

Green-eSeries  
Volume 1

# Unlocking E-Mobility

*Complementing EV30@30*



*Greening the Enterprising Ecosystem*

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## Mentors

*E-mobility mission – Adviser, (Infrastructure Connectivity – Transport & e-mobility), **NITI AAYOG** keeps on providing their time and experiential sharing to conceptualise, course correction and EVOLVE the mission to ease access to finance for EMobility.*

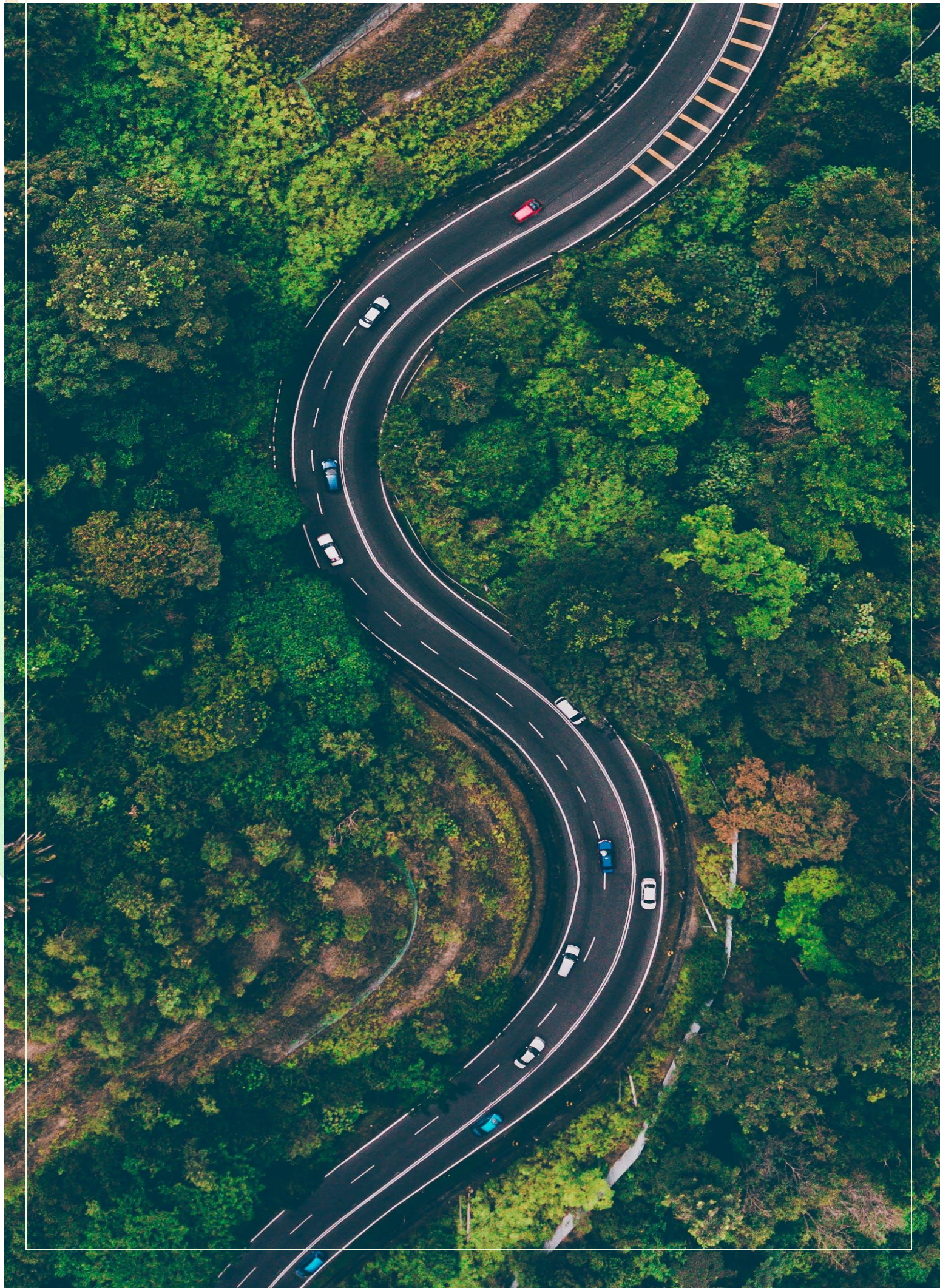
***NITI AAYOG** is the premier policy 'Think Tank' of the Government of India, providing both directional and policy inputs. Earlier, it was acting as the Planning Commission.*

**The World Bank** *explores the latest trends that are reshaping the global transport sector like how ongoing evolutions in the transport sector especially EVs can influence broader development outcomes and global challenges—from economic growth to social inclusion, climate action, public health, and more, and to leverage those transformations to create a better future for people and the planet.*

*By cultivating innovation and knowledge exchange across the sector, this should help policymakers and practitioners harness the full potential of transport for development.*

**ADB** *is working throughout the region to promote safe, accessible, and green transport infrastructure and services. Developing Asia will need an investment of \$1.7 trillion per year until 2030, if the region is to maintain growth, tackle poverty, and respond effectively to climate change.*







## Flag Off- 329 Nos of e-3w

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# Acknowledgment

Green Climate Finance Vertical is the dedicated division of SIDBI which is prioritising SIDBI's green footprints, both financial and non-financial. The World Bank and Korea-World Bank Partnership Facility have supported SIDBI in the extensive consultations, research, and capacity-building of the stakeholders in the electric vehicle ecosystem. We thank all the stakeholders of EV Ecosystem including enterprises, bankers, think tanks, OEMS, Fleet Operators, NBFCs etc.,

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# Executive Summary

The commitment of India towards climate mitigation has highlighted the transport sector emissions. Out of the many clean technologies available, the battery-operated electric vehicle holds immense potential to reduce emissions along with import dependency on fossil fuels. The electrification journey witnessed various initiatives taken by the central government i.e., FAME, state government EV policies, and pledges by corporations to promote cleaner e-mobility modes. Despite these proactive measures, the adoption of electric vehicles was not at the requisite rate to achieve the target of EV30@30 (at least 30 percent new electric vehicle sales by 2030). The overall penetration of electric vehicles is approximately 1% comprising all modes. The adoption is largely driven by the electric-three-wheeler segment as the EV sales penetration is around 50% followed by electric two-wheelers at 5%. The penetration in the 3-wheeler segments has outpaced other modes but the adoption has happened in the less sustainable category i.e., e-rickshaw using lead-acid battery.

The broad challenges hampering the adoption are a lack of trust in EVs, limited affordable financing options, higher upfront cost, and range anxiety. The nationwide consultation reflected the positive outlook towards adoption with necessary safeguards limiting the losses. The safeguards in the form of de-risking measures need to mitigate the product risk including the reliability of OEMs, customer risk, and better resale market. On the other hand, an important lever to increase financing is to enable the financiers by augmenting their capability to assess the electric vehicle proposals. Given this, SIDBI took i3 (interact, ideate and impact) approach to increase awareness by designing capacity-building programs dedicated to credit officers. The combination of field visits and classroom training by experts from prevailing business models to necessary checks for evaluating the proposals was part of the program.

SIDBI being DFI and a proponent of greener enterprises and technologies designed multiple schemes to promote the adoption of electric vehicles. The 50KEV4ECO is one of the first kind, dedicated to supporting the downstream section of the EV ecosystem aimed to support MSMEs in their transition to EV and start-ups using innovative solutions to uptake the adoption. To increase the confidence of the lenders, SIDBI in partnership with Shell Foundation has launched a “Risk Sharing Facility”. SIDBI is also working with Multilateral Developmental Institutions like the World Bank, ADB etc. to evolve the EV ecosystem towards affordable financing and reducing the emissions of the transport sector, hence contributing to EV30@30.

The gist is that there is enormous scope for the transition to electric vehicles across all vehicle modes to achieve the target of 2030.



# SIDBI's Climate Change Journey

## The Beginning

Start of Journey with partnership with Bilateral/ Multilateral like JICA, KFW, AFD, World Bank, etc.,

2005

## Scaling Up

- Setting up of “**Energy Efficiency Cell**”
- Operationalisation of World Bank, GEF supported Financing Energy Efficiency at MSMEs project.
- Technical support to MSMEs in 26 clusters

2010

## Reformation

- Operationalisation of World Bank, GEF, CTF supported “Partial Risk Sharing Facility for Energy Efficiency” (PRSF) project
- Launch of “**End to End Energy Efficiency (4E)**” Financing Scheme.
- Accredited as “**National Implementing Entity**” for Green Climate Fund

2015

## Strategizing Green Priorities

- Setting up of “**Green Climate Finance Vertical**”
- Revamp of Green Schemes
- Building strong partnership
- Launch of SpeX, GRIT, GIFS & GROW.

2021

## Building Ecosystem

- Launch of “**PANCH TATVA**” Missions (Solar, Energy Efficiency, Electric Vehicles, Waste to Environment Taste, Nurture t Nature).
- Consolidation of WB supported RSF for energy efficiency for MSMEs, followed by launch of “**Municipal Solid Waste**”.
- Launch of Electric Vehicle schemes, viz. **50K-EV4ECO** and EV-RSF with Shell Foundation.
- Launch of Scheme for Circular Economy, viz. SPICE and GIFT & Decarbonisation Challenge Fund.
- Building direct green loans portfolio

2023

Aligning green pathways towards ‘NET ZERO’



## Abbreviations And Acronyms

Abbreviation/ Acronym	Explanation
ADB	Asian Development Bank
AFD	Agence Française de Développement
AIS	Automotive Industry Standards
BaaS	Battery as a Service
BMS	Battery Management System
CaaS	Charging as a Service
CAPEX	Capital Expenditure
CO <sub>2</sub>	Carbon dioxide
DFI	Development Financial Institution
DFS	Department of Financial Services
e-2/3Ws	Electric Two- and Three-Wheelers
E&S	Environmental and Social
EE	Energy Efficiency
EV	Electric Vehicle
EVOLVE	Electric Vehicle Operations and Lending for a Vibrant Ecosystem
FAME	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India
GCFV	Green Climate Finance Vertical, SIDBI
GoI	Government of India
GWh	Gigawatt hours
ICAT	International Centre for Automotive Technology
ICE	Internal Combustion Engine
IP	Ingress Protection
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
LCV	Light Commercial Vehicle
MoRTH	Ministry of Road Transport and Highways
MSME	Micro, Small and Medium Enterprises
NBFC	Non-Banking Financial Company
NITI	National Institution for Transforming India
OEM	Original Equipment Manufacturer
OPLEA	Operational Lease
PFI	Participating Financial Institution
PRSF	Partial Risk Sharing Facility
RSF	Risk Sharing Facility
SIDBI	Small Industries Development Bank of India
TCO	Total Cost of Ownership
USD	United States Dollar
SpEX	Sustainability Perception Index
GIFS	Green Indian Financial System
GIFT	Green Investment and Financing for Transformation Scheme
SPICE	Scheme for Promotion and Investment in Circular Economy





# Chapter 1: Understanding the Electric Vehicle Ecosystem

## 1.1 Background

India has set an ambitious climate change mitigation target and has committed to low-carbon growth in the energy and transport sectors. The transition to electric vehicles (EVs) is a critical cornerstone for the transport sector decarbonization. The government of India has adopted mission EV 30@30, to reach a 30% sales share for EVs by 2030. However, the adoption so far is not in line with the intended target. As per the Ministry of Heavy Industries, approximately 1.7 million hybrid or electric vehicles are currently in use in India. To reach the intended target, NITI Aayog estimated cumulative sales of EVs should be more than 79 million.

## 1.2 Rationale to switch to electric vehicles

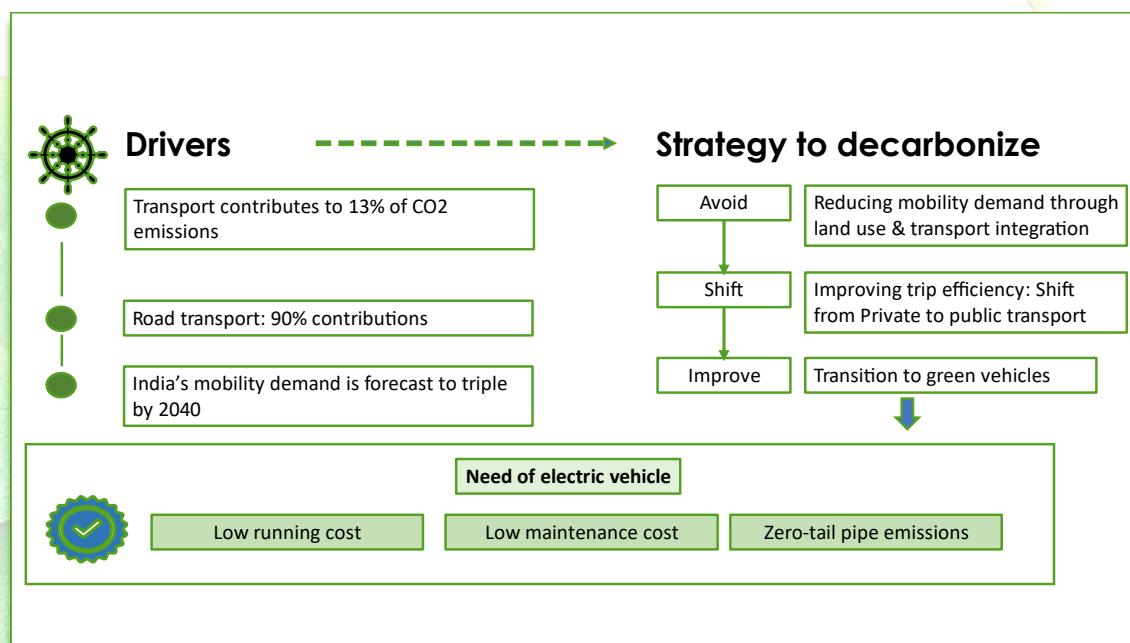


Figure 1: Rationale for switching to EVs

## 1.3 Benefits of Electric Vehicle Adoption

The adoption of electric vehicles presents multiple benefits. It will not only reduce the overall emissions in the transport sector but will also result in monetary savings for the end users. The upfront cost for electric vehicles is higher in comparison to their ICE counterparts but they offer increased comfort and savings. The comparison between ICE and Electric Vehicle is shown below:

Table 1- Comparison between ICE and EVs

Parameters	Internal Combustion vehicle (ICE)- Petrol, Diesel, CNG	Electric Vehicle
Upfront cost	Less	High: 20-25% higher
Data	Limited	Extensive- Can be used for optimization
Efficiency	Braking energy not recovered	Braking energy can be recovered
Operations		



Fuel cost	High: INR 2-2.5/ km (2W) INR 3/ km (3-W) INR 6-8/ km (4-W)	Low: INR 0.2-0.3/ km (2W) INR 0.4-0.5/ km (3W) INR 1-1.2/ km (4W)
Maintenance	High	Low
Refilling time	Short refilling time	Long charging time
Battery replacement	NA	Yes
<b>Environmental Impact</b>		
Emission	Emit greenhouse gases	No tail pipe emission
Noise level	Noisy operation	Quiet operation

For ease of understanding, the monetary savings of owning electric two-wheelers due to reduced fuel cost and maintenance is shown below:

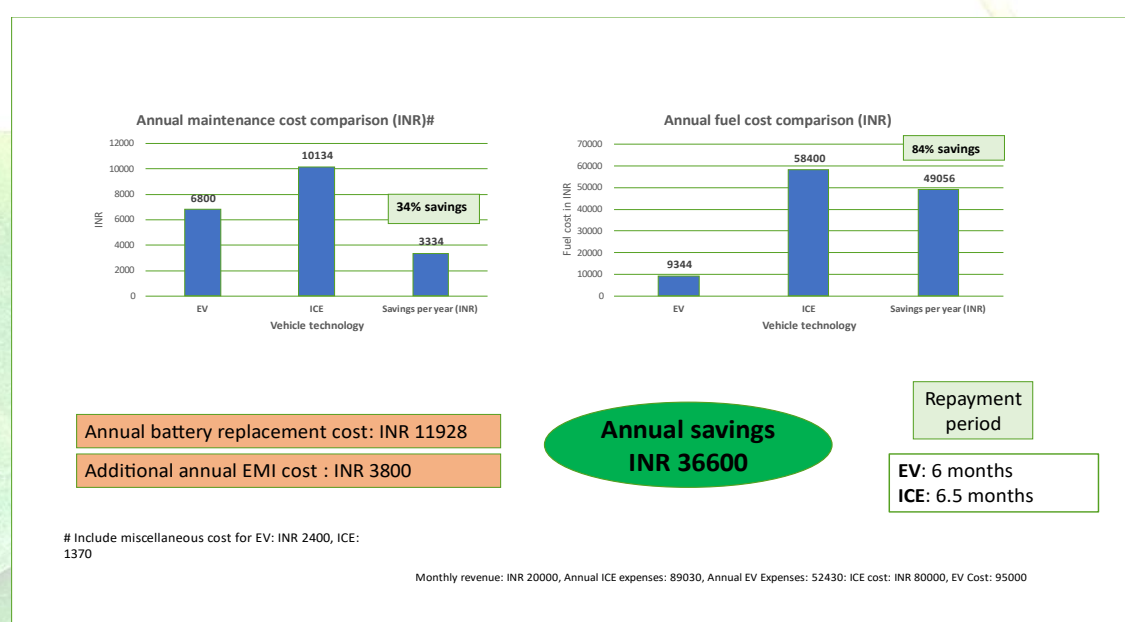


Figure 2: Monetary Savings of e-2W

The annual savings are INR 36000+ due to lesser maintenance and fuel costs. The major contributor in savings is reduced fuel costs.

Along similar lines, the savings in the electric three-wheelers is shown below:

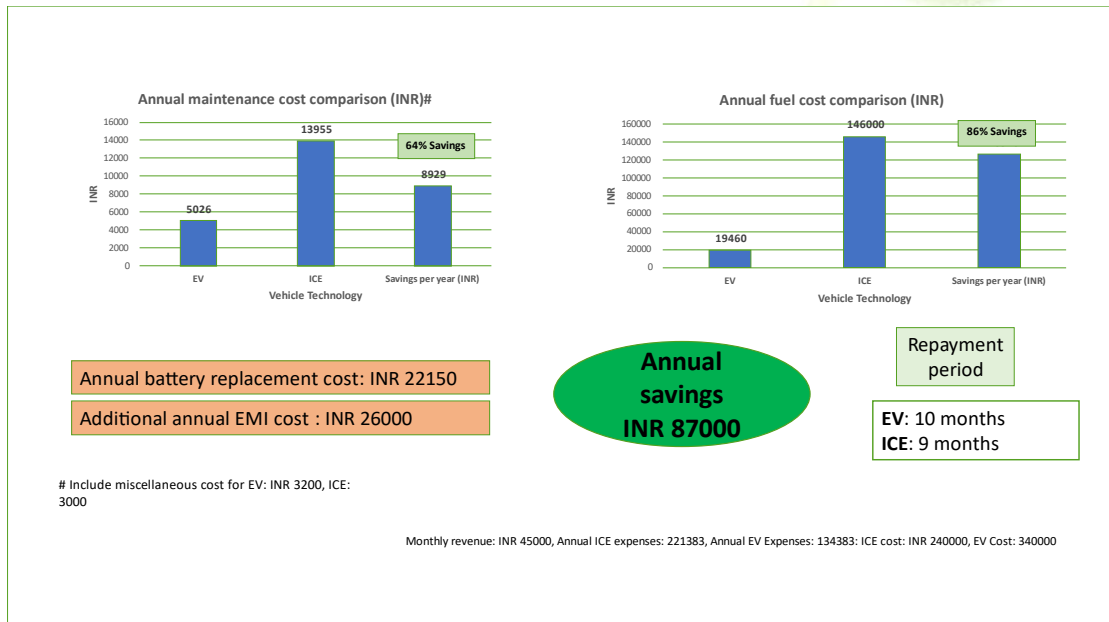


Figure 3: Monetary Savings of e-3W Passenger

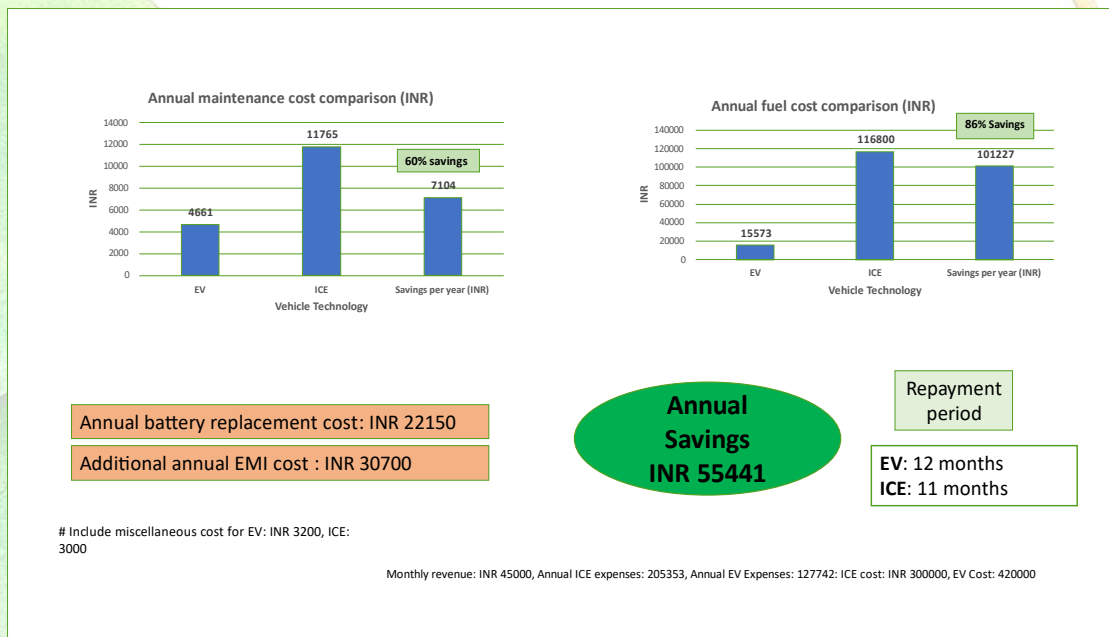


Figure 4: Monetary Savings of e-3W Cargo

## 1.4 Business Models in the EV Ecosystem

There are various case scenarios for electric vehicles and so are the prevalent business models. The increased demand for electric vehicle deployment and the limited availability of affordable financing are paving the way for different business models: asset-heavy and asset-light. The ecosystem comprises the electric vehicles and associated charging infrastructure including battery swapping. The evolving business focuses on reducing the upfront cost as well by leasing the electric vehicle, pay per use of the energy etc.



The prevailing business models are as under.

- (i) Mobility as a Service
- (ii) Battery as a Service
- (iii) Charging as a Service

The overview of prevalent business models is shown in below representations.

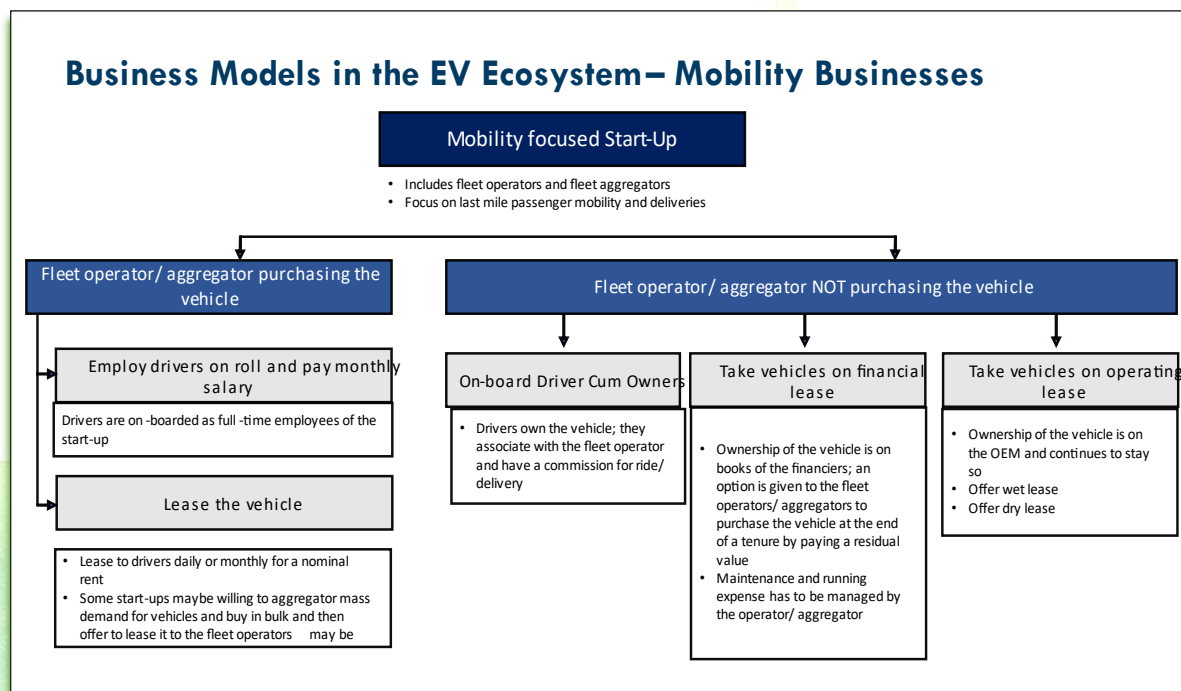


Figure 5: Business Models - Mobility Business

The fleet operator/ aggregator owning the vehicle either employs the drivers or leases it to the driver-partners and focuses on the operations. In the case of asset-light, the fleet operators act as platforms to on-board driver cum owners of the vehicles or take vehicles on lease.

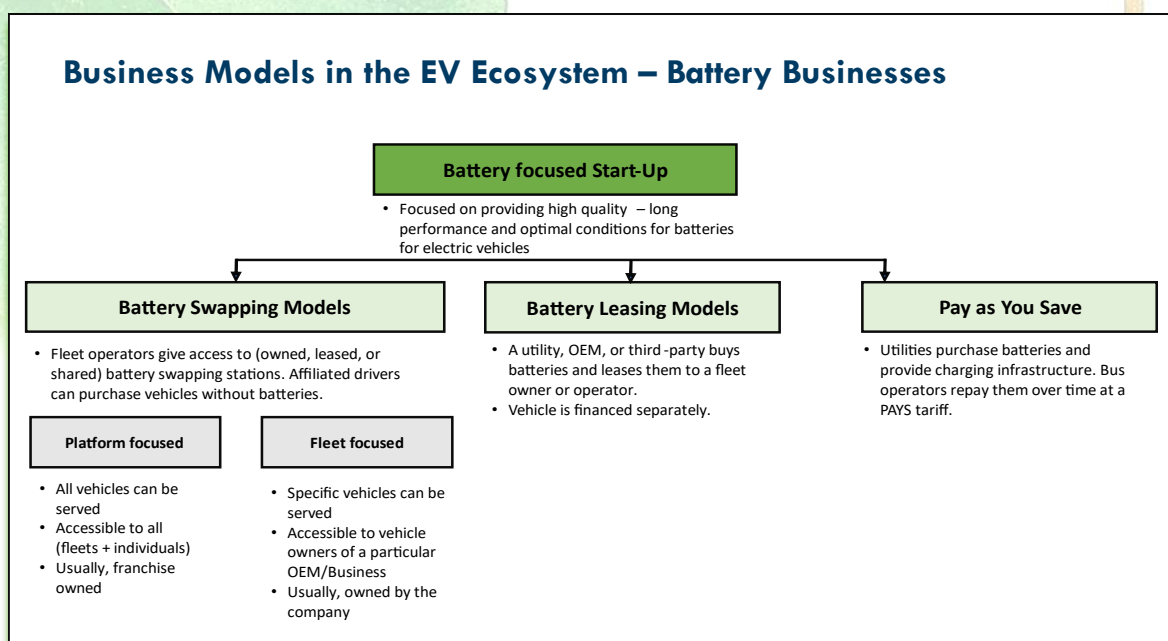


Figure 6: Business Models - Battery as a Service

Even in the battery ecosystem, multiple business models exist depending on the requirements. The battery swapping stations cater to the captive fleet with a focus on specific vehicles to the public battery stations catering to the various OEM models.

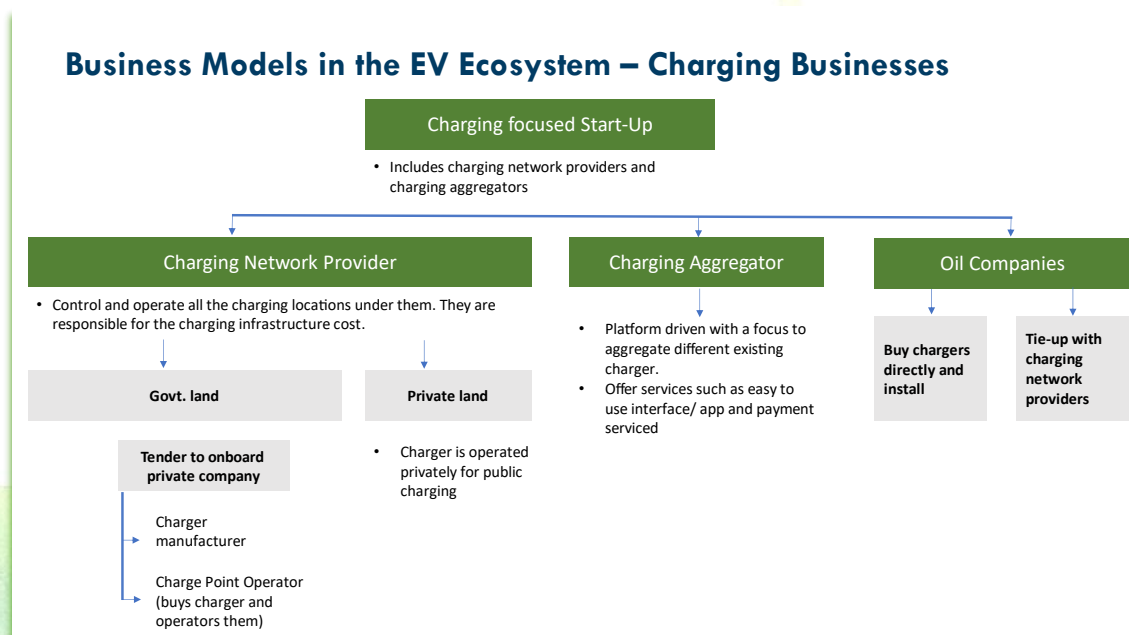


Figure 7: Business Models - Charging as a Service



# *Charging the E-Mobility Roadmap*





## Chapter 2: Developments in India

India embarked on its Electric mobility journey in 2015, with the launch of the flagship scheme “Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles (FAME India)”. Its approach to electric mobility evolved towards developing a shared & connected mobility paradigm and reducing the fossil fuel imports. The Government’s approach for India’s EV transition also encompasses:

- 1) Promotion of localization ‘Make in India’ or Aatmanirbhar Bharat and position India as an export hub for EVs
- 2) Establishing and promoting a comprehensive policy framework that supports a fair and smooth transition to e-mobility.

India’s EV policy emphasises on moving people rather than vehicles, targeting incentives towards shared and public transport, which have greater potential to reduce congestion, improve urban air quality, and reduce carbon emissions. The incentives are linked to battery capacity, providing motivation to customers and manufacturers to shift towards longer-range vehicles.

### 2.1 Policy Landscape

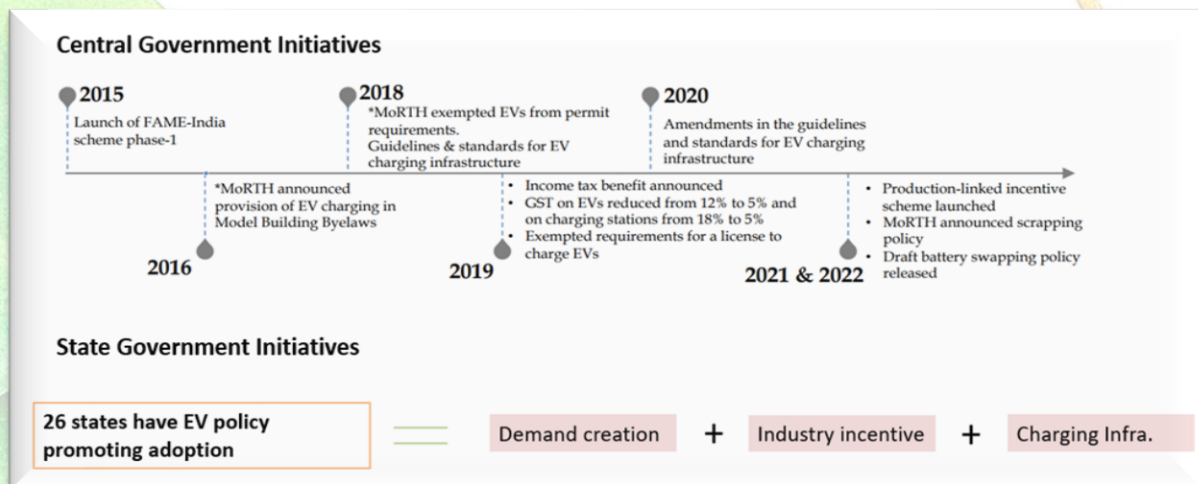


Figure 8: Policy Landscape

### 2.2 EV30@30

The government of India has adopted Mission EV 30@30, to reach a 30% sales share for EVs by 2030. However, the adoption so far is not in line with the intended target. As per the Ministry of Heavy Industries press release, approximately 1.7 million hybrid or electric vehicles are currently in use in India. To reach the intended target, NITI Aayog estimated cumulative sales of EVs should be more than 79 million.

### 2.3 Status of EV adoption

At present, the adoption of electric vehicles is below the intended target and is approximately around 1% of the vehicle population. The penetration varies as per vehicle category and is maximum among the three-wheelers followed by two-wheelers. The figure 8 shows the distribution of EV sales across different vehicle categories till FY 2023.

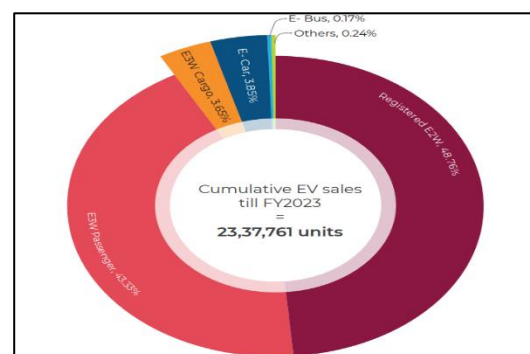


Figure 9: EV sales data



## 2.4 Market Potential of Electric Mobility

At present, the total vehicle population is more than 300 million with a mere presence of 3 million electric vehicles. The distribution of vehicle-based on the fuel type is shown below:

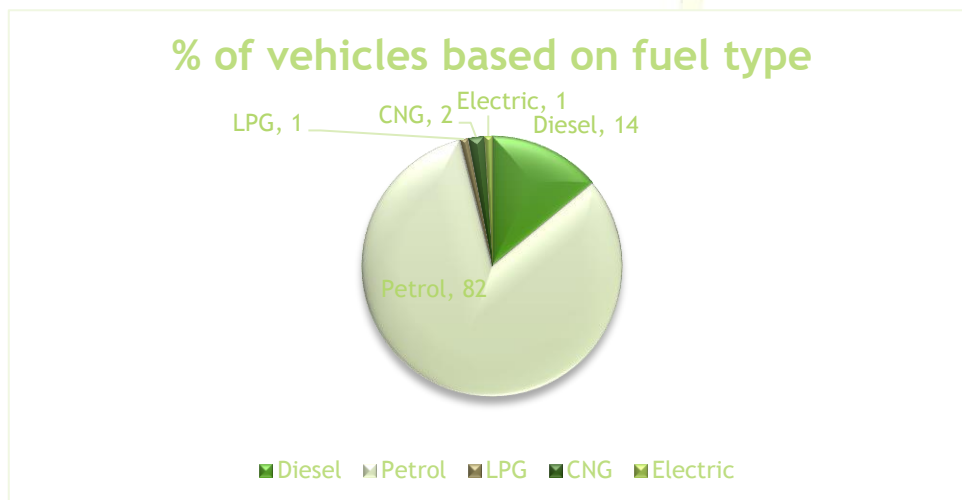


Figure 10: Vehicle proportion in % based on fuel type

Motorized 2/3Ws, typically powered by internal combustion engines, constituted about 86 percent of the total registered vehicles<sup>1</sup>. These modes cater to the mobility needs of low- and middle-income people in India, since less than 8 percent of households own cars. The bulk of 2Ws are personal vehicles (around 90 percent), with passenger and cargo fleets making up the remainder. 3Ws primarily cater to passengers (89 percent) that are without access to public transport or prefer personalized transport but lack their own private transport means. These can be owned by individuals or fleet aggregators. The remaining 3Ws are used for short-distance goods transport and are largely owned by fleet aggregators or individuals.

With the advent of state transport policies allowing registration of 2-w for commercial uses and exemption/ relaxation of road tax will boost the commercial usage of e-2w.

The different categories of the vehicle borrowers are shown below:

Table 2: Different Customer Segment

Segment	Characteristics
Salaried Individual	<ul style="list-style-type: none"> <li>Comprises salaried and affluent individuals, with steady source of income.</li> <li>They would purchase an EV scooter or motorcycle that is from reputed brands and typically high-speed. Performance and safety are key considerations for this segment.</li> <li>This segment is not averse to paying up for the high upfront cost of EVs</li> </ul>
Unorganised/ Gig-worker	<ul style="list-style-type: none"> <li>Individuals from the low-income segment working in the unorganized sector who would purchase an EV two-wheeler (high or low speed) for livelihood generation.</li> <li>They would prefer an EV over an ICE vehicle perceiving lower cost of maintaining an EV.</li> <li>This segment cannot afford the high upfront cost of the vehicles.</li> </ul>

<sup>1</sup> <https://morth.nic.in/sites/default/files/RTYB-2017-18-2018-19.pdf>

Segment	Characteristics
Driver-cum-Owner: Passenger	<ul style="list-style-type: none"> <li>• Individuals from the low-income segment working in the unorganized sector who would purchase an EV three-wheeler for passenger conveyance.</li> <li>• They would prefer an EV over an ICE vehicle perceiving lower cost of maintaining an EV.</li> <li>• This segment cannot afford the high upfront cost of the vehicles.</li> </ul>
Driver-cum-Owner: Cargo	<ul style="list-style-type: none"> <li>• This segment consists of individuals from the low-income segment working in the unorganised sector who would purchase an EV three-wheeler for carrying cargo.</li> <li>• These individuals are either switching over from manual rickshaws and carts to electric carts to reduce their physical effort. However, they are sensitive to the economics of the vehicles.</li> <li>• This segment cannot afford the high upfront cost of the vehicles.</li> </ul>
FLEET Passenger	<ul style="list-style-type: none"> <li>• This segment comprises businesses offering micro-mobility services.</li> <li>• They mostly use EV two-wheelers as a mode of transport.</li> <li>• They rent out vehicles to riders on subscription models.</li> <li>• They are technology-enabled startups, with limited business vintage.</li> </ul>
FLEET Cargo	<ul style="list-style-type: none"> <li>• This segment comprises businesses offering cargo delivery services</li> <li>• They use EV two-wheelers and three-wheelers.</li> <li>• They hire driver-cum-owners or rent them out to drivers who work as gig workers.</li> <li>• They are technology-enabled startups, with limited business vintage.</li> </ul>
OPLEA	<ul style="list-style-type: none"> <li>• This segment comprises businesses that offers EV two and/ or three-wheelers for lease to fleet operators and aggregators.</li> <li>• Some of them act as fintech (digital credit services) providers and make vehicle loans available to driver-cum-owners</li> <li>• They are technology-enabled startups, with limited business vintage.</li> </ul>
BAAS	<ul style="list-style-type: none"> <li>• Battery-as-a-service providers own batteries and manage battery leasing or battery swapping businesses.</li> <li>• The viability of the business model is dependent on stable partnerships with OEMs and mobility service providers.</li> <li>• BAAS business is a high CAPEX business.</li> </ul>
CHAAS	<ul style="list-style-type: none"> <li>• Charging-as-a-service providers own and manage EV charging stations.</li> <li>• The viability of business model is dependent on network density, reliability of grid power and partnerships with mobility services providers.</li> <li>• CHAAS business is a high CAPEX business</li> </ul>

Except the first segment, all other segments can be covered under the EV financing program for commercial usage.



## 2.5 Challenges

The adoption is restrained by multiple challenges. Out of all these, access to affordable commercial finance is identified as one of the major challenges hindering the adoption of EVs. The low confidence in financing is broadly due to business model risk and asset risk. The business model comprises counter-party risk and operation & maintenance risk whereas asset risk pertains to technology & secondary market. The low loan-to-value ratio, high-interest rates, short loan tenure and limited financing options are outcomes of reluctance in EV financing.

## 2.6 Perceived Risk

**Intensive stakeholder interactions have given us insights as mentioned below:**

In access to affordable commercial financing for EVs is attributed to actual and perceived risks associated with EV lending. There is a general perception of higher risk in lending to e-2/3Ws, driven partly by inadequate financial data on loan servicing and limited familiarity with EVs as an asset class.

*Table 3: Different Risk in EV segment*

Risk	Description of Risk and Impact
Counterparty	<p>Applies to both EVs and ICE vehicles, but is worse for EVs given higher purchase and monthly financing costs, lack of residual value benchmarks, and the nascency of market participants:</p> <ul style="list-style-type: none"><li>• Since an estimated 60 percent of the 2/3W retail borrowers are typically new-to-credit, financial institutions are not eager to offer them larger loans commensurate with the higher purchase costs for EVs, leading to limited financing and higher financial out-of-pocket cost. Collection is a major risk in the 2/3W lending business, with frequent delays in payments by those borrowers.</li><li>• EV fleet platforms/aggregators are unlikely to have as long a track record as ICE market participants and are in the growth phase resulting in losses, which leads to limited lending to such participants even though they may have enough cash on the balance sheet.</li></ul>
Product	<p>Factors leading to a lack of trust in EVs among consumers also affect lenders:</p> <ul style="list-style-type: none"><li>• Uncertainty regarding technology, performance, new OEMs, and new models, and evolving applicable standards for EVs and batteries leaving lenders:<ul style="list-style-type: none"><li>(i) unable to price risks appropriately, given the lack of experience and information gaps;</li><li>(ii) waiting for technology/regulatory landscape to stabilize;</li><li>(iii) pricing in higher risk premiums due to uncertainty or limiting loan tenors.</li></ul></li><li>• Concerns about EV safety due to isolated battery fires.</li></ul>

Risk	Description of Risk and Impact
<b>Operations</b>	<p>Three factors affect expected vehicle uptime, and therefore revenues for commercial use cases with potential impact on the debt servicing capacity of borrowers:</p> <ul style="list-style-type: none"> <li>• Uncertainty about OEM longevity, since few market players have a long-term track record and the market is evolving rapidly. The failure of OEMs could mean the non-availability of service networks and spares, and lower uptime.</li> <li>• Service networks for EVs are nascent and may not be available to ensure uptime.</li> <li>• Vehicle range and uptime over time under different conditions remain uncertain.</li> </ul>
<b>Repossession</b>	<ul style="list-style-type: none"> <li>• Financial institutions may face difficulties repossessing vehicles quickly, leading to higher loss, because of the accelerated depreciation and deterioration of EVs compared to ICE vehicles.</li> <li>• Inability to recover detachable EV batteries since users may put them to alternative uses.</li> <li>• The tendency of unused batteries to go into a state of deep discharge, in which case such batteries would need to be replaced. This is a risk unique to EVs, as ICE vehicles can be refuelled and used again.</li> </ul>
<b>Residual Value</b>	<p>Three factors result in lower assurance of recovering value from repossessed vehicles:</p> <ul style="list-style-type: none"> <li>• Uncertainty over the resale value of EVs as secondary markets are yet to emerge. Batteries, which constitute a large proportion of the vehicle cost, depreciate much faster. Price benchmarks do not exist for secondary sales and without a liquid market it is difficult to derive value from a repossessed EV.</li> <li>• Technological obsolescence due to rapid innovations in EV and battery technology.</li> <li>• Both EVs and ICE vehicles share issues regarding transferability of asset warranties, permits and subsidies, which create uncertainty on long-term performance, and limit continued vehicle usage.</li> </ul>





"Electric vehicle financing is predominantly being done by small/ unrated NBFCs. These NBFCs have acquired a good knowledge of the EV sector but they struggle with the high cost of funds which leads to the high landed acquisition cost to the beneficiary. At present, it is not possible for these NBFCs to cater to all MSMEs requiring financing for an electric vehicle for their day-to-day operations or commercial use".

While SIDBI has structured EVOLVE program with multilateral partners it has, under guidance of NITI Aayog, launched 50K-EV4ECO (to support these NBFCs as also to strengthen the EV Ecosystem)

- Mr. Sivasubramanian Ramann, CMD, SIDBI





## Chapter 3: Easing Access to Finance (50KEV4ECO AND EVOLVE)

### 3.1 Converting challenges into opportunity - SIDBI way

#### 3.1.1 Stakeholder interaction- PAN India

SIDBI strategized to conduct country-wide consultations across the EV value chain. A total of nine physical workshop consultations were carried out across nine major cities. The consultations included representations from a wide variety of Stakeholders in the EV value chain segments such as the financial institutions, OEMs, Charge point operators, Battery swapping operators, Battery manufacturers, digital service providers, Fleet operators, e-commerce players to name a few. The majority of FIs in electric vehicle financing believe a second loss facility as part of a partial credit guarantee is required to move the ecosystem in the right direction. The de-risking measures were discussed with stakeholders to understand their perspectives and make those measures market suitable.

#### 3.1.2 Capacity building program and Exposure visit

A two-day capacity building program for 40+ senior credit officers from leading Banks and NBFCs was organized on January 15-16, 2023 with the support of World Bank, to increase awareness of the EV ecosystem. The program revolved around three pillars i.e., knowledge, interaction, and outreach. A visit was also planned to the auto expo for the participants to make them aware of the latest offerings by the EV companies and the technical details of the products. On the second day, experts from the World bank, NBFC lending to EV, EV OEMs etc. were invited to brief the participants about the present landscape and the potential of the EV ecosystem. At last, participants interacted with the industry leaders to augment their understanding of the EV ecosystem and created a networking opportunity for them as well.



Figure 11: Bank officials at Auto expo

### 3.2 EV UTSAV Week, 2023

On the occasion of “World EV day”, SIDBI observed “EV UTSAV Week” across all SIDBI offices from 9th Sep 2023 to 16th Sep 2023”. During the EV UTSAV week, SIDBI conducted various activities aimed at EV sensitisation and awareness creation, social media campaigns etc. The outcomes of the EV UTSAV are given in the picture:

To address the financing challenges in electric vehicles, NITI Aayog is supporting SIDBI’s lead in implementing this mission through multi-laterals (ADB & World Bank).

As an initial step, SIDBI in collaboration with the World Bank, is developing a one-of-a-kind financial support mechanism, ‘**EVOLVE -Electric Vehicle Operations and Lending for a Vibrant Ecosystem**’. The financial mechanism would be in the form of a partial credit guarantee and concessional loan. The partial credit guarantee would cover the financial institution’s losses whereas low-cost loans would enable the reduction in interest rate to end borrowers. Additionally, multiple de-risking measures are proposed in this program in the form of formulating eligibility criteria for electric vehicle OEMs, financial institutions, and incentive-based measures to improve secondary market & asset recovery.

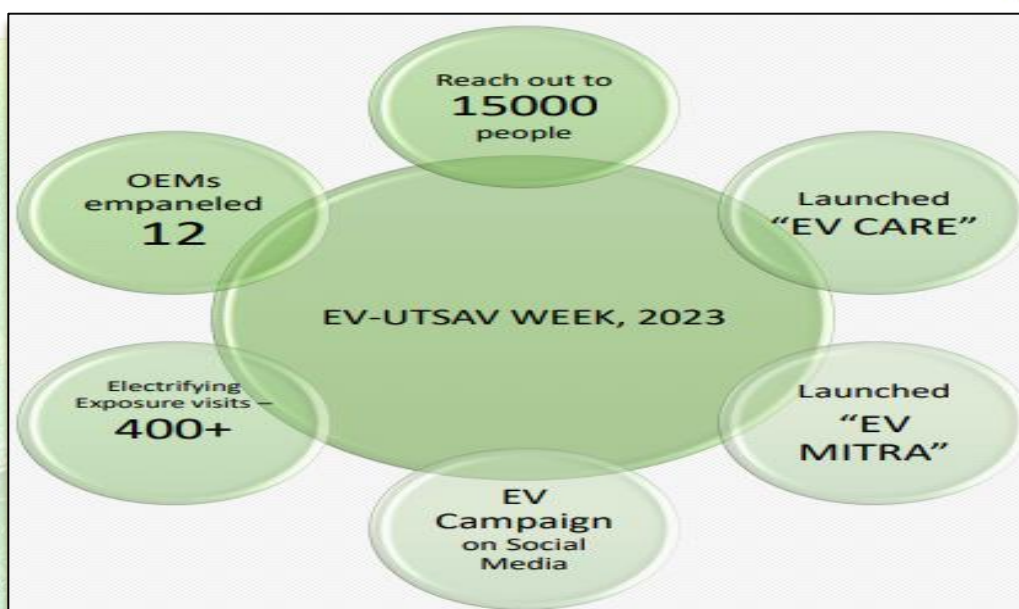


Figure 12: Summary of EV Utsav outreach





Figure 13: Women Drivers expressing views on women empowerment in EV ecosystem.

### 3.3 Present status

As part of intensive stakeholder consultations, it came up that EV financing is predominantly being done by small unrated NBFCs. These NBFCs struggle with the high cost of funds which leads to a high landed acquisition cost to the beneficiary. Reducing landed costs to customers is being prioritised by NITI Aayog. However, these NBFCs have acquired a fairly good knowledge of the EV sector. Before a multi-lateral support facility is launched, SIDBI proposed to pilot electric vehicle financing to understand the market conditions.

SIDBI has launched Mission 50,000EVs, to unlock the market by providing better financing terms and to understand any other key solutions needed to address the above issues, as a torch bearer. This scheme is the precursor to the EVOLVE scheme by SIDBI-World Bank. The pilot scheme has two components: Direct lending and Indirect lending.

Under direct lending, SIDBI will directly give loans to eligible MSME's for the purchase of electric vehicles and other EV ecosystem players active in developing charging infrastructure including battery swapping. The Indirect scheme will enable small unrated/ focused /emerging NBFCs actively engaged in EV financing by providing them with funds as a refinance facility.

### 3.4 EVOLVE

The “Electric Vehicle Operations and Lending for a Vibrant Ecosystem (EVOLVE)” has been conceptualized at the request of the Government of India (GoI), via NITI Aayog under the ambit of the National Mission on Transformative Mobility and Battery Storage, to scale-up the financing of e-2W/e-3W along with associated charging infrastructure across the country.

The program has envisioned certain benefits to the Financial Institutions across the country within the EV ecosystem. The program offers several anticipated benefits, including capital adequacy relief for PFIs, reduced credit default losses, access to lower-cost funds and affordable finance for borrowers, accelerated EV adoption, monetization of carbon credits, and capacity-building and de-risking measures.

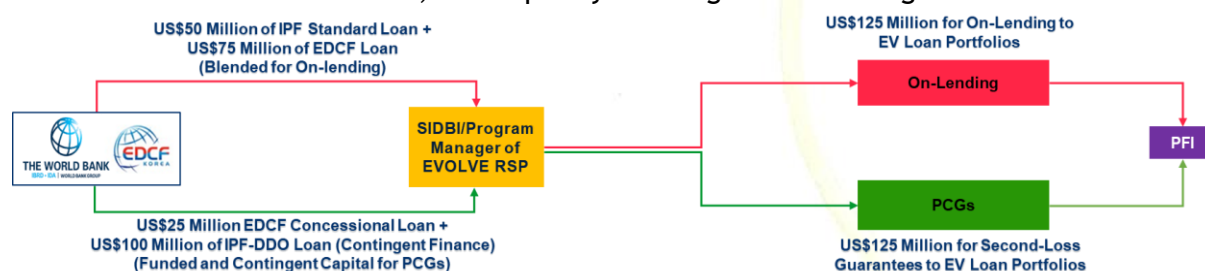


Figure 14: Structure of EVOLVE

### 3.5 Mission 50KEV4ECO

It is aimed at supporting the electric vehicle finance ecosystem by supporting financial institutions active in EV financing as well as direct borrowers willing to deploy electric vehicles for commercial operations in MSME. The scheme will bring down the cost of funds of NBFC and out of pocket expenses of the fleet operators, EV leasing companies, charging point operators etc.

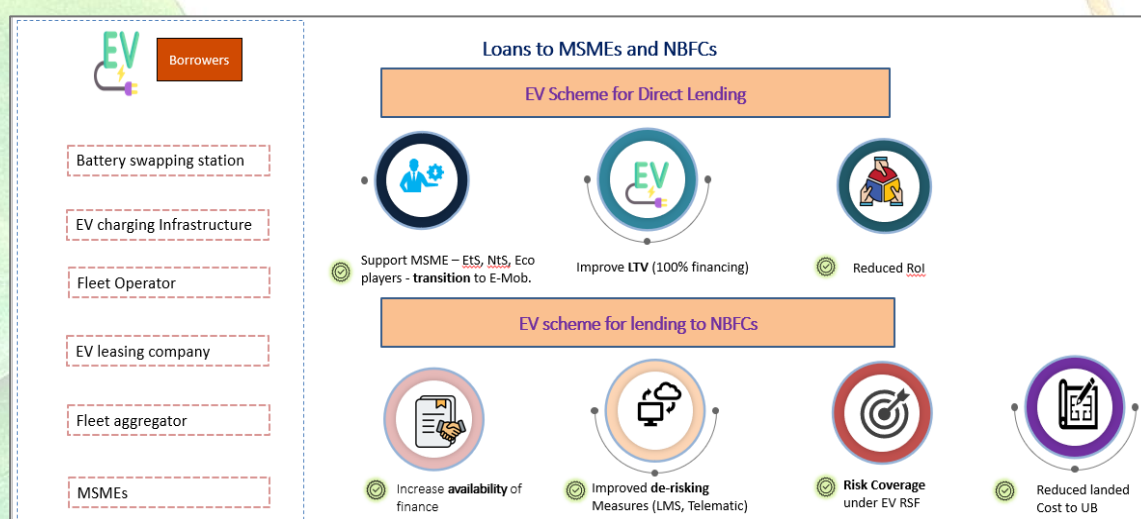


Figure 15: SIDBI 50K:EV4ECO- A Brief

### 3.6 50KEV4ECO- Business Model Supported

The SIDBI scheme for enabling affordable financing has supported start-ups present in various use case scenarios with ownership of the electric vehicles remaining with them.

The summary of the business models supported is shown below:

Table 4: Different Business Models

S.no	Business model type	Owner of the asset	User of the asset	Purpose of EV
1	EV for MSME	MSME	MSME	Daily business needs of the MSME
2	Delivery as a Service	Fleet Operator	Driver	Delivery of goods
3	EV Rental Model	Fleet Aggregator	Individual renter	Personal or commercial use
4	Battery as a Service	Battery Provider	Swap EV owner	Commercial use



**3.6.1 EV for MSME:** This caters to the use of electric vehicles for the secondary business purpose of MSMEs. The use of electric vehicles will reduce their operational expenditure. The salient features are as below:

- The MSMEs own the vehicles.
- The use of electric vehicles for their non-primary business purpose and reduces their operational expenditure.
- It also reduces the carbon footprint.
- Primary vehicle mode: 2W/ 3W/ 4W
- Example: Kolors India, Dreams Inc

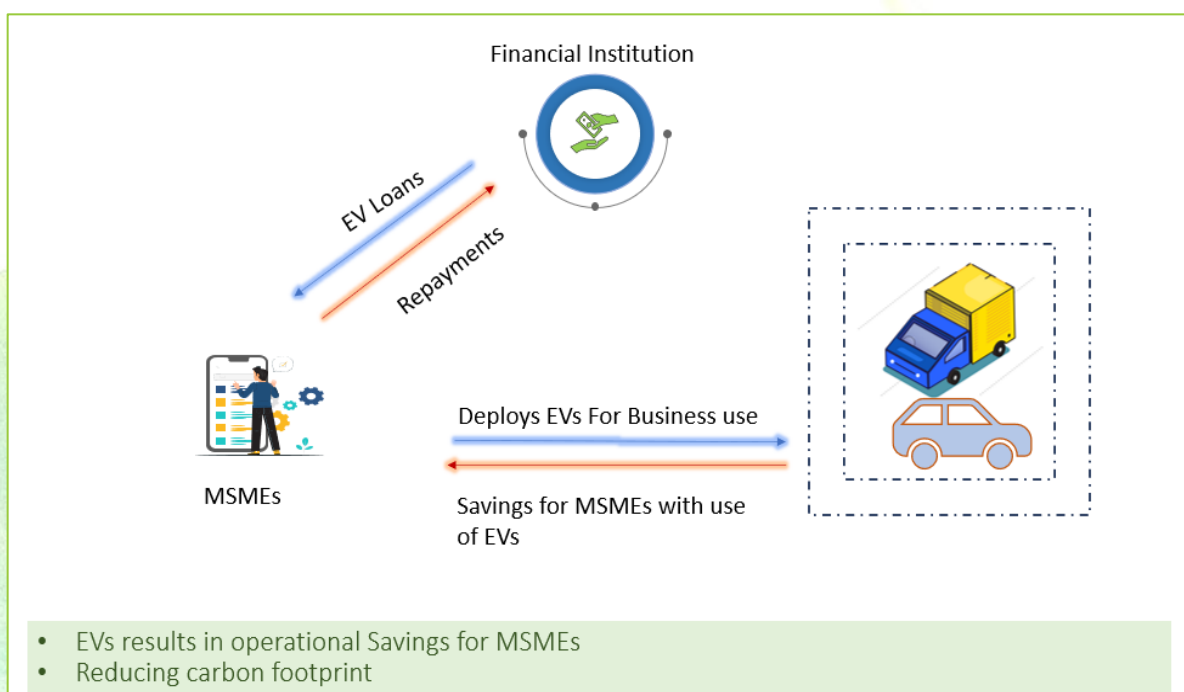


Figure 16: EV loans for MSME

**3.6.2 Delivery as a service:** The enterprise uses electric vehicles for their primary business activity and are owning the vehicles. However, it is the choice of enterprise to either own or lease the vehicle. The salient features are as below as per SIDBI supported:

- Enterprise owns the vehicle and uses it for primary business purposes which is for delivery of parcels i.e., last mile delivery.
- The enterprise hires the drivers for running vehicles i.e., delivery partner.
- The delivery partner receives and delivers orders and the enterprise monitors the operations through the digital app/ telematics devices.
- It also lead to generation of employment opportunities for underserved section of societies
- Primary vehicle mode: 2W & 3W
- Example: Magenta EV solutions, Zypp electric

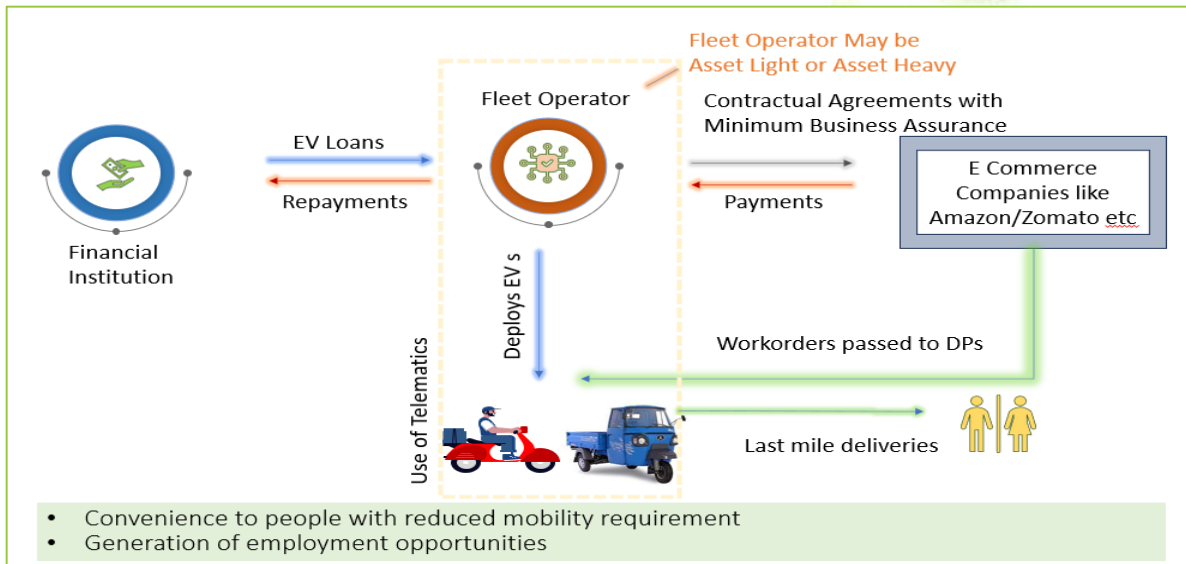


Figure 17: Delivery as a service E-2/3 W model

**3.6.3 EV rental model:** The enterprise owns the vehicle and rents it to the users as per the requirements. The salient features are as below:

- The EV are owned by enterprises and rented to users as per their requirements.
- Lower expenditure and flexibility to select products as per requirements as per usage in terms of time
- The user does not need to worry about the maintenance of the product.
- Primary vehicle mode: 2W & 4W
- Example: Techsofin pvt ltd (Driev)

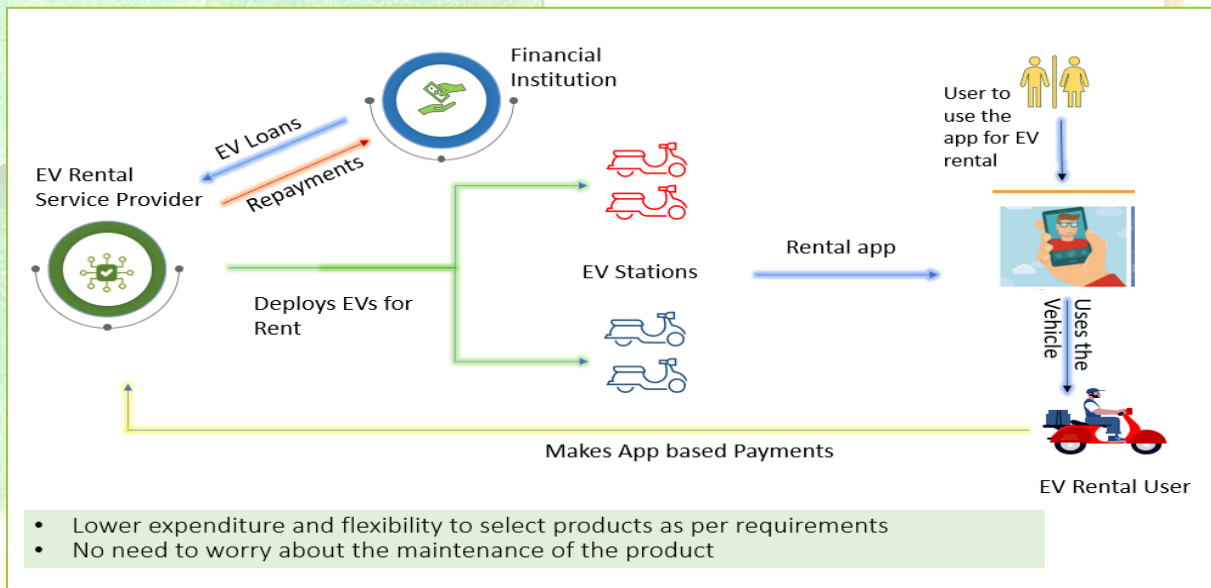


Figure 18: EV Rental model

**3.6.4 Battery as a Service:** The enterprise owns the batteries and leases it to vehicle owners on subscription basis. The subscription model depends as per as requirements. The salient features are as below:

- Reduces the capital cost of the vehicle
- Removes the range anxiety of the user and reduces the charging time
- Improve the operational performance and increase in revenue potential.



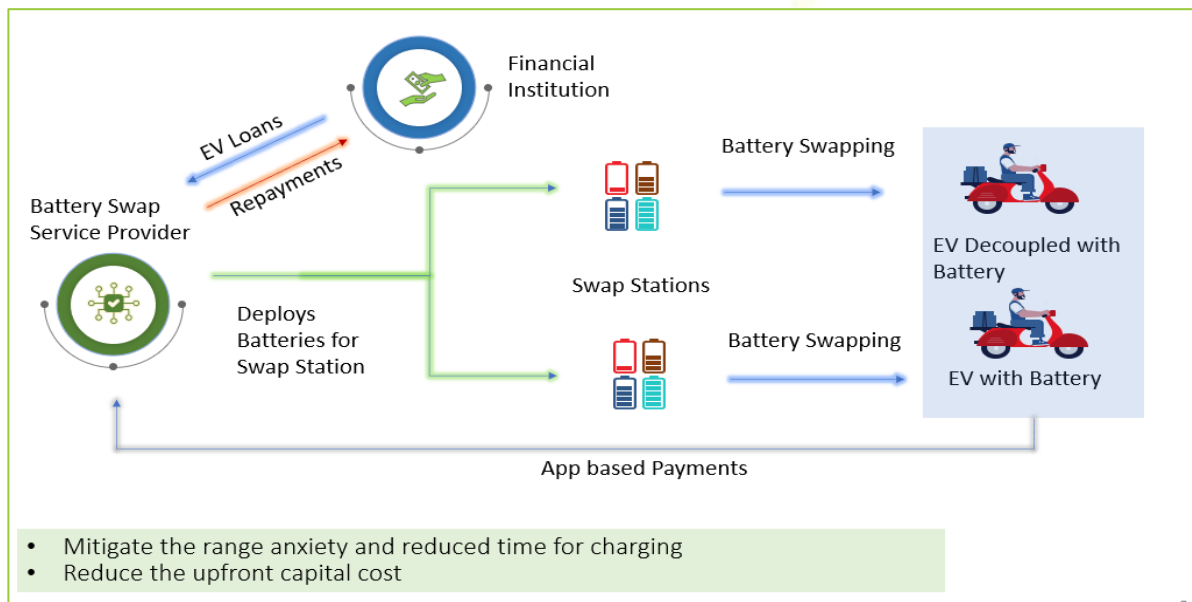
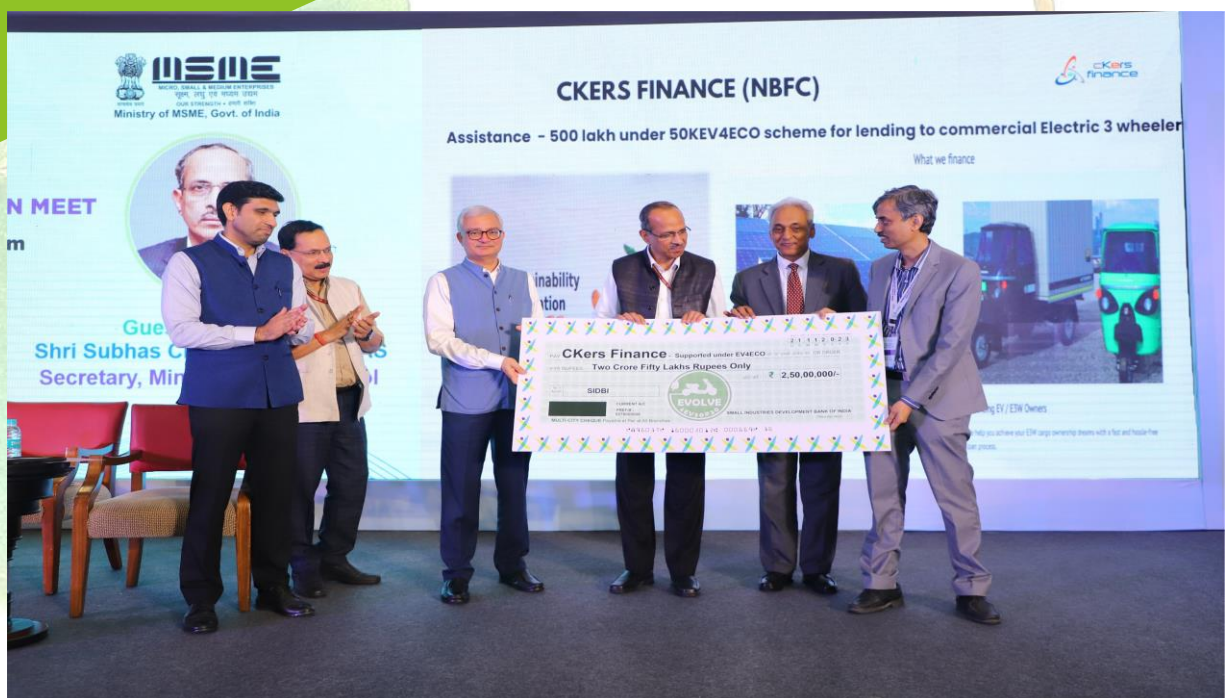


Figure 19: Battery as a service model



### Handed Over – Disbursement cheque to Ckers finance, NBFC

By: Dr. Vivek Joshi, Secretary, DFS; Mr. S.C.L Das, Secretary, MoMSME ; Mr. S. Ramann, CMD SIDBI; Mr. Bhushan Kumar Sinha, JS, DFS & Mr. Nishant Yadav, DC, Gurugram





## EV4ECO Mission 50000

### EV SCHEME FOR DIRECT LENDING

#### OBJECTIVE

To scale-up e-2/3/4Ws adoption..

#### ELIGIBLE BORROWERS

- MSMEs willing to purchase electric vehicles for their day-to-day operations | • MSME Fleet operator, Aggregator, Leasing companies/enterprises etc. | • Other EV ecosystem strengthening enterprises (charging, battery swap etc.,)
- Udyami registration shall be mandatory, | • Loan should not be given to individual driver cum owner.

#### Existing customer of SIDBI

One year of satisfactory principal repayment track record with SIDBI

#### New to SIDBI

1. Existing entities having minimum two years of operation.
2. Cash profits in last audited financial result.

#### Fleet Operators, Aggregators, Leasing Companies/enterprises etc.,

1. Minimum one year of operation
2. Should have cash profits or have received at least one round of equity investment from one or more SEBI registered Alternative Investment Fund (s) (AIF)/ or Foreign VC Investors (FVCI).
3. Should have medium / long term business assurance contract with reputed agency or should have one year of dealing with reputed agency.

#### Upfront fee

0.25% of the sanction amount

#### Eligible Electric Vehicle Type

1. Electric two-wheeler- L1 & L2 segment
2. E-rickshaw (Lithium-ion)- L3 segment
3. Electric three-wheeler, auto & cargo- L5 segment
4. Electric 4-wheeler Registration with RTO is mandatory

#### Loan Amount

1. 100% financing with minimum cash collateral of 25% in form of SIDBI FDR.
2. Minimum loan: INR 10 lakh for existing SIDBI customer & INR 20 lakhs for others
3. Maximum loan: INR 5 crores to existing SIDBI & New to SIDBI entities and INR 20 crores for the fleet operator, aggregator, etc.

#### Eligible electric vehicles/ Product/ OEMs

1. Certificate from CMVR approved testing agencies like ARAI, ICAT, GARC etc. for type of vehicle.
2. Batteries with AIS-156 certification
3. Vehicle shall be pre-fitted with telematics devices and/or tracking /IOT devices ("Telematics Device").
4. Service center at the point of sales in cities/ tie-ups.
5. The warranty of the battery should be equal to or greater than loan tenure.

#### Repayment Period

Max repayment up to 5 years.

#### Interest Rates\*

Starting at 7%

\* Based on Scoring criteria

**GREEN CLIMATE FINANCE VERTICAL, SMALL INDUSTRIES DEVELOPMENT BANK OF INDIA**

12th floor, Atama Ram House, 1, Tolstoy Marg, New Delhi-110001 | Phone: 011-23682473

Know more:- [www.sidbi.in](http://www.sidbi.in) | Feedback / Contact Us :- [gcfv@sidbi.in](mailto:gcfv@sidbi.in)



## EV4ECO Mission 50000

### EV SCHEME FOR LENDING TO NBFCs

#### OBJECTIVE

To scale-up e-2/3/4Ws adoption..

#### ELIGIBILITY

1. External rating of BBB or lower or unrated.
2. In business for 2 years with two latest audited balance sheets.
3. Net profit in last audited balance sheet or have risen at least one round of equity investment from one or more Institutional Investors.
4. Minimum AUM of INR 25 Crore
5. At least INR 15 Crore AUM into EV operations
6. Average Net NPA <= 4% as per last 2 year audited balance sheet.
7. Average Gross NPA <= 8% as per last 2 year audited balance sheet.
8. Minimum CRAR requirement as per RBI guideline for NBFC.
9. Leverage ratio within 5:1.
10. IT platform for loan management and monitoring system.
11. Robust collection management system.
12. Established repossession system.
13. Deployed or willing to deploy LMS with Telematics for API integration

#### Eligible electric vehicle type

Registration with RTO is mandatory.

1. Electric two-wheeler- L1 & L2 segment
2. E-rickshaw (Lithium-ion)- L3 segment
3. Electric three-wheeler, auto & cargo- L5
4. Electric 4-wheeler

#### Interest Rates\*

Linked to MCLR

#### Repayment period\*

Maximum repayment period up to 5 years including moratorium period.

#### Eligible activity /portfolio

1. MSMEs for purchase of electric vehicles (2W, 3W & 4W) /for their day-to-day operations
2. MSME Fleet operator, Aggregator, Leasing companies etc.
3. Other EV ecosystem strengthening enterprises (charging, battery swap etc..)
4. Individual / driver cum owner for commercial use with mandatory udyam Aadhar registration certificate

#### Eligible electric vehicles/ Product/ OEMs

1. Certificate from CMVR approved testing agencies like ARAI, ICAT, GARC etc.
2. Batteries with AIS-156 certification
3. Vehicle shall be pre-fitted with telematics devices and/or tracking/IOT devices ("Telematics Device").
4. Service center at the point of sales in cities/ tie-ups.
5. The warranty of the battery should be equal to or greater than loan tenure.

#### Portfolio sharing or contribution by NBFC

Min 50: 50 (SIDBI 50% and 50% by the Borrowing NBFC).

#### Exposure limit

Max exposure, 100% of Net Owned Funds (NOF)

#### Loan Limit

Rs 20 Crore (max)

#### Risk Sharing support

#### Upfront fee

0.25% of the sanction amount

\* Based on Scoring criteria

















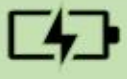


















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## Do's and Don'ts

	GO		NO GO	
Borrowers	  <ul style="list-style-type: none"> <li>❖ MSMEs willing to purchase of E-2W, 3W &amp; 4W for their day to operations</li> </ul>		 <ul style="list-style-type: none"> <li>❖ Individuals (Salaried)</li> </ul>	
	   <ul style="list-style-type: none"> <li>❖ Fleet operator*, Aggregator**, Leasing companies/enterprises etc. having cash profit or equity investment from one or more SEBI registered AIF/Foreign VC investors</li> <li>❖ Setting up Charging station, Battery swap etc.,</li> </ul>		  <ul style="list-style-type: none"> <li>❖ EV OEMs#</li> <li>❖ Battery and charger OEMs#</li> </ul> <p>#Can be covered under Green Finance scheme</p>	
Product/ Vehicles	 <ul style="list-style-type: none"> <li>❖ ARAI, ICAT, GARC etc. approved</li> </ul>		 <ul style="list-style-type: none"> <li>❖ Without type approval certificate</li> </ul>	
	   <ul style="list-style-type: none"> <li>❖ Batteries AIS-156 certified &amp; IP65/IP 67 rated.</li> <li>❖ Vehicle with tracking/IOT devices</li> <li>❖ The warranty of the battery should be equal to or greater than the loan tenure.</li> </ul>		  <ul style="list-style-type: none"> <li>❖ Lead Acid battery</li> <li>❖ Batteries without IP65/67</li> <li>❖ Without telematics</li> </ul>	
Loan Amount	 <ul style="list-style-type: none"> <li>❖ Rs 10 lakh to Rs 20 Crore</li> <li>❖ 100% funding (with cash collateral of 25% of SIDBI FDR)</li> </ul>		 <ul style="list-style-type: none"> <li>❖ Loan amount more than Rs 20 cr</li> <li>❖ Single loan less than Rs 10 lakh</li> </ul>	
Security	 <ul style="list-style-type: none"> <li>❖ Charge on movable assets of the borrower</li> <li>❖ Hypothecation and first charge on the Vehicle in favour of SIDBI.</li> </ul>		 <ul style="list-style-type: none"> <li>❖ Cash collateral less than 25%</li> </ul>	
Insurance of vehicles	 <ul style="list-style-type: none"> <li>❖ Comprehensive insurance policy</li> </ul>		 <ul style="list-style-type: none"> <li>❖ Third party insurance</li> </ul>	

\* A fleet operator is an entity that manages the purchase, use, and maintenance of the commercial vehicles in the fleet – Ex: Zypp, Magenta etc.

\*\* "Aggregator means any person or entity who owns, operates, or manages a fleet of vehicles through a digital or electronic facility or a web platform for a passenger to connect with driver for the purpose of transportation.

Figure 20: Do's and don'ts



“India has set ambitious climate change mitigation targets and has committed to low-carbon growth in the energy and transport sectors. SIDBI EV4ECO initiative will enable the affordable financing of electric vehicles and also contribute to the reduction in vehicular emissions and reduce the operating cost in the logistics sector”

**- Mr. Sudhendu Sinha, Adviser  
(Infrastructure Connectivity – Transport & e-mobility), NITI Aayog**





## Chapter 4: Risk mitigants models

The market failures in access to affordable commercial financing for EVs are attributed to actual and perceived risks associated with EV lending. There is a general perception of higher risk in lending to e-2/3Ws, driven partly by inadequate financial data on loan servicing and limited familiarity with EVs as an asset class. To mitigate the risks SIDBI has taken several de-risking initiatives to reduce the expected losses either through covering the losses or incentivizing the good practices to reduce the losses in the electric vehicle financing ecosystem.

SIDBI has experience of managing Risk Sharing facility over 10 years and also undertaken several initiatives which include development assistance and a line of credit from The World Bank, Japan International Cooperation Agency (JICA), Kreditanstalt für Wiederaufbau (KfW) and Agence Française de Développement (AFD).

SIDBI has proved its credibility on the World Bank project's and has capability to implement such large/innovative projects. SIDBI has dedicated "Green Climate Finance Vertical (GCFV)" to implement green innovative projects.

SIDBI is currently the implementing entity of the India Partial Risk Sharing Facility for Energy Efficiency Project (PRSF) supported by a USD 16 million GEF Grant (USD 12 million for establishing and operating the risk sharing facility and USD 4 million for goods, works, and consultant services, trainings, and operating costs). To date, SIDBI has issued guarantees to 45 energy efficiency projects under PRSF and experienced zero calls on its guarantees.

Capacity building, both on demand side and on supply side, has been instrumental for this initiative. It included awareness programs, visits to successful projects, and multi-stakeholder workshops to brainstorm and find customized solutions. More than 100 ESCOs, 5000 energy professionals and 10000 MSMEs have received information or have benefited directly from the programme. Consulting companies have been engaged to help generate pipelines of projects through workshops, showcasing successful similar projects and being in continuous touch with all stakeholders. A key lesson learned is the necessity of having technical aide along with financial incentives.

SIDBI's extensive experience, an acumen to tackle challenges and a recent performance on the Risk sharing Facility on Solid Waste Management would be useful for successful implementation of the EV project.



## SIDBI effectively leveraged Partial Risk Sharing Facility (PRSF) to catalyze EE Investments

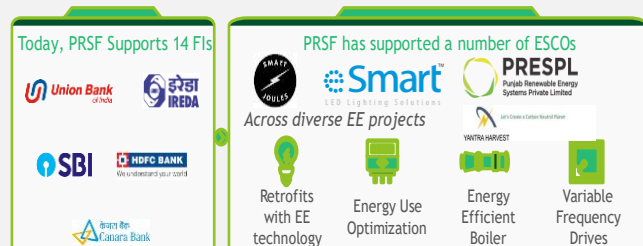
About the Initiative:

\$37M Risk Sharing Facility is funded by GEF Contribution of \$12M backstopped by CTF Guarantee of \$25M, provides a **risk cover up to 75% debt in an ESCO led Energy Efficiency (EE) Project**

PRSF, since its launch in 2015, has unlocked the EE Financing Market by addressing key challenges faced by the ecosystem:

- Lack of technical expertise among FIs while evaluating EE
- FIs not familiar with emerging ESCO models
- Weak Balance Sheet and limited / no collateral with ESCOs

Risk-sharing facility through FIs, basis technical screening, has enabled development of ecosystem with enhanced capacity to assess EE Projects coupled with credit enhancement. Later, PRSF has been broad-based to cover Sustainable Commuting, Waste to Energy, etc.



### Impact across levers ...

- \$121M** Worth of cumulative investment raised
- 76** ESCO Projects Supported with multiplier leveraging
- 371 GWh** Annual Energy Savings Achieved
- 300K tCO2** Annual GHG Emission Reduction
- Risk Mitigant** PRSF has led to launch of variant models including SWM, EV, etc.

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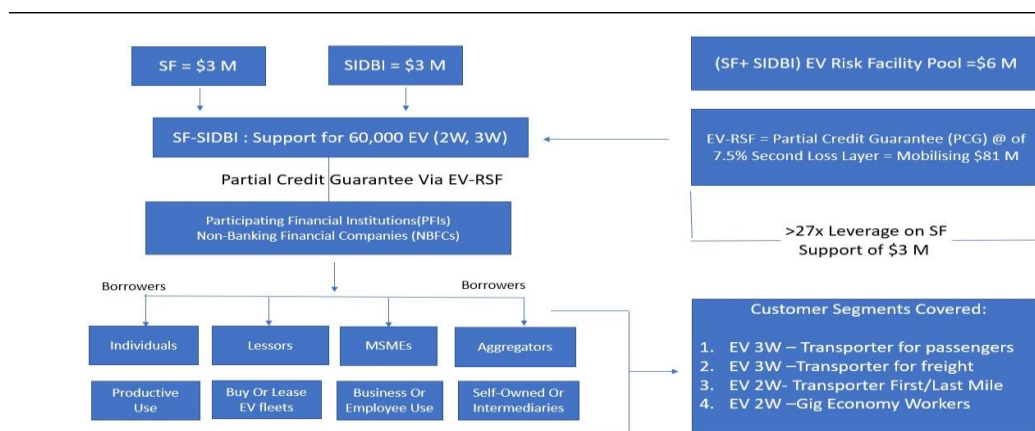
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Figure 21: Partial Risk Sharing Facility

### 4.1 EV-Risk Sharing Facility

SIDBI and Shell Foundation partnered to support the EV Ecosystem and decarbonize the transport sector in India, by developing a risk sharing facility to unlock commercial financing of EV by financing institutes to low-income Transporters i.e., MSMEs in 2W&3W. The risk sharing facility will act as a catalyst to expedite the adoption of electric vehicles. It is a second loss facility, where the first loss of 3% will be taken up by participating financial institutions and RSF will cover 75% of the losses from 3% to 13% at the portfolio level.

#### SF-SIDBI EV RSF Structure



8

Figure 22: Risk Sharing Program Overview

## 4.2 De-risking through EVOLVE

EVOLVE has incorporated several de-risking measures by incorporating eligibility criteria for financial institutions, EV OEMs, and optional de-risking measures. The optional de-risking measures incentivize the financial institutions to adopt them. The optional de-risking measures are aimed at improving the payment collection efficiency, repossession efficiency, the practice of collecting data on electric vehicle performance, and better measures to realize the value of the repossessed vehicle.

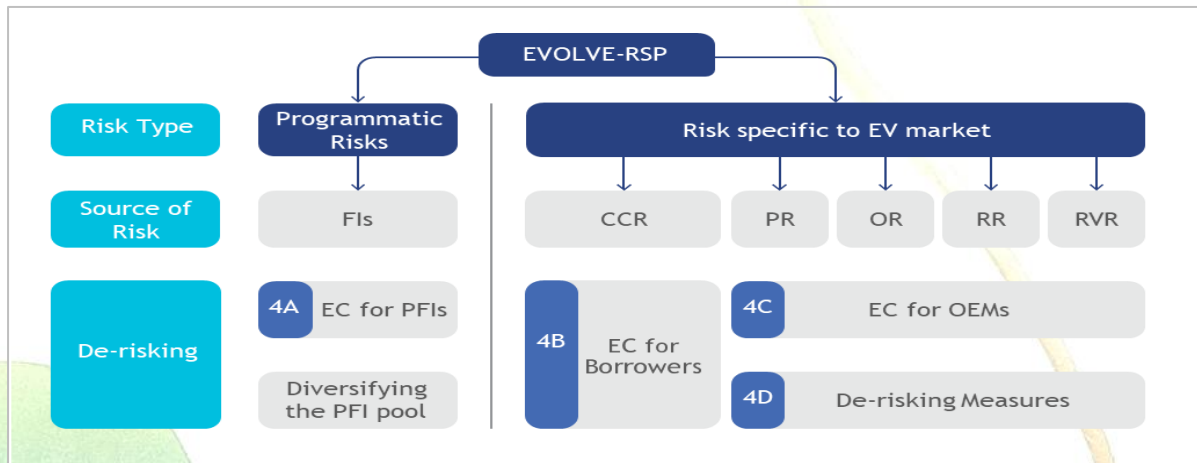


Figure 23: De-risking the EV financing ecosystem





## Chapter 5: Non-financial measures



### 5.1 Capacity Building: Strategy that works

#### 5.1.1. Introduction

In a concerted effort to equip credit officers within the value chain with the latest insights and knowledge in the dynamic Electric Vehicle (EV) ecosystem, SIDBI organized a comprehensive capacity building program. This program aimed to foster a deeper understanding of the EV landscape, including market trends, financial aspects, and SIDBI's pivotal role in facilitating the growth of the EV sector. The program was conducted in two separate batches, ensuring maximum participation and engagement.

#### 5.1.2. Background

SIDBI is conceptualizing the World Bank-supported EVOLVE-Risk Sharing Program, which focuses on promoting electric 2-wheelers and electric 3-wheelers through Partial Credit Guarantees and Loan(on-lending) facilities to participating financial institutions. Additionally, SIDBI, as a frontrunner in enabling the affordable financing of electric vehicles for enterprises, launched the 50KEV4ECO scheme in April 2023 to support GOI's ambitious target of EV30@30.

To ensure the success of these initiatives, it is essential to increase awareness of the electric mobility sector and SIDBI's EV schemes to Senior lenders, the key players in the successful implementation of the schemes at PAN India.

#### 5.1.3. i3 strategy

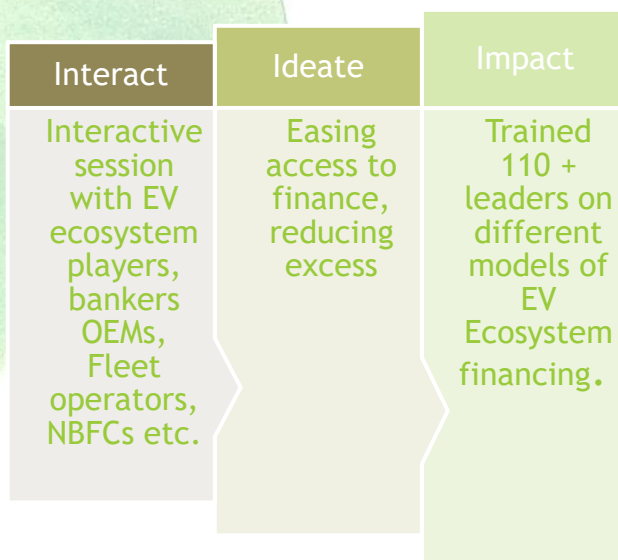


Figure 24: i3 strategy

## i3 Strategy



Considering this, organized One Day Sensitization program for the senior credit officers in two batches, one on 23<sup>rd</sup> September 2023 and other on 7<sup>th</sup> October 2023, in New Delhi to disseminate information about the Electric Mobility Sector developments and EVOLVE RSP and 50KEV4ECO schemes, for successful implementation of EV Schemes.



Figure 25: Green initiatives

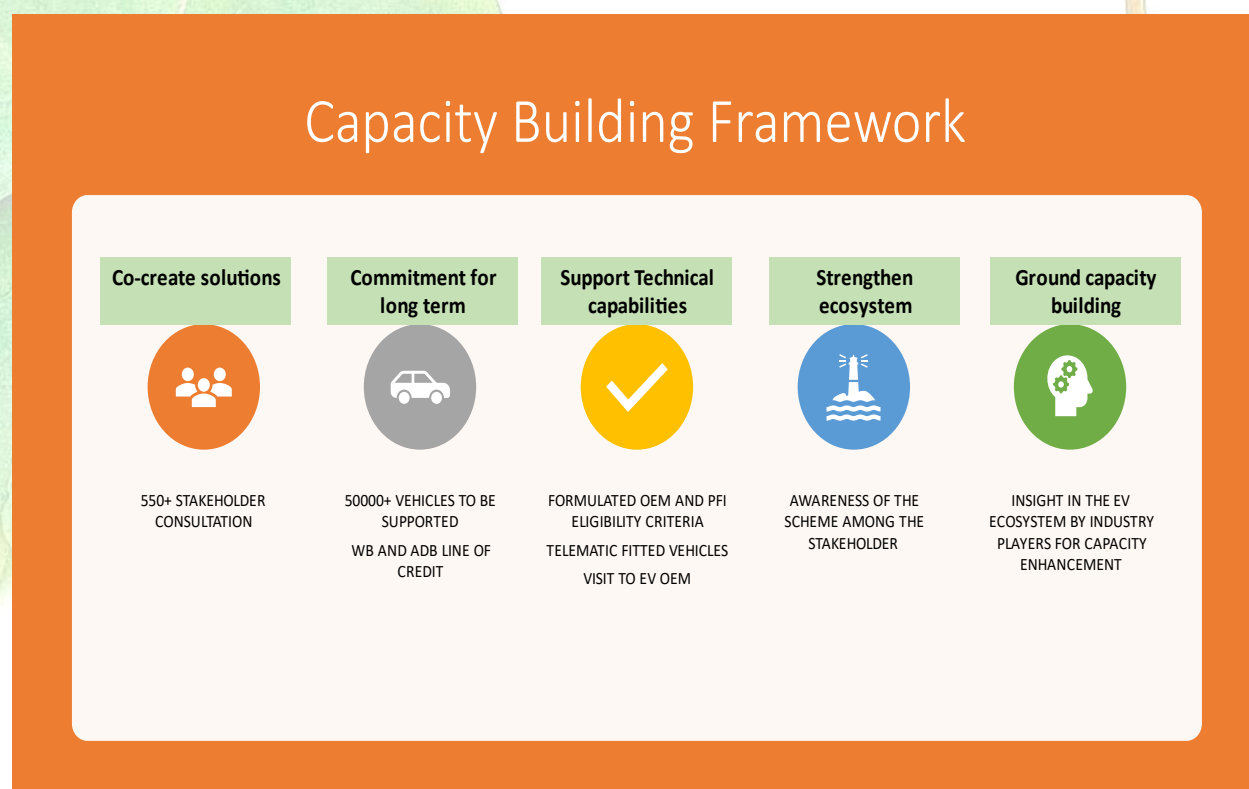


Figure 26: Capacity Building Framework

Based on our experience, structure of Capacity building program can be modelled like this:



Figure 27: Capacity building program model

Table 5: Structure of capacity building program

	Electric Vehicle Ecosystem
<b>Electric Mobility Sector Overview</b>	Understanding the Current Landscape of Electric Mobility and global practices on EV
	Key Trends, Opportunities, and Challenges in the Electric Mobility Sector
	Understanding different Business Models in EV Ecosystem
	Business Models financed under 50KEV4ECO
<b>Customers Voice</b>	Overview of operations by fleet operators, business, how they manage fleet including importance of telematics.
	Battery as a service- Overview of operation by Battery Operator
	Market overview and trends in EV adoption- Perspectives from OEMs
	Perspective of leasing company in EV penetration across country
	Perspectives of Demand Aggregator
<b>EV Financing</b>	How Banks are lending to EV ecosystem, technologies used, and credit underwriting process
	How NBFCs are lending to EV ecosystem, technologies used, and credit
	underwriting process
<b>Open Forum</b>	Experience sharing by the branches.
	Addressing Participants' Queries and Clarifications

## Brief learnings of SIDBI programme are:

### 5.1.4 Program Overview & Objective

The capacity building program was designed to provide senior credit officers with a holistic understanding of the EV ecosystem and SIDBI's various EV schemes and initiatives. Through a combination of presentations, discussions, and interactive sessions, participants gained valuable insights into the EV sector's nuances, challenges, and the Evolving role of financial institutions in its development.





Figure 28: Inauguration of the program with jyothi Prajwalan

The primary objectives of the Sensitization program were as follows:

- a. **Electric Mobility Sector Awareness:** The interactions and knowledge dissemination from industry experts helped the senior officials of SIDBI gain prominent knowledge about development and progress happening in the Electric Mobility Sector.
- b. **Promote Scheme Awareness and Capacity Building:** The sensitization program served as a platform to raise awareness about the EVOLVE RSP and the EV4ECO schemes. It created capacity-building among SIDBI staff.
- c. **Facilitate Networking:** Bringing together different stakeholders such as senior credit officers, selected OEMs and selected corporate customers fostered collaboration and created liaisons among them.

#### 5.1.5 Key deliberations and learning

**Key Topics Covered:** The program was structured around a series of presentations by industry experts, including from The World Bank, GCFV and RMI and many more from EV Ecosystem. This interactive session also had EV ecosystem players, OEMs, Fleet operators, PNB, NBFCs etc. who shared what, where, how and when of EV and responded to lenders inquisitive and field level queries.

#### Key Takeaways

Throughout the program, participants gained a deeper understanding of why EV adoption is essential, the advantages in terms of carbon emissions, economic sustainability, and the role of EVs in enhancing environmental well-being. They also learned about the financial advantages and various business models that make the EV ecosystem more appealing.



## Development Institutions

- The World Bank enlightened the participants on the financing constraints of EVs, including a comprehensive discussion on the five key risks: counterparty risk, product risk, operational risk, repossession risk, and residual value risk.
- E-mobility adoption can bolster energy security and macroeconomic resilience.
- The fixed cost of e-2w and e-3w including battery replacement is double than ICE version but the variable cost is one-fifth for e-2w and one-third for e-3w.
- 2/3W constitutes more than 80% of the vehicle fleet and the adoption target is 58 million by 2030. There is a need to improve the availability of affordable financing and de-risking measures to reduce the expected losses and improve trust in the product.
- The session highlighted the gaps identified in the EV adoption during pan India stakeholder consultation and potential solutions to mitigate them. It also provided Officers a platform to project the challenges faced by them and to share the best practices, lessons learned, and success stories of EV Financing by them.
- SIDBI provided insights into the financing schemes available to Micro, Small, and Medium Enterprises (MSMEs) and Non-Banking Financial Companies (NBFCs) under the 50KEV4ECO scheme.
- There is a significant opportunity to increase the earnings of low-income urban transporters by 50-200% by enabling them to own and use EVs for their livelihoods. However, financing constraints result in limited uptake of EVs due to lack of financing options and unconducive financing terms. To accelerate mass EV adoption and EV ownership in low-income groups, the EV sector needs to be de-risked (EV-RSF) by generating evidence of loan and asset performance data through a financially viable model that can be scaled up and replicated.
- SIDBI and Shell Foundation are jointly creating a risk-sharing facility of USD 6 million. The financial institutions will bear the first loss of up to 3% of the guaranteed EV portfolio. Thereafter, risk coverage of 75% of the next 10% (beyond 3% up to 13%) of the loss incurred in the portfolio covered will be provided through the risk-sharing facility.



## Think Tank

- To help the participants understand the various business models, RMI offered invaluable insights on mobility-based startups, charging-focused startups, and battery-focused startups including prominent players. The lending terms for ICE and EV were also compared in terms of loan to value ratio, interest, and tenure.
- The session also presented general de-risking measures in the financing ecosystem and specific de-risking measures specific to EV to reduce the expected losses.



## Fleet Operator

- Magenta Mobility highlighted the integral role of a technology-driven platform in end-to-end fleet performance optimization and the influence of telematics data and software in optimizing fleet management.



- Omega Seiki Mobility focused on the importance of operations management and execution in the last mile delivery especially for EVs. There should be proper pilot run & trail, charging infrastructure availability, local team alignment, and data tracking. The session highlighted the challenges in the last-mile delivery industry such as driver attrition, financing, technology awareness etc. along with the potential solutions.



## Charging Ecosystem

- A representative from Battery Smart explained the vital role of batteries in EVs and the three significant challenges faced by existing and potential EV owners: high capital expenditure, limited range, and unreliable charging infrastructure.



## NBFC

- Revfin's innovative platform leverages psychometrics and biometrics to assess intent and detect fraud, thereby reducing Non-Performing Assets (NPAs). Furthermore, Revfin harnesses telematics data to assess various income parameters and enhance repayment performance by analyzing driver behavior, vehicle health, safety, and security.

### SIDBI association with Peepal baba 'Give Me Trees' - Green Certificates - a Green Initiative

Peepal Baba or Swami Prem Parivartan is an environmentalist who along with his team has planted over 20 million trees in 202 districts across 18 states in India. Representative from the Give me Trees organisation belonging to Peepal baba announced GCFV, SIDBI being Green Ambassadors associated with Peepal Baba for planting saplings in honour of guest speakers and participants of the program. This is one of the innovative green initiatives from SIDBI to present Green Certificates.

### Summary

SIDBI's commitment to building expertise within its senior officers is evident in this capacity-building program. The insights and knowledge gained from this program will undoubtedly contribute to SIDBI's ongoing efforts to drive economic growth and environmental sustainability in the country through the promotion of Electric Vehicles.

The sensitization program successfully built the capacity of senior lenders in EV financing and provided insights into the challenges and opportunities in the electric mobility sector. It played a crucial role in preparing the officers to implement the EVOLVE/50KEV4ECO

program effectively and contribute to India's transition towards sustainable and eco-friendly transportation.

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Figure 29: Shri RK Singh, CGM GCFV and Shri Rajiv Kumar, GM GCFV addressing queries from participants



Mission  
50KEV4ECO  
SIDBI



Figure 30: EV4ECO in Team India E Mobility Initiatives

## SIDBI's Green strategy

- Contributing to Nation's Commitment towards energy independence and carbon neutrality
- Embedding Green investment culture in MSMEs- a vulnerable segment to climate change risks
- Partnerships with International agencies for green finance products
- Introduced Green India Financial System (GIFS) to widen and shape discourse on greening the financial ecosystem
- Introduced Risk Sharing Facilities to support Green Projects in MSMEs
- 16x growth in Green Portfolio

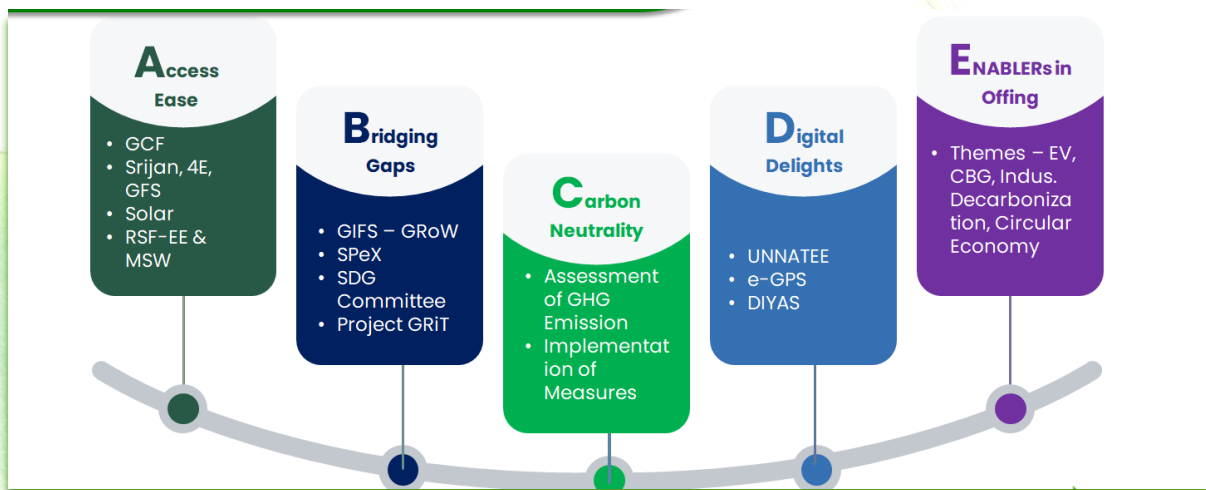


Figure 31: A2E for Green

## Greening the Enterprise Ecosystem in Mission mode



Figure 32: SIDBI Initiatives



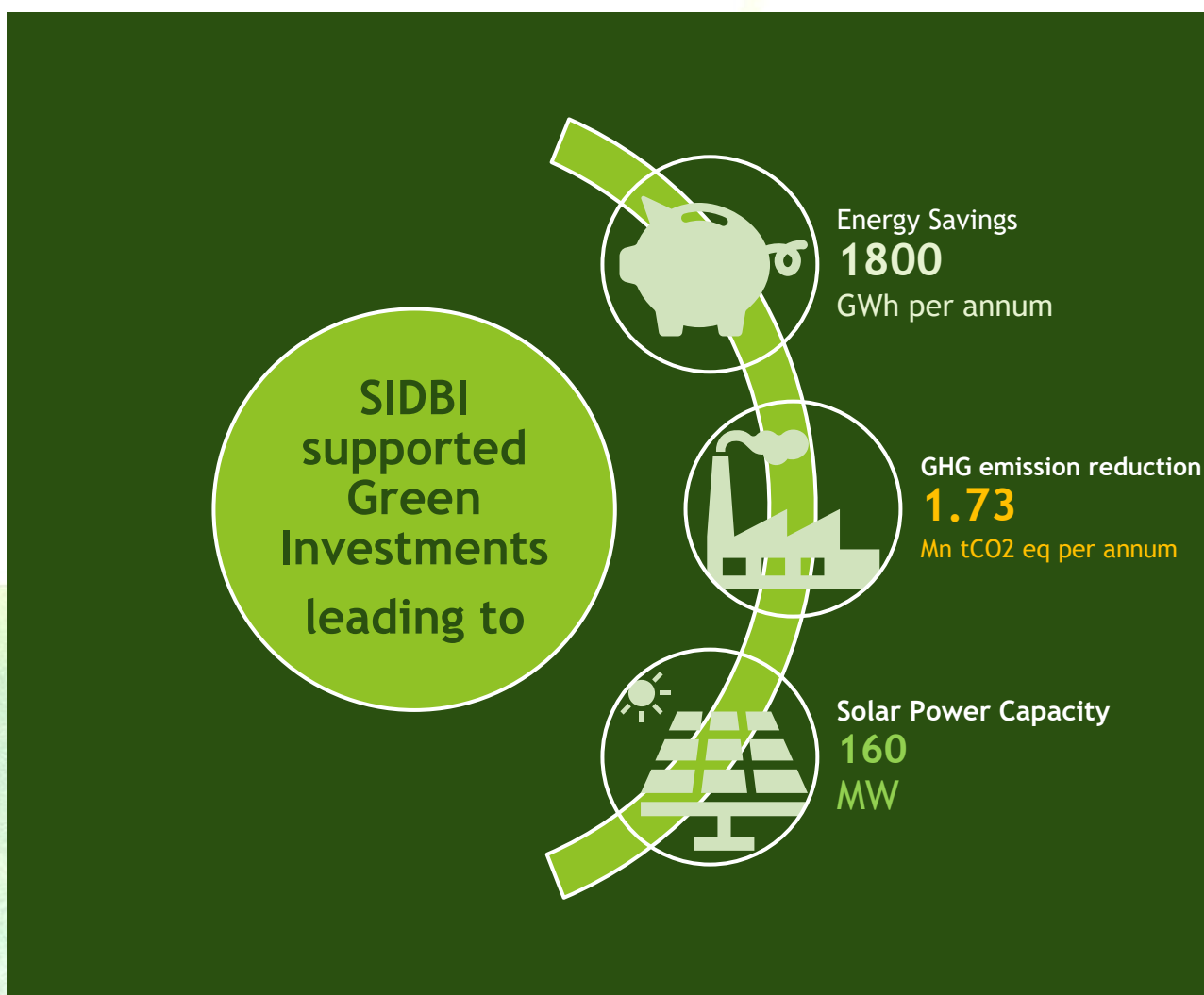


Figure 33: Green in numbers

### 5.1.9 Event Highlights





## 5.2 Questions from Open Forum and SIDBI Response

- i. How to lend to asset light fleet operators as except for 25% FD as collateral, there is no security in case it defaults?

**Response:** - The fleet operators need to purchase/ own vehicles under 50KEV4ECO scheme. The electric vehicles will be hypothecated to SIDBI. This is in addition to 25% FD as collateral. The representation of the business model is shown below:

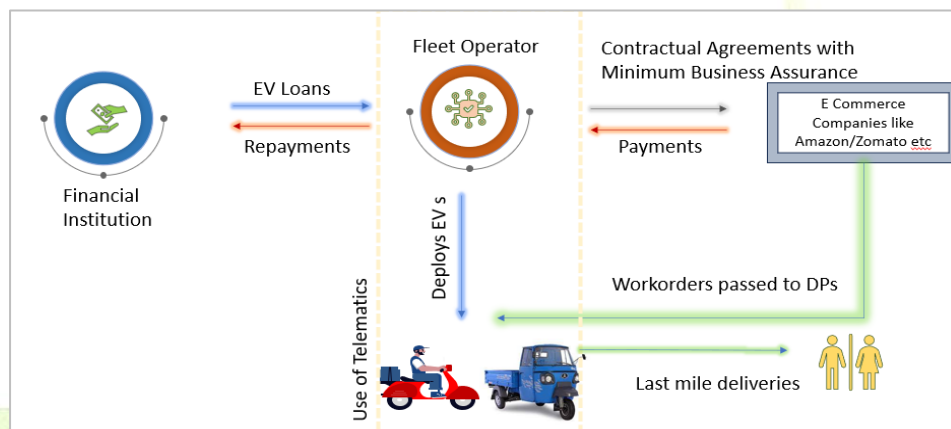


Figure 34: Business model

- ii. What things to be looked at / checked for good OEMs?

**Response:** - The stable companies are the right ones as they adhere to the India Phased Manufacturing Plan i.e., the Localisation plan. The localization reduces the upfront capital and enables the OEMs to honour the warranty on battery, motors etc. In addition, it is important to examine the regulatory requirements for the OEMs and the capability of OEMs for maintenance of the vehicles. Keeping this in view, under EV scheme we are also empanelling OEMs by examining the parameters part of the schemes.

- iii. Can superfast chargers replace the battery swapping stations in the coming times?

**Response:** - With the advent of the electric vehicle adoption, it is possible that superfast chargers may replace the battery-swapping stations in the future. However, the electric 2-w and electric-3w for commercial use is a price-sensitive market and battery swapping is the right option for them to maintain profitability. The availability of superfast chargers at economies of scale will take some time.

- iv. What are the parameters captured by telematics/ IoT devices?

**Response:** - The telematics captures lots of information. The vehicle performance, driving behaviour, and monitoring of the operations. The organizations can monitor the distance covered by the vehicles, ignition status, and battery health on a real-time basis. They can also track the location of the vehicles. The data related to over-speeding, running time of vehicle, and driving pattern is also available which can be used to improve the performance of the vehicle.

- v. What challenges does the fleet operator face while seeking finance from different banks?

**Response:** - At present, most of the fleet operators have negative balance sheets despite having operational profit. As these operators are expanding their businesses, hence most of their cost is incurred in building infrastructure.

Most of financial institutions follow the conventional way of evaluating the proposals by looking at the overall profitability. They also face difficulty in understanding the business model.

vi. Which part of India has traction for electric mobility?

**Response:** - At present, most of India is moving towards electric vehicle adoption. The northern part of India, especially Uttar Pradesh and Delhi is aggressive towards the adoption of electric mobility. The western part of India is also showing traction followed by the Southern part of India. However, overall there is a positive sentiment towards electric mobility adoption.

vii. How is state EV policy promoting EV adoption across India?

**Response:** - The state EV policies are critical for the adoption of electric vehicles. The majority of the EV policy focuses on three segments: Promotion of manufacturing, Demand incentives, and skill building. But it is important that the state should also offer demand incentives equivalent to central assistance. This will increase the adoption as the capital cost of owning electric vehicles will come down. However, at present, only a few states are offering upfront demand incentives to reduce the price of electric vehicles.

viii. How do you address the issue of battery disposal?

**Response:** - At present, all of the batteries are working, and no need to dispose of them in the near term. However, before disposal, these batteries have second life use as well. Additionally, they are in touch with battery recycling companies as well.

ix. Any project financed for EV leasing companies or borrowers under the asset light model.

**Response:** EV leasing proposals are under consideration. We can support EV leasing companies if they are asset heavy.

x. Are there repossession agencies for EVs?

**Response:** Yes, there are repossession agencies, GCFV can provide support in this regard if needed.

xi. Can GCFV provide details of fleet operators entered into agreements with e-commerce companies?

**Response:** GCFV will arrange the list of fleet operators having arrangements with e-commerce companies across different geographies.

xii. Are vehicles financed without batteries?

**Response:** Vehicles without batteries can be financed. The financial institutions should ensure that the borrower has a subscription facility available for the battery swapping/energy service from a renowned player in the market.



### 5.3 Caring the ECO system (EV care)



Figure 35: EV Care Page 1/4



## EV Care

SIDBI is supporting **EV30@30** through its flagship program **50KEV4ECO** & **EVOLVE** under the guidance of NITI Aayog for the adoption of electric vehicles and covers both direct as well as indirect lending to support electric vehicle financing. EV Care is an initiative of SIDBI to support the EV Ecosystem.

It is imperative for EV two-wheeler and EV three-wheeler drivers to follow certain road safety tips while riding their vehicles for an efficient mode of commuting. It will not only help in avoiding an accident but also provide them with a stress-free riding experience. The safety regulations prevailing at the driving location need to be followed along with the provided useful safety tips for EV two/ three-wheeler riders as given below:

### Certified / Standard Helmet for E-2 Wheelers

Always wear a standard helmet while riding the vehicle. Protecting head from injuries is of utmost importance as an injury to this part of body can prove disastrous. According to the MVAA 2019, it is mandatory for all two-wheeler riders including pillion and for children aged 4 and above to wear a helmet while riding their bike or scooter in India. Preferably, the helmet should cover jaws and have a face shield to protect eyes from dust, rain, insects, wind, etc. Always fasten the helmet strap properly under the chin. Don't wear construction helmets.



### Good Charging Practices

- Always ensure to charge your EV at an authorised or designated charging point only. Never over charge the vehicle, which can damage the life of the battery
- Always charge battery much before alert or warning sign is displayed

### Safety Gear for E-2 Wheeler

Before taking two-wheeler out for a ride, wear adequate safety gear, including elbow guard, knee guard, jacket, and shoes. It will protect from any severe injury in case of an accident. Also, make sure that no part of clothing or accessories is dangling while riding as it can get stuck in the wheels of the two-wheeler and result in a serious repercussion



### Overload

Do not overload your vehicle especially if it's an EV cargo, as this will hinder the overall performance of the vehicle. Always use the vehicle as per the operational guidelines provided by the OEM. Always ensure that the vehicle occupancy for e2w and e3w shall not exceed the threshold. Do not have more than 2 adults on the 2-W. As per the law, triple riding is illegal

Figure 36: EV Care Page 2/4



# EV Care



## Maintain Safe Distance

While riding an Electric two/ three-wheeler, always maintain a safe distance from other vehicles. This is to prevent collision with another vehicle if its driver suddenly applies the brakes or changes lanes. Also, while overtaking a moving vehicle, ensure that there is plenty of space between the two vehicles. Avoid overtaking until given a pass by the vehicle moving ahead. Never try to cut through the space left between two moving vehicles as it could result in a lethal accident



## Riders Visibility

It is crucial for the rider to make himself and his two/ three-wheeler visible to other drivers so that they can maintain a safe distance from the vehicle. In particular, stay away from the blind spots of large vehicles such as buses and trucks. Wear reflective bands or bright coloured clothes and helmets for improved visibility to other vehicles. Reflective bands can be affixed on either sides and back of Electric two/ three-wheelers at appropriate places. Extra precautions need to be taken while riding during the night or on highways



## Safe Parking

- Always Park your vehicle at the designated parking spaces only  
Do not park the EVs in probable areas of waterlogging
- Park your vehicle safely under shed, garage

## Safety of children in e-2W

- Infants and toddlers should not be allowed on two wheelers. Children whose feet do not reach the footrest of the vehicle are not recommended to ride on two-wheelers due to increased risk of injury



## Proper Maintenance

- Regular and proper maintenance is essential for all vehicles. The vehicle needs to be serviced regularly as per the vehicle manual, at an authorized service centre only. Personal inspection of the condition of the tyres, air pressure, brakes, horn, lights etc. is required before every ride. This not only reduces the chances of accidents but also keeps the vehicle fuel efficient.
- Follow the manufacturer instructions. Maintenance in normal times shall save you during heavy rains or any other not so normal situations
- Always the battery should be removed before cleaning the vehicle. Its plug connectors should also be cleaned and lightly greased from time to time

Figure 37: EV Care Page 3/4



# EV Care



## Weather

Unpleasant weather conditions such as heavy rains, snowfall, or strong winds can increase the chances of road accidents. Roads may become slippery during such situations, and it is difficult to balance the vehicle. Therefore, it's better to avoid riding a vehicle during such harsh weather conditions unless it's absolutely necessary. Also, keep headlights and indicators on while riding in such conditions so that the drivers of other vehicles can easily spot the vehicle



## Safe Battery Disposal

- The battery at the end of its useful life should either be given back to seller in place of new purchase OR handed over to the authorised recyclers to avoid the associated environmental and safety risks



## Comprehensive Insurance

It is mandatory for every vehicle plying on Indian roads to have at least a valid third-party motor insurance policy. However, it's better to invest in a comprehensive insurance plan. Apart from providing the third-party coverage, it protects from incurring financial losses due to theft or damage to vehicle



## Follow Traffic Rules

- Do keep eyes on the road and be wary of obstacles.
- Do slow down when the traffic lights turn orange, and especially do not rush vehicle at red lights.
- Do not over speed at night-time thinking that the roads are empty.
- Never pick up calls or texts while riding. If it's urgent, park vehicle and then do so.
- Never drive your vehicle under the influence of alcohol
- Always maintain safe operating speeds, well within the posted speed limit with due consideration on adverse weather conditions, unsafe pavement conditions, and road geometry.

For more information contact nearest SIDBI branch or write to us at [gcfv@sidbi.in](mailto:gcfv@sidbi.in)

To know more about SIDBI EV Schemes,



Figure 38: EV Care Page 4/4



## 5.4 Partnering the Ecosystem

At SIDBI, the emphasis is on bringing the ecosystem players under one platform. Considering this, SIDBI has empaneled 13 OEMs. The ecosystem is also inclusive of the financial institutions covered under EV4ECO.



Figure 39: SIDBI Empaneled OEMs





## Chapter 6: Way Forward: Where Progress Finds its Path

SIDBI in collaboration with the World Bank and EDCF, is developing a financial mechanism, 'Electric Vehicles Operations and Lending for a Vibrant Ecosystem'. This project is in the preparatory phase and is expected to be launched in a couple of months.

SIDBI will also create an IT platform for bringing all stakeholders i.e., OEMs, Financial Institutions, Government authorities, and Borrowers etc. together. SIDBI shall institutionalize the collection, analysis, and use of data on vehicles from on-board telematics devices and battery management systems (BMS), pertaining to the quality, safety, and performance of EVs, and the effectiveness of the de-risking measures on the performance of EV Loans which shall strengthen the comfort of lenders.

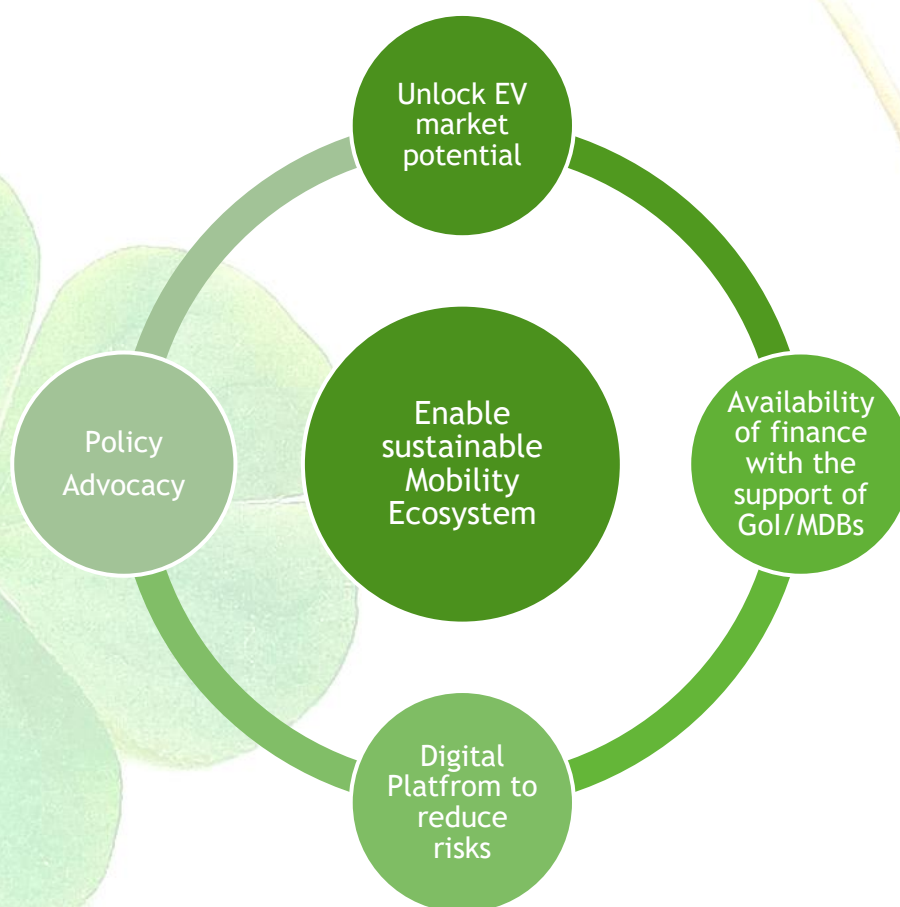


Figure 40: Way Forward

## e-Green Certificate

As part of enriching the soil SIDBI has gone beyond handing over plant saplings to guests. We have started a mission of planting trees in identified pockets through structured partnership wherein we hand over green certificates to esteemed guests and in their honor plant trees as also assign it maintenance for next few years.





## Building capacity of lending partners









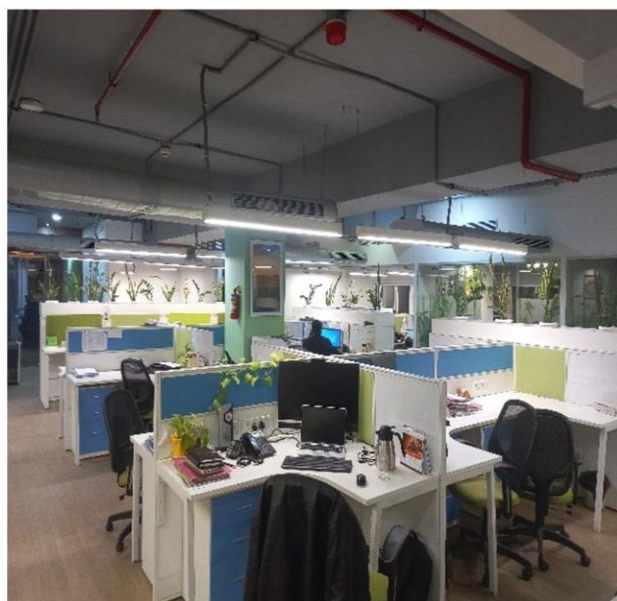
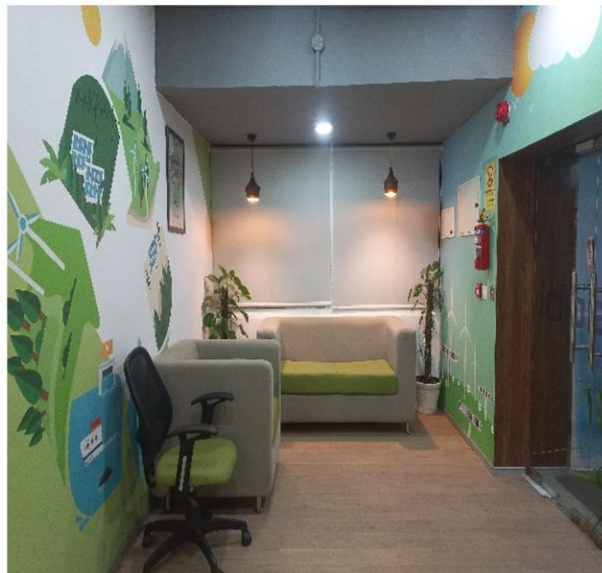








## Incubating Green themes/products/programmes @ Green Floor, SIDBI New Delhi



**‘Empowering Women in EV Eco System’  
Flag off by Hon’ble CM @ Ayodhya**





