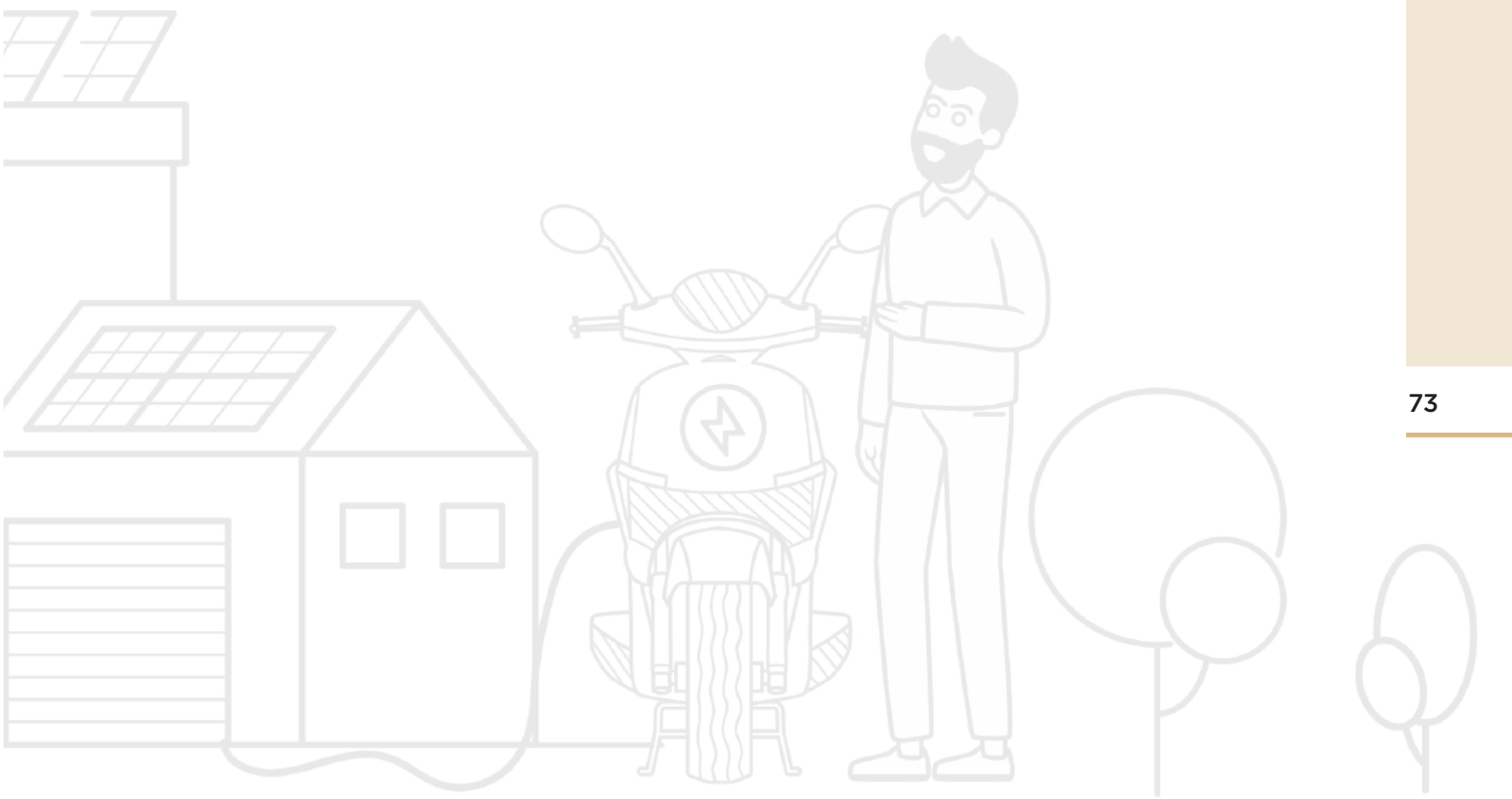
Figure 39: IEMI Rank and Score, Theme and Indicator scores for Ladakh

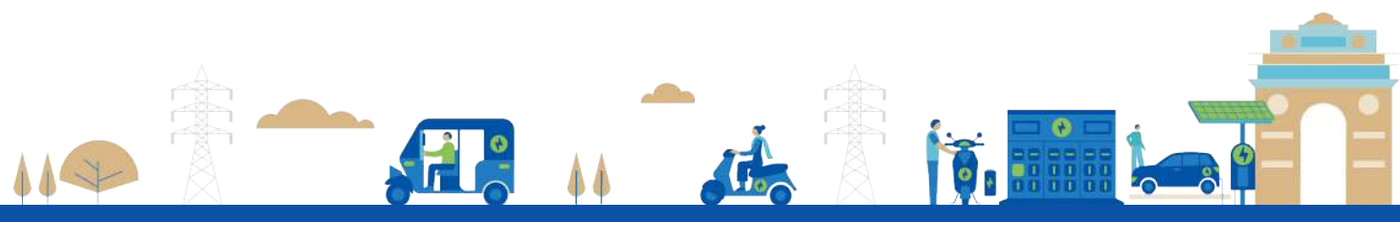
Highlights and USPs

- Since 2022, with introduction of electric buses, Ladakh saves over 2500 Tonnes of carbon emission each year.

Recommendations

- To boost electric vehicle adoption, prioritize vehicle scrapping incentives and retrofitting incentives, implementing low emission zones.
- Establish a nodal agency for charging infrastructure and prioritize concessional land rates for public charging stations.
- Promote e-mobility courses for skill development.





9.19 Lakshadweep

The Lakshadweep covers an area of 32 km^2, with a population of ~ 1 lakh as of 2024 as per UIDAI estimates.

State Score

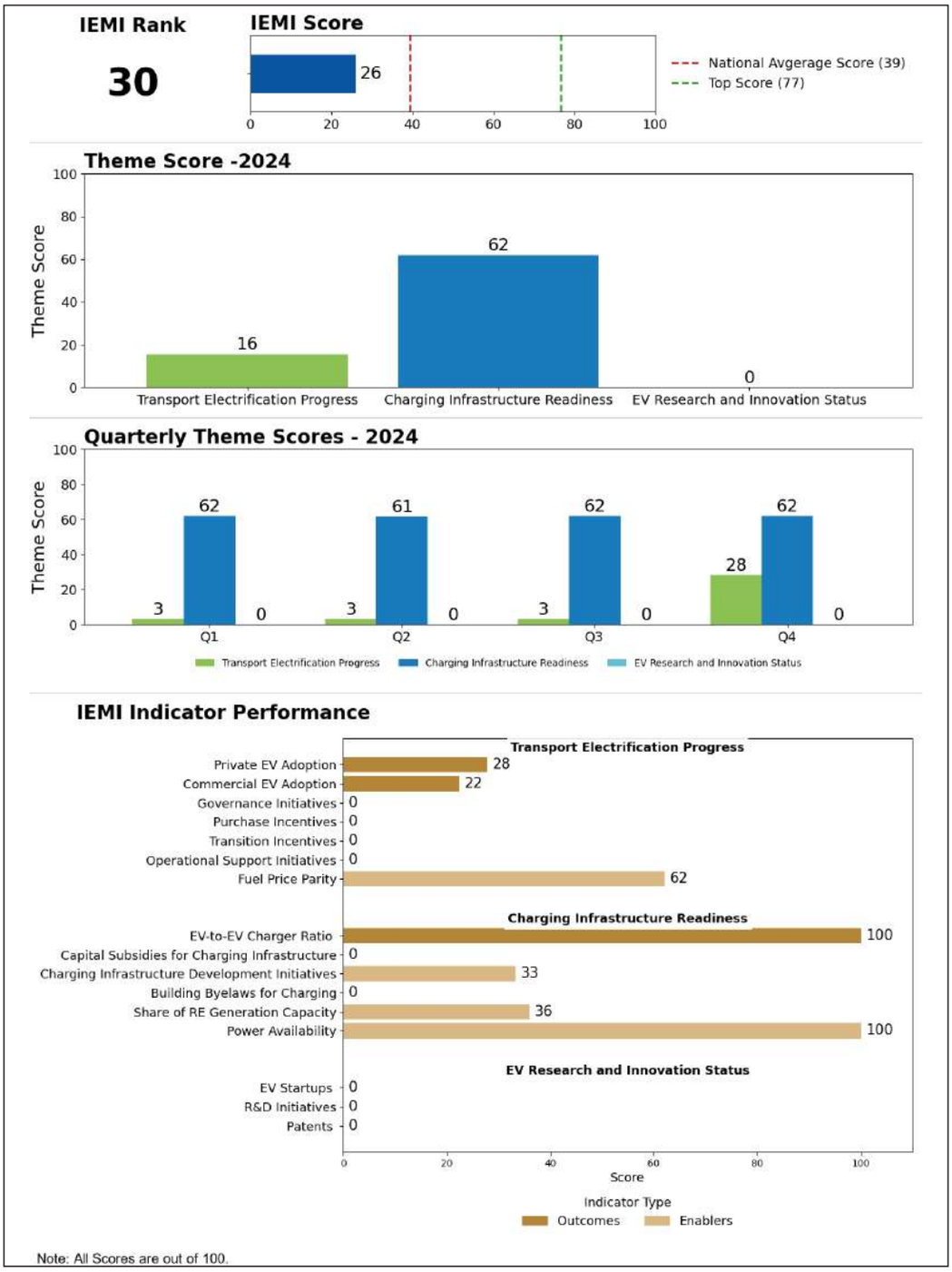


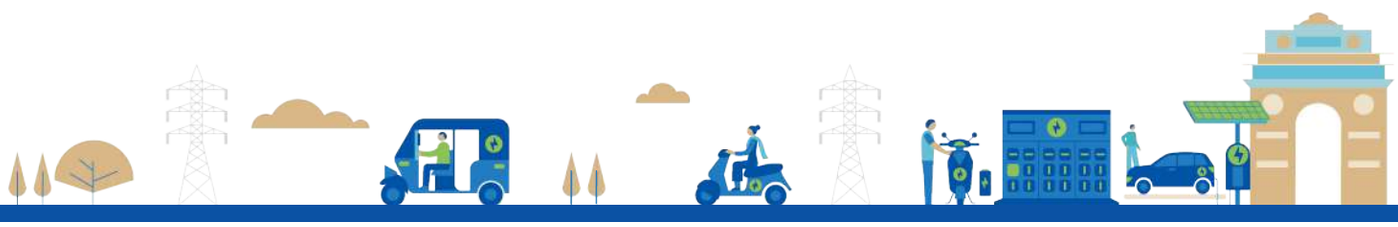
Figure 40: IEMI Rank and Score, Theme and Indicator scores for Lakshadweep

Highlights and USPs

- Lakshadweep's 1.7 MW solar and 1.4 MWh battery project helps shift from diesel to green energy, offsetting thousands of tonnes of carbon emissions.

Recommendations

- Frame and notify EV policy to enable comprehensive and integrated approach to e-mobility.
- Consider implementation of incentives and initiatives like vehicle scrapping and EV conversion kit incentives, reserving EV parking, purchase subsidies.
- Set up a nodal agency to strengthen the charging infrastructure and provide capital subsidies, implement single-window approval system and consider concessional land rates.
- Consider reduction in electricity tariffs for charging stations.
- Promote e-mobility courses for skill development.



9.20 Madhya Pradesh

Madhya Pradesh covers an area of 3,08,252 km^2, with a population of 882 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹7.1 lakh crore[10].

State Score

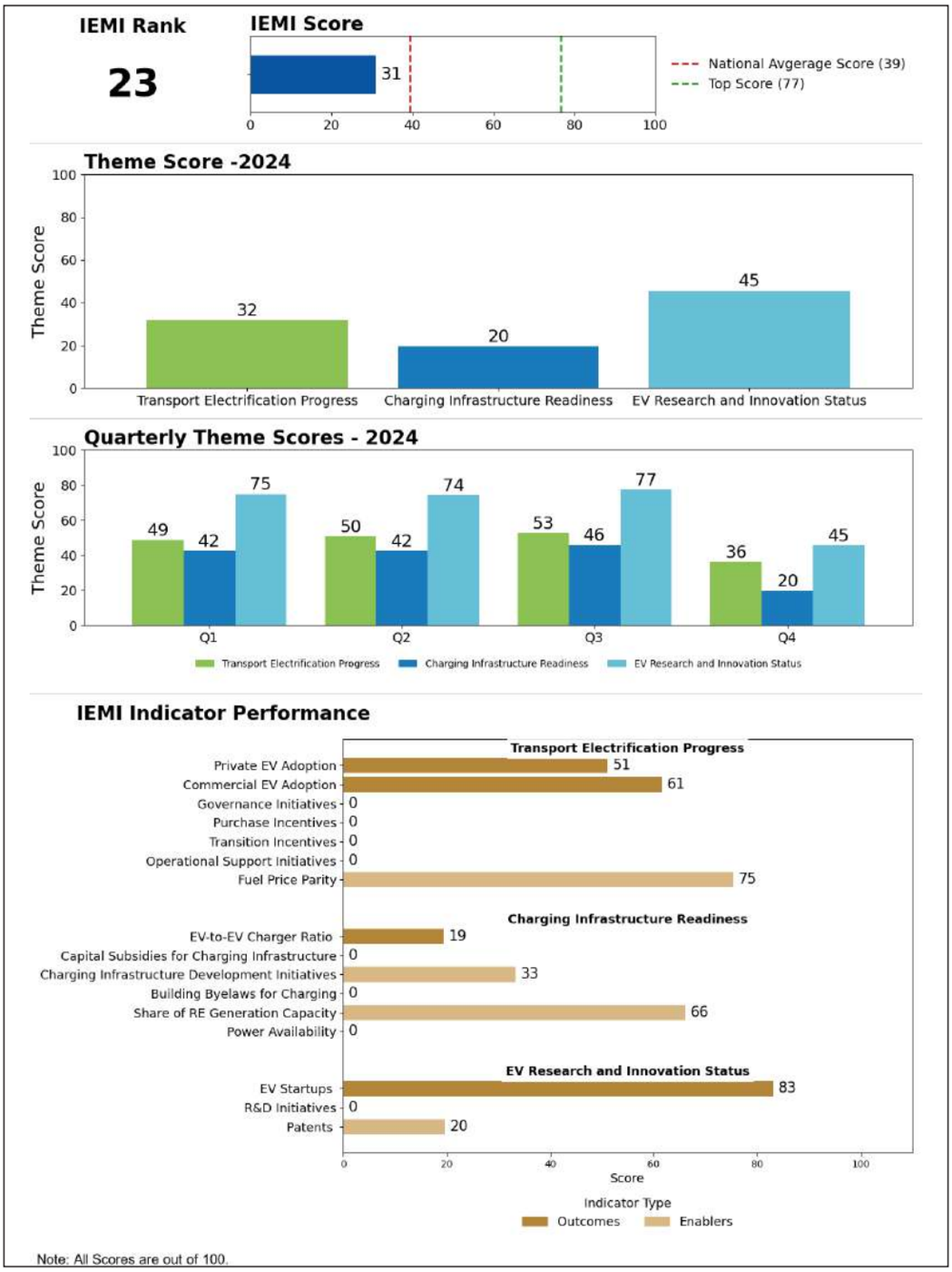


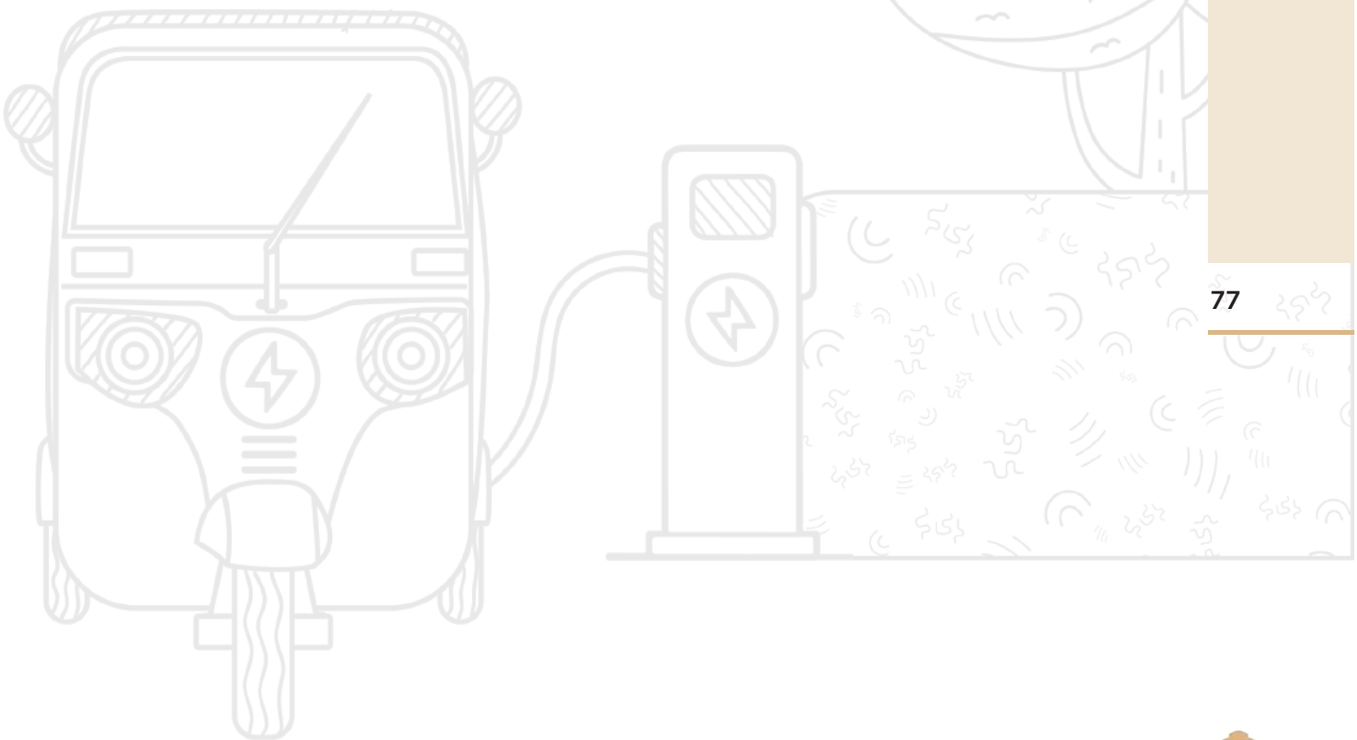
Figure 41: IEMI Rank and Score, Theme and Indicator scores for Madhya Pradesh

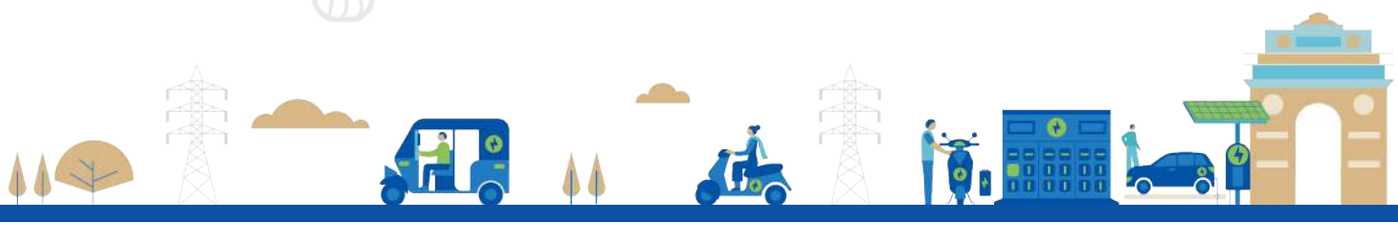
Highlights and USPs

- Madhya Pradesh to introduce EV courses in polytechnics, ITIs, employment centres, and technical institutes to train technicians and engineers.
- By 2028, all government vehicles, including those under corporations, boards, and ambulances will be converted to electric.

Recommendations

- Promote EV awareness through a state EV awareness website.
- To boost private and commercial EV adoption, consider incentives for scrapping and conversion kits and enhancing purchase subsidies.
- Improve EV charging infrastructure by introducing a single-window system for charging infrastructure approvals and offering concessional land rates for public charging stations.
- Establish R&D centres, COE, and e-mobility courses for skill development.





9.21 Maharashtra

Maharashtra covers an area of 3,07,713 km^2, with a population of 1279 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹26.1 lakh crore[10].

State Score

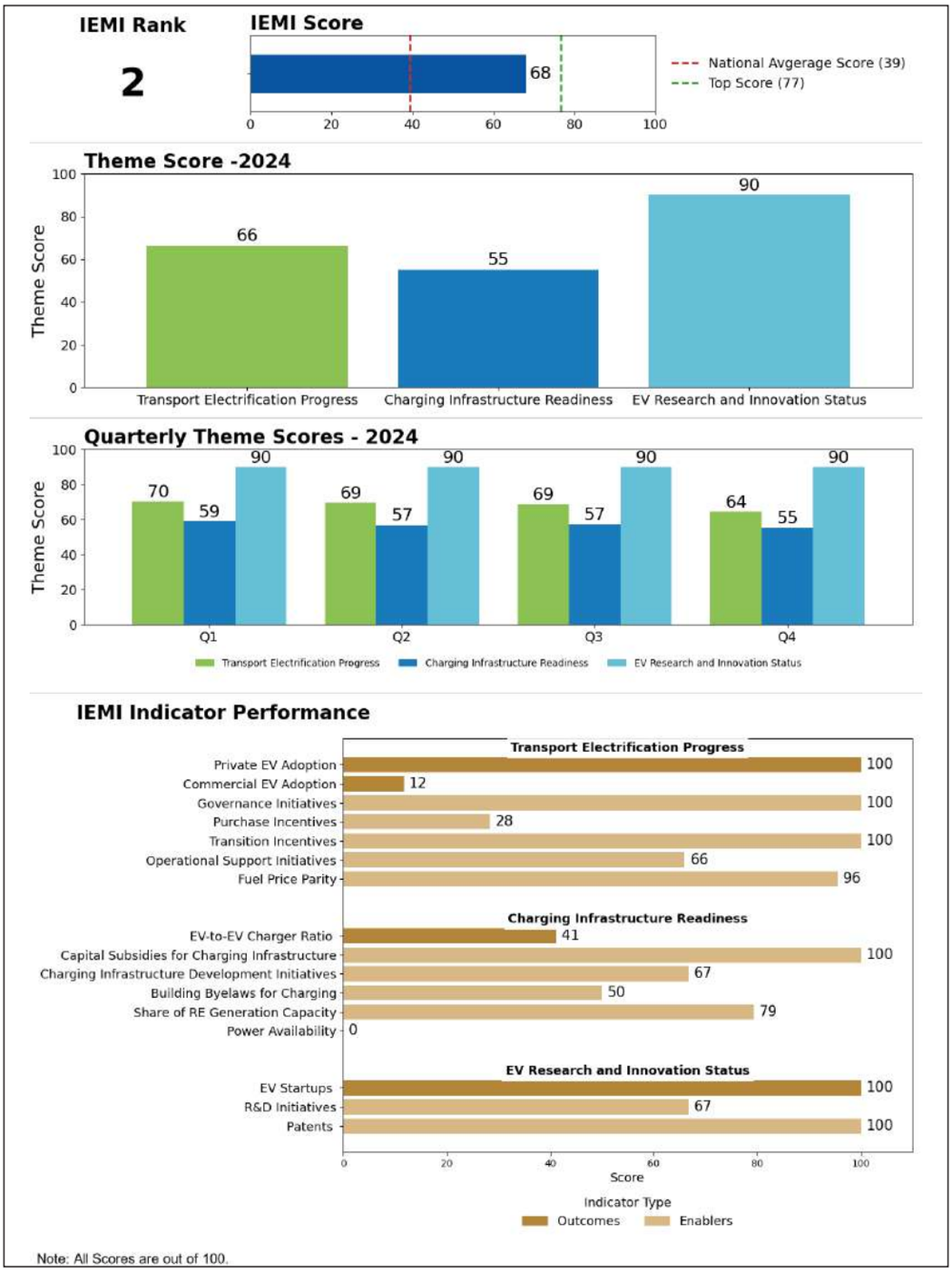


Figure 42: IEMI Rank and Score, Theme and Indicator scores for Maharashtra

Highlights and USPs

- Maharashtra has the highest number of EV startups in the country, with 467 registered startups as on 30 June 2025.

Recommendations

- To boost commercial EV adoption, offering enhanced purchase subsidies for commercial EVs.
- Introduce a single-window system for charging infrastructure approvals to improve public charging infrastructure.

9.22 Manipur

Manipur covers an area of 22,327 km^2, with a population of 32 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹24,394 crore[11].

State Score

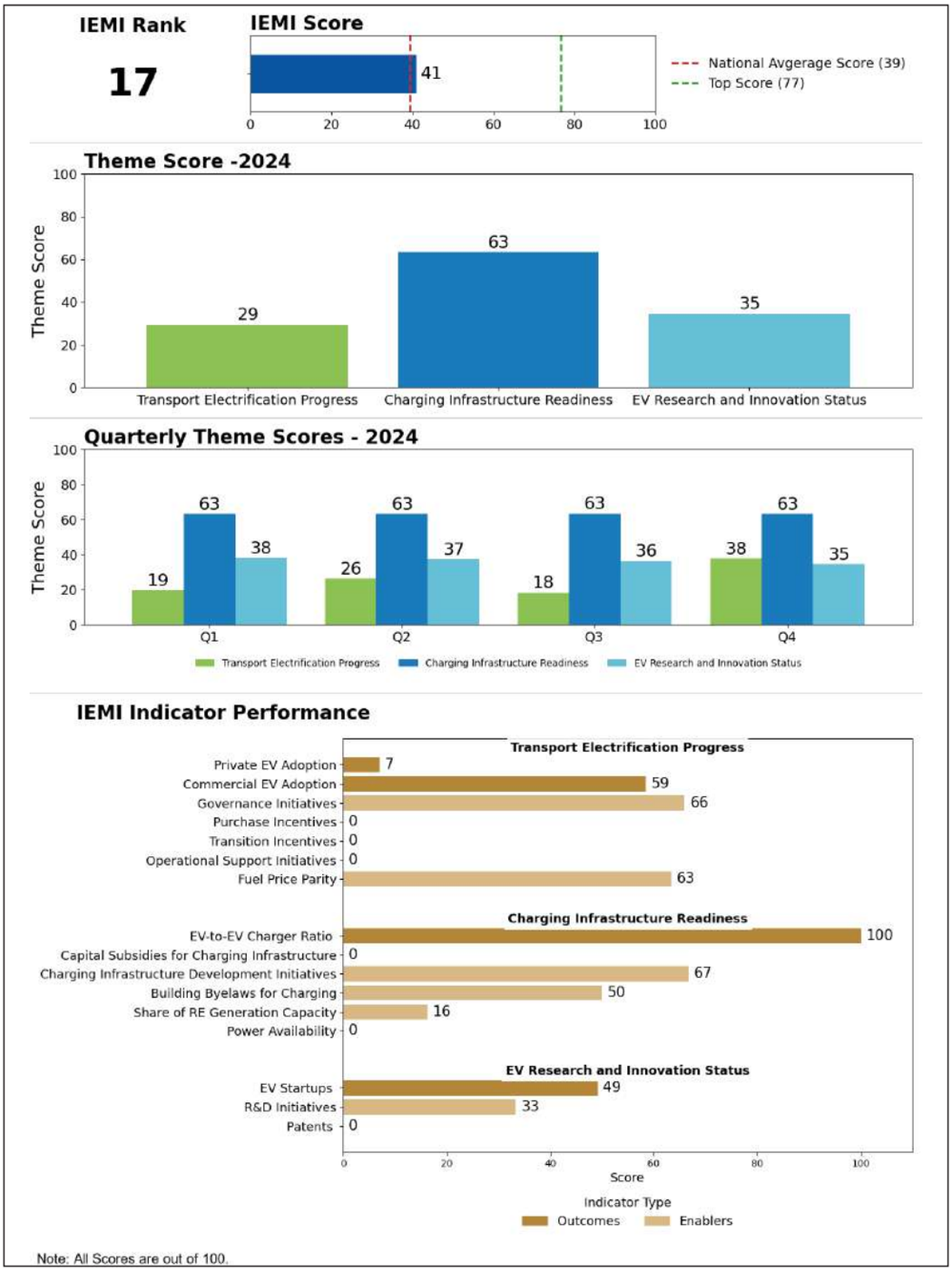


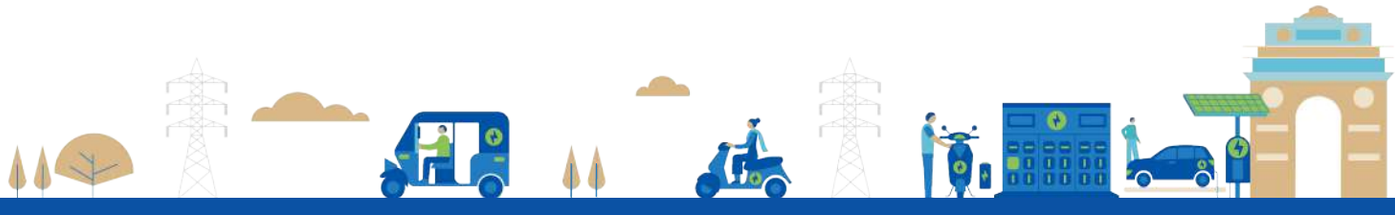
Figure 43: IEMI Rank and Score, Theme and Indicator scores for Manipur

Highlights and USPs

- Government land will be provided free of cost to Central or State agencies for setting up public charging stations until 2027.

Recommendations

- To boost private and commercial EV adoption, offer incentives for scrapping and conversion, implement low emission zones, introduce purchase subsidies.
- Establish a nodal agency for charging infrastructure and prioritize concessional land rates for public charging stations.
- Consider reduction in electricity tariffs for charging stations.
- Promote e-mobility courses for skill development.



9.23 Meghalaya

Meghalaya covers an area of 22,429 km^2, with a population of 34 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹29,912 crore[10].

State Score

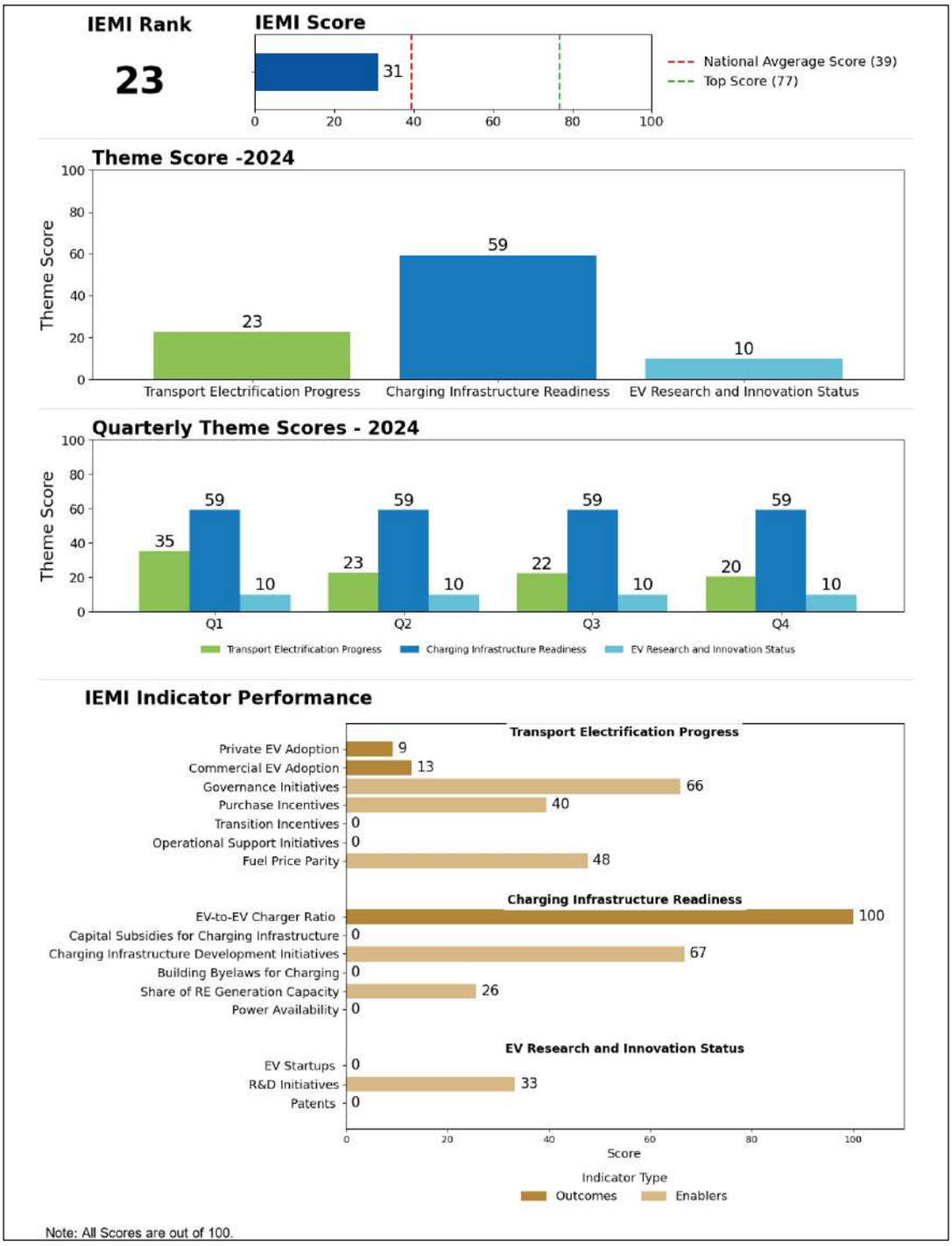


Figure 44: IEMI Rank and Score, Theme and Indicator scores for Meghalaya

Highlights and USPs

- State levies clean fuel cess of 10 paise per litre on the sale of petrol and diesel which will be transferred to Meghalaya Electric Vehicle Adoption Fund (MEVAF).

Recommendations

- To improve EV adoption incentives for scrapping and conversion kits, low emission zones, permit exemptions for commercial electric vehicles, enhanced purchase subsidies.
- Consider reduced electricity prices for public charging stations should be considered.
- Promote skill development by introducing e-mobility courses.

9.24 Mizoram

Mizoram covers an area of 21,081 km^2, with a population of 12 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹22,267 crore[11].

State Score

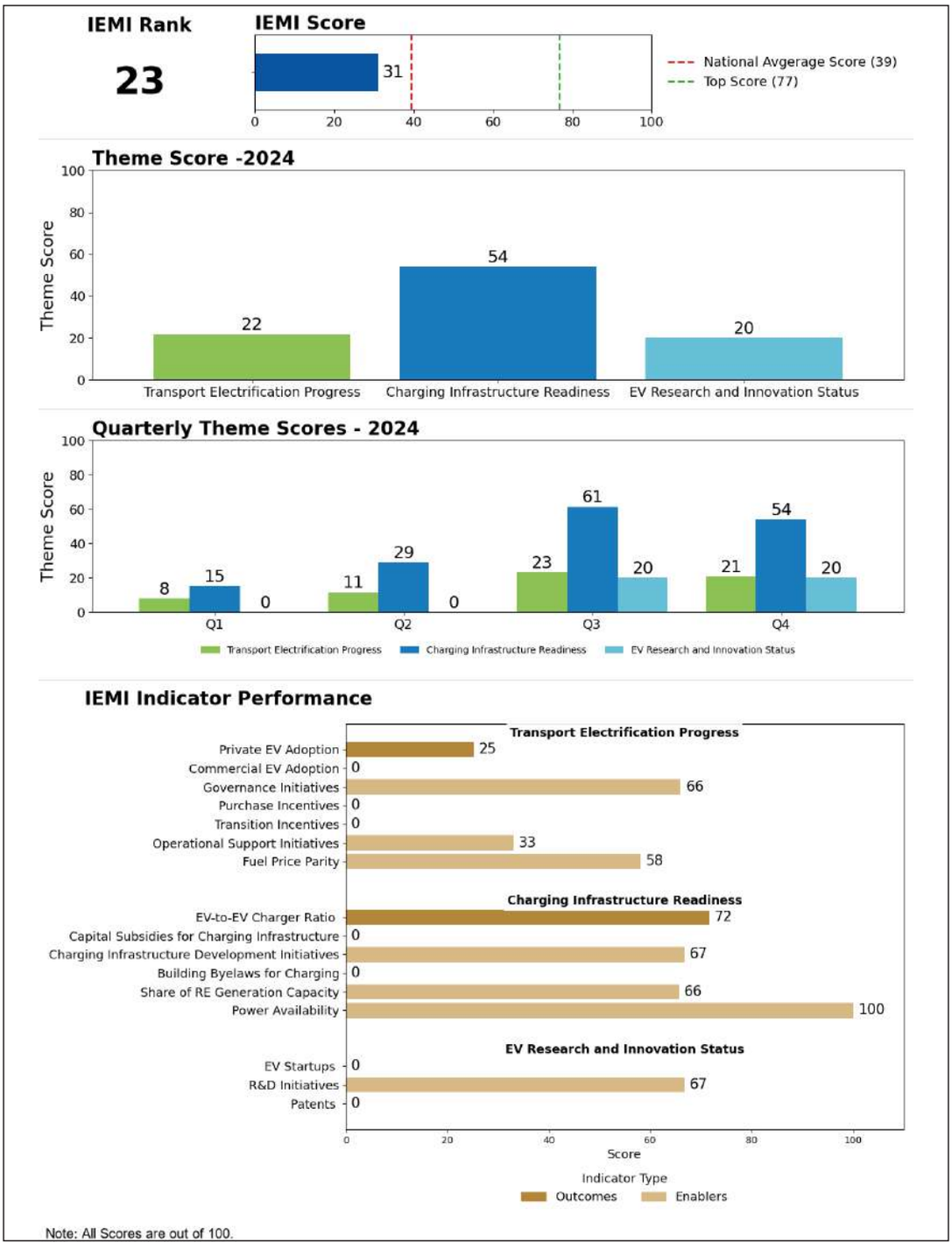


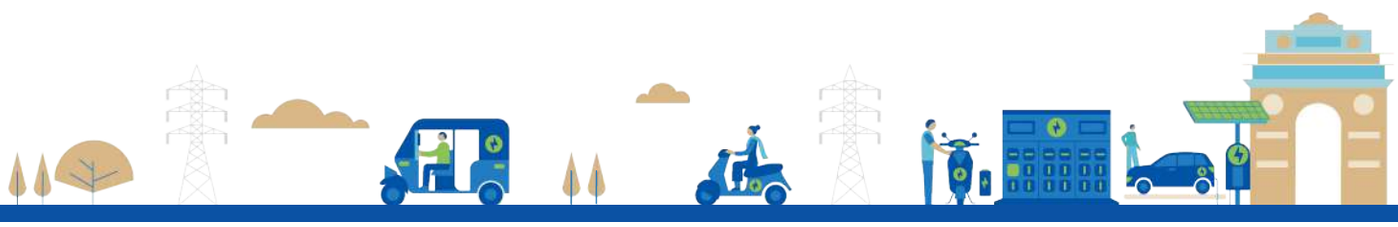
Figure 45: IEMI Rank and Score, Theme and Indicator scores for Mizoram

Highlights and USPs

- In Oct 2024, the state increased petrol rate by 5.7% and diesel rate by 6.5% in order to demotivate use of ICE vehicles.

Recommendations

- To boost electric vehicle adoption, provide incentives for scrapping and conversion kits, reserve parking spaces for EVs, introduce purchase subsidies.
- Consider reducing electricity tariffs for charging stations.
- Provide capital subsidies and implementing a single-window system for approvals for strengthening public charging stations.



9.25 Nagaland

Nagaland covers an area of 16,579 km^2, with a population of 22 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹21,365 crore[11].

State Score

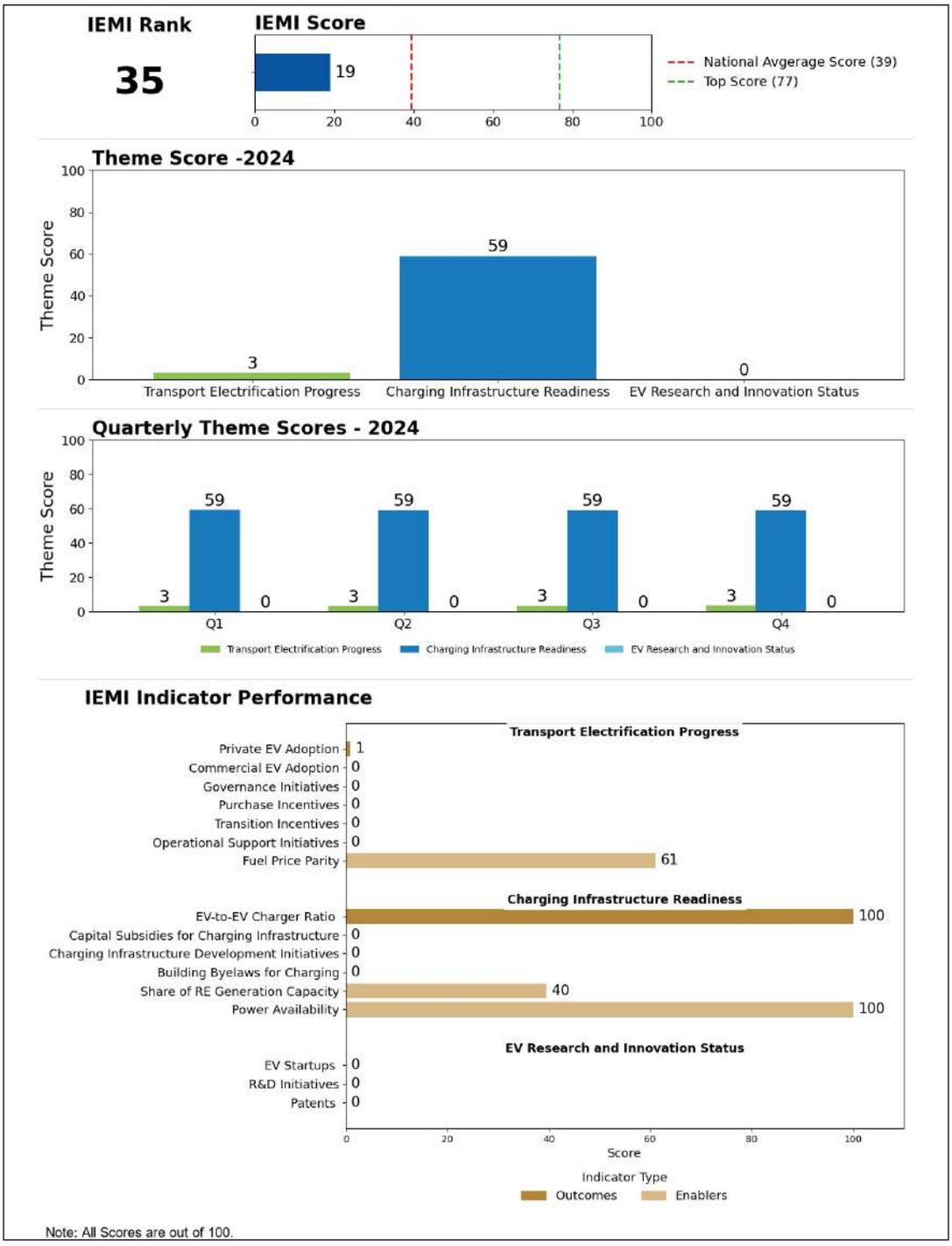


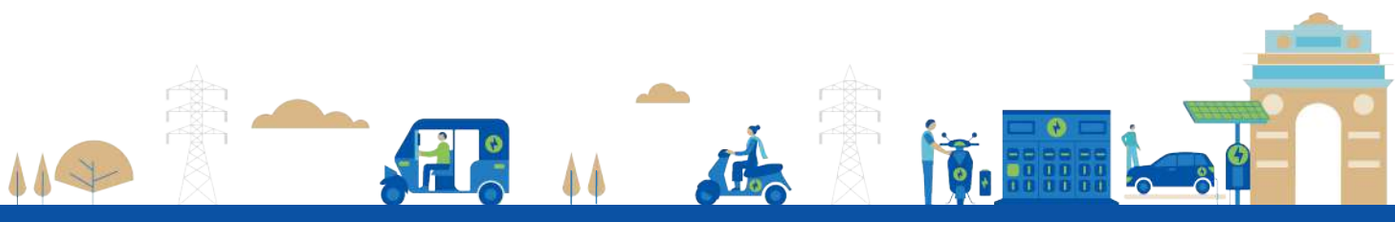
Figure 46: IEMI Rank and Score, Theme and Indicator scores for Nagaland

Highlights and USPs

- Nagaland unveiled its first air-conditioned electric vehicle on World Tourism Day as part of the tourists' facilitation program on September 2024 at Circuit House, Dimapur.

Recommendations

- Establish a nodal agency for charging infrastructure and prioritize concessional land rates for public charging stations.
- Implement vehicle scrapping and EV conversion kit incentives, reserved EV parking and purchase subsidies.
- Consider reduced electricity tariffs for charging stations.
- Promote skill development by introducing e-mobility courses.



9.26 Odisha

Odisha covers an area of 1,55,707 km^2, with a population of 467 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹5.6 lakh crore[10].

State Score

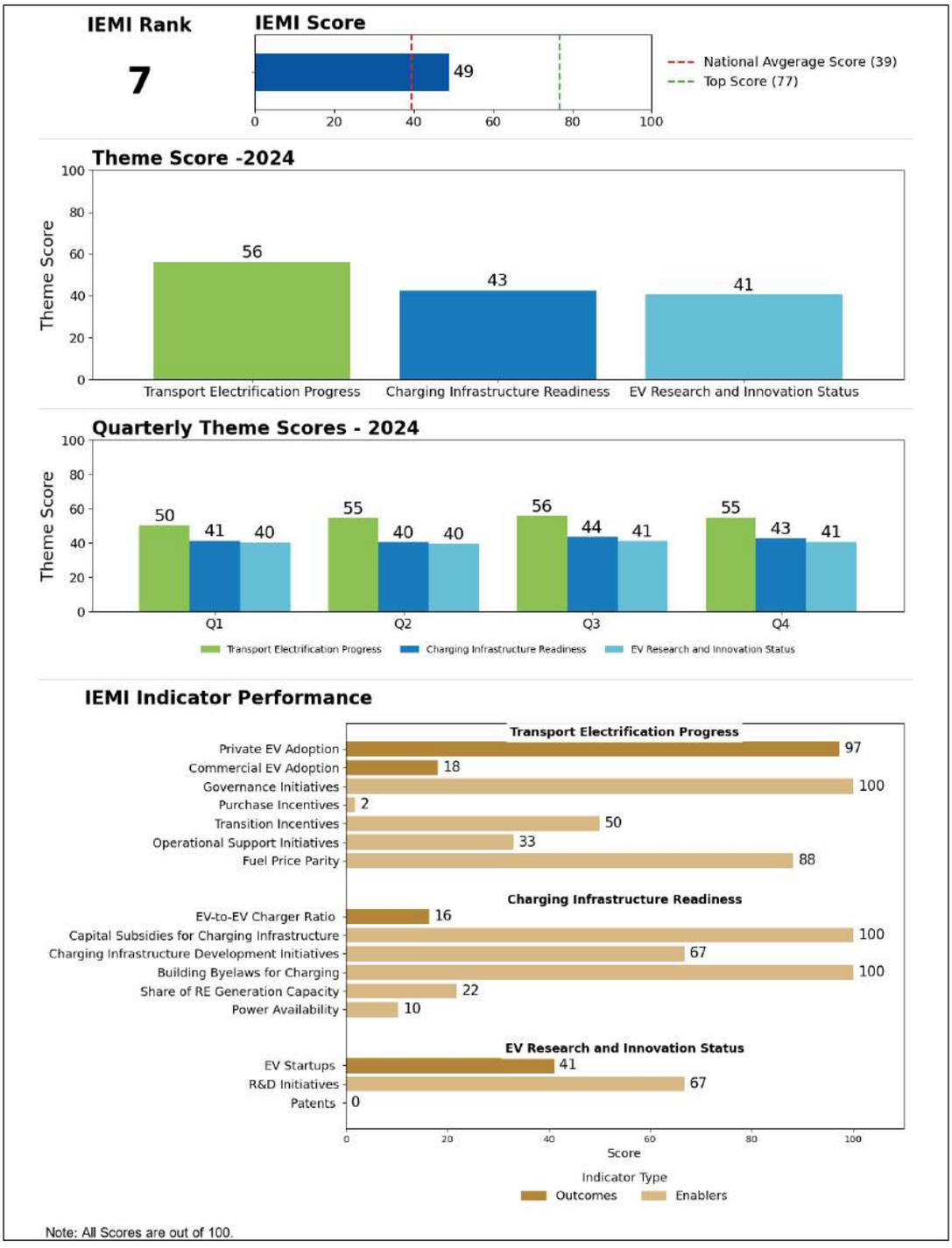


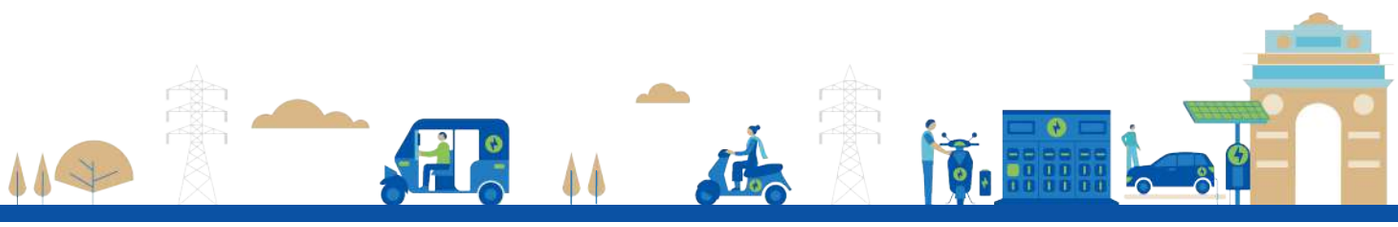
Figure 47: IEMI Rank and Score, Theme and Indicator scores for Odisha

Highlights and USPs

- Government employees can avail interest-free advances for EV purchases.
- State government approved JSW EV Manufacturing Plant proposal for setting up EV and component manufacturing units with investment of Rs.4,000 Cr.

Recommendations

- Introduce subsidies for EV conversion kits, reserved parking, low emission zones, enhanced purchase subsidies, and reduced electricity tariffs for public charging stations.
- Improve EV charging infrastructure by introducing a single-window system for charger approvals.
- Establish R&D centres for skill development.



9.27 Puducherry

Puducherry covers an area of 479 km^2, with a population of 17 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹29,541 crore[10].

State Score

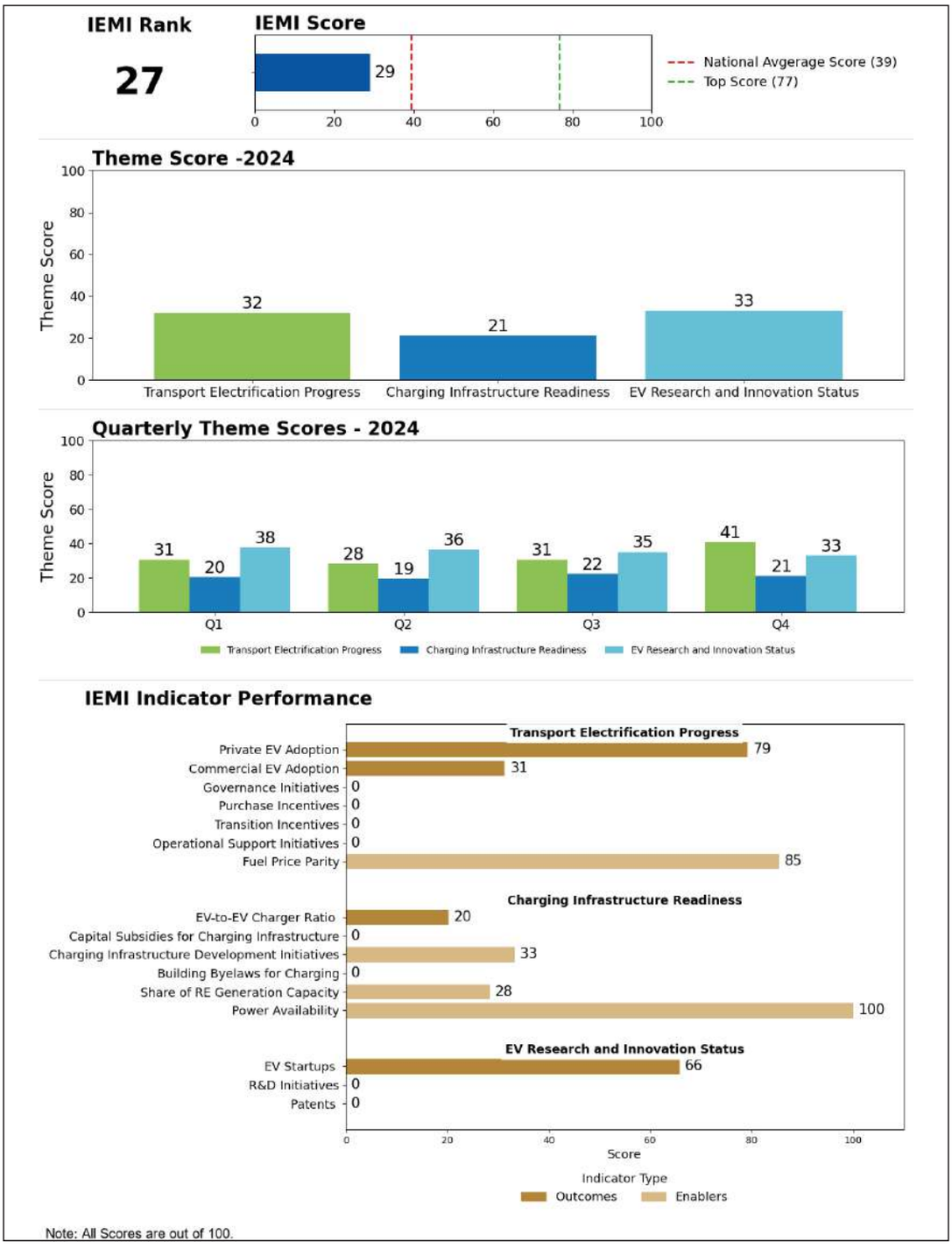


Figure 44: IEMI Rank and Score, Theme and Indicator scores for Puducherry

Highlights and USPs

- The government plans to launch a technology-neutral emission policy to boost EV use, with 100% grants for bus depots and 90% for behind-the-meter charging.

Recommendations

- Frame and notify EV policy to enable comprehensive and integrated approach to electric mobility.
- To enhance private EV adoption, focus on providing subsidies for EV purchase, vehicle scrapping and EV conversion kits. Additionally, consider parking exemptions.
- Provide capital subsidies for installing charging infrastructure, implement a single-window system for approvals and offer concessional land rates for charging stations.
- Promote skill development by introducing e-mobility courses.

9.28 Punjab

Punjab covers an area of 50,362 km^2, with a population of 331 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹5.2 lakh crore[10].

State Score

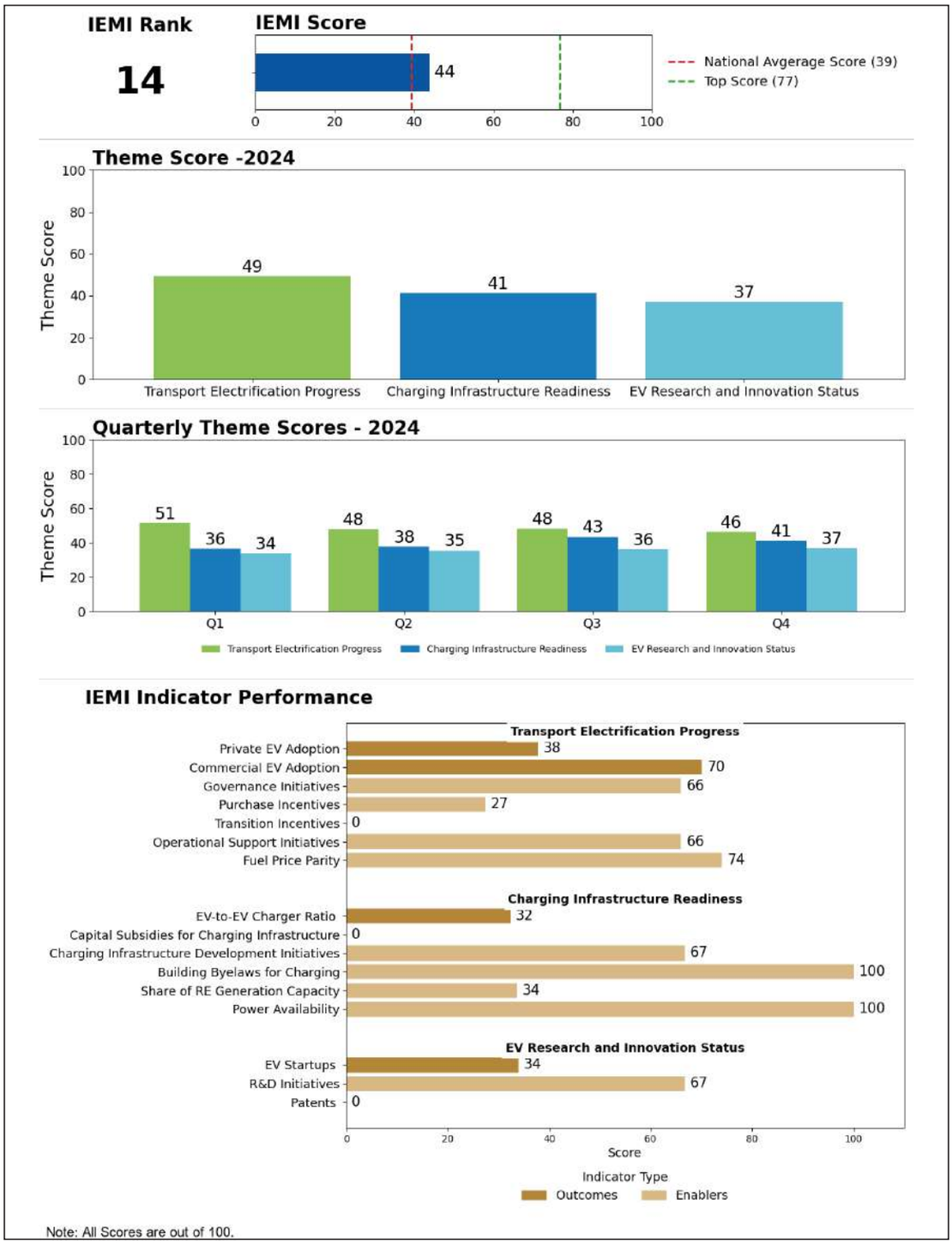


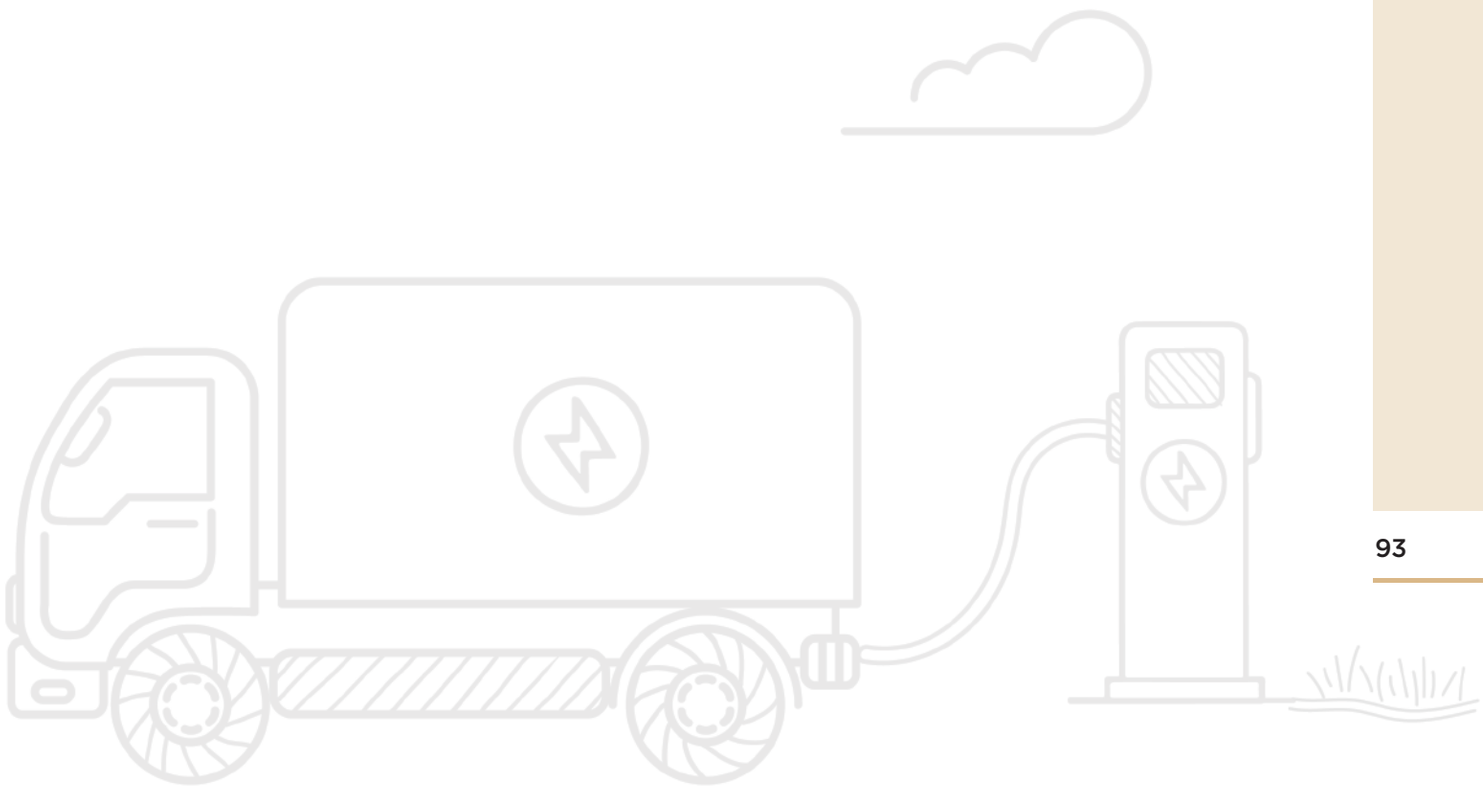
Figure 49: IEMI Rank and Score, Theme and Indicator scores for Punjab

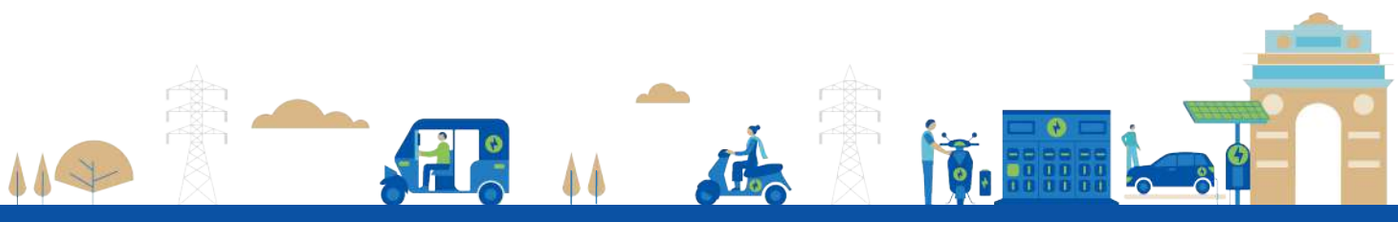
Highlights and USPs

- Punjab plans to allocate ₹300 crore over three years to promote EV adoption, focusing on e-2Ws, e-cycles, e-rickshaws, e-autos, and electric LCVs.
- The state is implementing designated street parking and pole-mounted charging in cities such as Ludhiana, Amritsar, Jalandhar, Patiala, and Bathinda.

Recommendations

- Consider promoting EV awareness via State EV awareness website.
- To boost EV adoption, offer incentives for vehicle scrapping and retrofitting, provide permit exemptions for commercial EVs, and reduce electricity tariffs for charging stations.
- Establish R&D centres, COE, and e-mobility courses for skill development.
- Improve charging infrastructure by prioritizing capital subsidies for chargers and implementing a streamlined approval process.





9.29 Rajasthan

Rajasthan covers an area of 3,42,239 km^2, with a population of 824 lakh as per MoSPI for the year 2024-25 and an estimated GSDP of ₹ 9.1 lakh crore[10].

State Score

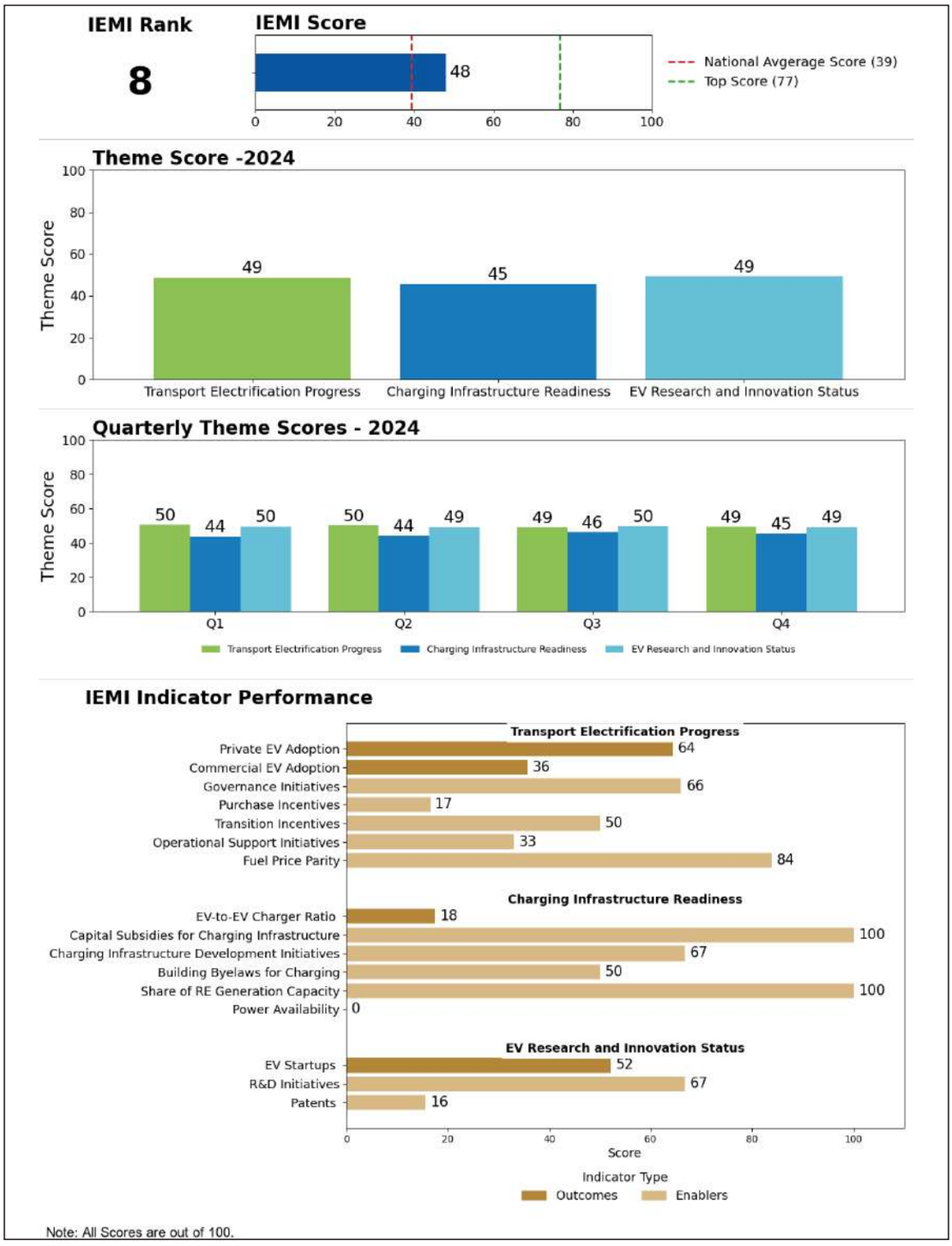


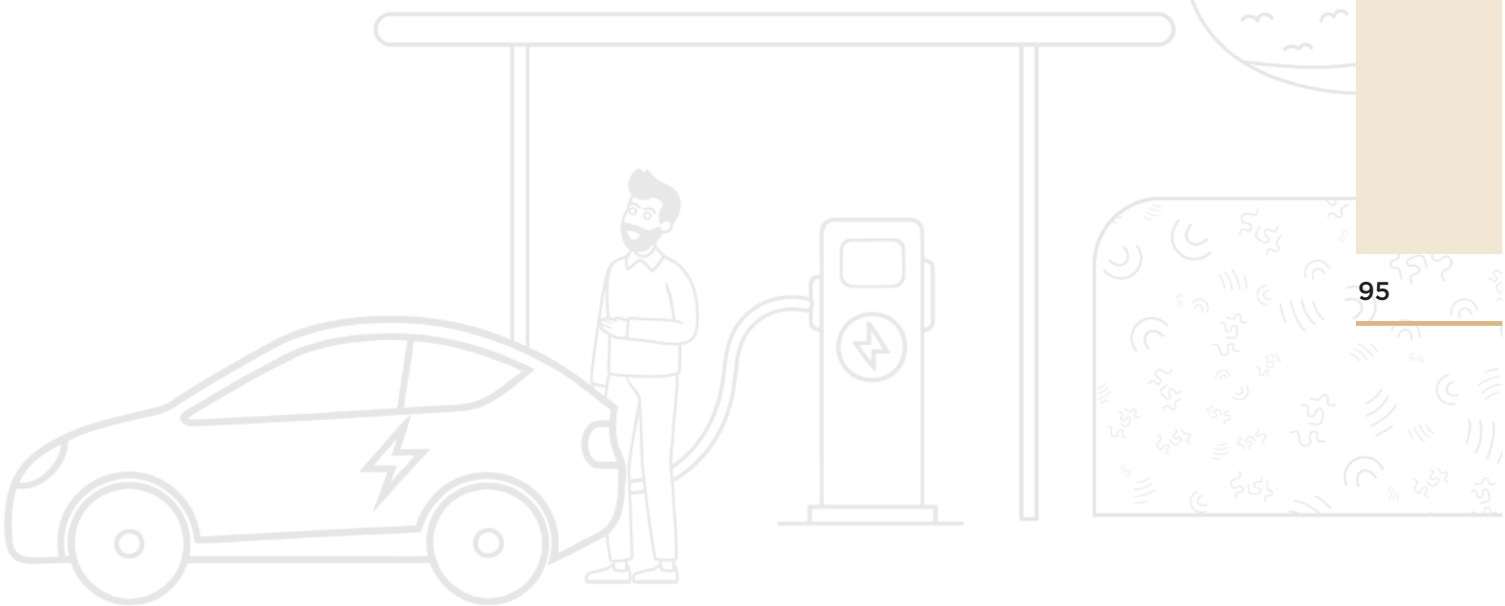
Figure 50: IEMI Rank and Score, Theme and Indicator scores for Rajasthan

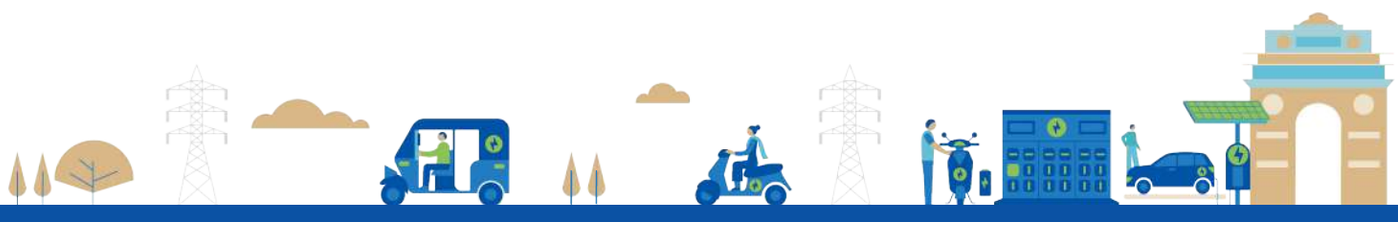
Highlights and USPs

- Tata Power Partners with Rajasthan Government for ₹ 1.2 Lakh Crore Clean Energy Initiative.
- Rajasthan ranks second in India for installed renewable energy capacity, with 20% of its power from renewables. Jaipur also has one of the highest EV penetration rates in the country.
- Tata Passenger Electric Mobility and Rajasthan Solar Association have partnered to promote EVs and solar-powered charging. Solar users will get additional discounts on Tata EVs, supporting the state's sustainability goals.

Recommendations

- To boost EV adoption, offer incentives for vehicle scrapping, create reserved parking, develop low emission zones and improve purchase subsidies.
- Improve EV charging infrastructure by streamlining the approval process for charging installations and adding charging points in existing buildings.
- Establish R&D centres, COE, and e-mobility courses for skill development.





9.30 Sikkim

Sikkim covers an area of 7,096 km^2, with a population of 7 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹24,902 crore[11].

State Score

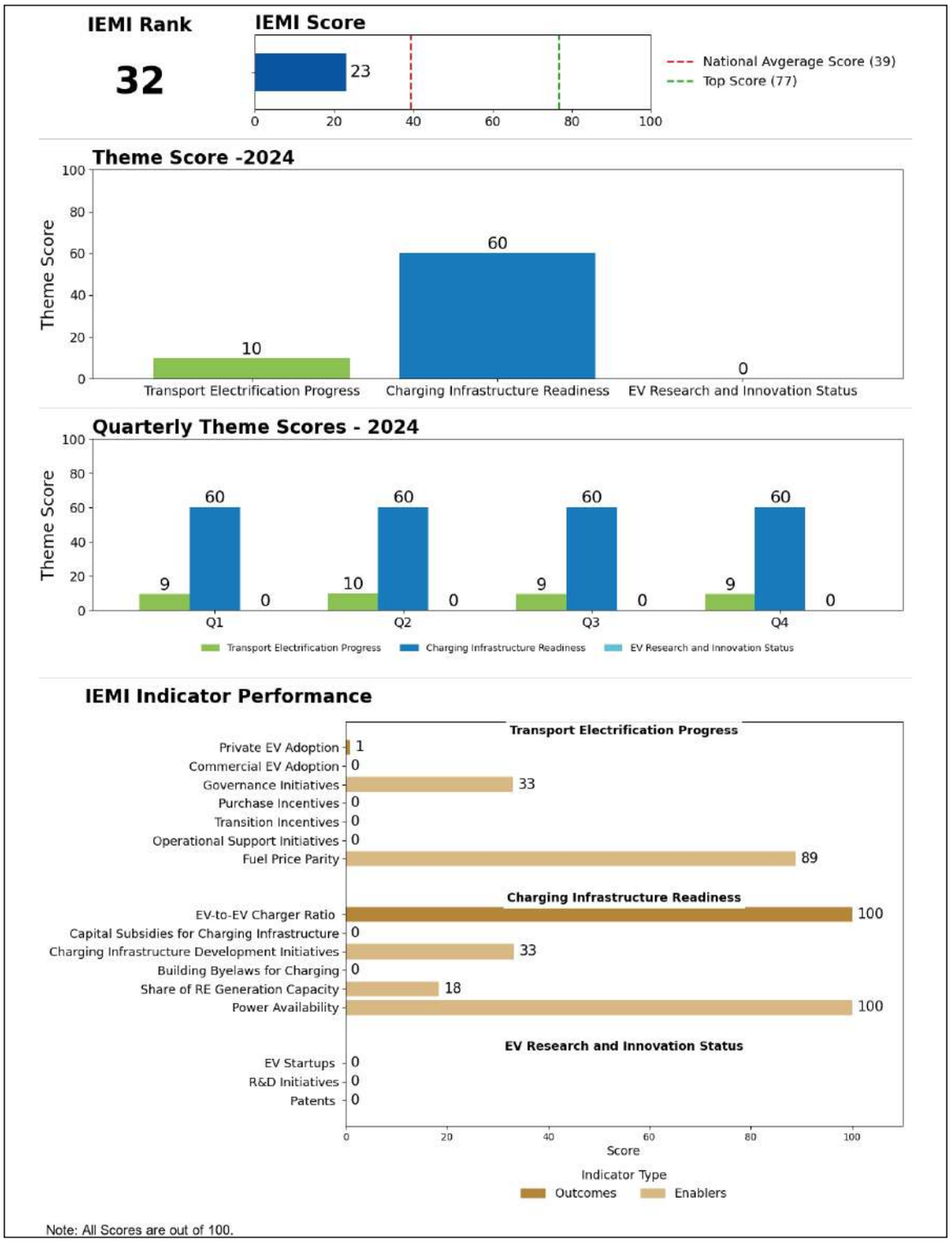


Figure 51: IEMI Rank and Score, Theme and Indicator scores for Sikkim

Highlights and USPs

- Sikkim reduces 4% applicable road tax to 1% for non-commercial EVs and entirely waives it for commercial EVs.

Recommendations

- Boost EV adoption by offering incentives for scrapping and conversion, creating reserved parking, and providing purchase subsidies.
- Promote e-mobility innovation by introducing e-mobility courses.

9.31 Tamil Nadu

Tamil Nadu covers an area of 1,30,058 km^2, with a population of 772 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹17.2 lakh crore[10].

State Score

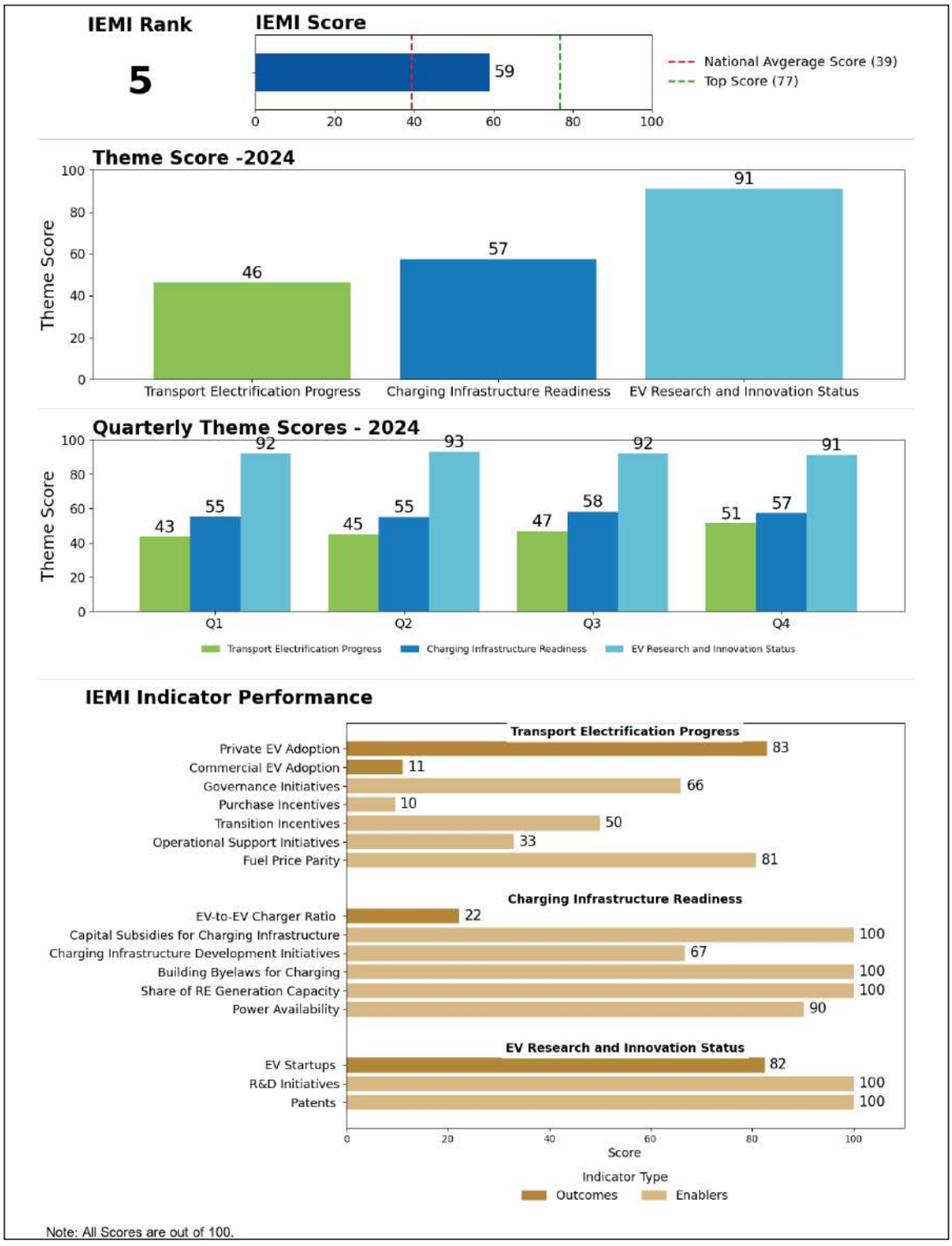


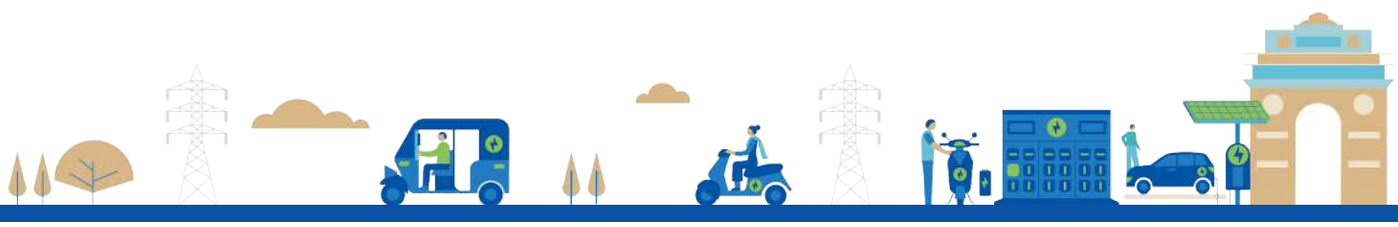
Figure 52: IEMI Rank and Score, Theme and Indicator scores for Tamil Nadu

Highlights and USPs

- Tamil Nadu has a strong automotive sector, home to EV makers like Ashok Leyland, Hyundai, Ampere, Ola Electric, Ather Energy, and BYD.
- Tata Motors is setting up a ₹9,000 crore manufacturing facility in Ranipet to produce electric and luxury vehicles, with a capacity of 2.5 lakh units annually.

Recommendations

- To improve commercial EV adoption, consider implementing vehicle scrapping incentives, reserved parking spaces, low emission zones and enhanced purchase subsidies.
- To enhance EV charging infrastructure, prioritize initiatives such as concessional land rates for public charging stations.



9.32 Telangana

Telangana covers an area of 1,12,077 km^2, with a population of 383 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹7.6 lakh crore[10].

State Score

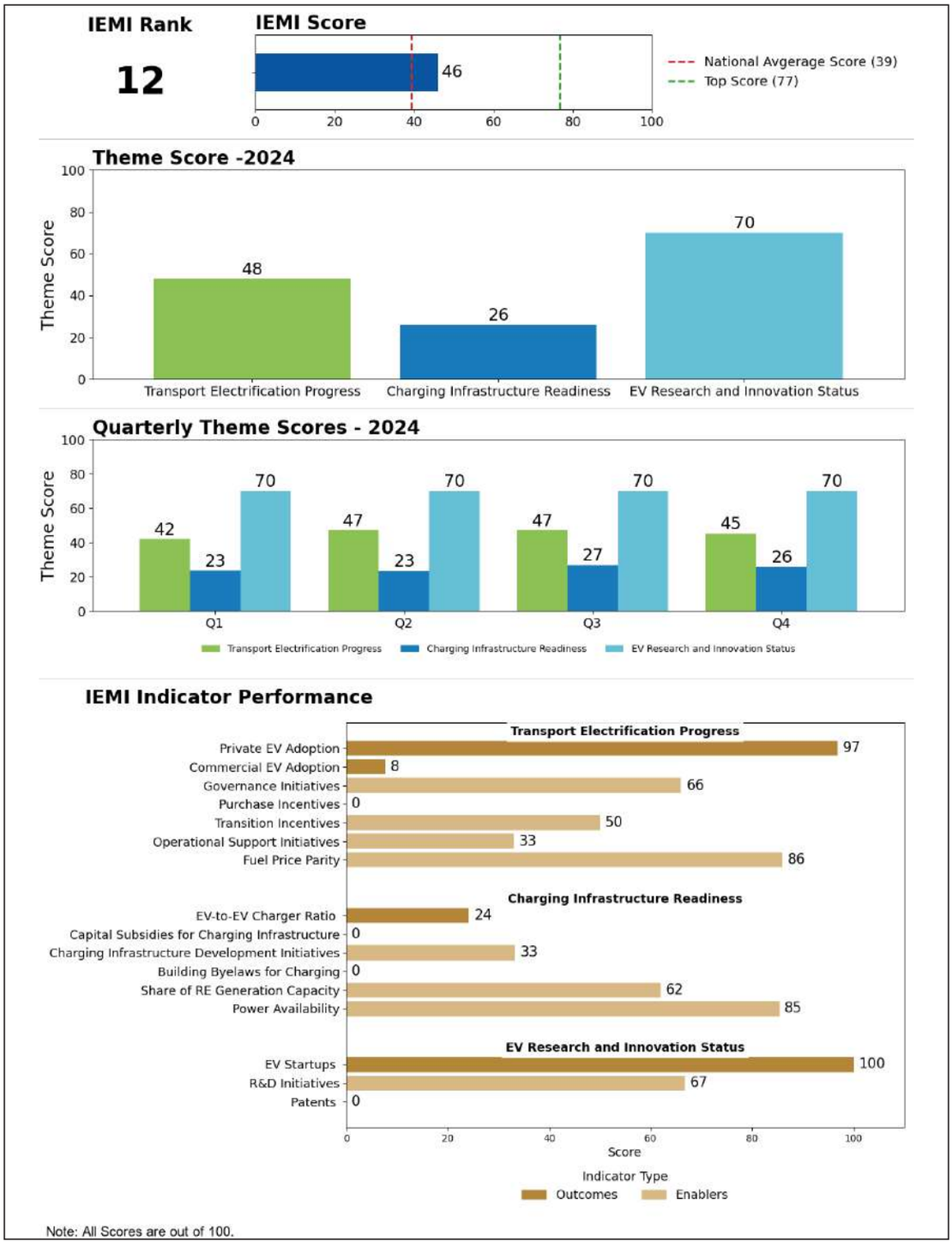


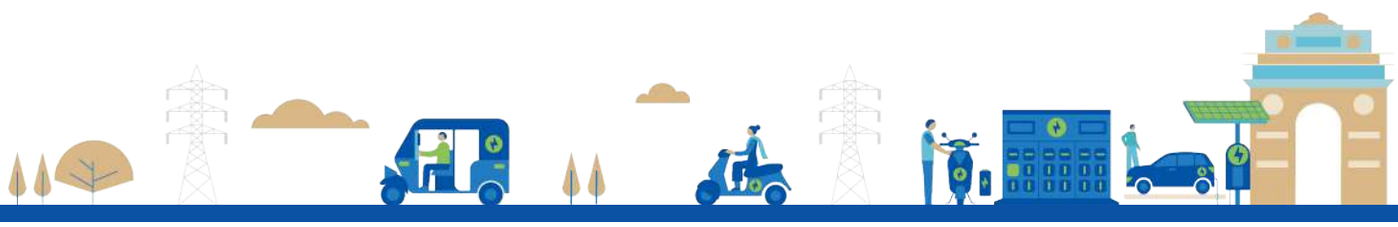
Figure 53: IEMI Rank and Score, Theme and Indicator scores for Telangana

Highlights and USPs

- One of India's largest EV charging hub is launched in Hyderabad in 2024, with 102 charging points.
- Telangana government grants exemption on road tax and registration fee for all EVs.

Recommendations

- Consider promoting EV awareness via State EV awareness website.
- Strengthen private and commercial electric vehicle adoption by implementing incentives for scrapping old vehicles, low emission zones, permit exemptions for commercial vehicles and purchase subsidies.
- To enhance EV charging infrastructure, the state should offer capital subsidies for public charging stations, streamline approvals, provide concessional land rates, and integrate charging requirements into building bylaws.



9.33 Tripura

Tripura covers an area of 10,491 km^2, with a population of 41 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹46,054 crore[11].

State Score

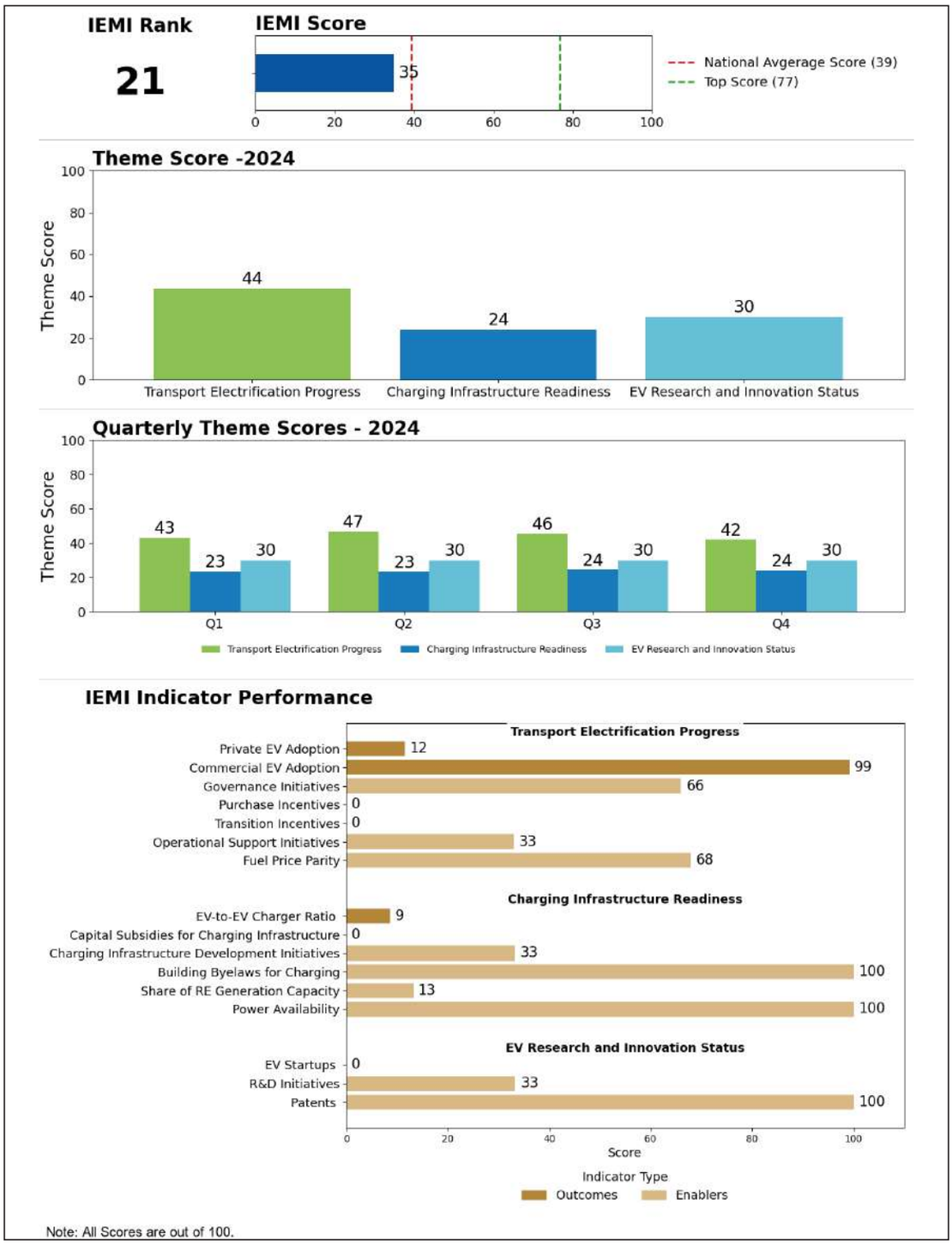


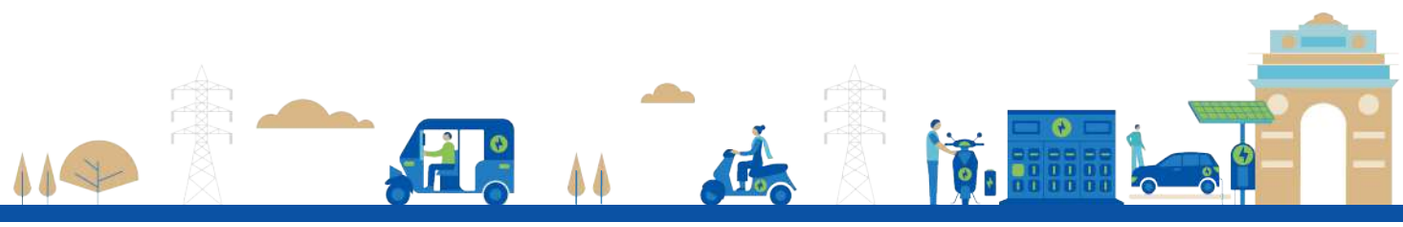
Figure 54: IEMI Rank and Score, Theme and Indicator scores for Tripura

Highlights and USPs

- In 2024, Tripura recorded the highest EV adoption among all states and UTs, with 15.1% of all registered vehicles being electric.

Recommendations

- Enhance EV adoption offering incentives for scrapping and conversion, developing low emission zones, and introducing purchasing subsidies
- Establish a nodal agency for charging infrastructure to provide capital subsidies for public charging stations and implement a single-window approval system.



9.34 Uttar Pradesh

Uttar Pradesh covers an area of 2,40,928 km^2, with a population of 2370 lakh as per MoSPI in the year 2023-24 and an estimated GSDP of ₹14.1 lakh crore[11].

State Score

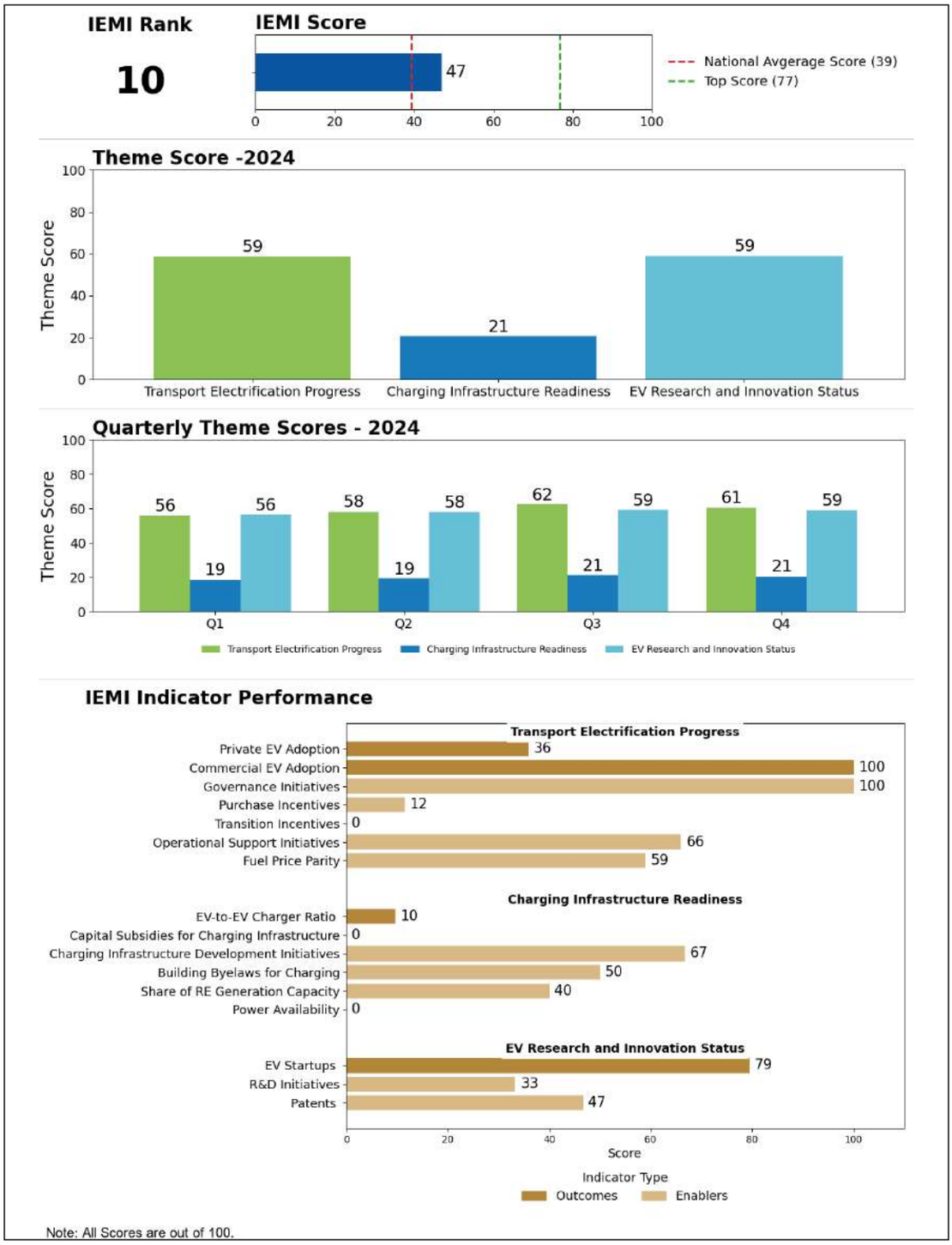


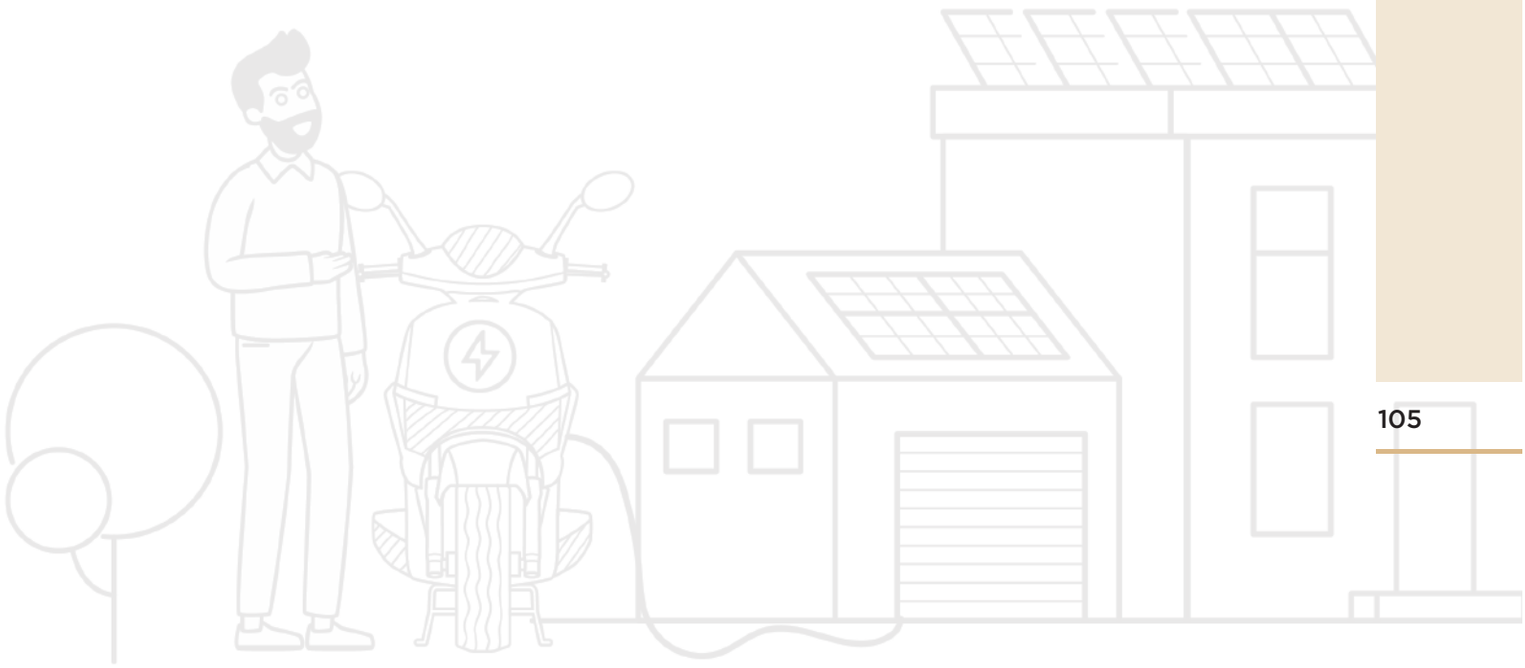
Figure 55: IEMI Rank and Score, Theme and Indicator scores for Uttar Pradesh

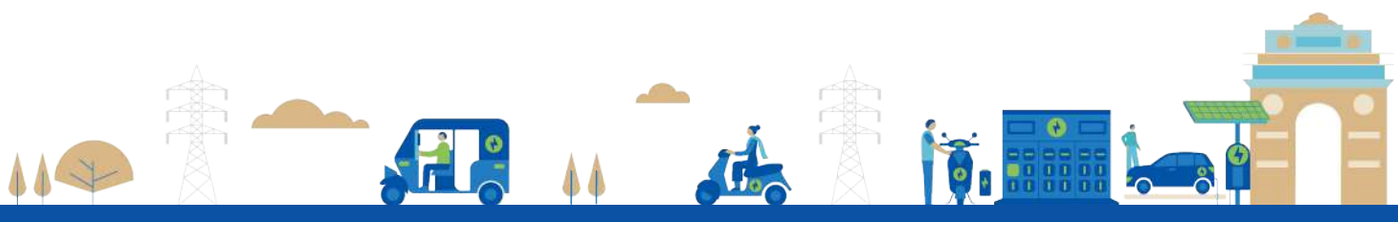
Highlights and USPs

- As on 31st January 2025, the state recorded the highest number of EVs with over 1.1 million EVs.
- The state has attracted over 50 EV manufacturers, bringing in ₹ 10,000 crore in investments and creating 20,000 jobs.

Recommendations

- To boost private EV adoption, focus on initiatives such as incentives for vehicle scrapping and conversion kits, permit exemptions for commercial EVs and improving purchase subsidy schemes.
- Establish R&D centres for skill development and introduce courses on e-mobility.
- Improve EV charging infrastructure by providing capital subsidies for public charging stations and implementing a single-window system for approval processes.





9.35 Uttarakhand

Uttarakhand covers an area of 53,483 km^2, with a population of 118 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹2.2 lakh crore[10].

State Score

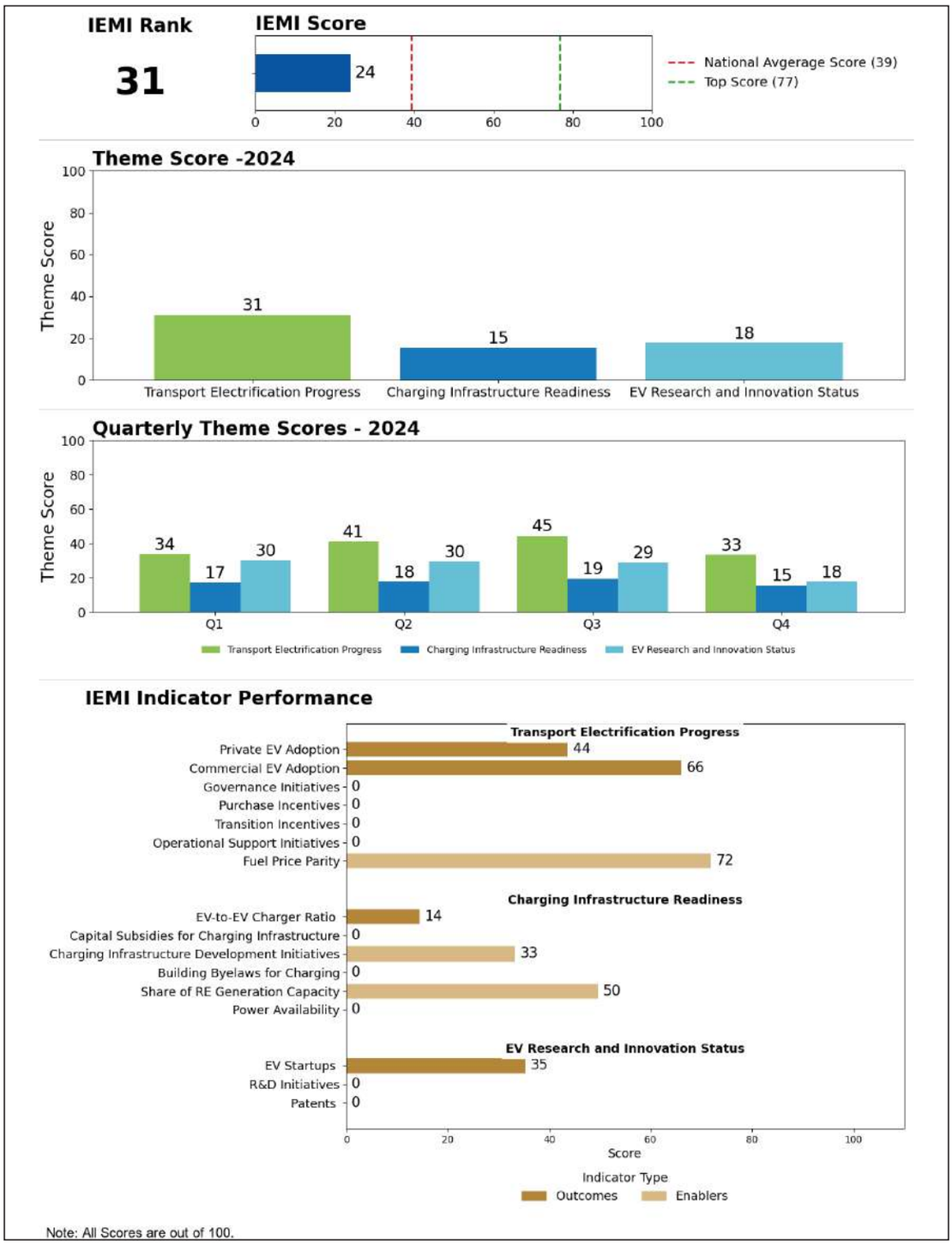


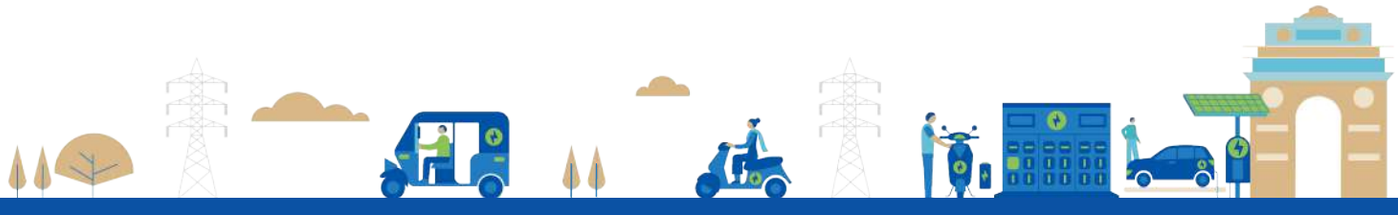
Figure 56: IEMI Rank and Score, Theme and Indicator scores for Uttarakhand

Highlights and USPs

- The government signed an Memorandum of Understanding (MoU) with Erisha E-Mobility to set up a ₹1,500 crore EV park and 100 charging hubs in Uttarakhand.

Recommendations

- Set up a high-level interdepartmental committee, to steer the development of planned electric mobility ecosystem.
- Promote EV awareness in the state through EV awareness website.
- EV adoption can be enhanced by offering incentives for vehicle scrapping and retrofitting, implementing reserved parking and low emission zones, and introducing purchase subsidies.
- Establish R&D centres, COE, and e-mobility courses for skill development.
- Improve EV charging infrastructure by integrating initiatives into the EV policy, such as providing capital subsidies for charging stations, offering concessional land rates, and including EV charging in building bylaws.



9.36 West Bengal

West Bengal covers an area of 88,752 km^2, with a population of 998 lakh as per MoSPI in the year 2024-25 and an estimated GSDP of ₹9.4 lakh crore[10].

State Score

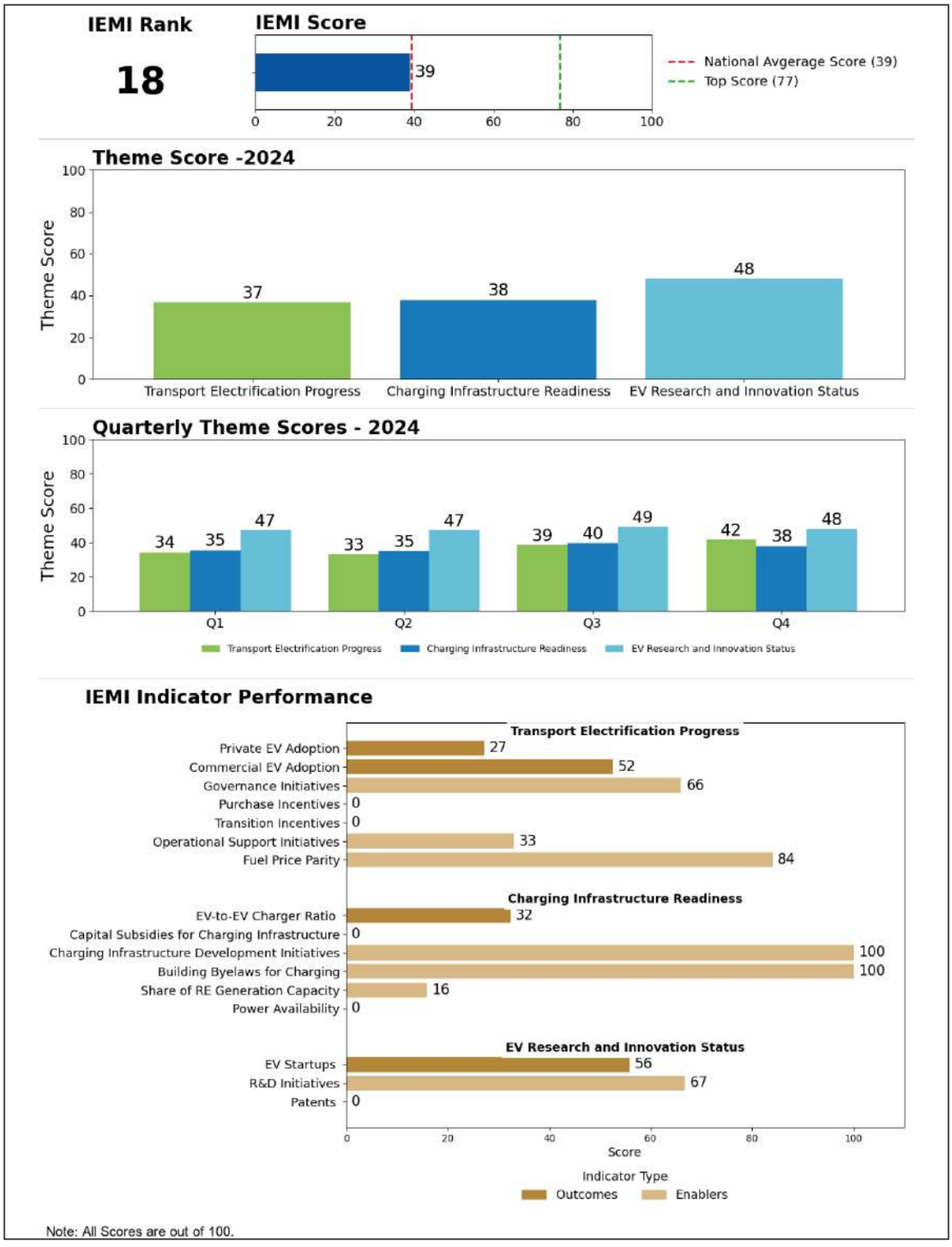


Figure 57: IEMI Rank and Score, Theme and Indicator scores for West Bengal

Highlights and USPs

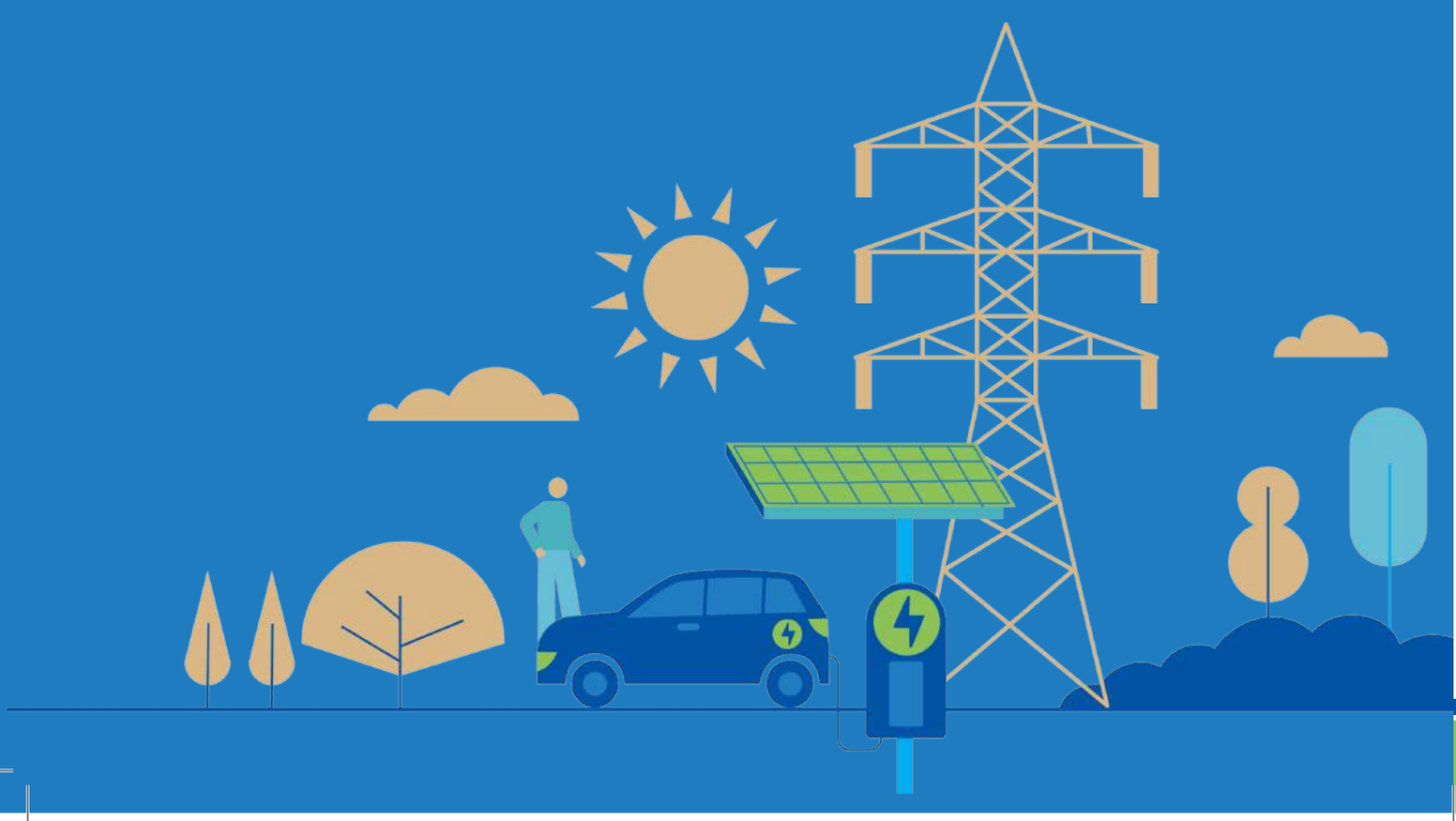
- DISCOM will supply power to EV charging and battery swapping stations within 48 hours of application.

Recommendations

- Promote EV awareness in the state through EV awareness website.
- To boost EV adoption, promote incentives for scrapping old vehicles, reserved parking for EVs, permit exemptions for commercial EVs and enhance EV purchase subsidies.
- To enhance EV charging infrastructure, provide capital subsidies for setting up public charging stations.
- Establish R&D centres, centres of excellence, and e-mobility courses for skill development.

10

ANNEXURE 1: INDICATOR VALUES FOR 2024



This annexure presents the values of key performance indicators assessed for the year 2024. It is structured with indicator tables used to evaluate the IEMI's progress across all three themes: Transport Electrification Progress, Charging Infrastructure Readiness and EV Research and Innovation Status.

10.1 Transport Electrification Progress

The Transport Electrification Progress theme consists of two outcomes and five enabler indicators. Table 3 lists the enabler and outcomes indicator values for all states and UTs.

Table 3: State-Wise Indicator Values for the Transport Electrification Progress Theme

Indicator Type	Outcomes		Enablers			
Indicator	Private Electric Vehicle Adoption	Commercial Electric Vehicle Adoption	Governance Initiatives	Purchase Incentives	Transition Incentives	Operational Support Initiatives
Indicator Unit	Percentage	Percentage	Initiatives (Number)	INR Per Year Per Capita	Initiatives (Number)	Initiatives (Number)
Andaman & Nicobar Islands	0.5%	0.7%	0	0.00	0	0
Andhra Pradesh	6.7%	4.5%	2	5.01	1	2
Arunachal Pradesh	0.1%	0.1%	0	0.00	0	0
Assam	1.0%	56.3%	1	60.89	0	0
Bihar	1.8%	52.9%	2	0.38	0	1
Chandigarh	7.6%	64.9%	2	116.59	2	2
Chhattisgarh	5.1%	29.1%	2	50.60	0	2
DD & DNH	1.8%	0.3%	0	0.00	0	0
Delhi	5.9%	61.9%	3	21.87	1	2
Goa	15.4%	2.2%	2	14.74	1	1
Gujarat	4.2%	2.6%	2	35.99	0	0
Haryana	2.4%	17.3%	1	8.09	0	0
Himachal Pradesh	1.2%	1.2%	1	0.00	0	3

Indicator Type	Outcomes		Enablers			
Indicator	Private Electric Vehicle Adoption	Commercial Electric Vehicle Adoption	Governance Initiatives	Purchase Incentives	Transition Incentives	Operational Support Initiatives
Indicator Unit	Percentage	Percentage	Initiatives (Number)	INR Per Year Per Capita	Initiatives (Number)	Initiatives (Number)
Jammu & Kashmir	2.2%	30.4%	0	0.00	0	0
Jharkhand	2.1%	25.4%	2	31.07	0	1
Karnataka	9.6%	6.6%	3	0.00	0	0
Kerala	11.0%	8.7%	0	0.00	0	0
Ladakh	0.6%	0.0%	2	296.28	0	2
Lakshadweep	2.3%	12.5%	0	0.00	0	0
Madhya Pradesh	4.2%	34.4%	0	0.00	0	0
Maharashtra	8.5%	6.6%	3	12.26	2	2
Manipur	0.6%	32.7%	2	0.00	0	0
Meghalaya	0.8%	7.3%	2	17.12	0	0
Mizoram	2.1%	0.0%	2	0.00	0	1
Nagaland	0.1%	0.0%	0	0.00	0	0
Odisha	8.0%	10.2%	3	0.78	1	1
Puducherry	6.6%	17.5%	0	0.00	0	0
Punjab	3.1%	39.2%	2	11.89	0	2
Rajasthan	5.3%	19.9%	2	7.15	1	1
Sikkim	0.1%	0.0%	1	0.00	0	0
Tamil Nadu	6.9%	6.2%	2	4.16	1	1
Telangana	8.0%	4.3%	2	0.00	1	1
Tripura	1.0%	55.4%	2	0.00	0	1

Indicator Type	Outcomes		Enablers			
Indicator	Private Electric Vehicle Adoption	Commercial Electric Vehicle Adoption	Governance Initiatives	Purchase Incentives	Transition Incentives	Operational Support Initiatives
Indicator Unit	Percentage	Percentage	Initiatives (Number)	INR Per Year Per Capita	Initiatives (Number)	Initiatives (Number)
Uttar Pradesh	3.0%	63.7%	3	5.00	0	2
Uttarakhand	3.6%	36.9%	0	0.00	0	0
West Bengal	2.2%	29.3%	2	0.00	0	1

10.2 Charging Infrastructure Readiness

The Charging Infrastructure Readiness theme consists of one outcome and five enabler indicators. Table 4 lists the enabler and outcomes indicator values for all states and UTs.

Table 4: State-Wise Indicator Values for the Charging Infrastructure Readiness Theme

Indicator Type	Outcome	Enablers				
Indicator	EV-to-EV Charger Ratio	Capital Subsidies for Charging Infrastructure	Charging Infrastructure Development Initiatives	Building Byelaws for Charging	Share of Renewable Energy Generation Capacity	Power Availability
Indicator Unit	EVs per charger	Yes/No	Initiatives (Number)	Initiatives (Number)	Percentage	Percentage
Andaman & Nicobar Islands	68	0	1	0	27.50%	5.13%
Andhra Pradesh	211	1	2	2	34.82%	0.07%

Indicator Type	Outcome	Enablers				
Indicator	EV-to-EV Charger Ratio	Capital Subsidies for Charging Infrastructure	Charging Infrastructure Development Initiatives	Building Byelaws for Charging	Share of Renewable Energy Generation Capacity	Power Availability
Indicator Unit	EVs per charger	Yes/No	Initiatives (Number)	Initiatives (Number)	Percentage	Percentage
Arunachal Pradesh	2	0	1	0	19.83%	0.00%
Assam	763	0	0	0	9.39%	0.88%
Bihar	897	0	1	0	6.70%	1.42%
Chandigarh	781	0	2	2	31.24%	0.00%
Chhattisgarh	428	1	2	1	11.82%	0.15%
DD & DNH	129	0	0	0	6.67%	0.00%
Delhi	95	1	2	2	5.44%	0.00%
Goa	160	0	2	2	8.29%	0.00%
Gujarat	196	1	1	0	52.25%	0.02%
Haryana	49	1	2	2	16.80%	0.53%
Himachal Pradesh	39	0	3	1	25.53%	0.31%
Jammu & Kashmir	166	0	0	0	8.86%	1.38%
Jharkhand	244	1	1	0	7.45%	3.82%
Karnataka	65	1	1	2	56.12%	0.17%
Kerala	116	0	1	0	23.08%	0.00%
Ladakh	47	1	0	1	8.86%	1.40%
Lakshadweep	47	0	1	0	15.63%	0.00%
Madhya Pradesh	241	0	1	0	28.76%	0.15%
Maharashtra	113	1	2	1	34.53%	0.09%

Indicator Type	Outcome	Enablers				
Indicator	EV-to-EV Charger Ratio	Capital Subsidies for Charging Infrastructure	Charging Infrastructure Development Initiatives	Building Byelaws for Charging	Share of Renewable Energy Generation Capacity	Power Availability
Indicator Unit	EVs per charger	Yes/No	Initiatives (Number)	Initiatives (Number)	Percentage	Percentage
Manipur	37	0	2	1	7.10%	0.98%
Meghalaya	16	0	2	0	11.22%	7.59%
Mizoram	65	0	2	0	28.59%	0.00%
Nagaland	3	0	0	0	17.21%	0.00%
Odisha	282	1	2	2	9.50%	0.07%
Puducherry	230	0	1	0	12.36%	0.00%
Punjab	144	0	2	2	14.67%	0.00%
Rajasthan	266	1	2	1	64.74%	0.57%
Sikkim	3	0	1	0	8.01%	0.00%
Tamil Nadu	209	1	2	2	52.97%	0.01%
Telangana	192	0	1	0	26.95%	0.01%
Tripura	538	0	1	2	5.74%	0.00%
Uttar Pradesh	479	0	2	1	17.41%	0.34%
Uttarakhand	322	0	1	0	21.57%	0.70%
West Bengal	144	0	3	2	6.93%	0.13%

10.3 EV Research and Innovation Status

The EV Research and Innovation Status theme consists of one outcome and two enabler indicators. Table 5 lists the enabler and outcomes indicator values for all states and UTs.

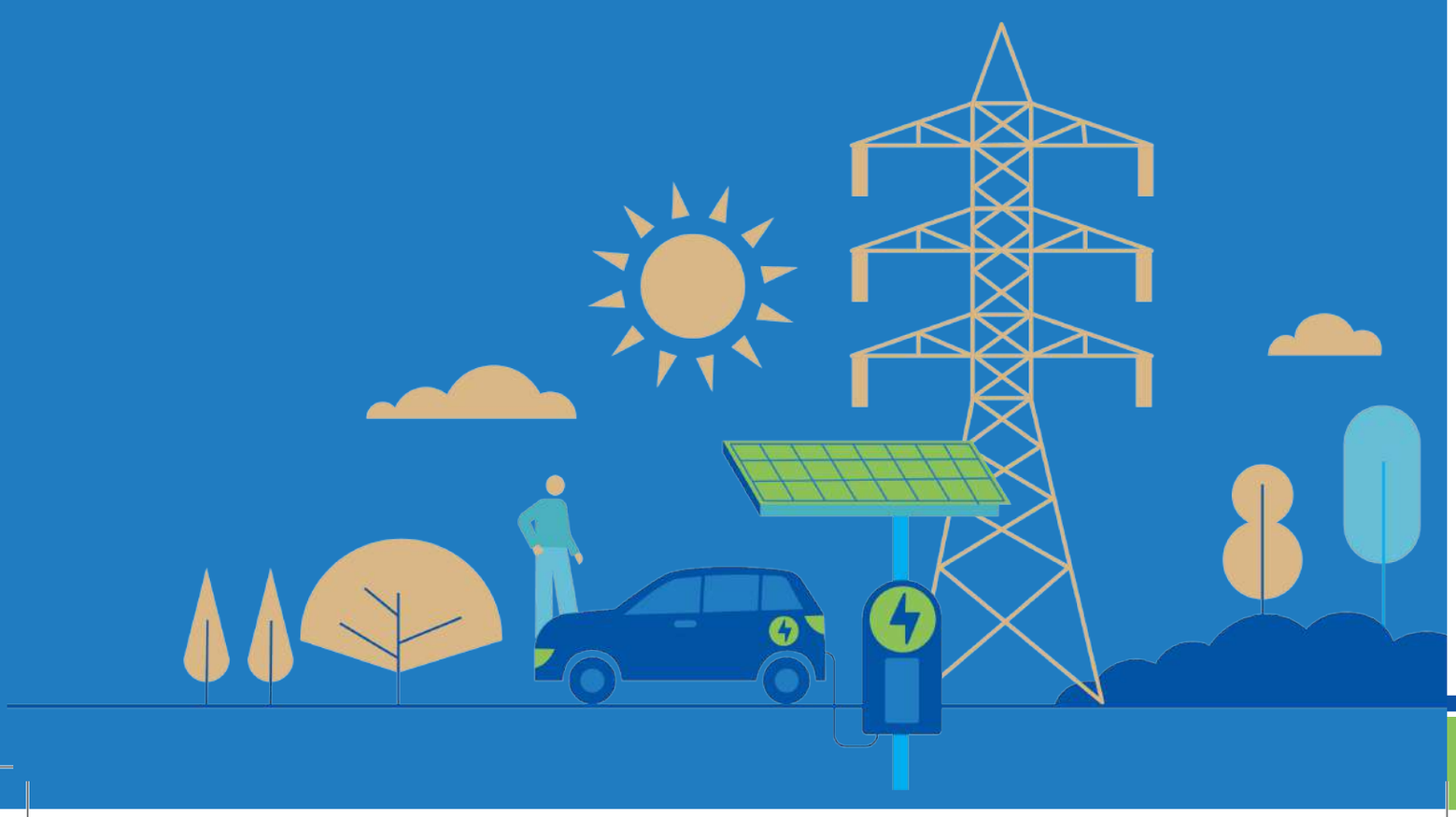
Table 5: State-Wise Indicator Values for the EV Research and Innovation Status Theme

Indicator Type	Outcome	Enablers	
Indicator	EV Startups	R&D Initiatives	Patents
Indicator Unit	Startups Per trillion INR GSDP (Number)	Initiatives (Number)	Patents Per trillion INR GSDP (Number)
Andaman & Nicobar Islands	12.35	0	0.00
Andhra Pradesh	8.01	1	0.13
Arunachal Pradesh	9.76	0	0.00
Assam	5.43	0	0.00
Bihar	7.74	0	0.21
Chandigarh	11.16	2	0.00
Chhattisgarh	8.48	1	0.00
DD & DNH	0.00	0	0.00
Delhi	25.98	3	0.45
Goa	6.24	1	0.00
Gujarat	10.33	1	0.19
Haryana	21.60	2	0.48
Himachal Pradesh	0.73	0	0.00
Jammu & Kashmir	4.44	0	0.00
Jharkhand	7.02	1	0.00
Karnataka	16.34	2	0.89
Kerala	9.92	0	0.63
Ladakh	0.00	3	0.00
Lakshadweep	0.00	0	0.00
Madhya Pradesh	13.85	0	0.15

Indicator Type	Outcome	Enablers	
Indicator	EV Startups	R&D Initiatives	Patents
Indicator Unit	Startups Per trillion INR GSDP (Number)	Initiatives (Number)	Patents Per trillion INR GSDP (Number)
Maharashtra	17.16	2	0.99
Manipur	8.20	1	0.00
Meghalaya	0.00	1	0.00
Mizoram	0.00	2	0.00
Nagaland	0.00	0	0.00
Odisha	6.85	2	0.00
Puducherry	10.96	0	0.00
Punjab	5.66	2	0.00
Rajasthan	8.68	2	0.12
Sikkim	0.00	0	0.00
Tamil Nadu	13.75	3	2.23
Telangana	17.00	2	0.00
Tripura	0.00	1	2.17
Uttar Pradesh	13.24	1	0.35
Uttarakhand	5.87	0	0.00
West Bengal	9.30	2	0.00

11

ANNEXURE 2: METHODOLOGY DOCUMENTATION 2024



This section provides a comprehensive overview of the themes, indicators, scoring methodology and data sources used to evaluate the e-mobility progress of all Indian states and UTs.

11.1 Terminologies and Definitions

To better comprehend and clearly articulate this annexure, definitions of the terminologies frequently used in it are summarised below:

1. **Assessment period** refers to the calendar year. The index is designed as an instantaneous index. However, the limited availability of data necessitates the assessment of indicators utilising values derived from the accessible yearly data.
2. **Theme** refers to a subdomain of e-mobility, linked to one or more significant outcomes. The performance of themes is driven by state-specific policies, incentives, regulations and processes. Each theme may have three or more parameters (performance indicators). The themes are scored out of 100.
3. **Indicators or parameters** are key performance indicators of e-mobility. These could be estimated using one or more datapoints. These performance indicators are often normalised using the population, GSDP or number of EVs. The indicator value is its estimated numeric or quantitative value.
4. **Outcome indicators or parameters** are performance indicators of a state that emerge as a result of one or more initiatives undertaken by state governments that directly help achieve the national e-mobility goals.
5. **Enabler indicators or parameters** serve as performance indicators that reflect state government initiatives or characteristics over which the government largely exercises control. These enablers aid in the growth or development of outcome parameters.
6. **Datapoints** are discrete units of information collected from various sources.
7. **The indicator or parameter score** for a state is calculated based on the state's performance on the indicator and the specific scoring method used for that indicator. The indicators are scored out of 100.
8. **The absolute scoring** method involves scoring a state's indicator based on predetermined cut-off levels or functions.
9. **The relative scoring** method involves scoring a state's indicator depending on how a state compares with the other states under evaluation. For instance, performance indicators of the 90th percentile among the states are targets (scored as 100), and scores of the other states are estimated accordingly. The documentation details the scoring method for each indicator.
10. **The target value** for an indicator is the cut-off at which the states are scored the maximum score for the indicator:
    a. The target value for absolute scoring is fixed or predefined.
    b. The target value for relative soring d epends on indicator values of the candidate states being evaluated.

11.2 Index Structure: Themes, Indicators and Sources

The IEMI assesses the progress of e-mobility and highlights the key factors of a successful transition. It promotes peer learning among states, thus aiding policy decisions, impactful interventions and private investments. Development of the index involved a review of global indices, collaboration with stakeholders, collation of feedback, data collection, methodology development and evaluation.

The IEMI structure was designed with inputs from stakeholders in the Central and state governments as well as national and international industry and research experts, and the index was developed using open, Central Government and third-party datasets.

Its structure reflects the key aspects of the e-mobility ecosystem, which are applicable to all states and UTs across the country. Accordingly, the index is organised into three main themes: Transport Electrification Progress, Charging Infrastructure Readiness, and EV Research and Innovation Status. These themes encompass the demand, infrastructure and R&D required to support e-mobility and comprise 16 performance indicators, categorised as enablers and outcomes, as shown in Table 6.

Table 6: IEMI Structure

Theme Name	Indicator Type	Indicators	Source	Indicator Unit
Transport Electrification Progress	Outcomes	1. Private EV adoption	Vahan database	Percentage
		2. Commercial EV adoption	Vahan database	Percentage
	Enablers	3. Governance initiatives	State EV policies	Initiatives (number)
		4. Purchase incentives	State EV policies	INR per year per capita
		5. Transition incentives	State EV policies	Initiatives (number)
		6. Operational support initiatives	State EV policies	Initiatives (number)
		7. Fuel price parity	BEE* EV Yatra, electricity tariff orders, Indian Oil Corporation Ltd	Ratio

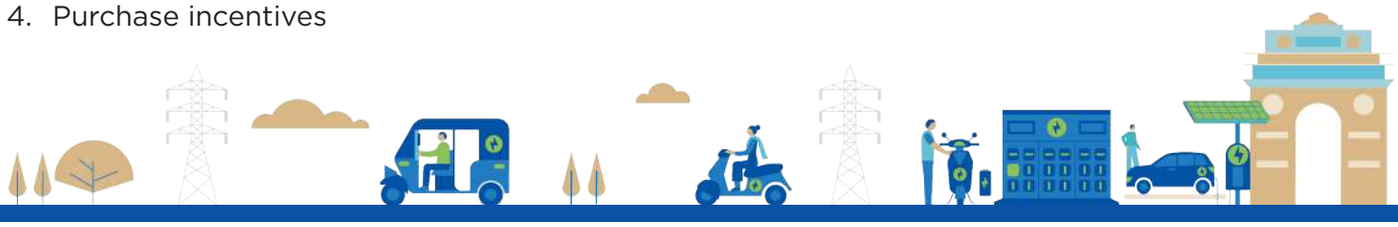
Theme Name	Indicator Type	Indicators	Source	Indicator Unit
Charging Infrastructure Readiness	Outcome	8. EV-to-EV-charger ratio	BEE EV Yatra	EVs per charger
	Enablers	9. Capital subsidies for charging infrastructure	State EV policies	Initiatives (number)
		10. Charging infrastructure development initiatives	State EV policies	Initiatives (number)
		11. Buildings byelaws for charging	State EV policies	Initiatives (number)
		12. Share of RE generation capacity	CEA†	Percentage
		13. Power availability	RBI‡ statistics	Percentage
EV Research and Innovation Status	Outcome	14. EV startups	Startup India and MoSPI§	Startups per trillion INR GSDP
	Enablers	15. R&D initiatives	State EV policies	Initiatives (number)
		16. Patents	Controller of Patents and MoSPI	Patents per trillion INR GSDP

*BEE: Bureau of Energy Efficiency; †CEA: Central Electricity Authority; ‡RBI: Reserve Bank of India; §MoSPI: Ministry of Statistics and Programme Implementation.

11.2.1 Transport Electrification Progress

The Transport Electrification Progress theme focuses on state-led initiatives to promote EV adoption through targeted policies and incentives, encouraging a shift from traditional ICE vehicles. This theme includes the following indicators:

1. Private EV Adoption (outcome)
2. Commercial EV Adoption (outcome)
3. Governance initiatives
4. Purchase incentives



5. Transition initiatives
6. Operational support initiatives
7. Fuel price parity

The following subsections describe the various components of the above-listed indicators, including their definitions, datapoints, sources, assessment periods, indicator values and score calculations.

11.2.1.1 Private EV Adoption

The Private EV Adoption refers to the share of private EVs in the total private vehicles registered in the state during the assessment period. The assessment considers two types of vehicles: 2Ws and 4Ws. The Vahan dashboard displays the vehicle category for each type, as shown in Table 7.

Table 7: Mode-Wise Classification of Private Vehicle Types

S. No	Vehicle Type	Vehicle Category, as Mentioned on the Vahan Dashboard
1	2W	Two-wheeler (NT)*
2	4W	Light motor vehicle

**NT: non-transport.*

11.2.1.1.1 Unit

Percentage (share of private EVs)

11.2.1.1.2 Datapoints

1. Number of private e-2Ws registered in the state
2. Number of private e-4Ws registered in the state
3. Number of private 2Ws registered in the state
4. Number of private 4Ws registered in the state

11.2.1.1.3 Source

Vahan dashboard and the official state portal of Telangana[9]

11.2.1.1.4 Assessment Period

At the end of the financial quarter, the indicator is evaluated for the latest monthly data available, such as March 2024.

11.2.1.1.5 Indicator Value

The Private EV Adoption is calculated by dividing the total number of private e-2Ws and e-4Ws by the total number of private 2Ws and 4Ws registered in the state during the assessment period.

Formula to calculate the indicator value:

$$\frac{\textit{Total number of private e-2Ws and e-4Ws registered in the state}}{\textit{Total number of private 2Ws and 4Ws registered in the state}}$$

Datapoint reference:

$$\frac{(1) + (2)}{(3) + (4)}$$

11.2.1.1.6 Score Calculation

The indicator is scored using the relative scoring method. The target value is the 90th percentile parameter value among the evaluated states. Since there are no officially accepted targets for the national adoption rate, the 90th percentile indicator value is considered the target. States at and above the 90th percentile will be scored the highest, that is, 100, and scores for the other states are calculated relatively.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$

11.2.1.2 Commercial EV Adoption

The Commercial EV Adoption refers to the share of commercial EVs among the total commercial vehicles registered in the state during the assessment period. The assessment considers five vehicle types: commercial 3Ws, taxis, buses, Light Goods Vehicles (LGVs), Medium Goods Vehicles (MGVs) and Heavy Goods Vehicles (HGVs). The Vahan dashboard displays the vehicle category for each type, as shown in Table 8.

Table 8: Mode-Wise Classification of Commercial Vehicle Types

Sl No.	Vehicle Type	Vehicle Category as Mentioned on the Vahan Dashboard
1	Commercial 3Ws	Three-wheeler (T)*
2	Taxis	Light passenger vehicle
3	Buses	Heavy passenger vehicle
4	LGV	Light goods vehicle
5	MGV	Medium goods vehicle
6	HGV	Heavy goods vehicle

T: transport.

11.2.1.2.1 Unit

Percentage (share of commercial EVs)

11.2.1.2.2 Datapoints

1. Number of commercial e-3Ws registered in the state
2. Number of commercial electric taxis (e-taxis) registered in the state
3. Number of commercial e-buses registered in the state
4. Number of commercial electric LGVs (e-LGVs) registered in the state
5. Number of commercial electric MGVs (e-MGVs) registered in the state

6. Number of commercial electric HGVs (e-HGVs) registered in the state
7. Number of commercial 3Ws registered in the state
8. Number of commercial taxis registered in the state
9. Number of commercial buses registered in the state
10. Number of commercial LGVs registered in the state
11. Number of commercial MGVs registered in the state
12. Number of commercial HGVs registered in the state

11.2.1.2.3 Source

Vahan dashboard and official state portal of Telangana[9]

11.2.1.2.4 Assessment Period

For the financial quarter, the indicator is updated quarterly, evaluated for the latest monthly data available, such as for March 2024.

11.2.1.2.5 Indicator Value

The Commercial EV Adoption is calculated by dividing the total number of commercial EVs—e-3Ws, e-buses, e-taxis, e-LGVs, e-MGVs and e-HGVs—by the total number of commercial vehicles—3Ws, taxis, buses, LGVs, MGVs and HGVs—registered in the state during the assessment period.

Formula to calculate the indicator value:

$$\frac{\textit{Total number of commercial EVs-e 3Ws,e taxis,e buses,e LGVs,e MGVs and e HGVs-registered in the state during the assessment period}}{\textit{Total number of commercial vehicles-3Ws,taxis,buses,LGVs,MGVs and HGVs-registered in the state during the assessment period}}$$

Datapoint reference:

$$\frac{(5)+(6)+(7)+(8)+(9)+(10)}{(11)+(12)+(13)+(14)+(15)+(16)}$$

11.2.1.2.6 Score Calculation

The indicator is scored using the relative scoring method. The target value is the 90th percentile parameter value among the evaluated states. Since there are no officially accepted targets for the national adoption rate, the 90th percentile indicator value is considered the target. States at and above the 90th percentile will be scored the highest, that is, 100, and scores for the other states are calculated relatively.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$

11.2.1.3 Governance Initiatives

Governance initiatives are substantial initiatives undertaken at the governance level to plan, regulate and accelerate EV adoption in the state.

11.2.1.3.1 Unit

Integer (number of governance initiatives)

11.2.1.3.2 Datapoints

1. The state EV policy mandates an interdepartmental committee for e-mobility (Yes/No).
2. A state EV policy was notified and is currently active. (Yes/No)
3. A state website or portal for EV awareness is available. (Yes/No)

11.2.1.3.3 Source

The data are from state EV policies, and internal research is conducted for the presence of active state EV websites and portals.

11.2.1.3.4 Assessment Period

For the financial quarter, the indicator is updated as verified in the EV policy or policy amendments, if any.

11.2.1.3.5 Indicator Value

The number of governance initiatives is the count of initiatives the state undertakes, as specified in the datapoints.

Value for each datapoint: 'Yes' = 1 and 'No' = 0.

Formula to calculate the parameter value:

$$\begin{aligned}&(\textit{Availability of a state EV website or portal}+\\&\textit{Presence of a state EV interdepartmental committee}+\\&\textit{Presence of an EV policy})\end{aligned}$$

Datapoint reference:

$$(17)+(18)+(19)$$

11.2.1.3.6 Score Calculation

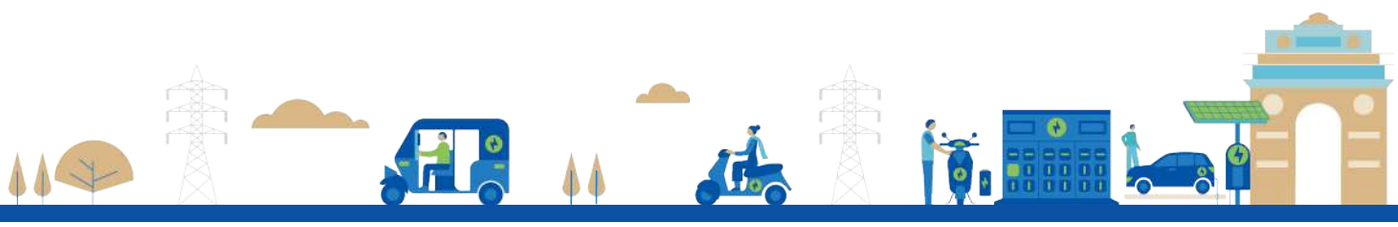
The indicator is evaluated using the absolute scoring method, and a step function is used to score the parameter. The scoring step function is linear, although adjusted for decimals.

Formula to calculate the score:

$$Score = \begin{cases} 0 \text{ if parameter value}=0, \\ 33 \text{ if parameter value}=1, \\ 66 \text{ if parameter value}=2, \\ 100 \text{ if parameter value}=3. \end{cases}$$

11.2.1.4 Purchase Incentives

Purchase incentives are financial incentives to create demand and encourage EV adoption by reducing upfront costs, making EVs more competitive than ICE vehicles. This indicator denotes the annual per capita subsidy allocation, determined by the maximum subsidy per



vehicle and maximum limit on the number of vehicles. This includes state subsidies on EVs and fee exemptions. This estimate does not include tax exemptions.

11.2.1.4.1 Unit

INR per year per capita (EV purchase incentive per year per capita)

11.2.1.4.2 Datapoints

1. Allocation toward 'capital subsidies' to purchase EVs, as stated in the EV policy (estimated)
2. The EV policy period
3. Population of the state (Census of India 2011)

11.2.1.4.3 Source

State EV policies and Census of India 2011

11.2.1.4.4 Assessment Period

The assessment period is the EV policy period. For example, the assessment period for Tamil Nadu is five years. The indicator is updated quarterly, with amendments to the EV policy or release of a new EV policy.

11.2.1.4.5 Indicator Value

The budgeted EV purchase incentive per year per capita is calculated by dividing the sum of the estimated budget allocated toward capital subsidies by the EV policy period, and then this amount is divided by the state's population.

Formula to calculate the indicator value:

$$\frac{(Total\ capital\ subsidies)/(EV\ policy\ period)\ in\ years)}{Population\ of\ the\ state}$$

Datapoint reference:

$$\frac{(20)/(21)}{(22)}$$

11.2.1.4.6 Score Calculation

The indicator is evaluated using the relative scoring method. The target value is the 90th percentile indicator value among the evaluated states, and the state achieving this value is considered the target. States at and above the 90th percentile will be scored the highest, that is, 100, and scores for the other states are calculated relatively.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$

11.2.1.5 Transition Initiatives

Transition initiatives refer to fiscal incentives that state governments offer to encourage the scrapping of ICE vehicles in exchange for EVs and to stimulate the demand for converting and retrofitting existing ICE vehicles into EVs.

11.2.1.5.1 Unit

Integer (number of transition initiatives)

11.2.1.5.2 Datapoints

1. The EV policy mandates the provision of vehicle-scrapping incentives for EVs. (Yes/No)
2. The EV policy mandates the provision of EV conversion kits/retrofitting incentives. (Yes/No)

11.2.1.5.3 Source

State EV policies

11.2.1.5.4 Assessment Period

The indicator is updated quarterly, as verified in the EV policy or policy amendments, if any.

11.2.1.5.5 Indicator Value

The number of EV transition initiatives is the count of initiatives the state has undertaken, as specified in the datapoints.

Value for each datapoint: 'Yes' = 1 and 'No' = 0.

Formula to calculate the indicator value:

$$(Availability\ of\ scrapping\ incentives + Availability\ of\ EV\ coversion\ kits\ or\ retrofitting\ incentives)$$

Datapoint reference:

$$(23)+(24)$$

11.2.1.5.6 Score Calculation

The indicator is evaluated using the absolute scoring method, and a step function is used to score it. The scoring step function is linear.

Formula to calculate the score:

$$Score = \begin{cases} 0\ if\ parameter\ value=0, \\ 50\ if\ parameter\ value=1, \\ 100\ if\ parameter\ value=2.) \end{cases}$$

11.2.1.6 Operational Support Initiatives

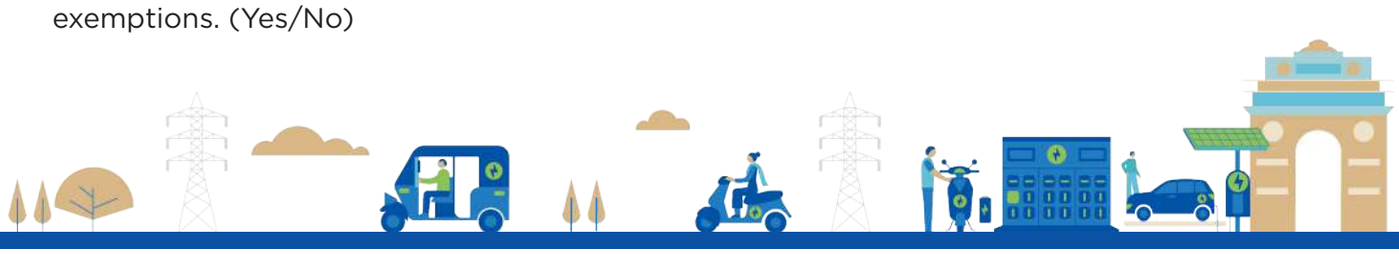
Operational support initiatives refer to the initiatives the government undertakes to ease the usage of EVs in the state. These initiatives are usually enjoyed by all vehicle users, even if they are not the buyers, during their journeys or trips.

11.2.1.6.1.1 Unit

Integer (number of operational support initiatives)

11.2.1.6.2 Datapoints

1. The EV policy mandates the provision of reserved parking spaces or parking charge exemptions. (Yes/No)



2. The EV policy mandates the development of low emission zones in the state. (Yes/No)
3. The EV policy mandates permit exemptions for commercial EVs. (Yes/No)

11.2.1.6.3 Source

State EV policies

11.2.1.6.4 Assessment Period

The indicator is updated quarterly, as verified in the EV policy or policy amendments, if any.

11.2.1.6.5 Indicator Value

The operational support initiatives are the count of initiatives the state undertakes, as specified in the datapoints.

Value for each datapoint: 'Yes' = 1 and 'No' = 0.

Formula to calculate indicator value:

$$(Availability\ of\ an\ exemption\ from\ parking\ charges\ or\ reserved\ EV\ parking\ spaces + Operationality\ of\ low\ emission\ zones + Availability\ of\ permit\ exemptions\ for\ commercial\ EVs)$$

Datapoint reference:

$$(25)+(26)+(27)$$

11.2.1.6.6 Score Calculation

The indicator is evaluated using the absolute scoring method, and a step function is used to score it. The scoring step function is linear, although adjusted for decimals.

Formula to calculate the score:

$$Score = \begin{cases} 0 \text{ if parameter value}=0, \\ 33 \text{ if parameter value}=1, \\ 66 \text{ if parameter value}=2, \\ 100 \text{ if parameter value}=3. \end{cases}$$

11.2.1.7 Fuel Price Parity

Fuel Price Parity is the ratio of petrol cost per litre to the public EV charging electricity cost per unit for charging an EV. This indicates the units of electricity that can be purchased at the cost of 1 litre of petrol in the state.

11.2.1.7.1 Unit

kWh units of electricity per litre of petrol

11.2.1.7.2 Datapoints

1. Minimum applicable EV public charging tariff per unit
2. Per litre cost of petrol in the state

11.2.1.7.3 Source

State electricity tariff order, BEE EV Yatra portal, Indian Oil Corporation Ltd.

11.2.1.7.4 Assessment Period

The indicator is updated quarterly, based on the per litre price of petrol and the EV electricity tariff per kWh unit at the end of the quarter, such as on 31 March 2024.

11.2.1.7.5 Indicator Value

The fuel price parity is the cost of 1 litre of petrol during the end of the assessment period divided by the minimum applicable EV public charging tariff notified by the State Electricity Regulatory Commission.

Formula to calculate the indicator value:

$$\frac{Petrol\ cost\ per\ litre\ in\ the\ state}{Minimum\ applicable\ EV\ public\ charging\ tariff\ per\ unit}$$

Datapoint reference:

$$\frac{(29)}{(28)}$$

11.2.1.7.6 Score Calculation

The indicator is evaluated using the relative scoring method. The target value is the 90th percentile indicator value among the evaluated states, and the state achieving this value is considered the target. States above or equal to the 90th percentile will be scored the highest, that is, 100, and scores for the other states are calculated relatively.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$

11.2.2 Charging Infrastructure Readiness

The Charging Infrastructure Readiness theme focuses on the development and integration of the state's charging infrastructure. It encompasses state-led initiatives and incentives aimed at establishing robust charging networks and encouraging RE generation. The theme includes the following indicators:

1. EV-to-EV-charger ratio (outcome)
2. Capital subsidies for charging infrastructure
3. Charging infrastructure development initiatives
4. Building byelaws for charging
5. Share of RE generation capacity
6. Power availability

The following subsections describe the various components of the above-listed indicators, including their definitions, datapoints, sources, assessment periods, indicator values and score calculations.

11.2.2.1 EV-to-EV-Charger Ratio (Outcome)

The EV-to-EV-charger ratio is the total number of EVs registered per public EV charger in the state.

11.2.2.1.1 Unit

EVs per EV charger

11.2.2.1.2 Datapoints

1. Total number of operational public chargers in the state
2. EVs registered in the state

11.2.2.1.3 Source

BEE EV Yatra portal and Vahan dashboard

11.2.2.1.4 Assessment Period

The indicator is updated quarterly, such as on 31 March 2024.

11.2.2.1.5 Indicator Value

The EV-to-EV-charger ratio is the total number of EVs registered in the state divided by the total number of public chargers available in the state by the end of the assessment period.

Formula for calculating the indicator value:

$$\frac{Total\ number\ of\ EVs\ registered\ in\ the\ state\ as\ at\ the\ end\ of\ the\ assessment\ period}{Total\ number\ of\ public\ chargers\ in\ the\ state\ as\ at\ the\ end\ of\ assessment\ period}$$

Datapoint reference:

$$\frac{(31)}{(30)}$$

11.2.2.1.6 Score Calculation

The indicator is evaluated using the relative scoring method. States and UTs with low EV-to-EV-charger ratio have better availability of public charging infrastructure. The target value is the 20th percentile indicator value among the evaluated states, and the state achieving this value is considered the target. States at or below the 20th percentile will be scored the highest, that is, 100, and scores for the other states are calculated relatively.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$

11.2.2.2 Capital Subsidies for Charging Infrastructure

Capital subsidies for public charging infrastructure refer to the financial support state governments provide to set up public charging infrastructure.

11.2.2.2.1 Unit

Integer (number of charging subsidies initiatives)

11.2.2.2.2 Datapoint

The EV policy mandates the provision of capital subsidies for setting up public chargers in the state.

11.2.2.2.3 Source

State EV policies

11.2.2.2.4 Assessment period

The indicator is updated quarterly, as verified in the EV policy or policy amendments, if any.

11.2.2.2.5 Indicator Value

Capital subsidies for public charging infrastructure refer to the presence of initiatives the state has undertaken, as specified in the datapoints.

Formula to calculate the indicator value:

Indicator value for datapoint : 'Yes' = 1 and 'No' = 0.

11.2.2.2.6 Score Calculation

The indicator is evaluated using the absolute scoring method, and a step function is used to score it.

Formula to calculate the score:

$$Score = \begin{cases} 0 \text{ if parameter value}=0, \\ 100 \text{ if parameter value}=1. \end{cases}$$

11.2.2.3 Charging Infrastructure Development Initiatives

The Charging Infrastructure Development initiatives are steps the state government has undertaken to accelerate the approval process (and incentives) in setting up public chargers in the state.

11.2.2.3.1 Unit

Integer (number of charging infrastructure development Initiatives)

11.2.2.3.2 Datapoints

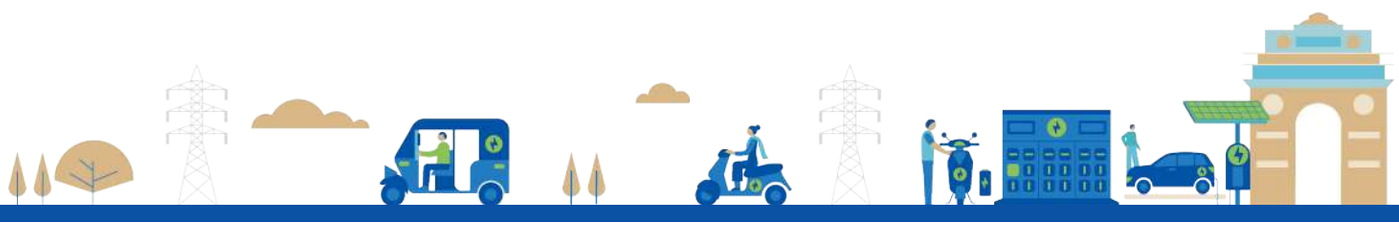
1. The policy mandates a 'single-window system' or fixed lead time for approvals for charging infrastructure connections. (Yes/No)
2. The policy mandates the provision of concessional rates for land for public charging. (Yes/No)
3. The state/UT has a nodal agency for charging infrastructure. (Yes/No)

11.2.2.3.3 Source

State EV policies

11.2.2.3.4 Assessment Period

The indicator is updated quarterly, as verified in the EV policy or policy amendments, if any.



11.2.2.3.5 Indicator Value

The number of charging infrastructure development initiatives is the count of initiatives the state has undertaken, as specified in the datapoints.

Value for each datapoint: 'Yes' = 1 and 'No' = 0.

Formula to calculate the indicator value:

$$(Presence\ of\ single\ window\ system\ or\ fixed\ lead\ time\ for\ approvals + Conscessional\ rates\ for\ land\ for\ public\ charging + State\ nodal\ Agency\ for\ public\ charging)$$

Datapoint reference:

$$(33)+(34)+(35)$$

11.2.2.3.6 Score Calculation

The indicator is evaluated using the absolute scoring method, and a step function is used to score it. The scoring step function is linear, although adjusted for decimals.

Formula to calculate the score:

$$Score = \begin{cases} 0 \text{ if parameter value}=0, \\ 33 \text{ if parameter value}=1, \\ 66 \text{ if parameter value}=2, \\ 100 \text{ if parameter value}=3. \end{cases}$$

11.2.2.4 Building Byelaws for Charging

The building byelaws and mandates refer to the government initiatives undertaken to promote and integrate public and private charging of EVs with the state's development control regulations.

11.2.2.4.1 Unit

Integer (number of building byelaws for initiatives)

11.2.2.4.2 Datapoints

1. The state EV policy mandates building byelaws for the integration of EV charging in new buildings. (Yes/No)
2. The state EV policy recommends EV charging installation in existing buildings. (Yes/No)

11.2.2.4.3 Source

State EV policies

11.2.2.4.4 Assessment Period

The indicator is updated quarterly, as verified in the EV policy or policy amendments, if any.

11.2.2.4.5 Indicator Value

The value indicates the count of initiatives the state has undertaken, as specified in the datapoints.

Value for each datapoint: 'Yes' = 1 and 'No' = 0.

Formula to calculate the parameter value:

(Building byelaw mandate for integration of EV charging in new buildings +Recomendations to install EV chargers in existing buildings)

Datapoint reference:

(36)+(37)

11.2.2.4.6 Score Calculation

The indicator is evaluated using the absolute scoring method, and a step function is used to score the indicator. The scoring step function is linear.

Formula to calculate the score:

$$Score = \begin{cases} 0 \text{ if parameter value}=0, \\ 50 \text{ if parameter value}=1, \\ 100 \text{ if parameter value}=2.) \end{cases}$$

11.2.2.5 Share of RE Generation Capacity

This indicator refers to the share of RE generation capacity in the state's total installed electricity generation capacity.

11.2.2.5.1 Unit

Percentage (share of RE generation capacity)

11.2.2.5.2 Datapoints

1. Total RE generation capacity of the state
2. Total energy generation capacity of the state

11.2.2.5.3 Source

CEA

11.2.2.5.4 Assessment Period

The indicator is updated quarterly, based on recent monthly data available from the CEA, such as February 2024.

11.2.2.5.5 Indicator Value

The indicator value is estimated by dividing the state's installed RE generation capacity by its total installed energy generation capacity.

Formula for calculating the indicator value:

$$\frac{Total\ REgeneration\ capacity}{Total\ energy\ generation}$$

Datapoint reference:

$$\frac{(39)}{(38)}$$

11.2.2.5.6 Score Calculation

The indicator is evaluated using the relative scoring method. The target value is the 90th

percentile indicator value among the evaluated states, and states that achieve a value equal to or higher than the 90th percentile will be scored 100. The other states score relatively lower, based on the target.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$

11.2.2.6 Power Availability

Power availability is measured in terms of the deficit between the power demand and power supply for states and UTs.

11.2.2.6.1 Unit

Percentage (share of power shortage)

11.2.2.6.2 Datapoints

1. Power shortage in the state (demand – availability)
2. Power demand in the state

11.2.2.6.3 Source

RBI statistics

11.2.2.6.4 Assessment Period

The indicator is updated yearly, such as in March 2023, based on recent data available from RBI statistics.

11.2.2.6.5 Indicator Value

The indicator value is estimated by dividing the state's power shortage with its power demand.

Formula for calculating the indicator value:

$$\frac{Power\ demand\text{-}Power\ available}{Power\ demand\ in\ the\ state}$$

Datapoint reference:

$$\frac{(40)}{(41)}$$

11.2.2.6.6 Score Calculation

The indicator is scored using the relative scoring method. The state with the 50th percentile indicator value among the states is considered as the target. States with equal or lower power deficit will be scored highest, that is, 100. The other states score lower by the relative scoring method.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$

11.2.3 EV Research and Innovation Status

The EV Research and Innovation Status theme highlights the expansion of R&D initiatives in the EV sector. It assesses government policies, incentives and efforts to promote EV advancements, including the growth of e-mobility startups and development of supportive EV education programmes. The theme includes the following indicators:

1. EV startups (outcome)
2. R&D initiatives
3. Patents

The following subsections describe the various components of the above-listed indicators, including their definitions, datapoints, sources, assessment periods, indicator values and score calculations.

11.2.3.1 EV Startups

This indicator refers to the total number of startups in the state that are recognised as EV startups by Startup India, normalised with the GSDP.

11.2.3.1.1 Unit

Startups per trillion INR of the GSDP

11.2.3.1.2 Datapoints

1. Total number of EV startup registrations
2. GSDP (constant price)

11.2.3.1.3 Source

Startup India website and MoSPI

11.2.3.1.4 Assessment Period

The indicator is updated quarterly, based on data on EV startups at the end of the quarter, such as on 31 March 2024.

11.2.3.1.5 Indicator Value

The number of startups registered at the end of the assessment period is divided by the GSDP.

Formula to calculate the indicator value:

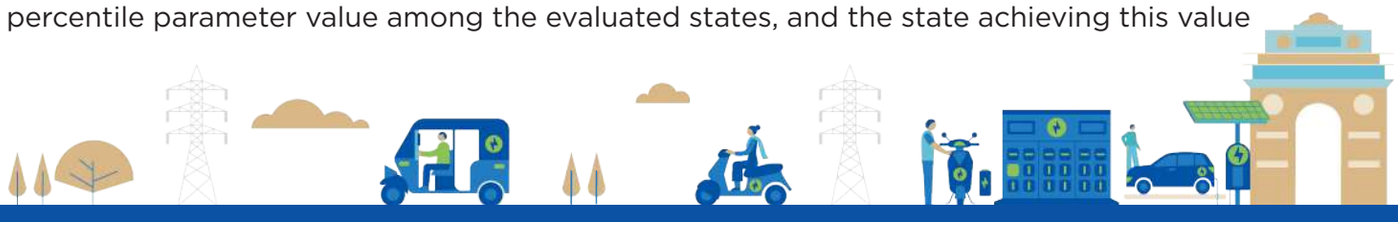
$$\frac{Number\ of\ startups\ registered\ in\ the\ state}{GSDP}$$

Datapoint reference:

$$\frac{(42)}{(43)}$$

11.2.3.1.6 Score Calculation

The indicator is scored using the relative scoring method. The target value is the 90th percentile parameter value among the evaluated states, and the state achieving this value



is considered the target. States with equal or higher startups per trillion INR of GSDP will be scored the highest, that is, 100. The other states are scored lower by the relative scoring method.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$

11.2.3.2 R&D Initiatives

EV R&D initiatives are actions the state government undertakes to promote R&D in e-mobility through fiscal and non-fiscal measures.

11.2.3.2.1 Unit

Integer (number of R&D initiatives)

11.2.3.2.2 Datapoints

1. The EV policy mandates initiatives on setting up of R&D centres for skill development.
2. The EV policy mandates the provision of establishing a centres of excellence (COEs) in the state.
3. The EV policy mandates the setting up of polytechnic or short-term courses on e-mobility.

11.2.3.2.3 Source

State EV policies

11.2.3.2.4 Assessment period

The data are updated quarterly, as verified in the EV policy or policy amendments, if any.

11.2.3.2.5 Indicator Value

The number of R&D initiatives is the count of initiatives the state has undertaken, as specified in the datapoints.

Value for each datapoint: 'Yes' = 1 and 'No' = 0.

Formula to calculate the indicator value:

(Presence of initiatives on setting R&D centers+Presence of mandates on establishing COEs+Presence of short term courses on electric mobility)

Datapoint reference:

(44)+(45)+(46)

11.2.3.2.6 Score Calculation

The score is evaluated using the absolute scoring method, and a step function is used to score the indicator. The scoring step function is linear, although adjusted for decimals with the round-down method.

Formula to calculate the score:

$$Score = \begin{cases} 0 \text{ if parameter value}=0, \\ 33 \text{ if parameter value}=1, \\ 66 \text{ if parameter value}=2, \\ 100 \text{ if parameter value}=3. \end{cases}$$

11.2.3.3 Patents

This indicator refers to the total number of EV-related patents enforced by Intellectual Property India at the end of the assessment period, normalised with GSDP.

11.2.3.3.1 Unit

Patent per trillion INR of GSDP

11.2.3.3.2 Datapoints

1. Total number of active patents related to EVs
2. GSDP (constant price)

11.2.3.3.3 Source

Controller General Patents, Designs & Trade Marks (CGPDTM) and MoSPI

11.2.3.3.4 Assessment Period

The data are updated yearly based on the latest data available at the end of the FY.

11.2.3.3.5 Indicator Value

The latest data available on the number of active patents (related to EVs) registered by the end of the FY are divided by the GSDP.

Formula to calculate the indicator value:

$$\frac{Number\ of\ patents\ registered\ in\ the\ state}{GSDP}$$

Datapoint reference:

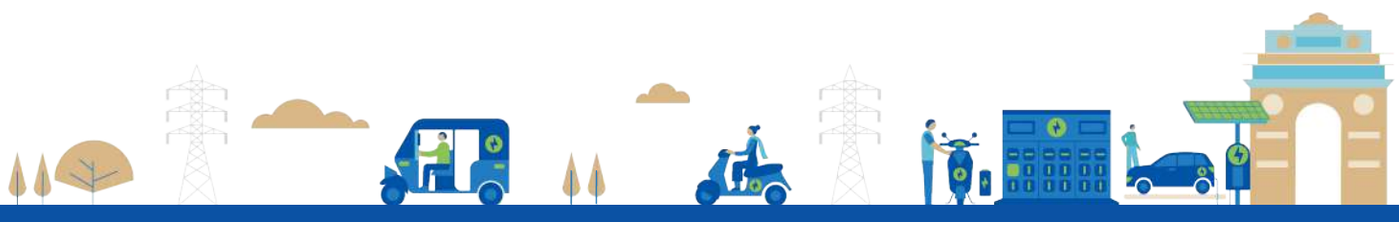
$$\frac{(47)}{(43)}$$

11.2.3.3.6 Score Calculation

The indicator is evaluated using the relative scoring method. The target value is the 90th percentile indicator value among the evaluated states, and the state achieving this value is considered the target. States with equal or higher values will be scored 100. The other states score relatively lower.

Formula to calculate the score:

$$Score = \min\left(\frac{Parameter\ value}{Target\ value}.100, 100\right)$$



11.3 Datapoints

Datapoints are individual points of information gathered from various sources. Table 9 lists the datapoints used in parameter calculations.

Table 9: List of Datapoints

Sl No.	Datapoint	Data Source
1	Number of private e-2Ws registered in the state Definition: This datapoint indicates the number of private e-2Ws registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: 2W (NT) and electric (battery operated vehicle [BOV])
2	Number of private e-4Ws registered in the state Definition: This datapoint indicates the number of private electric cars registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: light motor vehicle and electric (BOV)
3	Number of private 2Ws registered in the state Definition: This datapoint indicates the number of private 2Ws registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: 2W (NT)
4	Number of private 4Ws registered in the state Definition: This datapoint indicates the number of private cars registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: light motor vehicle
5	Number of commercial e-3Ws registered in the state Definition: This datapoint indicates the number of commercial e-3Ws registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: 3W (T) and electric (BOV)

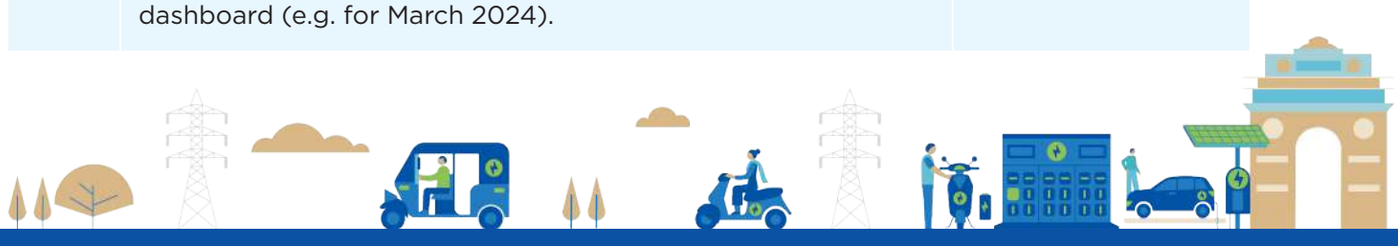
Sl No.	Datapoint	Data Source
6	Number of commercial e-taxis registered in the state Definition: This datapoint indicates the number of e-taxis registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: light passenger vehicle and electric (BOV)
7	Number of commercial e-buses registered in the state Definition: This datapoint indicates the number of e-buses registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: heavy passenger vehicle and electric (BOV)
8	Number of commercial e-LGVs registered in the state Definition: This datapoint indicates the number of e-LGVs registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: LGV and electric (BOV)
9	Number of commercial e-MGVs registered in the state Definition: This datapoint indicates the number of e-MGVs registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: MGV and electric (BOV)
10	Number of commercial e-HGVs registered in the state Definition: This datapoint indicates the number of e-HGVs registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: HGV and electric (BOV)

Sl No.	Datapoint	Data Source
11	Number of commercial 3Ws registered in the state. Definition: This datapoint indicates the number of commercial 3Ws registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: 3W (T)
12	Number of commercial taxis registered in the state Definition: This datapoint indicates the number of commercial taxis registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: light passenger vehicle
13	Number of commercial buses registered in the state Definition: This datapoint indicates the number of commercial buses registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: heavy passenger vehicle
14	Number of commercial LGVs registered in the state Definition: This datapoint indicates the number of LGVs registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: LGV
15	Number of commercial MGVs registered in the state Definition: This datapoint indicates the number of MGVs registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: MGV
16	Number of commercial HGVs registered in the state Definition: This datapoint indicates the number of HGVs registered in the state during the assessment period. Unit: Number (of vehicles) Data availability: Recent monthly data available (e.g. for March 2024)	Vahan dashboard: HGV

Sl No.	Datapoint	Data Source
17	The state EV policy mandates an interdepartmental committee for e-mobility. Definition: This datapoint indicates the EV policy references to create a state-level interdepartmental committee to facilitate and monitor implementation of the EV policy or development of the EV sector. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
18	A state EV policy was notified and is currently active. Definition: The EV policy of the state or UT is notified and is active on the date of assessment (end of the assessment period). Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
19	A state website or portal for EV awareness is available. Definition: This datapoint indicates the presence of a dedicated website or portal for EV awareness in the state and UT. Unit: Yes/No Data availability: To be updated quarterly, based on internal research	Internal research
20	Allocation toward 'capital subsidies' to purchase EVs, as stated in the EV policy (estimated) Definition: This datapoint indicates the estimated total amount allocated by the state toward capital subsidies for EVs, based on the EV policy. This estimate considers the maximum subsidy amount per vehicle and the maximum number of vehicles. Unit: INR (during the policy period) Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
21	The EV policy period Definition: This datapoint indicates the duration of time in which the state EV policy is in effect. Unit: Number (of years) Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy

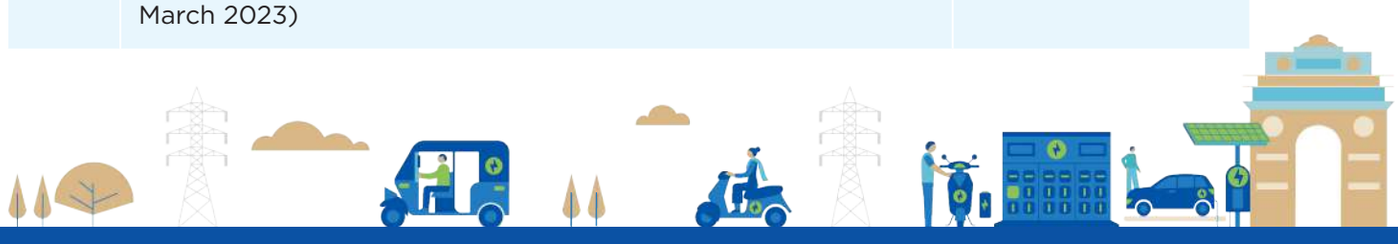
Sl No.	Datapoint	Data Source
22	Population of the state (Census of India 2011) Definition: This datapoint indicates the population in the state and UT as per Census of India 2011. Unit: Number (of people) Data availability: As on 2011 (Census of India)	Census of India 2011
23	The EV policy mandates the provision of vehicle-scrapping incentives for EVs. Definition: This datapoint indicates the presence of financial benefits provided by the government to encourage the scrapping of old or polluting (ICE) vehicles from the road, as stated in the EV policy. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
24	The EV policy mandates the provision of EV conversion kits/ retrofitting incentives. Definition: This datapoint indicates the presence of financial subsidies provided by the government to encourage the conversion of existing ICE vehicles to EVs, as mandated in the EV policy. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
25	The EV policy mandates the provision of reserved parking spaces or parking charge exemptions. Definition: This datapoint indicates the EV policy recommendations or mandates for facilitating parking spaces or parking charge exemptions for EVs in the state or UT. Unit: Yes/No Data availability: To be updated quarterly, as verified in EV policy amendments, if any	State EV policy
26	The EV policy mandates the development of low emission zones in the state. Definition: This datapoint indicates the EV policy recommendations or mandates toward the development of low emission zones/routes or green zones/routes in the state. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy

Sl No.	Datapoint	Data Source
27	The EV policy mandates permit exemptions for commercial EVs. Definition: This datapoint indicates the presence of open permits or permit exemptions for commercial vehicles with either no charges or subsidised charges. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
28	Minimum applicable EV public charging tariff per unit Definition: This datapoint indicates the minimum cost of public charging tariffs for EVs mentioned in the electricity tariff document of the state. In case a specific electricity tariff for the EV public charging is not implemented, the tariff for the commercial purpose is used. This does not include fixed charges. Unit: INR (per unit electricity) Data availability: Typically yearly at the end of the FY, based on the electricity tariff order	State electricity tariff order and BEE EV Yatra dashboard
29	Per litre cost of petrol in the state Definition: The datapoint indicates the price of petrol per litre in the state's largest city or capital city, as listed on the Indian Oil Corporation Ltd website. Unit: INR (per litre of petrol) Data availability: Typically updated quarterly from the Indian Oil Corporation Ltd database (e.g. as at the end of March 2024)	Indian Oil Corporation Ltd
30	Total number of operational public chargers in the state Definition: This datapoint refers to the total number of public chargers installed in the state. Unit: Number (of chargers) Data availability: To be updated quarterly, based on data available on the EV Yatra dashboard (e.g. as on 31 March 2024)	BEE EV Yatra dashboard
31	EVs registered in the state Definition: This datapoint indicates the total number of EVs registered in the state as on the date of assessment (cumulative). Unit: Number of (vehicles) Data availability: Recent monthly data available on the Vahan dashboard (e.g. for March 2024).	Vahan dashboard



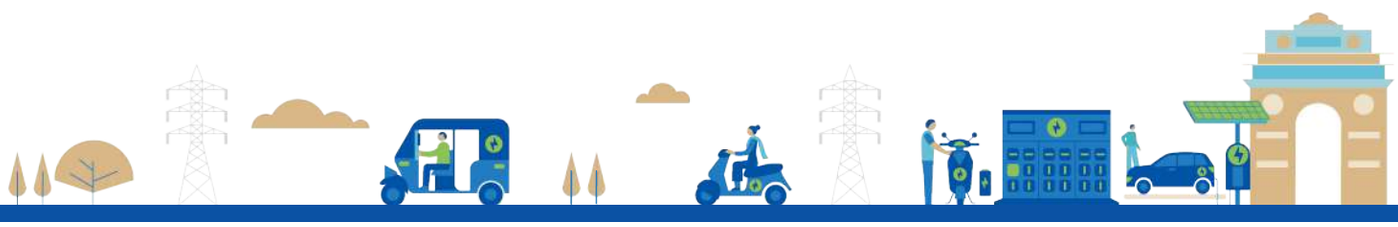
Sl No.	Datapoint	Data Source
32	The EV policy mandates the provision of capital subsidies for setting up public chargers in the state. Definition: This datapoint indicates the presence of capital subsidies or incentives provided to set up public charging stations for EVs in the state. Unit: INR Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
33	The policy mandates a 'single-window system' or fixed lead time for approvals for charging infrastructure connections. Definition: This datapoint highlights that the EV policy mandates the implementation of a single-window clearance system for processing applications, approvals and registrations required to set up EV charging stations in each state or UT. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
34	The policy mandates the provision of concessional rates for land for public charging. Definition: This datapoint indicates the EV policy mandates on allotting land at a subsidised price for establishing public EV charging stations in the state or UT. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
35	The state/UT has a nodal agency for charging infrastructure. Definition: This datapoint refers to the presence of a nodal agency for setting up charging infrastructure in the state or UT. Unit: Yes/No Data availability: Recent monthly data available on the EV Yatra dashboard (e.g. for March 2024)	EV Yatra dashboard
36	The state EV policy mandates building byelaws for the integration of EV charging in new buildings. Definition: This datapoint indicates the EV policy references on amendments to the state's building byelaws to mandate the setting up of EV charging facilities in new buildings. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy

Sl No.	Datapoint	Data Source
37	The state EV policy recommends EV charging installation in existing buildings. Definition: This datapoint indicates the EV policy references on setting up of EV charging facilities in existing buildings. These recommendations may be proposed for incorporation into the state's building byelaws or be directly provided within the EV policy. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
38	Total RE generation capacity of the state Definition: This datapoint indicates the installed RE generation capacity of the state. Unit: Gigawatt hour (GWh) Data availability: Recent monthly data available on the CEA dashboard (e.g. for February 2024)	CEA
39	Total energy generation capacity of the state Definition: This datapoint indicates the installed electricity generation capacity of the state. Unit: GWh Data availability: Recent monthly data available on the CEA dashboard (e.g. for February 2024)	CEA
40	Power shortage in the state (demand – availability) Definition: This datapoint indicates the power shortage in the state. Unit: GWh Data availability: Recent yearly data available on the RBI dashboard (e.g. for March 2023)	RBI
41	Power demand in the state Definition: This datapoint indicates the power demand in the state. Unit:GWh Data availability: Recent yearly data available on the RBI dashboard (e.g. for March 2023)	RBI



Sl No.	Datapoint	Data Source
42	Total number of EV startup registrations Definition: This datapoint indicates the number of EV related startups registered in the state, as updated on the Startup India website. Unit: Number (of startups) Data availability: Recent monthly data available on the Startup India website (e.g. as on 31 March 2024)	Startup India
43	GSDP (constant price) Definition: This datapoint indicates the GSDP at constant price. Unit: INR Data availability: Typically updated yearly, at the end of the FY (e.g. for FY 2022-23)	MoSPI
44	The EV policy mandates initiatives on setting up of R&D centres for skill development. Definition: This datapoint indicates the mandate for setting up facilities such as R&D centres for skill development in the state. Unit:Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
45	The EV policy mandates the provision of establishing a COE in the state. Definition: This datapoint indicates the EV policy mandates on the establishment of COEs in states. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy
46	The EV policy mandates the setting up of polytechnic or short-term courses on e-mobility. Definition: This datapoint indicates the EV policy mandates on setting up of short-term and vocational training courses on e-mobility. Unit: Yes/No Data availability: To be updated quarterly, as verified in the EV policy amendments, if any	State EV policy

Sl No.	Datapoint	Data Source
47	Total number of active patents related to EVs Definition: This datapoint refers to the total number of patents in force related to EVs in the state. Unit: Number (of patents) Data availability: Typically updated yearly (e.g. on 31 March 2022)	CGPDTM



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