Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT

Title: Chargeup Solution

Version 1.1

Date 03/06/2026

First CoU Issuance Period: 00 years, 04 months

Monitoring Period: 01/11/2025 to 28/02/2026

Monitoring Report (MR)
CARBON OFFSET UNIT (CoU) PROJECT

Monitoring Report	
Title of the project activity	Chargeup Solution
UCR Project Registration Number	585
Version	1.1
Completion date of the MR	03/06/2026
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 01 Duration of this monitoring Period: (first and last days included (01/11/2025 to 28/02/2026)
Project participants	E-Chargeup Solutions Pvt Ltd
Host Party	INDIA
Applied methodologies and standardized baselines	AMS-III.C.: Emission reductions by electric and hybrid vehicles, Version 16.0
Sectoral scopes	07 - Transport
Estimated amount of GHG emission reductions for this monitoring period in the registered PCN	2025: 840 CoUs (840 $tCO2_{eq}$)
	2026: 814 CoUs (814 $tCO2_{eq}$)
Total:	**1,655 CoUs (1,655 $tCO2_{eq}$)**

SECTION A. Description of project activity

A.1. Purpose and general description of project activity >>

The “Chargeup Solution” project activity, implemented by E-Chargeup Solutions Pvt. Ltd., aims to reduce greenhouse gas (GHG) emissions from the transport sector through the deployment and operation of electric three-wheelers for last-mile passenger and goods transportation across multiple cities in India. The project replaces conventional petrol-powered internal combustion engine (ICE) three-wheelers with electric vehicles powered by lithium-ion batteries. By eliminating fossil fuel combustion and introducing energy-efficient electric mobility solutions, the project activity contributes to reducing GHG emissions and promoting sustainable urban transportation.

a) Purpose of the project activity and the measures taken for GHG emission reductions >>

The project activity titled “Chargeup Solution” is implemented by E-Chargeup Solutions Pvt. Ltd. and aims to reduce greenhouse gas (GHG) emissions from the urban transport sector through the deployment and operation of electric three-wheelers (E3Ws) for last-mile passenger and goods transportation across multiple cities in India.

Under the project activity, electric L5-category three-wheelers powered by lithium-ion battery systems are introduced to replace conventional petrol-fuelled internal combustion engine (ICE) three-wheelers, which represent the baseline technology providing similar transport services in the project regions. These baseline vehicles emit greenhouse gases, primarily carbon dioxide (CO_2), due to the combustion of petrol during daily transport operations.

The project achieves emission reductions by eliminating the direct combustion of fossil fuels in the transport sector through the adoption of electric mobility solutions. The electric vehicles are powered by electricity from the national grid and are monitored through an IoT-enabled digital fleet management system, which records operational parameters such as vehicle activity status, distance travelled, and trip data.

The main measures implemented under the project activity include:

- Replacement of petrol-powered three-wheelers with electric three-wheelers providing equivalent transportation services.
- Elimination of tailpipe emissions associated with petrol combustion.
- Deployment of lithium-ion battery technology integrated with battery management systems for improved energy efficiency and operational safety.
- Continuous monitoring of vehicle operations and distance travelled through a centralized IoT-based monitoring platform.

Through these measures, the project activity reduces greenhouse gas emissions associated with fossil fuel consumption and supports the transition toward low-carbon and sustainable urban mobility systems.

b) Brief description of the installed technology and equipment>>

The project activity involves the deployment and operation of electric three-wheelers equipped with lithium-ion battery packs and electric traction motors designed for urban passenger and goods

transport services. These vehicles operate using electricity stored in rechargeable battery systems rather than fossil fuels.
Each electric three-wheeler is powered by a lithium-ion battery pack (LFP/NMC chemistry) integrated with a Battery Management System (BMS) that controls battery voltage, temperature, charging cycles, and overall system safety. The battery supplies electrical energy to a brushless direct current (BLDC) electric motor, which provides propulsion for the vehicle.
The vehicles are charged using grid electricity through plug-in AC charging systems, and in some cases battery swapping or replacement services may be used to maintain operational efficiency.
To ensure accurate monitoring of project performance, all vehicles are equipped with IoT-based telematics devices that record key operational parameters including:

- Distance travelled
- Vehicle operational status
- Trip start and end time
- GPS location data

These data are automatically transmitted to the Chargeup centralized digital monitoring platform, which aggregates fleet-level operational information and enables accurate monitoring of emission reduction parameters in accordance with the applied methodology AMS-III.C: Emission reductions by electric and hybrid vehicles (Version 16.0).

c) Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.)>>

The project activity operates under a crediting period of three (03) years, as defined in the registered Project Concept Note (PCN). The start date of the crediting period is 01/11/2025, and the crediting period will continue until 31/10/2028. The monitoring period covered in this Monitoring Report corresponds to this first Monitoring period, which spans from 01/11/2025 to 28/02/2026. During this monitoring period, the electric three-wheelers (3W) deployed under the project activity were operational and providing last-mile passenger and goods transport services across the project locations. The project activity continues to operate in accordance with the registered project design and monitoring plan.

UCR Project ID or Date of Authorization: 585
Start Date of Crediting Period: 01/11/2025
Project Commissioned: 19/02/2019

d) Total GHG emission reductions achieved or net anthropogenic GHG removals by sinks achieved in this monitoring period>>

The total GHG emission reductions achieved in this monitoring period is as follows:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Start date of this Monitoring Period	01/11/2025
Carbon credits claimed up to	28/02/2026
Total ERs generated (tCO_{2eq})	1,655 tCO_2eq
Leakage	0

e) Baseline Scenario>>

The baseline scenario identified at the PCN stage of the project activity represents the continued use of petrol-fuelled internal combustion engine (ICE) three-wheelers for last-mile passenger and goods transportation within the project boundary. In the absence of the project activity, drivers and transport operators would continue operating conventional petrol-based three-wheelers due to their widespread availability, established market presence, and lower upfront costs compared to electric vehicles.

These baseline vehicles rely entirely on the combustion of petrol as their energy source and emit greenhouse gases, primarily carbon dioxide (CO_2), during their operation. Such vehicles represent the dominant mode of last-mile transport in the project regions and therefore constitute the most plausible baseline scenario. The implementation of the project activity replaces these petrol-based vehicles with electric three-wheelers, thereby avoiding GHG emissions associated with fossil fuel combustion and enabling emission reductions under the applied methodology AMS-III.C: Emission reductions by electric and hybrid vehicles (Version 16.0).

A.2. Location of project activity>>

The project operational during current monitoring period across several locations throughout India. The specific site details are as follows:

Sr.no.	Cities	State	Number of vehicles
1	New Delhi	Delhi (NCT)	89
2	South	Delhi (NCT)	67
3	East	Delhi (NCT)	56
4	West & central	Delhi (NCT)	50
5	North West	Delhi (NCT)	38
6	Delhi	Delhi (NCT)	24
7	Delhi NCR	Delhi (NCT)	19
8	North East	Delhi (NCT)	8
9	Gurgaon	Haryana	200
10	Faridabad	Haryana	193
11	Panipat	Haryana	152
12	Karnal	Haryana	107
13	Sonipat	Haryana	102
14	Gwalior	Madhya Pradesh	356
15	Ludhiana	Punjab	116
16	Jalandhar	Punjab	46
17	Sangrur	Punjab	5
18	Amritsar	Punjab	1
19	Jaipur	Rajasthan	451
20	Vrindavan	Uttar Pradesh	590
21	Ghaziabad	Uttar Pradesh	393
22	Lucknow	Uttar Pradesh	331
23	Agra	Uttar Pradesh	313
24	Noida	Uttar Pradesh	189
25	Saharanpur	Uttar Pradesh	146
26	Aligarh	Uttar Pradesh	96
27	Mathura	Uttar Pradesh	2
28	Kolkata	West Bengal	104
29	Nadia	West Bengal	1
Total			**4,245**

A.3. Parties and project participants >>

Party (Host)	Participants
India	E-Chargeup Solutions Pvt Ltd, Address: 300/3, Mehrauli-Gurgaon Rd, Sultanpur, New Delhi, Delhi 110030

A.4. References to methodologies and standardized baselines >>

SECTORAL SCOPE - 07 Transport

TYPE III - Energy Demand / Fuel Switching Projects
(Project activities that reduce fossil fuel consumption at the point of end-use through efficiency improvement or fuel switching)

CATEGORY- AMS-III.C. Emission reductions by electric and hybrid vehicles --- Version 16.0

A.5. Crediting period of project activity >>

The project activity operates under a crediting period of three (03) years, starting from 01/11/2025 and ending on 31/10/2028, as defined in the registered Project Concept Note (PCN).
Length of the crediting period corresponding to this monitoring period: 03 years – 01/11/2025-31/10/2028

A.6. Contact information of responsible persons/entities >>

The Monitoring Report has been prepared by the following responsible entity on behalf of the project owner:

Name of the Responsible Person:	Mr. Satish Mittal
Designation:	Co-Founder and CDO
Organization:	E-Chargeup Solutions Pvt. Ltd.
Address:	300/3, Mehrauli–Gurgaon Road, Sultanpur, New Delhi, Delhi – 110030, India
Email:	Satish.m@echargeup.com
Contact Number:	+91 9022202500

The above-mentioned person is responsible for the preparation, review, and submission of the Monitoring Report in accordance with the requirements of the Universal CO_2 Emission and Offset Registry (UCR) and the applied methodology AMS-III.C: Emission reductions by electric and hybrid vehicles (Version 16.0).

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity >>

During the monitoring period from 01/11/2025 to 28/02/2026, the project activity titled "Chargeup Solution" has been fully implemented and operational in accordance with the registered Project Concept Note (PCN). The project involves the deployment and operation of electric three-wheelers (L5 category) for last-mile passenger and goods transportation across multiple locations in India, including Delhi NCR, Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh, Punjab, and West Bengal. A total of 4,245 electric three-wheelers (E3Ws) were deployed and actively operational during the monitoring period, providing transport services and contributing to emission reductions by replacing petrol-based internal combustion engine (ICE) vehicles.

The project utilizes advanced electric mobility technologies comprising lithium-ion battery packs (LFP/NMC chemistry, ~5.12 kWh capacity), integrated Battery Management Systems (BMS), high-efficiency Brushless Direct Current (BLDC) motors, and grid-based charging infrastructure, including plug-in charging and battery swapping systems. Each vehicle is equipped with an IoT-enabled telematics device that continuously records key operational parameters such as distance travelled, trip start and end time, vehicle operational status, and GPS location data. These data are automatically transmitted to a centralized digital monitoring platform, ensuring accurate, real-time tracking and reporting of project performance without manual intervention.

The project activity is implemented as a multi-site, fleet-based system, where vehicles operate across different cities under a uniform technological and monitoring framework. Each vehicle is uniquely identified and linked to its battery system and IoT device, enabling full traceability and preventing double counting of emission reductions. All deployed vehicles were operational during the monitoring period, and no phased implementation structure exists; instead, the project follows a continuous fleet expansion model, wherein vehicles are progressively deployed and only those that are active and reporting valid monitoring data are considered for emission reduction calculations.
The project was originally commissioned on 19/02/2019, and the crediting period commenced on 01/11/2025. All emission reductions claimed in this Monitoring Report correspond strictly to the defined monitoring period. The operational process of the project includes vehicle procurement and financing, deployment across project locations, battery charging or swapping using grid electricity, vehicle operation for transport services, real-time data collection through IoT systems, centralized data validation and storage, and emission reduction calculation in accordance with the applied methodology AMS-III.C (Version 16.0).

Overall, the project activity has been implemented in full alignment with the registered PCN, and the installed technologies, technical processes, and monitoring systems have functioned effectively during the monitoring period, ensuring reliable, transparent, and verifiable emission reduction outcomes.

Technology Description and System Working
Each E3W is powered by a lithium-ion battery pack that supplies energy to a high-efficiency brushless DC motor through a smart motor controller. The stored electrical energy is drawn from the state electricity grid via plug-in charging.

The Battery Management System (BMS) within each battery pack ensures optimal cell voltage, temperature control, and state-of-charge management to prevent overcharging, overheating, and short-circuiting. Real-time data from the BMS is transmitted via an IoT telematics module to Chargeup's central digital platform, which records vehicle performance, trip data, and charging cycles for monitoring and reporting purposes.

The project operates under the "Fi-Ne-Tech" (Finance–Network–Technology) model developed by E-Chargeup Solutions Pvt. Ltd., integrating financing, technology, and driver networks into a unified ecosystem. Through this model, EV ownership is made affordable, operations are monitored digitally, and uptime is maximized through predictive maintenance.

Battery replacement is carried out as and when required based on operational performance, battery health, degradation levels, and OEM warranty/support conditions. Replacement batteries of comparable technical specifications are supplied through approved OEM/manufacturer channels to maintain consistency with project applicability conditions.

Process Flow (Cradle-to-Grave Overview)

1. **Vehicle Procurement & Financing:**
    - Drivers are onboarded through partner NBFCs or Chargeup's in-house financing scheme.
    - Vehicles and battery packs are procured from approved OEMs and certified manufacturers.
2. **Deployment & Operation:**
    - Electric 3-wheelers are deployed in multiple cities across Northern India for passenger and goods transport.
    - Daily operations involve battery charging/Distribution network and trip logging through the IoT platform.
3. **Energy Source:**
    - Electricity sourced from the **state grid** (renewable and non-renewable mix).
    - The system design allows future integration with renewable (solar) charging infrastructure.
4. **Monitoring & Maintenance:**
    - IoT-connected systems record energy usage, distance travelled, charging frequency, and downtime.
    - Predictive maintenance alerts ensure high uptime and safety.
5. **End of Life Management:**
    - Batteries reaching end-of-life are recovered through authorized recyclers under India's **Battery Waste Management Rules (2022)** [1] to ensure safe material recovery and environmental compliance.

3. Critical Systems and Components

- Energy Storage: Li-ion LFP/NMC battery packs with advanced BMS
- Energy Conversion: Electric traction motor (250W–1200W)
- Control System: Motor controller and IoT telematics module
- Charging Interface: Plug-in AC chargers (48V–60V, 15A) and battery swap stations
- Digital Layer: Centralized IoT monitoring platform for trip and emission data logging

Specification	Value/ Description
Battery Type	Lithium Iron Phosphate (LFP) / Nickel Manganese Cobalt (NMC)
Manufacturer	Eastman Auto & Power Limited, Inverted energy, Greenfuel Energy Solutions Pvt. Ltd., Etc (Multiple OEMs)
Nominal Voltage	51.2 V
Rated Capacity	100 Ah

[1] https://cpcb.nic.in/uploads/hwmd/Battery-WasteManagementRules-2022.pdf

Energy Content	5.12 kWh
Cycle Life	> 2,000 cycles (at 80% DOD)
Battery Enclosure Rating	IP67 (Dust and Water Resistant)
Weight	50 ± 1 kg
Dimensions (mm)	555 × 370 × 200
Battery Management System (BMS)	Integrated with cell balancing, over/under-voltage and temperature protection
Motor Rating	250 W – 1200 W (BLDC type, depending on vehicle model)
Energy Efficiency	~0.06 kWh/km
Average Daily Travel	~80 km/day (approx. 2,200 km/month)
Charging Method	Plug-in (AC 220V) / Battery Swapping
Average Energy Consumption	4.6 kWh/day per vehicle
Expected Vehicle Life	07 years
Monitoring System	IoT-based data transmission and analytics dashboard (real-time)

B.2 Do no harm or Impact test of the project activity>>

There are social, environmental, economic and technological benefits which contribute to sustainable development.

Social benefits:

- Provides a better livelihood and crucial financial inclusion for last-mile drivers, a group largely operating in the unorganized sector. By providing access to formal vehicle financing and a "Battery as a Service" model that lowers daily operational costs, The project is expected to improve driver earning opportunities through reduction in vehicle downtime, lower operational expenses, improved vehicle uptime, and faster maintenance support under the Chargeup operational ecosystem. Through IoT-enabled monitoring, predictive maintenance support, and structured service coordination, the project helps improve effective operational days and vehicle utilization for drivers engaged in last-mile transportation activities. Based on internal operational observations and driver interaction records, the project demonstrates indicative improvement in driver earning opportunities compared to conventional unstructured operating conditions.
- Contributes to women empowerment by actively creating safe, accessible, and viable employment opportunities in the green economy. This opens a new, non-traditional career path for women, fostering greater economic independence.
- Improves public health in urban centers. By replacing 4,245 noisy, polluting petrol engines, the project creates an immediate and direct reduction in localized air pollution (PM2.5, NOx, SOx) and ambient noise, leading to healthier living conditions for the entire community

Environmental benefits:

- Directly mitigates climate change. The project's core purpose is replacing a fleet of 4,245 fossil-fuel (petrol) vehicles with zero-tailpipe-emission EVs. This results in a direct, permanent, and measurable reduction of greenhouse gases, calculated at 7,678 tCO_2e annually.
- Helps build more sustainable cities. By simultaneously cutting both localized air and noise pollution, the project significantly reduces the adverse environmental impact of urban transport, making these 15 cities cleaner, quieter, and more livable.
- Promotes the transition to clean energy for transport. This project actively accelerates the

shift away from petrol by building out the essential Battery financing and asset management network needed for e-mobility at scale, proving its commercial and logistical viability.

Economic benefits:

- Provides a 15-20% higher income for drivers. This is a direct result of the "EaaS" model, which eliminates high and volatile fossil fuel costs and maximizes earning hours by replacing long charging times with rapid battery swapping.
- Creates stable, higher-income "green economy" jobs. The project supports a new ecosystem of employment, including skilled technicians for EV technology and maintenance, and operational staff for the Battery financing and asset management network.
- Enhances national energy security. By switching 4,245 vehicles from petrol to domestically-produced electricity, the project helps reduce India's significant economic dependency on imported fossil fuels for its transport sector.

Technological Benefits:

- The project introduces advanced technologies for sustainable transport, such as IoT-enabled lithium-ion battery systems, predictive maintenance analytics, and digital tracking platforms for performance monitoring. These systems enhance efficiency, safety, and traceability across the value chain. The integration of data analytics and asset-management technology improves operational transparency and supports emission reduction quantification in real time. Moreover, the use of certified Eastman Auto & Power Limited, Inverted energy, Greenfuel Energy Solutions Pvt. Ltd., Etc (Multiple OEMs) battery packs ensures adherence to high safety and environmental standards (IP67 rating and >2000 cycles life), minimizing the risk of hazardous waste and improving lifecycle sustainability.

SDGs (UN Sustainable Development Goals):

The project is in strong alignment with the UN Sustainable Development Goals, including: -

SDG Goals	Description
SDG 7 (Affordable and Clean Energy):	During the monitoring period, 4,245 electric three-wheelers were operational under the project activity, promoting adoption of clean energy–based transportation through replacement of conventional fossil fuel-based vehicles.
SDG 8 (Decent Work and Economic Growth)	Approximately 4,245 drivers/operators remained associated with the operational project fleet during the monitoring period. The project supported livelihood opportunities through vehicle financing, operational monitoring, reduced downtime, and sustainable green mobility opportunities, including inclusive participation opportunities such as women engagement within the ecosystem. Driver/operator details are maintained within the centralized onboarding and operational database.
SDG 11 (Sustainable Cities)	The project activity remained operational across 29 cities/regions in India during the monitoring period, contributing toward cleaner and more sustainable urban transportation systems through deployment of electric three-wheelers and reduction of localized air and noise pollution.
SDG 13 (Climate Action)	The project activity achieved emission reductions of 1,655 tCO_2e during the monitoring period (01/11/2025 to 28/02/2026) through replacement of fossil fuel-based three-wheelers with electric vehicles.

B.3. Baseline Emissions>>

The baseline scenario identified at the PCN stage represents the continued use of petrol-fuelled internal combustion engine (ICE) three-wheelers for last-mile passenger and goods transportation within the project boundary. In the absence of the project activity, drivers and transport operators would continue to rely on these conventional vehicles due to their widespread availability, established market presence, and lower upfront investment compared to electric vehicles. These ICE three-wheelers combust petrol (motor gasoline) as their primary energy source and emit greenhouse gases, predominantly carbon dioxide (CO_2), along with minor quantities of methane (CH_4) and nitrous oxide (N_2O).

The baseline scenario reflects the most plausible and realistic alternative to the project activity, as fossil fuel–based three-wheelers continue to dominate the last-mile transport segment across the project regions, including Delhi NCR, Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh, Punjab, and West Bengal. There are no regulatory or mandatory requirements that would have led to large-scale adoption of electric three-wheelers in the absence of the project activity, and therefore, the continuation of petrol-based transport represents the baseline condition.

In accordance with the applied methodology AMS-III.C (Version 16.0), baseline emissions are calculated based on the distance travelled by project vehicles and the corresponding emission factor of the baseline vehicles providing equivalent transport services. The baseline emissions (BE_y) are estimated using the following approach:

- The total distance travelled by the project vehicles ($DD_{i,y}$) during the monitoring period represents the transport service provided.
- The number of operational vehicles ($N^{i,y}$) is considered based on monitored data.
- The emission factor for baseline vehicles ($EF_{BL,km,i}$) is derived using fuel consumption characteristics, net calorific value of petrol, and emission factors as per IPCC guidelines and applicable national statistics.

The baseline emissions are calculated using the relationship:
Baseline Emissions (BE_y) = Distance travelled × Number of vehicles × Baseline emission factor
Where:

- Distance travelled ($DD_{i,y}$) is obtained from monitored IoT-based vehicle data
- Number of vehicles ($N_{i,y}$) represents active project vehicles during the monitoring period
- Baseline emission factor reflects CO_2 emissions per kilometre for petrol-based three-wheelers

As per the methodology, only CO_2 emissions are considered, while CH_4 and N_2O emissions are excluded for simplification, which is conservative.

The baseline emissions thus represent the GHG emissions that would have occurred in the absence of the project activity and form the basis for calculating emission reductions achieved by the deployment of electric three-wheelers under the project.

B.4. Debundling>>
This project activity is not a debundled component of a larger project activity.

SECTION C. Application of methodologies and standardized baselines

C.1. References to methodologies and standardized baselines >>

SECTORAL SCOPE – 07 Transport

This scope includes project activities that reduce GHG emissions through improvements in vehicle energy efficiency, use of alternative fuels, or substitution of fossil-fuel-based transport with electric or renewable energy–driven modes.

TYPE III: Energy Demand / Fuel Switching Projects
(Project activities that reduce fossil fuel consumption at the point of end-use through efficiency improvement or fuel switching)

CATEGORY- AMS-III.C. Emission reductions by electric and hybrid vehicles --- Version 16.0,

C.2. Applicability of methodologies and standardized baselines >>

The project activity has been assessed against all applicability conditions of the applied methodology AMS-III.C: Emission reductions by electric and hybrid vehicles (Version 16.0), and it is confirmed that the project fully complies with all relevant criteria.

Applicability Criterion under AMS-III.C. Version 16.0	Justification
The methodology is not applicable for project activities that involve a switch from fossil fuels to biofuels in transportation; those project activities shall consider using another Type III methodology (e.g. "AMS-III.T.: Plant oil production and use for transport applications" and "AMS-III.AK.: Biodiesel production and use for transport applications").	The project does not introduce biofuels. It replaces petrol ICE three-wheelers with electric three-wheelers powered by lithium-ion batteries. No biofuel production or use is involved. **Hence this condition is Applicable.**
In cases where the project vehicles use a replaceable, chargeable battery there must be documented measures in place to ensure that vehicle owners have access to replacement batteries of comparable quality	The project ensures quality replacement through contractual OEM agreements. All replacement batteries are certified (IP67-rated, ≥2000 cycles, 5 kWh, LFP/NMC chemistry) and supplied under warranty. **Hence this condition is Applicable**.
The project design document (PDD) shall explain the proposed approach for introducing/distributing the electric/hybrid vehicles, which shall allow for tracking of the project vehicles. It shall also explain how the proposed project activity will: (a) Demonstrate that the baseline vehicles being displaced are those consuming fossil fuels.* This can be done, for example, through documentation of the market share per fuel type	Each Vehicles are deployed through the Chargeup Fi-Ne-Tech model (finance + network + technology). Each EV is assigned a unique ID linked to VIN, battery ID and IoT device ID, enabling complete traceability in the Chargeup digital fleet registry. a) The project replaces petrol-fuelled ICE three-wheelers, which account for the dominant share of registered 3-wheelers in the project states. As per MoRTH Transport Statistics

per vehicle category in the project region (e.g. based on representative sample surveys or official data or peer reviewed literature); (b) Ensure compliance with prevailing regulations pertaining to battery use and disposal	(Govt. of India), NITI Aayog – India EV Report 2022[2], and SMEV 3-Wheeler Fuel Mix Study (2023)[3] showing >90% petrol share in the segment. b) The project complies with the Battery Waste Management Rules, 2022[4] (MoEFCC, Govt. of India) which mandate EoL collection, recycling, and producer responsibility. All lithium-ion batteries are barcoded and returned via an OEM-managed reverse logistics channel to CPCB-authorized lithium battery recyclers. No open dumping, burning, resale or informal dismantling is permitted, and compliance is auditable under Rule 7(1) & Rule 13 of BWM Rules, 2022. **Hence this condition is Applicable..**
The PDD shall include minimum performance specifications for the batteries to be used such as: depth of discharge, battery cycles, distance travelled per charge, lifetime.	The project uses AIS-156 certified lithium-ion (LFP) batteries rated 51.2V, 100Ah (5.12 kWh), with a design life of ≥2,000 cycles and a driving range of 70–90 km per charge. These specifications meet the minimum performance requirements of AMS-III.C, and the full technical details are provided in Section A.4 of this report. **Hence this condition is Applicable..**
The project proponent shall demonstrate that double counting of emission reductions will not occur e.g. via a contractual agreement with the end-user(s), maintenance of comprehensive inventory of project vehicles or unique identification of the vehicles owned by end-user(s). The steps undertaken to avoid double counting shall be documented in the PDD	The project prevents double counting through a unique asset identification system in which every electric three-wheeler, battery pack, and IoT device is linked to a single project registry record, All drivers and financing partners sign contractual agreements stating that the vehicle cannot be registered under any other carbon programme. A centralized digital database maintained by Chargeup tracks active vehicles, odometer data, GPS Location, Distance covered star and end time, average speed and ownership status, ensuring that no emission reductions are claimed more than once. The project is not registered under any other carbon programme, ensuring exclusive attribution of emission reductions. **Hence this condition is Applicable..**
In cases where renewable energy source is used for charging the electric vehicles through a dedicated transmission/distribution line, the	all electric three-wheelers are charged using grid electricity and no dedicated renewable energy supply or captive RE charging system is

[2] https://niti.gov.in/sites/default/files/2025-08/Electric-Vehicles-WEB-LOW-Report.pdf?
[3] https://morth.nic.in/sites/default/files/RTYB_Publication_2019_20%20%281%29.pdf?
[4] https://cpcb.nic.in/uploads/hwmd/Battery-WasteManagementRules-2022.pdf?

methodology should be combined with "AMS-I.F.: Renewable electricity generation for captive use and mini-grid" to claim emission reductions for the amount of electricity supplied from renewable electricity source to the charging station.	installed. The project does not include solar, wind, or any other renewable electricity generation component and therefore does not require combination with AMS-I.F. No emission reductions are claimed from renewable power supply, only from displacement of petrol combustion. **Thus, Not Applicable.**
In cases where this methodology is combined with "AMS-I.F.: Renewable electricity generation for captive use and mini-grid", the project proponent shall separately demonstrate the additionality of each of the component (i.e. supply of renewable energy to charging station (Type I) and use of electric vehicles (Type III)). Furthermore, while combining the two components applicable requirements on start date and prior clean development mechanism (CDM) consideration shall be met in accordance with the CDM project standard and CDM project cycle procedures.	As the project is not integrated with the AMS I.F methodology. **Thus, Not Applicable.**
Types of hybrid/electric vehicles to be introduced include but are not limited to cars, buses, trucks, jeepneys, commuter vans, taxis, motorcycles and tricycles.	All the electric vehicle introduced in this project activity are Three- Wheeler (3W). **Thus, Applicable.**
Project participants shall demonstrate that the project and baseline vehicles are comparable, using the following means: (a) Project and baseline vehicles belong to the same vehicle category, e.g. motorcycle, bus, taxi, truck, tricycle; (b) Project and baseline vehicle categories have comparable passenger/load capacity and power rating with a variation of no more than 20 per cent (comparing the baseline vehicle with the respective project vehicle of same category).	The project replaces petrol three-wheelers with electric three-wheelers, meaning both project and baseline vehicles belong to the same vehicle category (tricycle/auto-rickshaw). Passenger capacity, payload, and motor power fall within the ±20% variation allowed under AMS-III.C, since both ICE and EV models serve identical routes, duty cycles, and transport functions. Therefore, the project satisfies the comparability requirement for vehicle class, capacity, and performance. **Hence this condition is Applicable.**
Measures are limited to those that result in emission reductions of less than or equal to 60 $ktCO_2$ equivalent annually	The Annual Estimated Emission reduction value calculated is 7,678 tCO_2 equivalent annually which is less then 60 $ktCO_2$ equivalent annually, Thus Project activity is small scale, **hence this condition is Applicable**

C.3 Applicability of double counting emission reductions >>

Double counting is prevented through the following measures:

- Unique Asset Identification: Every electric three-wheeler, battery pack, and IoT device is assigned a unique ID and recorded in the project registry database.
- Centralized Digital Tracking System: maintains a unified fleet database that records vehicle ownership, odometer readings, GPS route data, distance travelled, and operational status to ensure exclusive attribution of emission reductions.

- Non-Participation Declaration: The project is not registered, nor under application, in any other carbon registry, programme, or crediting mechanism. Self-deceleration is Provided is also provided.

C.4. Project boundary, sources and greenhouse gases (GHGs)>>

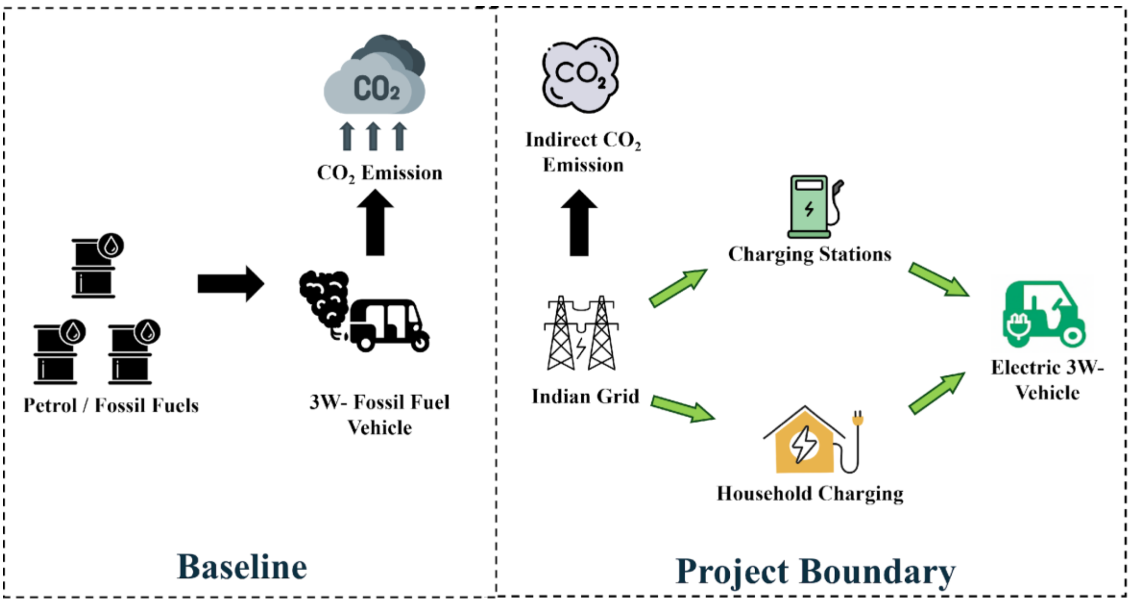
As per paragraph 19 of the applicable methodology AMS-III.C (Version 16.0), the project boundary includes :

(a) The vehicles and Batteries of the project;

(b) The geographic boundaries where the project activity vehicles are operated;

(c) The providers of the charging service to the project activity vehicles, including the charging equipment and stations of the project activities vehicle, electric supply sources (e.g. a grid and/or renewable energy generation source connected by a dedicated line to the charging stations) and other ancillary facilities

The project boundary includes the electric three-wheelers (project vehicles), the grid electricity used for charging, and the petrol-fuelled internal combustion engine (ICE) three-wheelers that represent the baseline scenario.



Emission Sources and GHGs Considered

	Source	GHG	Included	Justification/Explanation
Baseline	Emissions from Petrol combustion in ICE 3-wheelers	CO_2	Included	Major source of emission
		CH_4	Excluded	Minor source, may be excluded as per AMS-III.C
		N_2O	Excluded	Minor source, may be excluded as per AMS-III.C

Project Activity	Emissions from Grid electricity used to charge EV batteries	CO_2	Included	Indirect emissions due to power generation in fossil-based grid
		CH_4	Excluded	Negligible share in Indian electricity generation mix
		N_2O	Excluded	Negligible share in Indian electricity generation mix

C.5. Establishment and description of baseline scenario (UCR Protocol) >>

In the absence of the project activity, last-mile transportation services for passengers and goods in the project boundary would continue to be provided by internal combustion engine (ICE) three-wheelers running on petrol (motor gasoline). These vehicles currently dominate the commercial three-wheeler segment in the intervention areas, as confirmed through state transport registration data, national mobility statistics, and Chargeup driver onboarding records.

As per the applicable methodology AMS-III.C (Version 16.0), the baseline scenario is defined as the continued use of conventional fossil fuel vehicles providing the same transport service, since no policy, financial incentive, or market condition exists that would independently trigger the adoption of electric three-wheelers at scale. Therefore, the most realistic and credible baseline is the continued operation of petrol three-wheelers, resulting in direct CO_2 emissions from fuel combustion.

Baseline Emission for current Monitoring period:
Inlining with the selected methodology AMS-III.C., version 16.0, as per Paragraph 26 "Baseline emissions should be calculated using one of the two approaches", We have selected Approach 1.

"Approach 1: Using distance travelled by project vehicles"

The baseline emissions are calculated based on the unit of service provided by the project vehicles (travelled distance) times the emission factor for the baseline vehicle to provide the same unit of service as per the equation below:

$$BE_y = \sum_i EF_{BL,km,i} \times DD_{i,y} \times N_{i,y} \times 10^{-6} \qquad \text{Equation (1)}$$

Where:

BE_y = Total baseline emissions in year y (t CO_2)

$EF_{BL,km,i}$	=	Emission factor for baseline vehicle category *i* (g CO_2/km)
$DD_{i,y}$	=	Annual average distance travelled by project vehicle category *i* in the year *y* (km)
$N_{i,y}$	=	Number of operational project vehicles in category *i* in year *y*

As per paragraph 31: The Emission factor for baseline vehicle category ($EF_{BL,km,i}$) shall be determined as follows:

$$EF_{BL,km,i} = SFC_i \times NCV_{BL,i} \times EF_{BL,i} \times IR^t \quad \text{Equation (3)}$$

SFC_i	=	Specific fuel consumption of baseline vehicle category *i* (g/km)
$NCV_{BL,i}$	=	Net calorific value of fossil fuel consumed by baseline vehicle category *I* (J/g)
$EF_{BL,i}$	=	Emission factor of fossil fuel consumed by baseline vehicle category *i* (g CO_2/J)
IR^t	=	Technology improvement factor for baseline vehicle in year *t*. The improvement rate is applied to each calendar year. The default value of the technology improvement factor for all baseline vehicle categories is 0.99
T	=	Year counter for the annual improvement (dependent on age of data per vehicle category)

For SFC_i Calculation we have selected Option (5): Existing statistics

"If none of the above options apply due to lack of data, other public available existing statistics could be used as industry default values, such as host country statistics (released by transportation department or other authorities), IPCC or other international data."

$$SFC_{,i} = Fuel\ Consumpition\ (L/km) \times Density\ of\ Fuel(kg/L)$$

Monitored parameter and Ex-ante parameter for current monitoring period :-

Parameters	Value	Unit	Description
$DD_{i,y}$	5,175	km/year	Monitored Data (Ex-post)
$N_{i,y}$	4,245	Number of vehicle	Monitored Data (Ex-post)
Baseline Average	22.50	Km/l	Ex-ante
Fuel Consumption	0.04444	(L/Km)	Ex-ante
Mean Density of Petrol (motor gasoline)	0.845	kg/L	Ex-ante
SFC_i	37.555	g/km	Ex-ante
$NCV_{BL,i}$	44,300	J/g	

$EF_{BL,i}$	0.0000741	g CO_2/J	
IR^T	0.99	Fraction	
T	1	Year	
$EF_{BL,km,i}$	118.466	gCO_2/km	

Now as per above mentioned equation (1) ,

$$BE_y = \sum_i EF_{BL,km,i} \times DD_{i,y} \times N_{i,y} \times 10^{-6}$$

$$BE_y = 118.466 \times 5{,}175 \times 4{,}245 \times 10^{-6}$$

$$\boldsymbol{BE_y = 2{,}681\ tCO_2e}$$

Project Emission:
Inlining with the selected methodology AMS-III.C., version 16.0, as per Paragraph 40 “Project emissions include the electricity and fossil fuel consumption associated with the operation of project vehicles and shall be calculated by two approaches”, We have selected Approach 1.

“Approach 1: Using distance travelled by project vehicles”

$$PE_y = \sum_i EF_{PJ,km,i,y} \times DD_{i,y} \times N_{i,y} \qquad \text{Equation (4)}$$

Where:

PE_y	=	Total project emissions in year y (t CO_2)
$EF_{PJ,km,i,y}$	=	Emission factor per kilometre travelled by the project vehicle type i (t CO_2/km)
$N_{i,y}$	=	Number of operational project vehicles in category i in year y
$DD_{i,y}$	=	Annual average distance travelled by the project vehicle category i in the year y (km)

As per paragraph 43: The emission factor of the project vehicles shall be established as follows:

$$EF_{PJ,km,i,y} = \sum_i SEC_{PJ,km,i,y} \times EF_{elect,y}/(1 - TDL_y) \times 10^{-3} + \sum_i SFC_{PJ,km,i,y} \times NCV_{PJ,i} \times EF_{PJ,i} \times 10^{-6} \qquad \text{Equation (6)}$$

Where:

$SEC_{PJ,km,i,y}$	=	Specific electricity consumption by project vehicle category i per km in year y in urban conditions (kWh/km)

$EF_{elect,y}$	=	CO_2 emission factor of electricity consumed by project vehicle category *i* in year *y* (kg CO_2/kWh)
$SFC_{PJ,km,i,y}$	=	Specific fossil fuel[5] consumption by project vehicle category *i* per km in year *y* in urban conditions (g/km)
$EF_{PJ,i}$	=	CO_2 emission factor of fossil fuel consumed by project vehicle category *i* in year *y* (g CO_2/J)
$NCV_{PJ,i}$	=	Net calorific value of the fossil fuel consumed by project vehicle category *i* in year *y* (J/g)
TDL_y	=	Average technical transmission and distribution losses for providing electricity in the year *y*

Ex-ante parameter: -

Parameters	Value	Unit
$SEC_{PJ,km,i,y}$	0.0512	kWh/km
$EF_{elect,y}$	0.736	kg CO_2/kWh
$SFC_{PJ,km,i,y}$	0	g/kg
$EF_{PJ,i}$	0	g CO_2/J
$NCV_{PJ,i}$	0	J/g
TDL_i	0.1927	Fraction
$EF_{PJ,km,i,y}$	0.0000466781	tCO_2/km

Now as per above mentioned equation (4) ,

$$PE_y = \sum_i EF_{PJ,km,i,y} \times DD_{i,y} \times N_{i,y}$$

$$PE_y = 0.0000466781 \times 5{,}175 \times 4{,}245$$

$$\boldsymbol{PE_y = 1{,}026\ tCO_2e}$$

Leakage Emission:

As per Paragraph 44: No leakage calculation is required.

$$\boldsymbol{LE_y = 0}$$

Estimated Emission Reductions:

As per Paragraph 45:

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \qquad \text{Equation (1)}$$

ER_y	=	Emission reductions in year *y* (t CO_2e)

5 For electric vehicle the values is 0.00.

BE_y	=	Baseline emissions in year y (t CO_2e)
PE_y	=	Project emissions in year y (t CO_2e)
LE_y	=	Leakage emissions in year y (t CO_2e)

ER_y = 2,681 – 1,026 - 0
ER_y = 1,655 tCO_2e

Achieved Emission Reduction				
Parameter	**Baseline emissions** (tonnes of CO_2e)	**Project activity emissions** (tonnes of CO_2e)	**Leakage** (tonnes of CO_2e)	**Emission reductions** (tonnes of CO_2e)
Average Annual Estimated Emission Reduction (tCO_2e/Year)	12,434	4,892	0	7,678
Estimated Emission Reduction for Current Monitoring Period (tCO2e)	4,088	1,608	0	2,480
Achived Emission Reduction for Current Monitoring Period (tCO_2e)	**2,681**	**1,026**	**0**	**1,655**
Difference	**-34.42%**	**-36.21%**	**0%**	**-33.25%**

Actual **Achived emission reductions (ERy) =** 1,655 CoUs (1,655 tCO_2eq)

The achieved emission reductions during the monitoring period were lower than the estimated ex-ante values primarily due to lower actual vehicle utilization compared to the assumptions considered during the project design stage.
The achieved ER calculations are based exclusively on actual ex-post monitored IoT operational data. Variations in driver operating patterns, idle/non-operational days, lower route utilization, operational downtime, and phased fleet utilization during the monitoring period contributed to the observed deviation in achieved ER values.

C.6. Prior History>>

The project activity has not applied to any other GHG program for generation or issuance of carbon offsets or credits for the said crediting period.

C.7. Monitoring period number and duration>>

First Issuance Period: 0 years, 4 months – 01/11/2025 to 28/02/2026

C.8. Changes to start date of crediting period >>
There is no change in the start date of crediting period.

C.9. Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline >>
There are no permanent changes from registered PCN monitoring plan and applied methodology.

C.10. Monitoring plan>>

The project has monitor two key parameters required for calculating emission reductions during current monitoring period as mentioned under AMS-III.C (Version 16.0):

(i) the number of electric three-wheelers actively operating within the project boundary, and
(ii) the total distance travelled by these vehicles during each monitoring period.

Each electric three-wheeler deployed under the project is equipped with a GPS-enabled IoT telematics device that continuously records odometer readings, distance travelled, trip start and end times, and operational status. These data are automatically transmitted in real time to the Chargeup backend server via a secure cellular network. No manual data entry or sampling is required, as 100% of the vehicles are monitored digitally throughout the crediting period.

Every vehicle is assigned a unique identification code that links its asset record, ownership status, and operational history to the project registry, enabling complete traceability and preventing the risk of double counting. Data collection, storage, validation, processing, and reporting are fully managed by Chargeup through its centralized monitoring dashboard, which also serves as the authoritative database for verification and issuance purposes. All activity data are archived for the full crediting period and retained for at least two years beyond the final issuance, as required by UCR.

The monitored distance data (km) is multiplied by the applicable baseline emission factor (kg CO_2/km) to determine the baseline emissions that would have occurred in the absence of the project. In accordance with AMS-III.C, only CO_2 is included in the emission reduction calculation, while CH_4 and N_2O are excluded.

Ex-ante (Fixed):-

Data/Parameter	SFC_i
Data unit	g/km
Description	Specific fuel consumption of baseline vehicle category i.
Source of data	Calculated.
Value(s) applied	37.555
Measurement methods and procedures	Derived from (a) average km/litre fuel efficiency of ICE 3-wheelers from transport statistics and (b) density of petrol (0.74 kg/l).
Monitoring frequency	N.A
Purpose of data	Calculation of Baseline Emission.

Data/Parameter	$NCV_{BL,i}$
Data unit	j/g
Description	Net calorific value of fossil fuel consumed by baseline vehicle category I
Source of data	https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
Value(s) applied	44,300
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Calculation of Baseline Emission.

Data/Parameter	Baseline Average
Data unit	Km/L
Description	Average Distance covered by Baseline vehical in 1 Liter of Fuel
Source of data	Publicly available[6]
Value(s) applied	22.5 km/L
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Calculation of Baseline Emission.

Data/Parameter	$EF_{BL,i}$
Data unit	g CO_2/J
Description	Emission factor of fossil fuel consumed by baseline vehicle category i
Source of data	Convert 69300 kg/TJ, https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
Value(s) applied	0.0000741
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Calculation of Baseline Emission.

Data/Parameter	IR^T
Data unit	Fraction
Description	Technology improvement factor for baseline vehicle in year t
Source of data	Default value from AMS-III.C, Version 16.0
Value(s) applied	0.99
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Calculation of Baseline Emission.

Data/Parameter	T
Data unit	Year

[6] Avegage of real world range of Baseline Vehical ,https://www.researchgate.net/publication/353278036_Real-world_emission_and_impact_of_three_wheeler_electric_auto-rickshaw_in_India

Description	Year counter for the annual improvement (dependent on age of data per vehicle category)
Source of data	N.A
Value(s) applied	1
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Calculation of Baseline Emission.

Data/Parameter	$EF_{BL,km,i}$
Data unit	g CO_2/km
Description	Emission factor for baseline vehicle category i
Source of data	Calculated (refer C.5)
Value(s) applied	118.4666832500
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Calculation of Baseline Emission.

Data/Parameter	$SEC_{PJ,km,i,y}$
Data unit	kWh/km
Description	Specific electricity consumption by project vehicle category i per km in year y in urban conditions
Source of data	Calculated based on technical specification .
Value(s) applied	0.0512
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Project Emission

Data/Parameter	$EF_{elect,y}$
Data unit	Kg CO_2/kWh
Description	CO_2 emission factor of electricity consumed by project vehicle category i in year y
Source of data	https://medium.com/@UniversalCarbonRegistry/ucr-cou-standard-update-2025-vintage-ucr-indian-grid-emission-factor-announced-d9a5efd237bf
Value(s) applied	0.736
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Project Emission

Data/Parameter	$SFC_{PJ,km,i,y}$
Data unit	g/kg
Description	Specific fossil fuel consumption by project vehicle category i per km in year y in urban conditions
Source of data	Not applicable , Since there is no Fossil Fuel used in project scenario
Value(s) applied	0
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Project Emission

Data/Parameter	$EF_{PJ,i}$
Data unit	kg CO_2/kWh
Description	CO_2 emission factor of fossil fuel consumed by project vehicle category i in year y
Source of data	Not applicable , Since there is no Fossil Fuel used in project scenario
Value(s) applied	0
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Project Emission

Data/Parameter	$NCV_{PJ,i}$
Data unit	J/g
Description	Net calorific value of the fossil fuel consumed by project vehicle category i in year y
Source of data	Not applicable , Since there is no Fossil Fuel used in project scenario
Value(s) applied	0
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Project Emission

Data/Parameter	TDL_i
Data unit	Fraction
Description	Average technical transmission and distribution losses for providing electricity in the year y
Source of data	General Review 2024 by Ministry of Power , Gov of India.[7]
Value(s) applied	0.1927
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Project Emission

Data/Parameter	$EF_{PJ,km,i,y}$
Data unit	tCO_2/km
Description	Emission factor per kilometre travelled by the project vehicle type i
Source of data	Calculated (refer B.5)
Value(s) applied	0.0000466781
Measurement methods and procedures	N.A
Monitoring frequency	N.A
Purpose of data	Project Emission

Ex-Post Monitored: -

Data / Parameter:	$N_{i,y}$

[7] page 119, Table 6.4, State-wise system losses in the year, https://cea.nic.in/wp-content/uploads/general/2024/General_Review_2024_2.pdf

Data unit:	Number of Vehicle.
Description:	Number of operational project vehicles in category i in year y
Source of data:	Chargeup digital asset registry / vehicle onboarding database
Value(s) applied	4,245
Measurement procedures (if any):	Each vehicle is assigned a unique identification number. Vehicles are counted as “active” only when operational in the monitoring period. Decommissioned, inactive, or non-operational vehicles are excluded.
Monitoring frequency:	Continuous tracking in database.
QA/QC procedures:	Cross-check with vehicle activation logs, and IoT device status. Only vehicles with valid data and active telematics reporting are included
Any comment:	This parameter is required under AMS-III.C. No sampling is applied.

Data / Parameter:	**$DD_{i,y}$**
Data unit:	Km
Description:	Annual average distance travelled by project vehicle category i in the year y (km)
Source of data:	IoT telematics system installed on each vehicle, automatically recorded in the Chargeup backend database. / vehicle onboarding database
Value(s) applied	5,175
Measurement procedures (if any):	Distance is recorded from odometer/GPS logs at trip level. Data is auto-synced to the server and aggregated per vehicle per month. No manual entry or sampling is used.
Monitoring frequency:	Continuous real-time logging,
QA/QC procedures:	Cross-check between IoT data and odometer reading history
Any comment:	-