

Electric Mobility Taskforce, Kenya



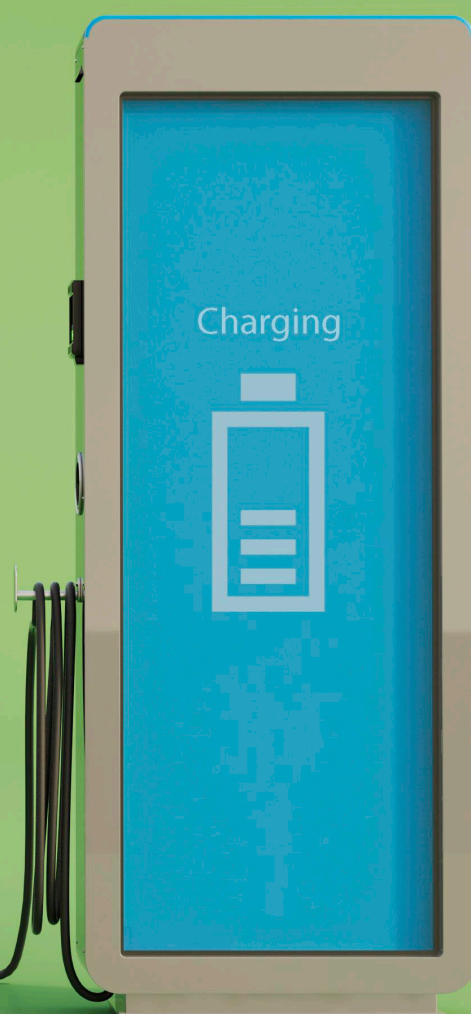
INTERIM REPORT 2023



MINISTRY OF ROADS AND TRANSPORT

Contents

Letter of Transmittal	3	4. Planning Phase	56
Executive Summary	4	5. Executing Phase	66
Chapter 1		Chapter 4	
Introduction	7	Data Collection and Analysis of Results ...	68
1. Background	7	1. Introduction	68
2. Problem Statement	11	2. Presentations made to the Taskforce	81
3. Chapter Breakdown	12	3. Analysis of the Data Collection Exercise from Phase 1 Stakeholder Engagement	84
Chapter 2		Chapter 5	
Global Survey of Existing Knowledge and Practices relating to e-Mobility	14	Tasks to be undertaken for remainder of the term of Taskforce	87
1. Introduction	14		
2. Situational Analysis	15		
3. Case Studies – International Best Practices	33		
4. Legal and Regulatory Review	40		
5. Policies, Plans and other Instruments	48		
Chapter 3			
Research Design and Methodology	55		
1. Introduction	55		
2. Taskforce Process Design	55		
3. Initiating Phase	56		



Letter of Transmittal



By Gazette Notice number 10132 of 2023, the undersigned were appointed to be members of the Taskforce on the Development of National Electric Mobility Policy, Strategy, Legislations and Regulations.

The overall objective of the e-Mobility Taskforce is to develop a National Electric Mobility Policy to create an enabling environment for the growth and adoption of electric vehicles in Kenya. As mandated, we have the honor to submit to you our Interim Report of our project and findings. We intend to complete the duty bestowed upon us and deliver a National Electric Mobility Policy that will set Kenya ahead on the transition to sustainable energy solutions.

Please accept, Honourable Cabinet Secretary, the assurances of our highest consideration.

Daniel Ngumy, *Chairperson*

Jerotich Seii, *Vice Chairperson*

David Mutisya

Anne Nyaga

Augustine K. Kenduiwo,

Zacharia Lukorito (Eng.)

Chris Mugo

Judy Chepkirui

Javan Odenyo

Edwins Mukabannah

Hezbon Mose

Githaiga Weru

Ibrahim Kinyanjui

Meshack Ochieng (Eng.)

Izael Da Silva

Ignatius Maranga

Rotich Robin

Abdullahi Ali

Michael Muchiri (Eng.)

Paul Kingori

Anne Njoroge

Justo Wanyama

Executive Summary

- 1.1 An efficient transport system and network is key in spurring national and regional integration and promoting trade and economic development. Kenya's modes of transport include road, rail, maritime and inland water, pipeline, aviation, and non-motorized and intermediate means of transport. Kenya's transportation is critical for economic growth. However, Kenya's transport infrastructure is also increasingly exposed to the challenges of weather variability and climate change. The world has committed to limiting global warming to 1.5 °C or 2 °C through the Paris Agreement which Kenya ratified in 2015. This requires rapid, deep and immediate GHG emission reductions mainly through reduction of the use of fossil fuels and transition to sustainable energy sources.
- 1.2 Further, as Kenya grapples with a burgeoning import bill, primarily driven by petroleum imports costing approximately **KES 628.4 billion in 2022 up from KES 348.3 Billion in 2021**, the urgency for alternative and sustainable energy solutions has never been greater. This financial burden strains the nation's foreign exchange reserves, posing significant economic risks. Simultaneously, the country boasts a national electricity grid that is sourced from over 90% renewable energy, presenting a unique and untapped opportunity to transition to more sustainable modes of transportation.
- 1.3 Despite these compelling factors, Kenya faces a critical gap in the form of an inadequate legislative and policy framework designed to promote electric mobility. This absence of a comprehensive policy not only hampers the uptake of electric vehicles but also stifles innovation, local manufacturing, and the potential for job creation in a new industry. Furthermore, the lack of a cohesive strategy leads to missed opportunities in reducing greenhouse gas emissions, improving air quality, and contributing to global sustainability goals.
- 1.4 Therefore, it is imperative to establish an enabling policy and regulatory environment that would catalyze the transition to electric mobility. Such a framework must address a range of issues including but not limited to fiscal and non-fiscal incentives for stakeholders, safety





standards, local content and promoting local manufacturing, and realising the potential of carbon markets. Without immediate and strategic intervention, Kenya risks falling behind in the global shift towards electric mobility, missing out on its economic, social, and environmental benefits.

- 1.5 In a bid to actualize the uptake of e-mobility Kenya, the Taskforce on the Development of National Electric Mobility Policy, Strategy and Regulations was appointed by the Cabinet Secretary of the Ministry of Roads and Transport, Kipchumba Murkomen, EGH with the overall objective of developing a National Electric Mobility Policy to create an enabling environment for the growth and adoption of electric vehicles in Kenya.
- 1.6 This Interim Report has been prepared with as a marker of the progress that has been made by the Taskforce in the execution of its mandate. This Interim Report sets out the following:
 - 1.6.1 A Global Survey of Existing Knowledge and Practices relating to e-Mobility by providing a **Situational Analysis** which is in essence a review of the e-mobility industry in Kenya with a focus on the various components of an electric vehicle, a description of the various e-mobility categories, including 2-wheelers, 3 wheelers, 4 wheelers and buses. Further, this analysis includes reviews of the initiatives undertaken by other countries on e-mobility and the success they have garnered. Additionally, it undertakes a review of existing legal regulatory and policy frameworks that touch on e-mobility in Kenya.
 - 1.6.2 This Interim Report also outlines the methodology used to develop the National Electric Mobility Policy, Strategy, and Regulations for Kenya. It provides the taskforce process design, data collection methods, data analysis techniques, and the ethical considerations of the process. It further provides an overview of the data collected by the Taskforce in the preparation of the National e-Mobility Policy. The Taskforce conducted a call for public comments and received submissions from members of the public. Guided by Article 10 of the Constitution of Kenya that enshrines public participation as a national value, including in the development and formulation of national policies, the e-Mobility Taskforce is keen to ensure that the process of developing a National e-Mobility Policy is consultative and involves the public as a key pillar of achieving its objectives.
 - 1.6.3 This Report identifies various pillars that would be the cornerstone of the National e-Mobility Policy Framework. These pillars as addressed in detail in this Interim Report are set out below:
 - (a) A comprehensive and holistic policy framework whose scope extends to all aspects of e-mobility;

- (b) Promoting local manufacturing and assembly;
- (c) A policy framework that provides for fiscal and non-fiscal incentives;
- (d) Quality assurance and safety standards;
- (e) Licensing and Registration; and
- (f) Monitoring and Evaluation.

1.7 The above-mentioned pillars form the critical elements that will form the backbone of the National e-Mobility Policy. Further, the e-Mobility Policy will be accompanied by a strategy and implementation plan that will set out the execution of the e-Mobility Policy.



CHAPTER 1

Introduction



1. Background

An efficient transport system and network is key in spurring national and regional integration and promoting trade and economic development. Kenya's modes of transport include road, rail, maritime and inland water, pipeline, aviation, and non-motorized and intermediate means of transport. Kenya's transportation is critical for economic growth. However, Kenya's transport infrastructure is also increasingly exposed to the challenges of weather variability and climate change. The world has committed to limiting global warming to 1.5 °C or 2 °C through the Paris Agreement which Kenya ratified in 2015. This requires rapid, deep and immediate GHG emission reductions mainly through reduction of fossil fuels.

According to Article 6 synthesis report by Intergovernmental Panel on Climate Change (IPCC), in 2019, direct greenhouse gas (GHG) emissions from the transport sector were 8.7 GtCO₂-eq (up from 5.0 GtCO₂-eq in 1990) and accounted for 23% of global energy-related CO₂ emissions. 70% of direct transport emissions came from road vehicles, while 1%, 11%, and 12% came from rail, shipping, and aviation, respectively.

The transport sector in the world is predominantly driven by fossil fuel and accounts for around 25% of the total greenhouse gas emissions.¹ In Kenya, the transport sector is almost entirely fossil fuel powered given that the sector utilizes about 72% of petroleum products that are imported into the country.² In 2015, the transport sector accounted for 13% of Greenhouse gases emissions with projections indicating that the same would increase to 17% by 2030 due to population growth and industrialization among other factors.³ Between 2009 and 2019, domestic transport emissions increased by 59.4% with the road transport being the most significant contributor.⁴ Meeting climate goals would require transformative changes in the transport sector among them electrification of vehicles as a global initiative.

In 2020, Kenya submitted an ambitious Nationally Determined Contribution to the United Nations Framework Convention on Climate Change Secretariat that committed to reduce emissions by 32% by 2030.⁵ As one of the main contributors to emissions in the country, the transport sector is at the heart of the realization of this target. The National Climate Change Action Plan 2018-2022 as well as its successor 2023-2027 identify the uptake of electric vehicles as one of the

-
- 1 United Nations, Climate change fact sheet, October 2021
 - 2 Government of Kenya, National Energy Efficiency and Conservation Strategy (2020)
 - 3 Government of Kenya, National Climate Change Action Plan 2018-2022. See also Government of Kenya (2015). Second National Communication to the UNFCCC
 - 4 Ministry of Transport, Performance and Implementation OF climate change Actions 2018/2019. See also Lore L. & Baragu G., Accelerating E-mobility to Remedy Greenhouse Gas Emissions in Kenya, KIPPRA Blogs Available at <https://kippra.or.ke/accelerating-e-mobility-to-remedy-greenhouse-gas-emissions-in-kenya/>
 - 5 Government of Kenya, Updated Nationally Determined Contribution, 2020 <https://www.worldbank.org/en/news/feature/2022/11/17/electric-vehicles-an-economic-and-environmental-win-for-developing-countries>



available



charging



reserved

climate actions in the transport and energy sectors. Equally, the National Energy Efficiency and Conservation Strategy (2020) envisions that by 2025, 5 per cent of all registered vehicles in Kenya will be electric powered. Similarly, the Long Term Strategy for Greenhouse Gases emissions reduction aims at net zero by 2050 targeting transition to e-mobility. The use of electric power to power transport locomotives, e-mobility, significantly reduces the emission of greenhouse gases and hence addresses their attendant health and environments consequences.⁶

The Kenya grid capacity is sufficient to support e-mobility. Kenya has expanded generation capacity of a well-diversified mix with close to 90 percent of energy being generated from clean sources (mainly geothermal, hydro and wind). The installed generation capacity currently stands at 2,819MW compared to the peak demand of 1,912MW, giving a healthy margin of over 30 percent. Significant capacity addition is expected in the near term, which will add to the capacity surplus. This creates opportunities for serving demand for alternative uses like electric mobility.

The Kenyan Government Bottom-Up Economic Transformation Agenda which is currently being implemented as the Fourth Medium Term Plan 2023-2027 under the Kenya Vision 2030 Agenda recognises the role that e-mobility could play in the attainment of national development and environmental goals. The government objective would be the establishment of extensive electric vehicle charging network within urban centers and along major highways. In order to accelerate the adoption of electric vehicles (EVs) among public service operators and commercial transporters, the government plans to implement a comprehensive package of financial incentives and tax benefits.

The Integrated National Transport Policy (INTP), 2009 currently under review, made various recommendations to address climate change, including; a) setting minimum targets to reduce GHG emissions and enhance clean air policy, and b) Putting in place various technical, operational, regulatory and market-based mitigation measures to address climate change in the transport sector. The INTP further identifies electric mobility as a key opportunity for the transport sector. The policy proposes encouragement of uptake through development and inclusion of incentives and standards for electric vehicles among other strategies.

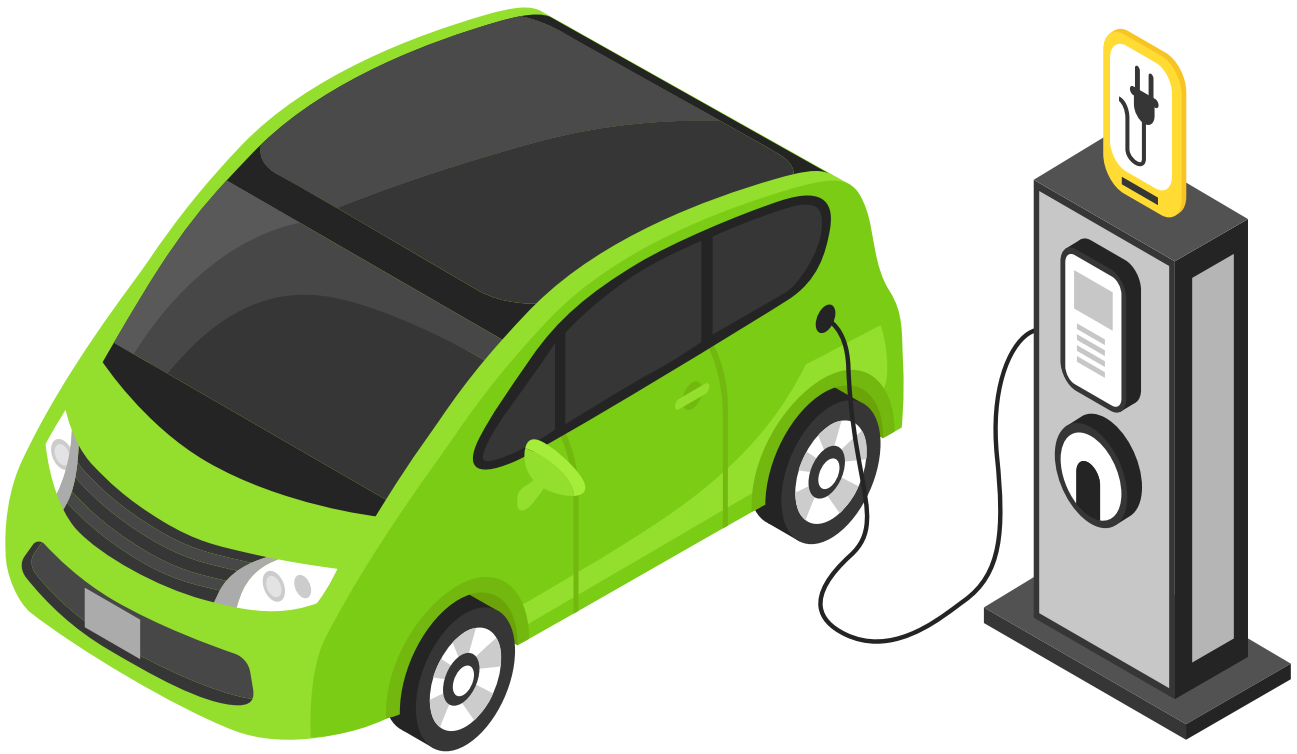
Other than cutting down on emissions, the adoption of e-mobility would benefit the nation in many other ways. It would offer an impetus for the inclusion of the transport sector to the carbon markets thus earning the country carbon credits due to reduced emission of greenhouse gases. The Kenyan balance of trade would also be more favourable due to reduced imports of petroleum products. The uptake of e-mobility would also open a new economic ecosystem thus creating new jobs in research, development, assembly and maintenance of charging infrastructure. These outcomes build into the attainment of the Kenya Vision 2030 which aims to give all its citizens a high-quality life in a clean and secure environment by 2030.

1.1. The e-Mobility Taskforce

In a bid to actualize the uptake of e-mobility Kenya, the Taskforce on the Development of National Electric Mobility Policy, Strategy and Regulations was appointed by the Cabinet Secretary of the Ministry of Roads and Transport, Kipchumba Murkomen, EGH through Gazette Notice 10132 of 2023 dated 4th August 2023 (the **e-Mobility Taskforce**).

The overall objective of the e-Mobility Taskforce is to develop a National Electric Mobility Policy (the **e-Mobility Policy**) to create an enabling environment for the growth and adoption of electric vehicles in Kenya. The following are the key objectives of the e-Mobility Policy:

- 1.1.1. to steer Kenya's economy to a desired low carbon climate resilient development pathway and guide the development of e-mobility in the country;



- 1.1.2. to provide strategic direction in order to create an enabling environment that will enhance uptake of electric vehicles and related e-mobility infrastructure in the country;
- 1.1.3. to provide policy guidance to the county governments on how to promote e-mobility in their devolved functions;
- 1.1.4. to recommend transitional measures for the adoption of electric vehicles;
- 1.1.5. to recommend fiscal and non-fiscal incentives for the e-mobility sector including importation, local manufacture, assembly and e-mobility infrastructure;
- 1.1.6. to attract investment into the e-mobility sector, particularly in the manufacturing and assembly value chain;
- 1.1.7. to provide a framework for the end of life and disposal of electric vehicles and accessories in line with Sustainable Waste Management Act, 2022;
- 1.1.8. to provide a framework for the development of carbon credits emanating from the e-mobility sector; and
- 1.1.9. to provide a framework for initiation, development and implementation of standards and best practice in respect of the e-mobility value chain.

2. Problem Statement

- 2.1. As Kenya grapples with a burgeoning import bill, primarily driven by petroleum imports costing approximately **KES 628.4 billion in 2022 up from KES 348.3 Billion in 2021**, the urgency for alternative and sustainable energy solutions has never been greater. This financial burden strains the nation's foreign exchange reserves, posing significant economic risks. Simultaneously, the country boasts a national electricity grid that is sourced from over 90% renewable energy, presenting a unique and untapped opportunity to transition to more sustainable modes of transportation.
- 2.2. Despite these compelling factors, Kenya faces a critical gap in the form of an inadequate legislative and policy framework designed to promote electric mobility. This absence of a comprehensive policy not only hampers the uptake of electric vehicles but also stifles innovation, local manufacturing, and the potential for job creation in a new industry. Furthermore, the lack of a cohesive strategy leads to missed opportunities in reducing greenhouse gas emissions, improving air quality, and contributing to global sustainability goals.
- 2.3. Therefore, it is imperative to establish an enabling policy and regulatory environment that would catalyze the transition to electric mobility. Such a framework must address a range of issues including but not limited to fiscal and non-fiscal incentives for stakeholders, safety standards, local content and manufacturing, and carbon markets. Without immediate and strategic intervention, Kenya risks falling behind in the global shift towards electric mobility, missing out on its economic, social, and environmental benefits.





3. Chapter Breakdown

This study consists of five chapters broken down as follows:

3.1. Chapter 1: Introduction

This Chapter provides an introduction to the Kenyan policy discussions relating to e-Mobility and its motivations including the climate change impacts as well as the objective of reducing carbon emissions. It also set out an outline of the contents of the Interim Report.

3.2. Chapter 2: Global Survey of Existing Knowledge and Practices relating to e-Mobility

This Chapter set out a Global Survey of Existing Knowledge and Practices relating to e-Mobility by focusing on the following key areas:

- 3.2.1. Situational Analysis** – this section sets out a review of the e-mobility industry with a focus on the various components of an electric vehicle, a description of the various e-mobility categories, including 2-wheelers, 3 wheelers, 4 wheelers and buses.
- 3.2.2. Legal and Regulatory Review** – this section sets out a review of the existing legal and regulatory framework that touches on electric mobility. It further identifies the various gaps that ought to be filled in order to have a holistic and comprehensive e-mobility legal and regulatory framework.
- 3.2.3. Policies, Plans and other Instruments** – this section sets out a review of the existing policies, plans and other instruments that touch on e-mobility with a focus on the role they will play in the preparation of a comprehensive and holistic National e-Mobility Policy.
- 3.2.4. Case Studies** - this section sets out a review of the policies, plans, legal and regulatory framework on e-mobility in six countries that have successful adoption of e-mobility. It identifies best practises and gaps that will inform the development of a suitable e-mobility Policy, Legal and Regulatory framework for Kenya.

3.3. Chapter 3: Research Design and Methodology

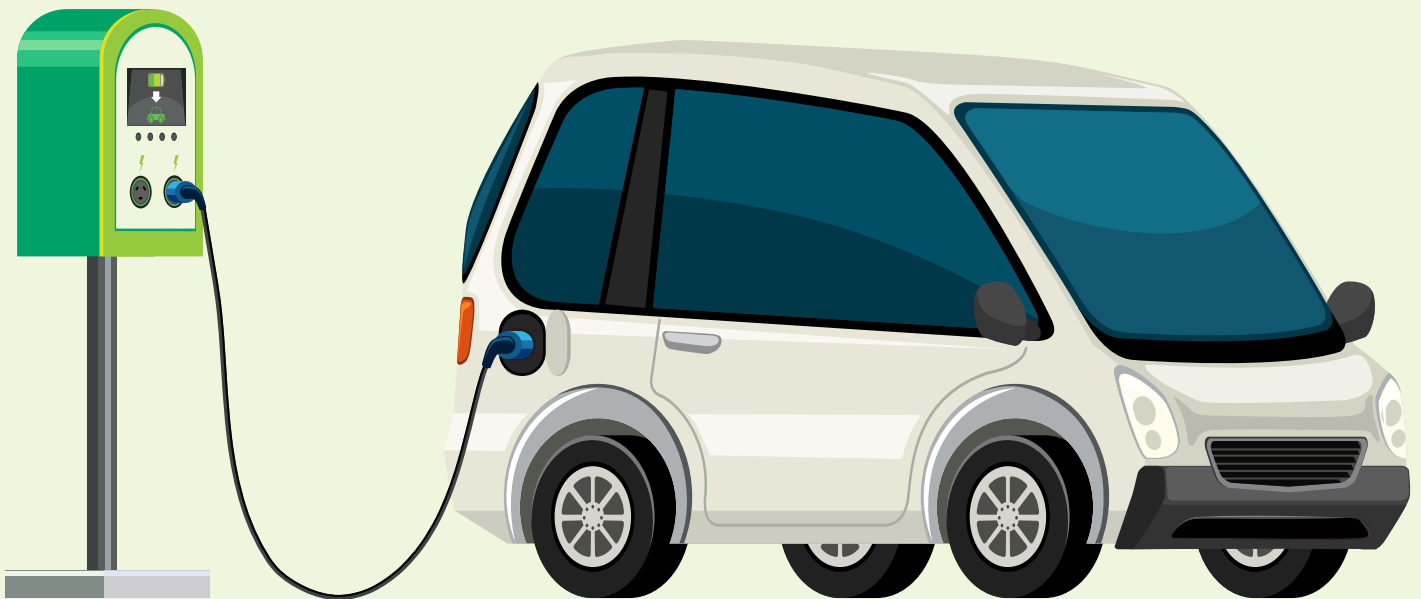
- 3.3.1.** This Chapter outlines the methodology used to develop the National Electric Mobility Policy, Strategy, and Regulations for Kenya. It provides the taskforce process design, data collection methods, data analysis techniques, and the ethical considerations of the process.

3.4. Chapter 4: Data Collection and Analysis of Results

- 3.4.1. This Chapter provides an overview of the data collected by the Taskforce in the preparation of a National e-Mobility Policy. As set out in Chapter 3, the Taskforce conducted a call for public comments on the National e-Mobility Policy and received submissions from members of the public. This was part of a 2-phase approach for the Taskforce's initiative of engaging members of the public (**Phase 1 Stakeholder Engagement**). Guided by Article 10 of the Constitution of Kenya that enshrines public participation as a national value, including in the development and formulation of national policies, the e-Mobility Taskforce is keen to ensure that the process of developing a National e-Mobility Policy is consultative and involves the public as a key pillar of achieving its objectives.
- 3.4.2. This Chapter begins by providing an inventory of the submissions that have been received from the public as well as a summary of the key comments received. The Chapter concludes by analysing the comments received from the public from the Phase 1 Stakeholder Engagement and establishing the foundational pillars of the National e-Mobility Policy.

3.5. Chapter 5: Tasks to be undertaken for remainder of the term of Taskforce

- 3.5.1. This Chapter sets out a schedule breakdown of the activities of the Taskforce for the remainder of its term.



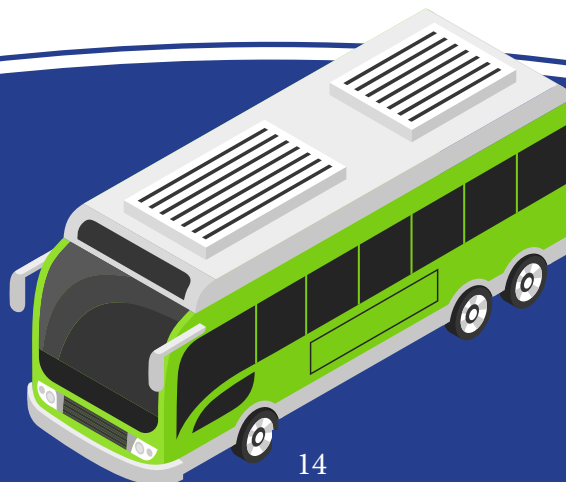
CHAPTER 2

Global Survey of Existing Knowledge and Practices relating to e-Mobility

1. Introduction

This Chapter set out a Global Survey of Existing Knowledge and Practices relating to e-Mobility by focusing on the following key areas:

- 1.1. **Situational Analysis** – this section sets out a review of the e-mobility industry with a focus on the various components of an electric vehicle, a description of the various e-mobility categories, including 2-wheelers, 3 wheelers, 4 wheelers and buses.
- 1.2. **Legal and Regulatory Review** – this section sets out a review of the existing legal and regulatory framework that touches on electric mobility. It further identifies the various gaps that ought to be filled in order to have a holistic and comprehensive e-mobility legal and regulatory framework.
- 1.3. **Policies, Plans and other Instruments** – this section sets out a review of the existing policies, plans and other instruments that touch on e-mobility with a focus on the role they will play in the preparation of a comprehensive and holistic National e-Mobility Policy.

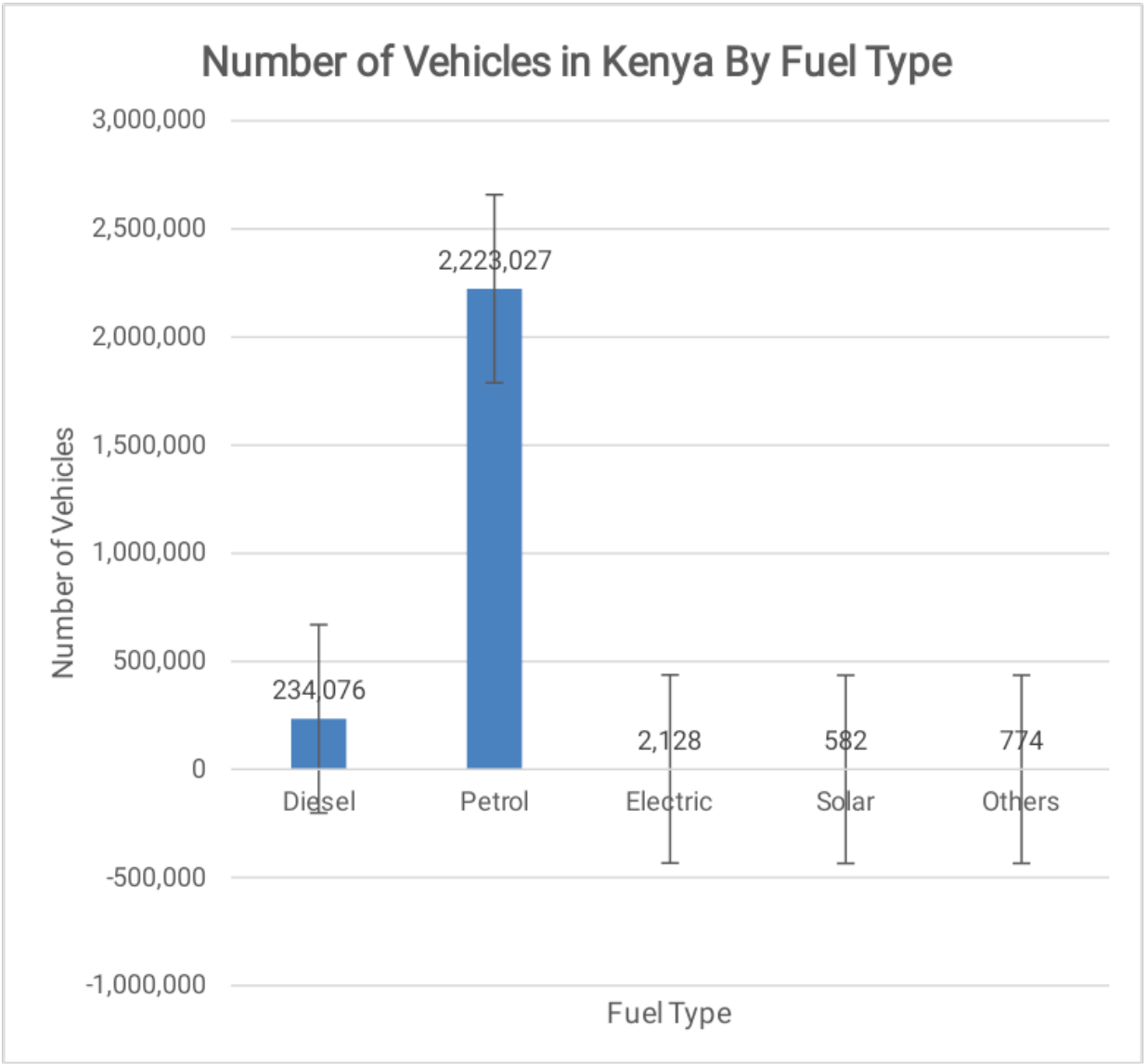


1.4. Case Studies- this section sets out a review of the policies, plans, legal and regulatory framework on e-mobility in six countries that have successful adoption of e-mobility. It identifies best practises and gaps that will inform the development of a suitable e-mobility Policy, Legal and Regulatory framework for Kenya.

2. Situational Analysis

2.1. Vehicle Registrations Statistics- NTSA

Diesel and Petrol-powered vehicles are the dominant players in Kenya. According to NTSA, between 2017 to 2023, petrol powered vehicles accounted for 90.34% of all vehicles in Kenya. Diesel powered vehicles followed at 9.52% and EVs at 0.086%. EVs in this category were fully electric vehicles only and did not include hybrid vehicles. Hybrid vehicles are classified as Internal Combustion Engines (ICE) in Kenya. The solar powered vehicles account for 0.023% and are two and three wheelers. Other vehicles powered by other technologies account for 0.0315% - these vehicles are mainly LPG powered vehicles that are becoming popular among public transport vehicles. There is a significant growth of registered EVs in Kenya from 0.04 in 2020 to 0.08 in 2023.



2.2. Key components of an EV

Table 1 below sets out the key components of an EV.

Table 1 Key Components of an EV

No.	Component	Function
	Battery	The battery provides electric power to the accessories and other components of the electric vehicle
	Charge Port	The charge port enables the electric vehicle to connect to an external power supply to charge the traction battery pack
	DC/DC Converter	Converts high voltage DC Power from the traction battery pack to low voltage DC power needed to run the accessories of the electric vehicle and to recharge the batter
	Electric traction motor	The electric traction motor uses power from the traction battery pack to drive the wheels of the electric vehicle
	Onboard Charger	Converts the incoming AC electricity that is supplied by the charge port to DC power for charging the traction battery
	Power Electronics controller	Manages the flow of electrical energy delivered by the traction battery thereby controlling the speed of the electric traction motor
	Thermal Cooling System	The thermal system maintains a proper operating temperature range of the engine electric motor, power electronics and other components
	Traction Battery Pack	Battery pack stores electric power to be used by the electric traction motor
	Electric Transmission	Transfer mechanical power from the electric traction motor to drive the wheels of the electric vehicle

These key components are general to all electric vehicles. In the sections that follow, further descriptions have been given to the different categories of electric vehicles based on their physical characteristics. The categories are - electric bicycles, electric motorcycles, electric three wheeler vehicles and electric four wheeler vehicles (both light electric vehicles and heavy electric vehicles).

2.3. Electric Bicycles

An electric bicycle (e-bike, eBike, e-bicycle, e-cycle) is a motorized bicycle with an integrated electric motor used to assist propulsion. Many kinds of e-bicycles are available worldwide, but they generally fall into two broad categories: bikes that assist the rider's pedal-power (i.e. e-bicycles) and bikes that add a throttle, integrating moped-style functionality. Both retain the ability to be pedalled by the rider and are therefore not electric motorcycles.

This Interim Report concentrates primarily on the first category- electric bicycles that have pedal assist and use rechargeable batteries and typically travel up to 25 to 32 km/h (16 to 20 mph).

Depending on local laws, many e-bicycles are legally classified as bicycles rather than mopeds or motorcycles. This exempts them from the more stringent laws regarding the certification and operation of more powerful two-wheelers which are often classed as electric motorcycles. E- bicycles can also be defined separately and treated under distinct electric bicycle laws. For

instance, in UK legislation the vehicles are called EAPC or Electrically Assisted Pedal Cycle, in EU legislation EPAC or Electrically Power Assisted Cycle.

Pedal-assist electric bicycles engage the motor by pedalling. Pedal-assist only works while the rider pedals. Pedal-assist electric bikes have different assistance levels, and most e-bicycles have five different levels that the rider can set.

The adoption of electric bicycles in Kenya is still limited when compared with other means of transport *and other countries*.

Figure 1, below, offers an overview of the main components of a modern e-bicycle:

- (i) an electric motor, this can have various positions and technology;
- (ii) a motor controller, fit with torque sensors and cadence sensors to responds to the cyclist's inputs;
- (iii) a battery pack;
- (iv) a user interface system; and
- (v) a speed sensor.

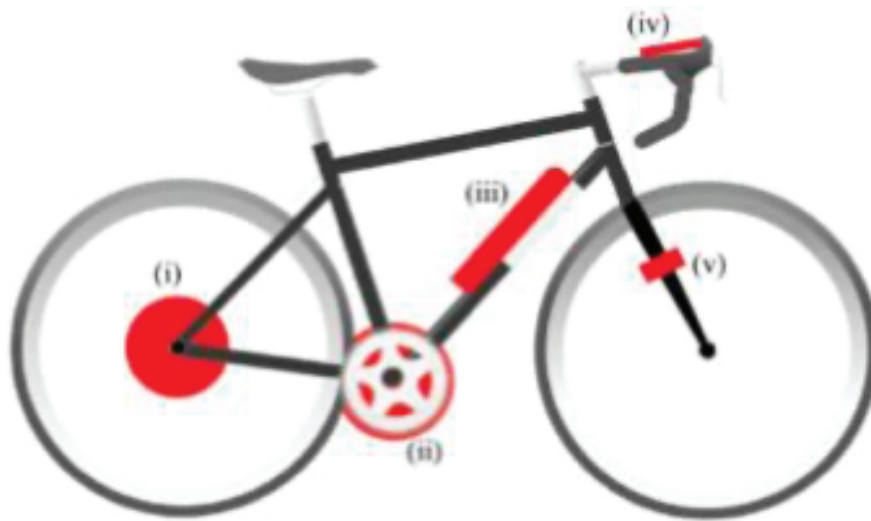


Figure 1 Overview of e-Bicycle

2.4. Electric motorcycles

The use of electric motorcycles in Kenya is still relatively new, but it is growing rapidly. Currently, electric motorcycles are accessible through taxi hailing apps like Uber for passenger use. The Kenyan government is promoting the use of electric motorcycles as part of its efforts to reduce carbon (IV) oxide emissions and improve air quality.

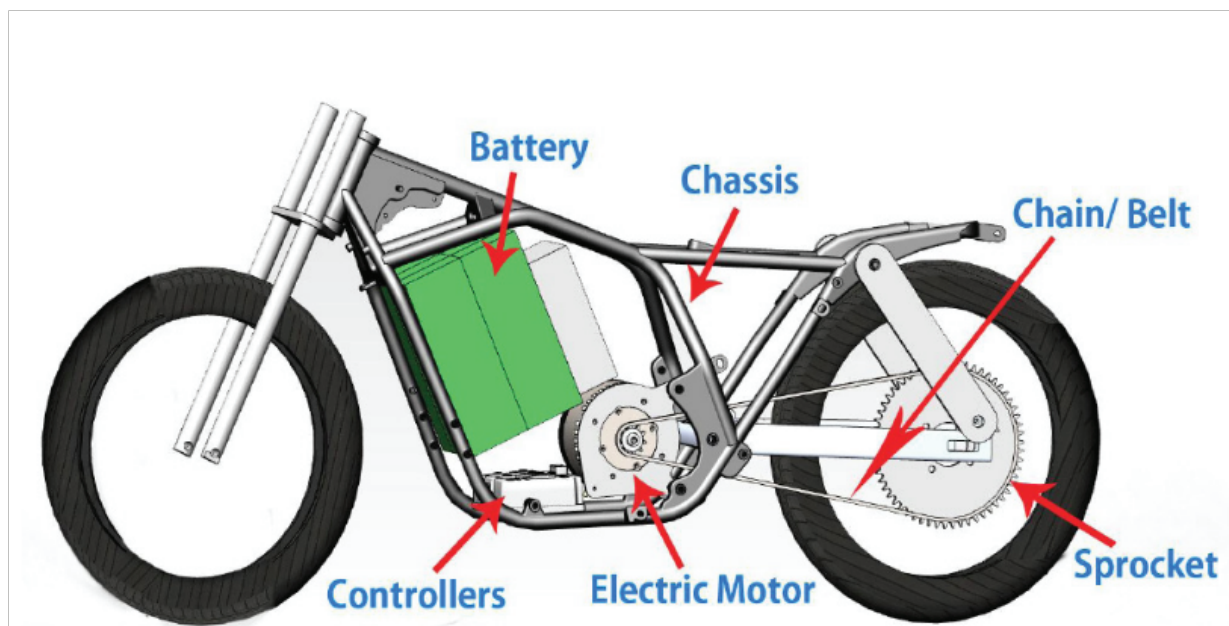


Figure 2 Overview of electric motorcycles

Figure 2, above, offers an overview of the main components of an electric motorcycle:

- i. Batteries
- ii. Chassis
- iii. Controllers
- iv. Electric Motor
- v. Sprocket

The development of Kenya Motorcycle Regulations (the pioneer in the EAC Region) began in 2015/16 and were realized in 2020 when Tax procedures for Unassembled motorcycle regulation was gazetted vide Legal Notice No. 112 of 2020 dated 24th June 2020.

Specifically, Regulation 14 (1&2) lists 14 items that shall be excluded from the completely knocked down kits for motorcycles. This policy is consistent with Government aspiration under the Buy Kenya Build Kenya Initiative, which seeks to encourage the consumption of locally produced goods and services. The items that are applicable to electric motorcycles are listed in the second column of Table 1 below.

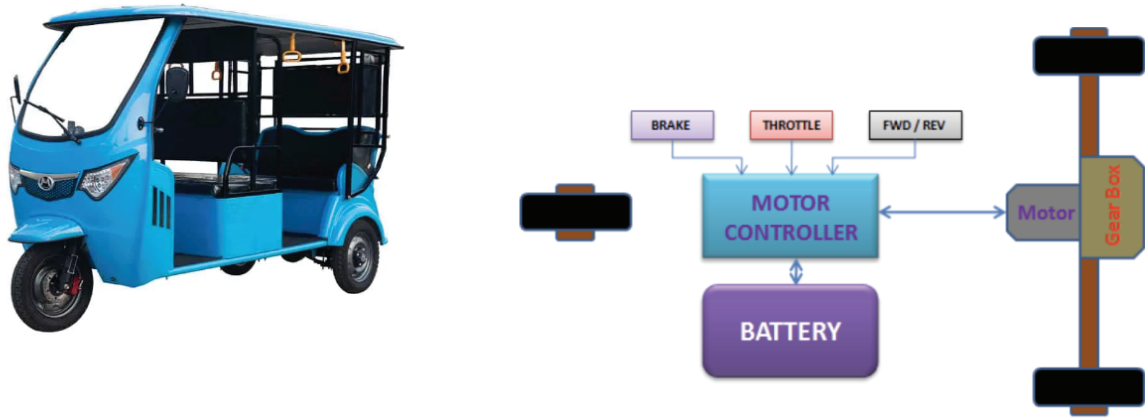
Table 2 Localisation Schedule

Legal Notice 112 (Phase 1&2 Items) -Petrol-powered/ICE Motorcycles	Electric Motorcycles (not captured by Legal Notice 112)
1. Center or Main Stand	1. Center or Main Stand
2. Crash or Knee Guard	2. Crash or Knee Guard
3. Pillion handle or rear carrier or grip set	3. Pillion handle or rear carrier or grip set
4. Right Side Pillion footrest	4. Right Side Pillion footrest
5. Left Side Pillion footrest	5. Left Side Pillion footrest
6. Side stand or Kickstand or Prop stand	6. Side stand or Kickstand or Prop stand
7. Battery liquid, acid, or fluid	7. <i>Not applicable to electric motorcycle</i>
8. Air cleaner	8. <i>Not applicable to electric motorcycle</i>
9. Wire harness	9. Wire harness
10. Seat	10. Seat
11. Battery	11. <i>Not applicable to electric motorcycles</i>
12. Brakes rod or stopper	12. Brakes rod or stopper
13. Headlight stay	13. Headlight stay
14. Main stay or bar step	14. Main stay or bar step
15. <i>Not applicable to ICE motorcycles</i>	15. Swing arm
16. <i>Not applicable to ICE motorcycles</i>	16. Battery Sub-Frame (Battery Holder)
17. <i>Not applicable to ICE motorcycles</i>	17. Battery - Lithium Ion

2.5. Three-Wheeler EVs in Kenya

Electric three-wheeler vehicles, also known as e-rickshaws or electric trikes, are small electric vehicles that are becoming increasingly popular as a mode of urban transportation, especially in developing countries. They are gaining popularity in developing countries due to their low cost and minimal environmental impact.

Electric three-wheelers are typically designed with a tubular metal frame and a canopy made of lightweight materials. They have three wheels, with one at the front for steering and two at the rear. They are equipped with a seating area for passengers, which can typically accommodate up to three or four individuals, though this can vary depending on the design.



The core components of a three-wheeler vehicle are as follows;

- 2.5.1. Electric Motor** - The electric motor is the heart of the three-wheeler's propulsion system. It converts electrical energy from the battery into mechanical energy to drive the wheels. The motor's power output can vary according to the vehicle's design, intended load capacity, and performance requirements.
- 2.5.2. Battery Pack** - The battery pack stores electrical energy and supplies it to the electric motor. Different types of batteries can be used, with lithium-ion being the most common in newer models due to their higher energy density, lower weight, and longer lifespan compared to lead-acid batteries.
- 2.5.3. Controller** - The controller is an electronic device that regulates the power from the battery to the motor based on the accelerator input. It modulates the motor's speed and torque, effectively acting as the 'brain' of the electric powertrain.
- 2.5.4. Throttle** - The throttle is the rider's interface for controlling the speed of the electric three-wheeler. It sends signals to the controller, which in turn adjusts the power output of the motor.
- 2.5.5. Drivetrain** - The drivetrain transfers power from the motor to the wheels. In many electric three-wheelers, this is a simple direct-drive system or a chain/belt drive system. Some models may include a transmission, although many function efficiently with a single-speed gearbox due to the electric motor's wide torque range.
- 2.5.6. Chassis and Frame** - The chassis provides the structural integrity of the vehicle, supporting the body, drivetrain, and other components. The frame is often made from tubular steel or other lightweight, durable materials designed to handle various loads and stresses.
- 2.5.7. Suspension System** - Electric three-wheelers have a suspension system to absorb shocks from the road. The front wheel typically has a fork-like structure like that of motorcycles, while the rear suspension can vary in complexity.

- 2.5.8. Braking System** - The braking system ensures the safe deceleration and stopping of the vehicle. Many electric three-wheelers are equipped with drum brakes or disc brakes. Some models may also have regenerative braking, which captures kinetic energy during braking and converts it back into electrical energy to recharge the battery.
- 2.5.9. Wheels and Tires** - The wheels and tires are designed to handle the load of the vehicle and provide traction. Since these vehicles are intended for city use, the tires are usually smaller than those on cars but larger than those on motorcycles.
- 2.5.10. Charging System** - This includes the onboard charger and charging port. The onboard charger converts AC electricity from the grid to DC power to charge the battery pack. The charging port is where the charger connects to the electric grid.
- 2.5.11. Instrument Cluster** - The instrument cluster provides the driver with information such as speed, state of charge, distance travelled, and other diagnostics related to the vehicle's status.
- 2.5.12. Lighting and Signalling System** - This system includes headlights, taillights, turn signals, and brake lights, all crucial for safe operation, particularly in low-visibility conditions.
- 2.5.13. Seats and Safety Belts** - Seating for passengers and the driver, equipped with safety belts, are part of the safety requirements for these vehicles.
- 2.5.14. Auxiliary Systems** - These may include ventilation fans, wipers, and other small electrical components that ensure comfort and operational safety.

2.6. Current Status of EV Four-Wheelers in Kenya

There are two categories of EV four wheelers in Kenya – light electric vehicles (LEV) and heavy electric vehicles (HEV). LEVs in Kenya are mainly owned and operated by taxi hailing companies. A few number of LEVs are privately owned. This situation is similar for HEVs.

Classification of EV Four Wheelers

EVs are classified using a hybridization rate which represents the amount of electrical energy used by the vehicle. The hybridization rate describes how much the vehicle has a blend of different technologies and is determined by the role played by the electric motor in the operation of the vehicle.

The hybridization rate ranges from 0 to 1 where 0 is an internal combustion engine (ICE) and 1 is a battery electric-powered vehicle (BEV). Between 0 and 1, the hybridization ratio ranges from micro-hybrid, mild/semi hybrid, full hybrid, plugin hybrid and full battery electric vehicles. The hybridization rate also determines the tailpipe emissions caused by the powertrain of the vehicle.

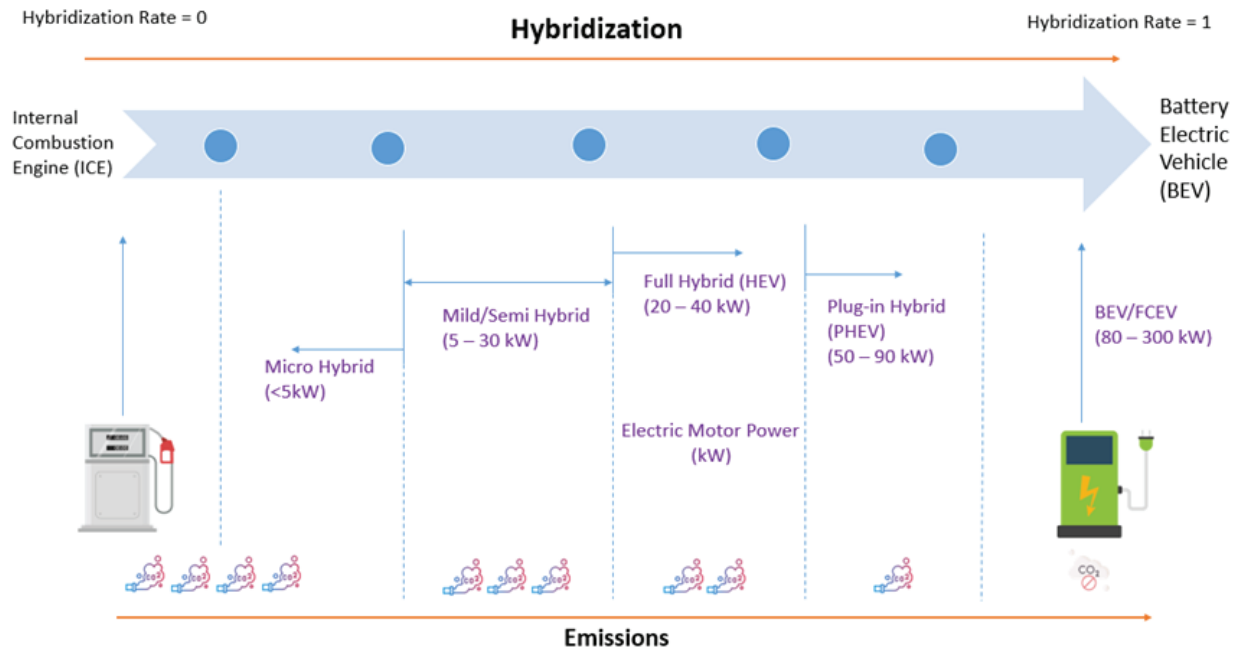


Figure 2 A demonstration of hybridization rate and vehicle classes

Source: Knights Energy, 2020

2.6.1. Hybrid Electric Vehicle

Hybrid electric vehicles (HEV) are powered by an ICE paired with an electric motor. The electric motor propels the vehicle using energy stored in batteries. The battery is charged by drawing energy from the engine using the electric motor as an electric generator. HEVs are the most common types of EVs in Kenya, however, they are registered as ICE vehicles by NTSA. Common models are the Toyota Prius and Honda Fit. Hybrid electric vehicles can be classified further as:

- Parallel hybrid: Both the engine and the motor power the wheels at the same time
- Series hybrid: The ICE is used to drive a generator that provides electrical power for the traction motor and to charge the battery
- The traction motor is the only power supply unit with a direct connection to the wheels
- Series-parallel or dual-mode hybrid: Operates either in series or parallel mode using a power-split
- It has a generator to charge the battery as seen in a series hybrid
- It has an engine and motor simultaneously powering the wheels as seen in a parallel hybrid.

2.6.2. Plug-in Hybrid Electric Vehicle

Plug-in hybrid electric vehicles (PHEV) have a similar mode of operation as HEV. Both PHEVs and HEVs use the engine and motor for propulsion. The main difference between these two vehicles is the battery energy capacity and charging method. PHEVs have a

higher energy capacity compared to HEVs. PHEVs have the ability of charging from an external electrical connection and can also be charged using the internal combustion engine in driving mode. PHEVs therefore have a longer range compared to other EVs. An example of a PHEV is the Mitsubishi Outlander PHEV, a common model in Kenya.

2.6.3. Battery Electric Vehicle

Battery electric vehicles (BEV) operate using an electric motor and do not have an internal combustion engine. These vehicles use a large traction battery pack to power the electric motor. To function, the vehicle's battery must be charged from an external electric power outlet. BEVs are commonly referred to as Full EVs. A key characteristic of BEVs is their ability to move for long ranges before charge - from 95km to 500 km. Public transport buses in Kenya are examples of BEVs.

2.6.4. Fuel Cell Electric Vehicle

A fuel cell electric vehicle (FCEV) uses a fuel cell to generate electricity from hydrogen fuel in place of an electric motor. This is the main difference between fuel cell and battery electric vehicle. FCEVs use small batteries as energy buffers and to power the electric motor. A fuel cell vehicle has the advantage of faster refuelling times and extended driving ranges compared to other EVs. An example of a FCEV is the Toyota Mirai model that has a range of 502 km.

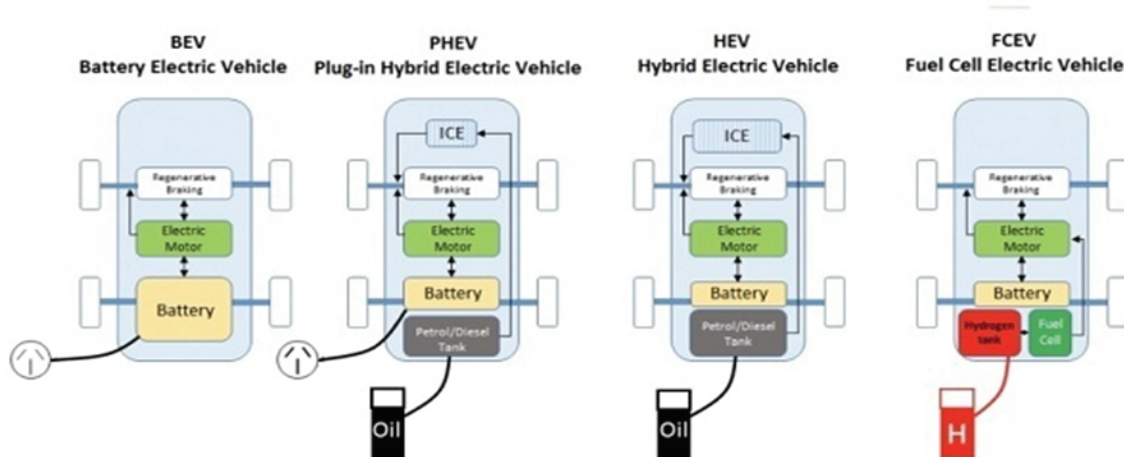
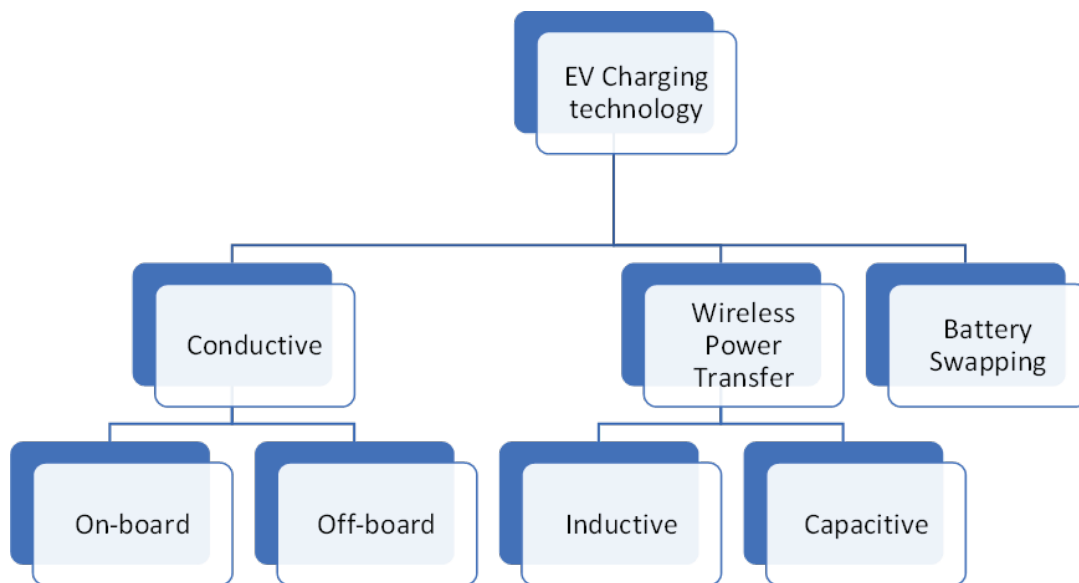


Figure 3: Types of electric vehicles

Source: PT. Omazaki, 2019

2.7. Current Status of EV Charging Infrastructure in Kenya

EV charging infrastructure are classified according to the technology used for charging – Conductive, Wireless Power Transfer and Battery Swapping Stations. Charging infrastructure is privately owned by companies that operate electric vehicles. There are emerging private companies that install and operate charging stations for public use.



2.7.1. Conductive Charging

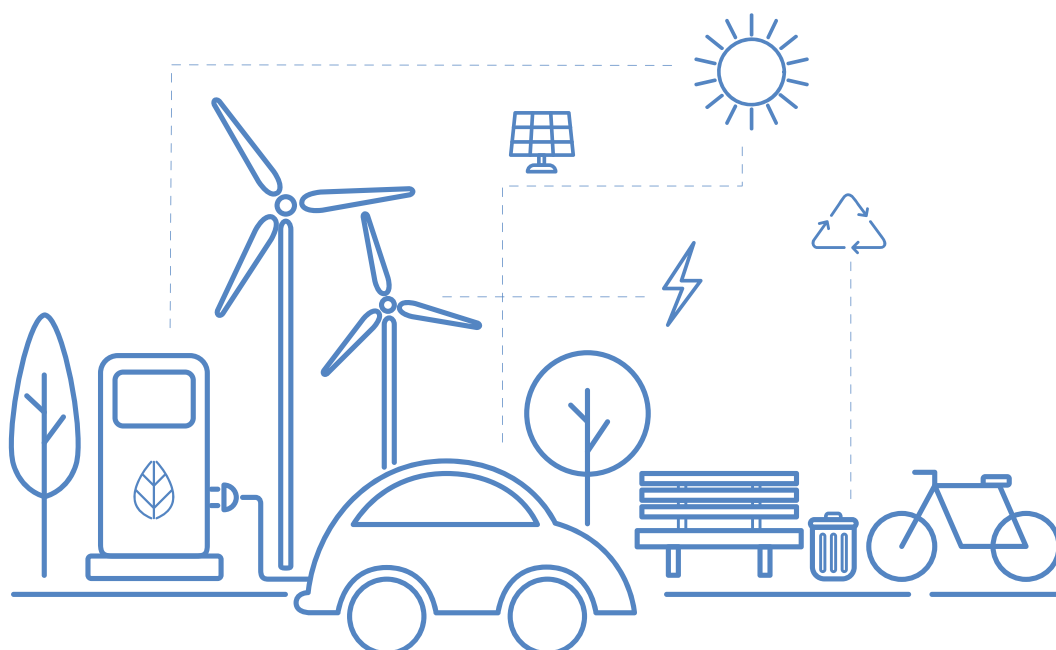
EV conductive charging is the most common charging technology in Kenya. It operates by supplying Direct Current (DC) to the battery of the EV. A converter is used to provide the required amount of power to the battery. Conductive charging can be further classified into:

(g) On board Charging

These chargers supply AC power to an “on-board” converter which in turn converts to DC power for charging the battery.

(h) Off-board Charging

These chargers directly supply DC power to the EV battery. The on-board converter is bypassed. This method charges the batteries faster.



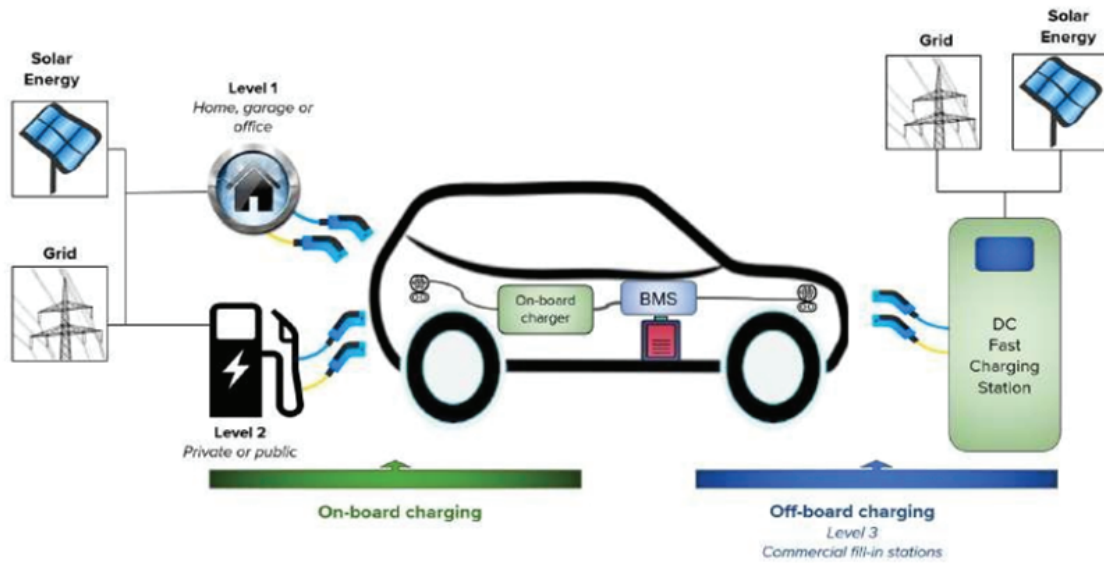


Figure 4: On and off board charging (India Institute of Technology, 2021)

2.7.2. Wireless Power Transfer (WPT)

This mode of EV charging does not have any physical interface between EV and the charging system. The following are two main types of WPT technologies.

- (i) Inductive WPT (see Figure 6) - The technology employs a transmitter and receiver side power electronic systems for power transfer. A high frequency inverter is contained in the transmitter side and is coupled to the receiver side by a magnetic coil. (Mohamed et al., 2017)

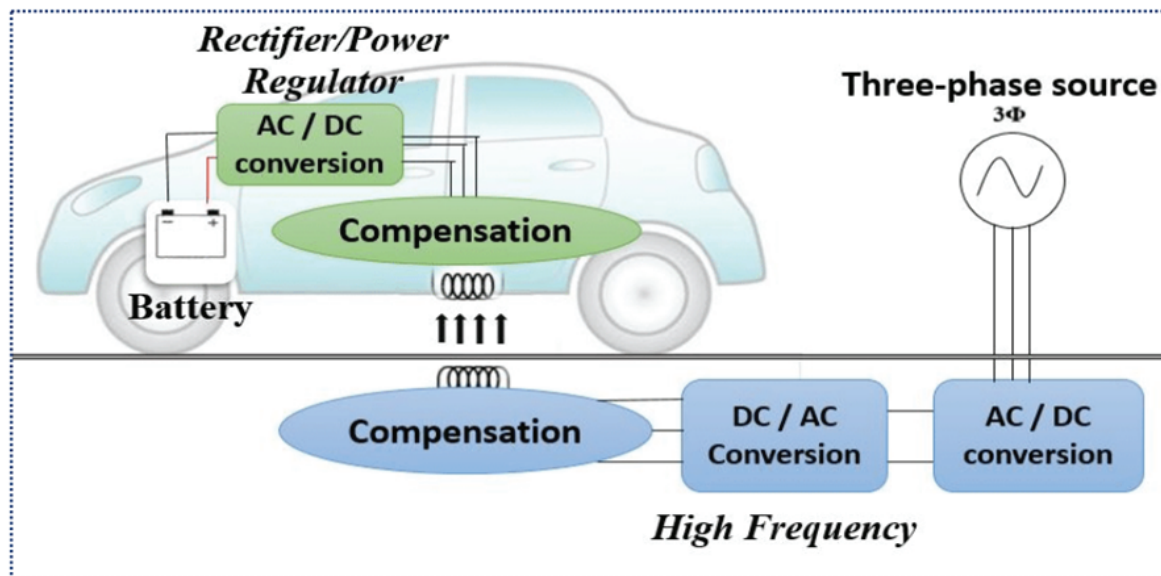


Figure: Inductive wireless power transfer (Mohamed, et al., 2017)

- (j) Capacitive WPT (see Figure 7)

It eliminates the need for electromagnetic shielding. This is advantageous over inductive WPT. It is less expensive due to the absence of ferrite, allowing use of

high frequency resulting in smaller size of the charging system. However, this use of high frequency translates to design challenges. Electromagnetic safety also is an issue with capacitive WPT with high power transfer density at high efficiency. (Lu, et al., 2017)

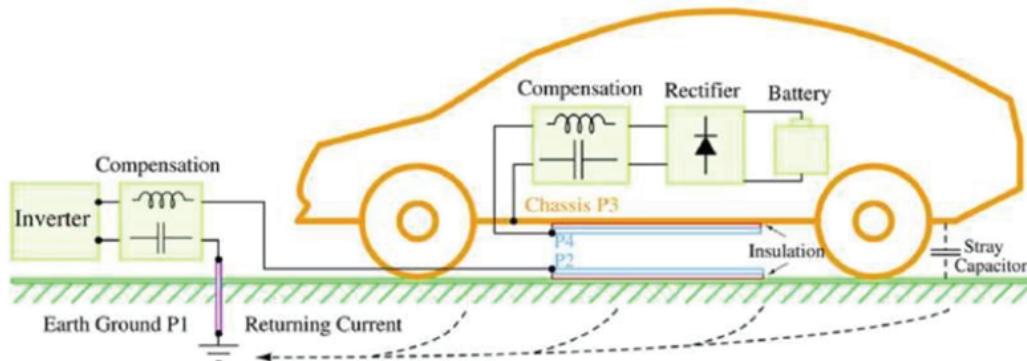


Figure: Capacitive wireless power transfer (Lu, et al., 2017)

Classification in use	Level (SAE J1772)	Modes (IEC 61851-1)	Current	Power	Type per geographical area				Location within the city
					China	Europe	Japan	North America	
N/A	Level 1	Mode 1 and Mode 2	AC	≤3.7 kW	 Devices installed in private household, the primary purpose of which is not recharging electric vehicles SAE J1772-"Type 1"				Private homes and workplaces
Slow chargers	Level 2	Mode 3	AC	>3.7 kW and ≤22 kW	 GB/T 20234 AC	 IEC 62196-"Type 2"	 SAE J1772-"Type 1"	 SAE J1772-"Type 1"	Private homes, workplaces, public charging
			AC	≤22 kW	 Tesla connector				
Fast chargers	Level 3	Mode 4	AC Triphase	>22 kW and ≤43.5 kW	N/A	 IEC 62196-"Type 2"	N/A	 SAE J3068	Public charging and highways corridors
			DC	Currently <200 kW	 GB/T 20234 DC	 CCS Combo 2 Connector	 CHAdeMO	 CCS Combo 1 Connector	
			DC	Currently <150 kW	  Tesla and CHAdeMO connectors				

Figure: Classification of the main types of chargers (Alberto, et al., 2021)

The following are existing electric vehicle charging stations in Kenya as at 2019.

Charging Station	Location	Description of charging station
i. Holy Family Basilica basement ⁷	Central Business District, Nairobi	Characteristics: The charge point is rated 7.4 kW, single phase AC power, operating under mode 3 charging with a type 2 charger. There is one charger per floor and each charger has two charging points, in each of the 4 underground basement floors. The points are to be used primarily used for public charging. There is a provision for an additional charger per floor. Total Number of Charge Point: 8 Level of Charging: Level 2
ii. Nopea Charging stations	Sarit Centre, Thika Road Mall & The Hub mall, Two rivers mall	Characteristics: There are three charge points in each of the stations in every mall. Two are a single-phase AC charger rated at 15 kW with a Type 1 charger. The other one is a three phase AC charger rated at 25 kW with a Type 2 charger. All operating under mode 3 charging. The 25kW rated is a fast AC charger. The points are primarily used for private charging. Billing: billed per kWh Payment method: Radio Frequency Identification (RFID) cards Total Number of Charge Point: 12 Level of Charging: Level 2
iii. Charge Net charging station (Mayleen Corporation)	ABC Mall Westlands, Be Energy Race-course, Hass Petrol Station Kasarani, The Acrh Place Nyangumi Rd.	Characteristics: The charge point is rated 6.6 kW, single phase AC power, operating under mode 3 charging with a type 2 & 1 charger. At each station, there is one charging point. The points are primarily used for public charging. Billing: users are billed per minute. KES 4 per minute for type 1 charger and KES 7 per minute for type 2 charger. Payment: through mobile money (M-Pesa) Total Number of Charge Point: 4 Level of Charging: Level 2.

⁷ Not operational as at the time of writing this report.

iv.	Lites Infra-structure Company	Charging station in CBD (Haile Selassie Avenue)	Characteristics: The charge point is a ground mounted pedestal charger rated at 7.2 kW (32A), single phase AC power, operating under mode 3 charging with two type 2 sockets. There is one charge point at the station. The point is primarily used for public charging. Total Number of Charge Point: 2 Level of Charging: Level 2.
v.	Opibus	⁸ Charger locations: Thika Bus Station (Kiambu county), at Green Park Terminus, Marble Arch both in Nairobi Central Business District for buses	Characteristics: The charger is rated at 180 kW (200A) DC output power. It is a fast charger, operating under mode 4 charging with a CCS2 charger. The points will be primarily used for public charging. Total Number of Charge Point: 6 Level of Charging: Level 4
vi.	Knights and Apps (Drive Electric)	Great Jubilee Center, Karen	Characteristics: The charger is rated at 7.4 kW, single phase AC power, operating under mode 3 charging with a type 2 socket. There are three chargers each with one charging point. The points are primarily used for private charging. Total Number of Charge Point: 3 Level of Charging: Level 2

2.7.3. Battery Swapping Stations

Battery swapping stations operate by replacing a battery with a depleted state of charge with a battery that has a full state of charge. The structure of a battery swapping station has an electrical power source, which could be from the grid or from a dedicated energy source for the battery swapping system, a battery housing structure, power cables for to connect the batteries to the power source, a human machine interface and a payment system. In Kenya, Battery Swapping Stations are mainly used by EV two-wheeler companies to charge their fleet. This type of EV charging is attractive for two-wheeler EVs due to short time it takes to charge – by swapping a battery. The figure below shows a battery swapping system structure.

8 At the time of writing this report, these chargers are yet to be installed at these locations.

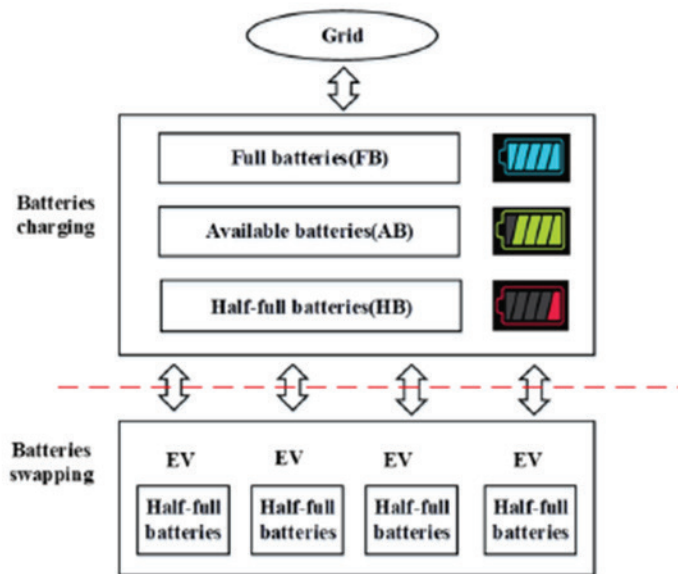


Figure 5: Battery Swapping Station Structure (Bo, et al., 2020)

2.8. Current Status of Standards relating to e-Mobility

In 2018, Kenya developed its initial set of electric mobility standards through the Kenya Bureau of Standards (KEBS), the national standardization body of Kenya. This initiative arose from the need to safeguard consumers against substandard products and ensure product safety. In 2021, KEBS established a dedicated committee, KEBS TC 199 Electric Mobility, with the mandate to develop e-mobility standards.

KEBS has formulated 35 electric mobility standards that delineate the criteria for evaluating the performance, safety, and testing of electric motorcycles, mopeds, and electric road vehicles. These standards have been adapted from ISO, with Kenya holding full membership in the organization. Among these standards, 16 are relevant to electric road vehicles, 4 relate to EV batteries, 7 pertain to mopeds and motorcycles, 4 address hybrid vehicles, 2 cover charging, and another 2 are specific to Fuel Cell vehicles.

Notably, the KS ISO 6469 series addresses safety aspects of battery electric vehicles. These standards encompass safety requirements for on-board batteries, protection against electric hazards, and safeguards against failures. The series also includes test procedures, specifications, and operational requirements for electric vehicles.

The KS ISO 21782 series deals with standardized test procedures for the motor system, encompassing motors, inverters, DC/DC converters, and their combinations for electric propulsion systems of electric road vehicles. These standards aim to ensure the reproducibility of test results, allowing for a fair comparison and evaluation of the performance and reliability of electric propulsion system components.

The KS ISO 23274 series focusing on hybrid electric vehicles defines a test procedure to measure exhaust emissions and electric energy and fuel consumption using a chassis dynamometer. Part two of this multi-series standard specifies a chassis dynamometer test procedure for determining the end of the charge-depleting state (CD) and the consumed electric energy during the CD state. This is vital for assessing exhaust emissions and fuel consumption. These standards apply to manufacturers of hybrid-electric road vehicles, hybrid-electric road vehicle battery manufacturers, charger manufacturers, testing facilities, and automotive engineers.

2.9. Current Status of Financing of EVs in Kenya

Various financial institutions have financing available for EVs in Kenya. We set out below a brief analysis.

- 2.9.1. NCBA Group: They have launched a Sh2 billion electric vehicle financing deal for their customers as part of their green finance strategy. This five-year deal allows customers to enjoy asset financing of up to 80% of the total cost of any personal or public service vehicle that they identify. In addition, NCBA offers a 10% interest rate on reducing balance offer for electric vehicle loan applications received within the first 90 days.
- 2.9.2. Other Financing Companies: There are also other car financing companies in Kenya that include banks, Microfinance banks, Credit only microfinances, online lenders, car dealers and sacco. Most of these companies offer a percentage of the price of the vehicle and require the owner to pay the rest as a deposit.

The portfolio of banks financing that is available to EVs is as follows:

- 2.9.3. NCBA Bank: NCBA Bank has launched a new Ksh2 Billion loan facility targeting buyers of electric vehicles (EVs) in Kenya. The offer covers both electric private and public service vehicles (PSVs). The new facility is aligned with NCBA's Green Finance strategy. The five-year deal will see customers enjoy asset financing of up to 80 percent of the total cost of any personal or public service vehicle that they identify. In addition, NCBA will give 10 percent cent interest rate on reducing balance offer for electric vehicle loan applications received within the first 90 days.
 - 2.9.4. KCB Group: KCB Group, the largest financial services organization in East Africa, has partnered with the United Nations Institute for Training and Research (UNITAR) to roll out a program that will see 100,000 riders benefit from electric motorbikes over the next 6 years. This is expected to create over 150,000 new green jobs in the boda-boda sector. The Bank will provide green affordable loans to the riders to acquire electric bikes and tuk-tuks through local electric motorbikes sellers.
- 2.10. These initiatives are part of the banks' commitment to sustainable development and transitioning to low carbon, climate resilient activities.
 - 2.11. EV start-ups in Kenya, and more broadly in Africa, face several challenges when it comes to accessing financing. Here are some of the key hindrances:
 - 2.11.1. **Inadequate Capital:** Start-ups often struggle with inadequate capital. This is a common challenge for many start-ups, not just those in the EV sector.
 - 2.11.2. **Lack of Collateral:** Banks and other financial institutions typically require collateral for loans. Many start-ups lack this collateral, making it difficult for them to secure loans.
 - 2.11.3. **High Interest Rates:** Even when start-ups can secure loans, the interest rates can be prohibitively high.
 - 2.11.4. **Unfriendly Government Policies:** In some cases, government policies may not be conducive to the growth and development of EV start-ups.
 - 2.11.5. **Lack of Infrastructure:** The lack of charging infrastructure is a significant challenge for EV start-ups. Building large-scale EV infrastructure requires huge investments.

2.11.6. Market Conditions: The market conditions and business models must be appropriate for EVs to succeed. For instance, the dominance of used vehicles in Sub-Saharan Africa poses a unique challenge. These challenges make it difficult for EV start-ups to access the financing they need to grow and expand their operations. However, despite these challenges, there is optimism about the future of EVs in Africa. With the right support and infrastructure, the adoption of EVs could happen faster than in most parts of the world.

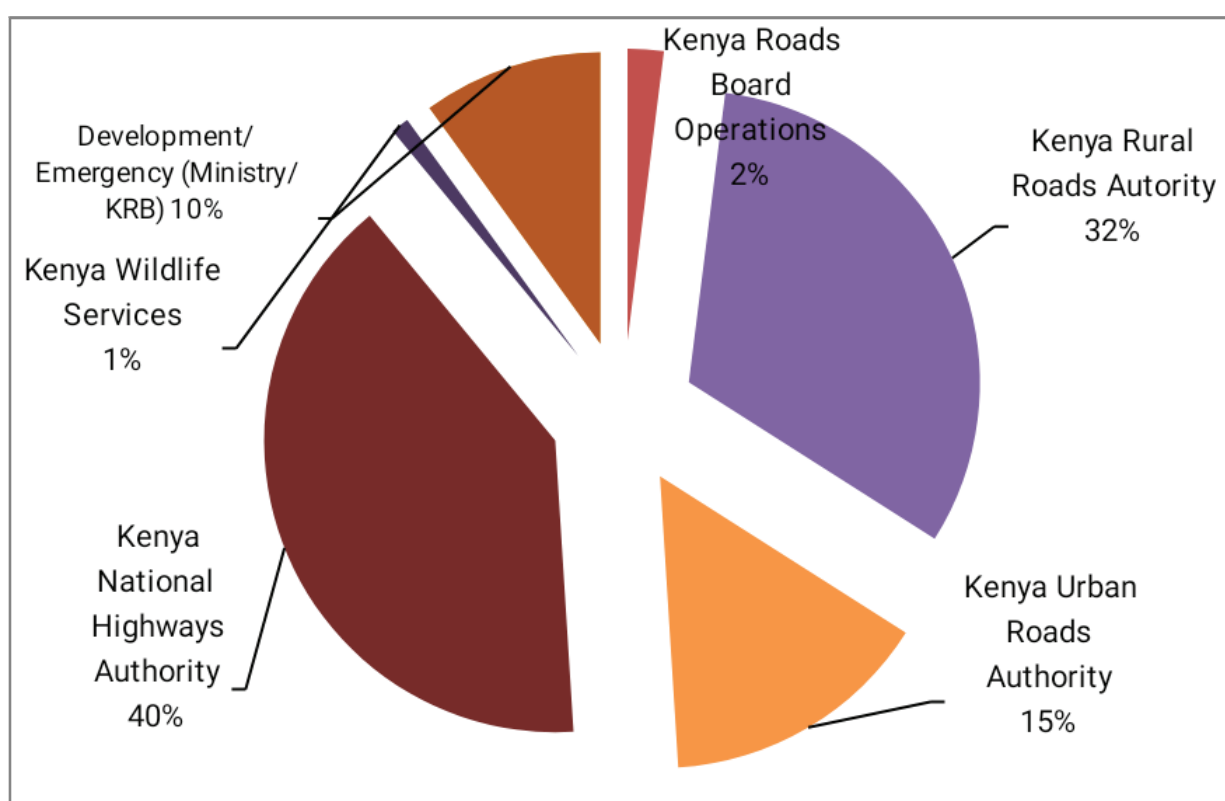
2.12. The Impact of EVs on the Road Maintenance Fuel Levy Fund

The Road Maintenance Levy Fund (RMLF) Act was enacted in 1993, to provide a sustainable source of funding for the maintenance of the road network. To professionalize the administration of the RMLF, the Kenya Roads Board (KRB) was established.

Kenya Roads Board (KRB) is a state corporation established under the Kenya Roads Board Act No. 7 of 1999. The object and purpose for which the Board is established is to oversee the road network in Kenya and coordinate the maintenance, rehabilitation and development funded by the Kenya Roads Board Fund and to advise the Cabinet Secretary for Roads and Transport on all matters related thereto.

Allocation Criteria of the Road Maintenance Levy Fund

The figure below shows the allocation Criteria of the Kenya Roads Board Fund (as per the KRB Act of 1999);



The total road network length is approximately 230,527 km.

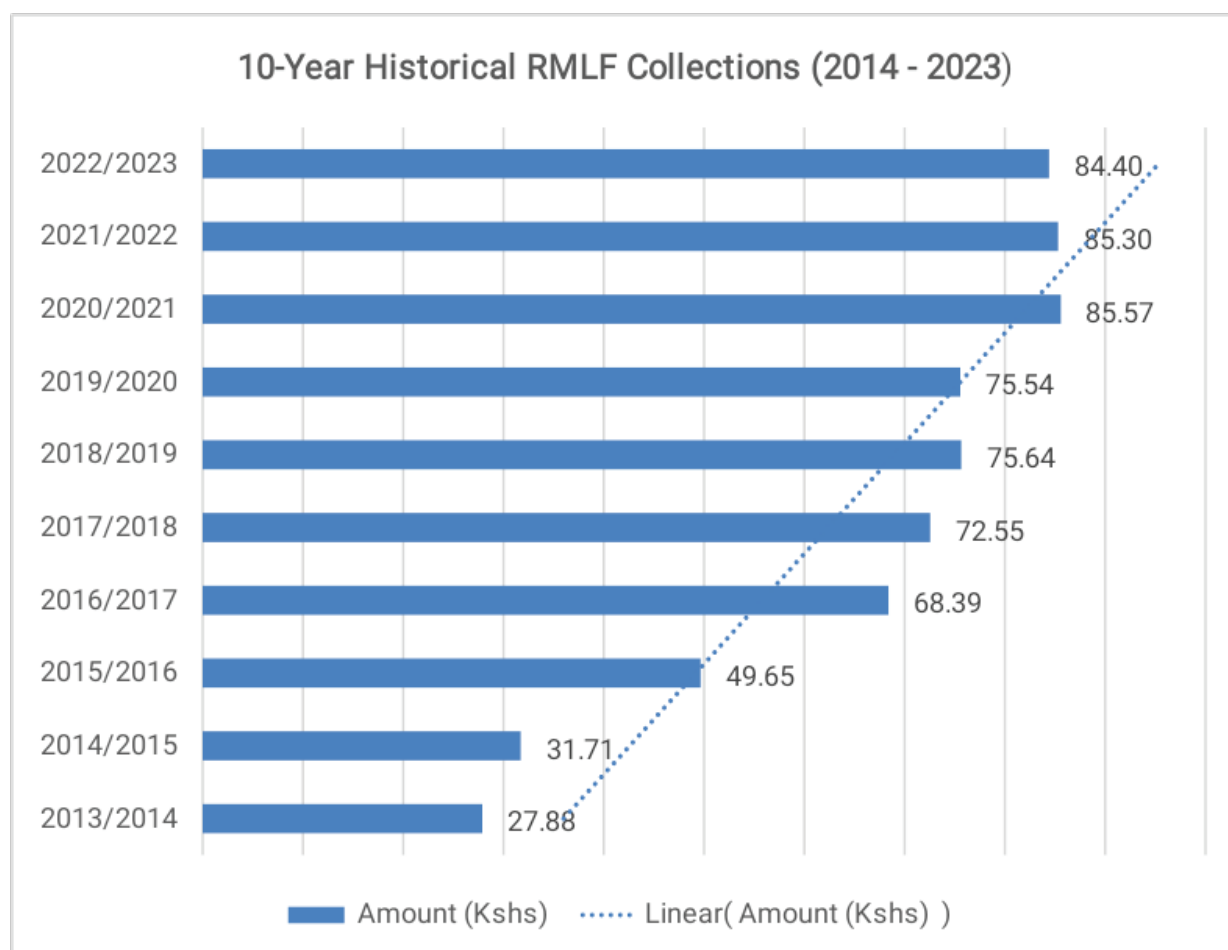
2.13. Trend of Collections of Road Maintenance Levy Fund (2013 – 2023)

In 1993, the Road Maintenance Levy Fund (RMLF) Act was enacted, providing a sustainable source of funding for the maintenance of the road network. As such, the Government of Kenya has financed the maintenance of the road infrastructure mainly through fuel levy. This system

has worked quite effectively in the past, but there is a growing funding gap which is anticipated to widen due to the lack of regular indexation of fuel levy rates to inflation, improved vehicle-fuel efficiencies, growing road network in need of maintenance, and the expected growth of EVs which are currently not levied like the ICE counterparts.

With increased demand for better roads, the amount generated from RMLF is inadequate to address the road maintenance needs for the country. Hence, the need to explore for a sustainable alternative source of road maintenance financing in the medium and long term.

The figure below shows the Historical collections of RMLF



2.14. Anticipated Effect of Uptake of E-Mobility on Road Maintenance Levy Fund and mitigation measures taken by Kenya Roads Board

Kenya's push toward embracing electric mobility aligns seamlessly with the global Environmental, Social, and Governance (ESG) agenda. By signing the COP26 declaration and offering financial incentives and tax benefits to encourage the adoption of electric vehicles in its 2023 Budget Policy Statement, Kenya demonstrates its commitment to sustainable and environmentally responsible transportation practices.

The shift to EVs aligns with several of the Sustainable Development Goals (SDGs). EVs can help to achieve SDG 13 (climate action) by reducing greenhouse gas emissions. This is well in line with the Nairobi Declaration which unveiled Africa's commitment to all-encompassing climate resilience.

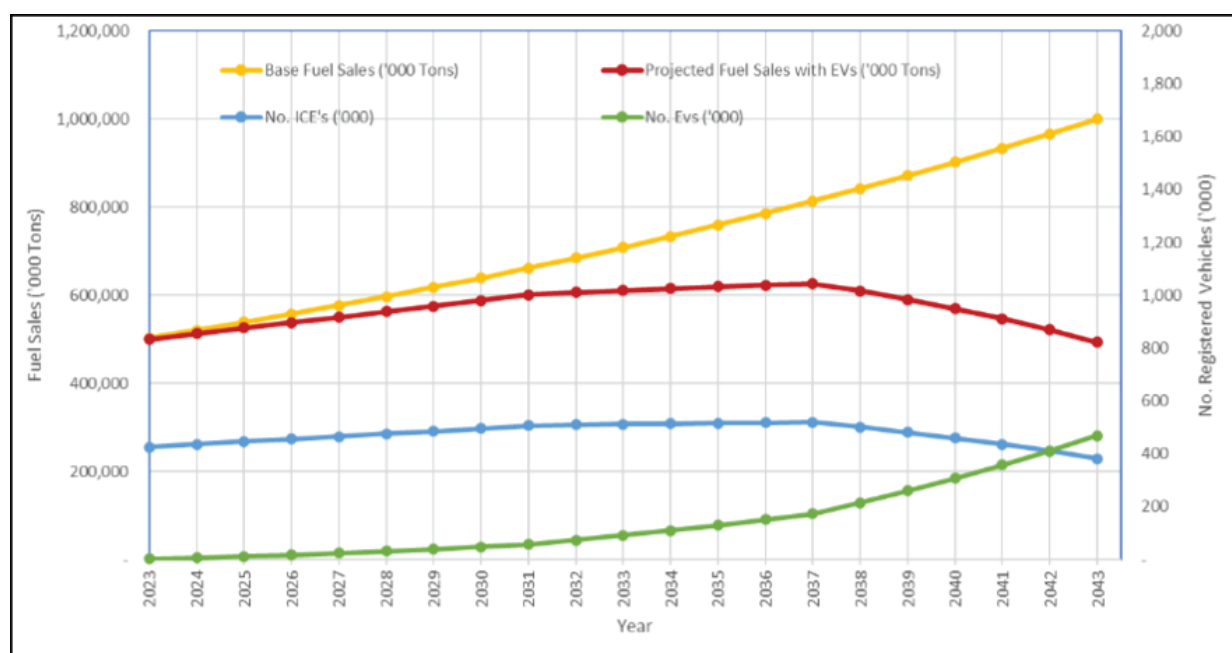
The transitioning from the traditional reliance on fossil fuel to green energy and invention of e-mobility will impact on the sustainability of fuel levy as a source of financing of road maintenance.

With accelerated transition to e-mobility, the effective of global climatic change and gradual transition from the traditional use of fossil fuels to green energy, the Board expects a future reduction in fuel levy collections.

Though the introduction of electric vehicles and motorcycles may not have an impact on RMLF collections in the short term, the impact will be felt in the medium and long term.

There is therefore need to establishing the economic impact of EVs on the Road Maintenance Levy collections and recommend to the Cabinet Secretary appropriate levels of road user charges, fines, penalties, levies or any sums required to be collected under the Road Maintenance Levy Fund Act, 1993 and paid into the Fund as envisaged under Section 6(2)(i) of the Kenya Roads Board Act, 1999.

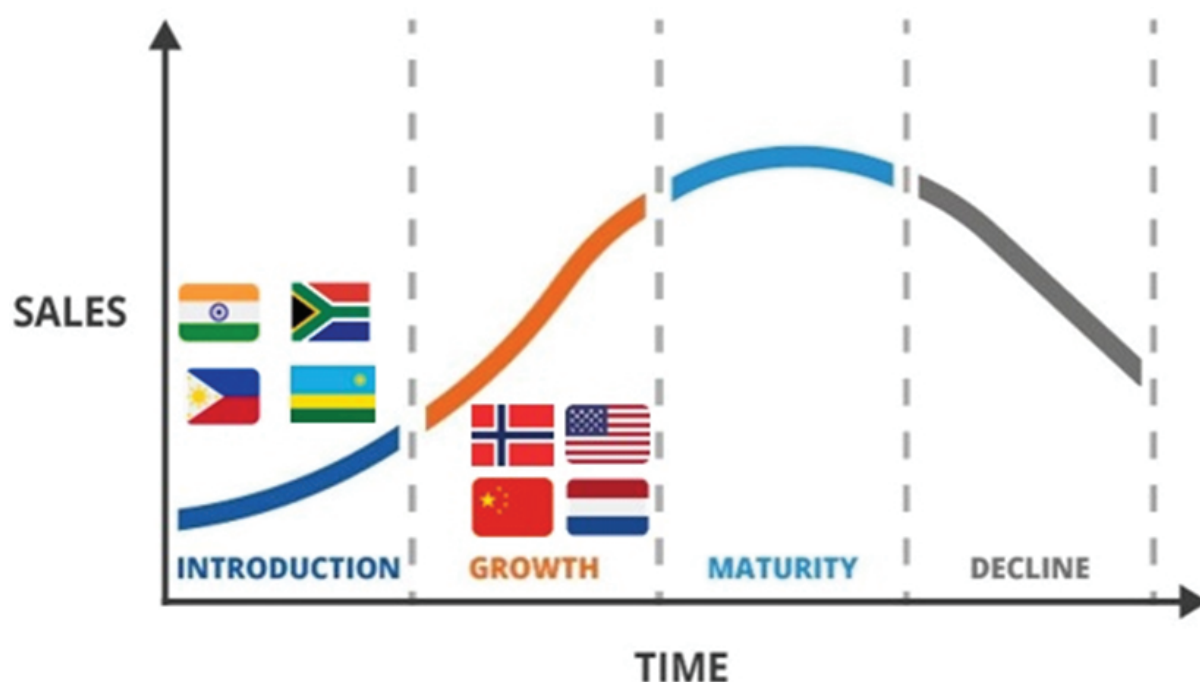
Below is the Graphical Representation of Projected Future Fuel Sales;



- 2.15. The KRB is undertaking a study on economic impact of e-mobility on sustainability of the Road Maintenance Levy Fund which shall inform KRB on the sustainability of continued dependability of fuel levy as the only major source of financing road maintenance, rehabilitation and development and recommend on other sustainable financing options based on the changing operational environment. In addition, more sustainable and economically viable road maintenance techniques are to be explored and embraced through research and development.

3. Case Studies – International Best Practices

- 3.1. In the case studies, we review how some countries have implemented various policies to increase the adoption of electric vehicles. As shown in the figure below, the countries considered are at different stages of EV development.



3.2. India

Policy Instrument	Measures
Ministry of Power (MOP) Charging Infrastructure Guidelines and Standards.	De-licensed setting up of Public Charging Stations (PCS). Any entity can set up PCS provided the station meets the technical and performance standards prescribed by MOP.
	Details the minimum requirements for public charging infrastructure. These include the minimum number of charger connectors: CHaDeMo, CCS, Type 2 AC, Bharat AC-001 and Bharat DC-001
	Guidance on location of PCS i.e., the density and distance between two PCS. At least one PCS to be available in a 3km x 3 km grid. One PCS every 25 km on both sides of a highway. At least one fast charging station every 100 km on both sides of the highway.
	Tariff for supply of electricity for PCS. Separate metering for PCS. MOP mandated the state electricity regulatory commission to fix EV tariff that is not more than the average cost of supply plus 15%.
	All stations are required to have an exclusive transformer together with associated substation equipment.

Capital subsidies on EVSE	Offered at state levels - Andhra Pradesh, Maharashtra, Bihar, Punjab and Madhya Pradesh provide 25% capital subsidies for a fixed number of PCS. The maximum amount is capped at different levels in different states.
	Delhi offers an unspecified capital subsidy for installing PCS. It also offers 100% grant up to It is the only state to offer financial incentives for private charging equipment, with a 100% grant up to USD 80 per charging point for the first 30,000 private charging points.
Concessional land provision	Delhi, Uttar Pradesh and Punjab will provide land to charging service operators (CSOs) at concessional rental rates, while Madhya Pradesh offers a “rental holiday” for three years to CSOs selected to operate EV charging in a public-private.
Concessional tariffs for EV charging	Concessional EV tariffs are meant to reduce the cost of electricity procurement for EV charging, resulting in lower charging costs for consumers. The EV tariffs in different states range between 5-11 US cents/kWh.

3.3. United States of America

Policy Instrument	Measures
Tax credits to owners of EVCS (US DOE, 2019)	30% tax credit of the of the cost of purchasing and installing an EVCS (up to a maximum of USD 1000)
Federal loan guarantees	Up to USD 4.5 billion has been set aside for the development of EV charging infrastructure along identified EV corridors.
Designated EV corridors	Federal Highway Administration (FHWA) has designated EV corridors approximately 95000 km of national highways in 48 states plus DC.
	Plan to install EVCS every 80 km on these EV corridors. Signage to help EV owners to easily identify the EVCS.
Charging space allocation	Required charging space in new parking lots
California Calgreen Code	Specifies minimum facilities to be provided at an EVCS. The Code specifies wiring practices, labelling, EV charging, space dimensions, and markings and accessibility.

3.4. China

Policy Instrument	Measures
Guidance on Accelerating the Construction of Electric Vehicle Charging Infrastructure	Sets target to provide for charging infrastructure sufficient for 5 million EVs by 2020
	All new residential buildings post-2015 are required to be EVSE equipped.
	10% of parking spaces in large public buildings to be available for EV charging.
	At least one public charging station for every 2,000 EVs.
	The guidance also calls for public-private partnerships to develop charging infrastructure at shopping malls and major parking facilities.
Guidelines for Developing Electric Vehicle Charging Infrastructure (2015–2020)	The guidelines call for at least 120,000 EV charging stations and 4.8 million EV charging posts by 2020
	Divide China into three regions with varying degrees of EV infrastructure promotion and call for establishing a grid of EV-charging-enabled highways covering the most populous coastal provinces of East China.
National standards for EV charging interfaces and communications protocols.	In January 2016 the National Energy Administration released a notice summarizing five revised national standards for electric vehicle charging interfaces and communications protocols.
	The standards were issued in late 2015 by the National Standards Committee, the Ministry of Industry and Information Technology and others.
Five-Year Plan for New EV Infrastructure Incentive Policies	All provinces mandated to increase support for charging infrastructure development and to establish a reporting system for EV charging infrastructure construction with monthly reports on the number of charging facilities.
Notice on Accelerating Residential EV Charging Infrastructure Construction	Setting out standards and procedures for residential charging as well as designating the Jing-Jin-Ji, Yangtze River Delta and Pearl River Delta regions as demonstration zones for residential charging infrastructure development.
Notice on EV Charging Policy	Clarifies EV charging rates for three classes of customers.
	Residential customers pay the residential rate.
	Dedicated central EV charging and battery swap stations pay the large industrial customer rate, except they are exempt from the basic charge (demand charge).
	Government offices, public parking lots and other businesses pay the commercial and small/medium industrial (C&I) rate.

Regional policies	The city of Shenzhen offers purchasers of EVs subsidies of up to RMB 20,000 for vehicle insurance and installation of charging equipment.
	Over 30 other cities offer some form of subsidy for home or public EV charging.
	Guangzhou has adopted a requirement that new buildings must have 18% of parking spots either equipped with EV charging or enabled for future installation.
	In 2017 the Beijing municipal government began mandating that all parking spots in new residential developments set aside space for EV chargers, with new government or state-owned enterprise buildings required to install chargers at 25% of parking spots

3.5. Netherlands

Policy Instrument	Measures
EV charging definitions and explanation	Developed by the Netherlands Enterprise Agency, it aims to give clear definitions and explanations on relevant aspects of EV charging. It is available to the public and receives regular content updates.
Publicly Accessible Electric Charging Infrastructure Green Deal	Dutch government commitment to eliminate uncertainty regarding organization of public charging infrastructure and promote roll out of publicly accessible charging infrastructure.
Environmental Investment Tax Scheme (MIA) for charging infrastructure	Provides tax incentives for businesses to make investments in environmentally friendly technologies including EV charging infrastructure.
Electricity tax breaks for public EV charging infrastructure	In the Netherlands, the first 10,000 kWh units of electricity consumed are taxed at a higher rate than subsequent consumption. However, EV charging station operators pay the rate normally paid after the first 10 000 kWh for all electricity consumption up to 50,000 kWh.
Open Charge Point Protocol (OCPP)	An open protocol used for connections between charging station operators and service providers. This protocol facilitates automated roaming for EV drivers across several EV charging networks, allowing them to charge on several networks using a single card.
Dutch Guidelines (B117)	These guidelines mandate EV charging station operators to accept any valid charging card from an e-Mobility Service Provider for access and payment.

Directive 2014/94/EU on the deployment of alternative fuels infrastructure	Requires EU member states to establish a policy framework for EV charging infrastructure including targets and incentives for establishing public charging stations. Defines technical specification for charging points. It requires normal charging points for EVs to be equipped with at least socket outlets or connectors of type 2 as defined in EN 62196-2 (IEC 62196-2). High power a.c charging points for EVs are required to have at least type 2 connectors. DC high power charging points to be equipped with at least CCS Combo 2 as defined by EN 62196-3 (IEC 62196-3). Labeling of EVs and EV charging stations has to be done as per the specification given in EN 177186:2019
--	---

3.6. Norway

Policy Instrument	Measures
Financial stimulus package (2009-2010) (Lorentzen, et al., 2017)	Norway's first governmental support scheme for public charging infrastructure. Instituted after the 2008 financial crisis. It catered for slow chargers.
	Funded 100 % of the installation cost for normal chargers, up to US\$ 3380 per charging point.
	The total support amounted to US\$ 5.6 million and the scheme resulted in around 1800 charging points installed across the country.
Enova financial support scheme for fast chargers (IEA, 2018)	Aims to cover the Norwegian main roads with fast charging stations every 50 km (around 7500 km road network)
	100 % of installations costs for EV charging operators
	The road network is split into several smaller segments, and operators compete for public funding. All the stations are owned and/or operated by charging operators.
	To reduce the risk for charging stations being out of order and reduce charging queues all locations must have at least two multi standard fast chargers (CHAdeMO and CCS Combo 2) in addition to two 22 kW Type 2 points.

National database for charging stations (NOBIL)	Joint effort between the governmental entity Enova and the Norwegian EV Association.
	Open, publicly owned database that allows everyone to build services using standardized data free of charge.
	Provide EV users with up-to date information about the charging infrastructure.
	Data is used by several in-car navigations systems in addition to charging maps and apps
Regulation on the requirements for EVSE in new buildings and parking lots. (IEA, 2018)	Came into force on 1 st January 2018.
	Requires parking lots and parking areas of new buildings to allocate a minimum of 6% to EVs
EVSE Grants for Housing Associations (Wall Box , 2021)	Oslo: An EVSE grant for a maximum of 20% of the cost of EVSE purchase and installation, up to €450 per charging point and €91,000 per housing association
	Skedsmo: An EVSE grant for a maximum of 20% of the cost of EVSE purchase and installation, as well as the cost of professional consultation, up to €450 per charging point and €23,000 per housing association.
	Asker: An EVSE grant for a maximum of 50% of the cost of EVSE purchase and installation, up to €450 per charging point and €4,500 per housing association.
Building regulation EVSE Oslo (IEA, 2019)	Oslo adopted a measure in 2017 to strengthen the availability of private charging infrastructure.
	This regulation mandates that new buildings must have at least 50% of the parking facilities equipped for electric car charging.
	The grid capacity must also be designed to charge at 3.6 kW all of the vehicles in the building without any need for smart charging to prevent local power shortages.



4. Legal and Regulatory Review

This Chapter outlines the existing legal and regulatory framework governing the transportation and e-mobility sector in Kenya. The Constitution of Kenya, 2010 (**CoK** or the **Constitution**) being the supreme law of the land is the overarching law that guides the operation of all the laws in Kenya. This Chapter begins by analysing the constitutional provisions addressing transportation in Kenya and subsequently undertakes a detailed review of Acts of Parliament, subsidiary legislation, policy documents that are applicable to e-Mobility in Kenya. This Chapter will also set out the initial stakeholder feedback that the e-Mobility Taskforce received in relation to the development of a National e-Mobility Policy.

4.1. The Constitution of Kenya, 2010

The Constitution is the supreme law of the land which serves as the foundation and guiding mechanism for all other legislative measures.⁹ As part of the Constitution's devolved governance structure, it established the National and County Governments as two independent tiers of the government. Each tier of government is assigned various responsibilities and duties under the Fourth Schedule of the Constitution. The two levels of government though independent, have overlapping functions and one such function is transport.

The National Government is responsible for transport and communications in particular, road traffic, construction and operation of national trunk roads, standards for the construction and maintenance of other roads by counties, amongst others.¹⁰ Contrastingly, the County Government is responsible for county roads, street lighting, traffic and parking, public road transport, ferries and harbours, amongst others.¹¹ The jurisdictional overlap highlights the crucial need for cross government coordination of transport activities and in the development of transport policies.

It is significant to note that the transport-related activities undertaken within Kenya must adhere to the constitutionally protected vision for the environment. Every person is entitled to an enforceable right to a clean and healthy environment which includes the right to environmental protection through legislative and other mechanisms for the benefit of present and future generations.¹² Therefore, the State has legal obligations toward the environment including but not limited to: ensuring sustainable exploitation, utilisation, management and conservation of the

9 Article 2, *The Constitution of Kenya, 2010*.

10 Fourth Schedule-Part 1, *The Constitution of Kenya, 2010*.

11 Fourth Schedule-Part 2, *The Constitution of Kenya, 2010*.

12 Article 42, *The Constitution of Kenya, 2010*.

environment; establishing systems of environmental impact assessment, audit and monitoring of the environment; and eliminating processes and activities that are likely to endanger the environment.¹³

Additionally, policies created to regulate the transport-related plans and activities ought to be guided by the Constitution's national values and principles of governance that bind all state organs, public officers and all persons.¹⁴ Public participation and sustainable development are among the national values that are critical in the development of the National e-Mobility Policy.

4.2. Acts of Parliament

4.2.1. *The Environmental Management and Coordination Act, No 8 of 1999*

The Environmental Management and Coordination Act, No 8 of 1999 (**EMCA**) is the primary statute that provides for the establishment of the appropriate legal and institutional framework for the management of the environment in Kenya. EMCA is fundamentally informed by general principles set out below:¹⁵

- (a) every person in Kenya has the entitlement to a clean and healthy environment and they have a corresponding duty to cooperate with the state organs to protect and conserve the environment as well as ensuring ecological sustainable development.
- (b) the principle of public participation in development of policies for the management of the environment;
- (c) principle of international cooperation in the management of the environment;
- (d) principle of intergenerational and intragenerational equity;
- (e) the precautionary principles; and
- (f) the polluter-pays principle.

EMCA promotes the use of renewable sources of energy by fostering research, creating incentives and promoting measures for the conservation of non-renewable sources of energy.¹⁶ It further provides for the protection of the ozone layer by tasking the Cabinet Secretary with the authority to institute guidelines and programmes pertaining to the: elimination of substances that deplete the stratospheric ozone layer; controlling activities and practices likely to lead to degradation of the ozone layer and formulating strategies for phasing out ozone depleting substances.¹⁷

Notably, EMCA permits the proposals for fiscal incentives and disincentives to encourage the management of the environment accordingly. The incentives, disincentives and fees include but are not limited to customs and excise waivers in respect of capital goods which substantially reduce environmental degradation; tax rebates to industries that invest in plants for using other energy resources, tax disincentives to deter damaging environmental behaviour and fees to ensure that those who use environmental resources pay proper value for the utilization of such resources.¹⁸

13 Article 69, *The Constitution of Kenya*, 2010.

14 Article 10, *The Constitution of Kenya*, 2010.

15 Section 3, *Environmental Management and Co-Ordination Act*, 1999.

16 Section 49, *Environmental Management and Co-Ordination Act*, 1999.

17 Section 56, *Environmental Management and Co-Ordination Act*, 1999.

18 Section 57, *Environmental Management and Co-Ordination Act*, 1999.

These provisions are relevant for the various fiscal and non fiscal incentives that have been recommended as part of this report and that will be incorporated into the National e-Mobility Policy.

4.2.2. *Climate Change Act, No 11 of 2016 (amended, 2023)*

The object of the Climate Change Act is to provide for a regulatory framework for the enhancement of action on climate change and the provision of mechanisms to ensure the achievement of low-carbon climate development. The Act provides that it can be applied by the national and county governments with the aim of promoting the uptake of low-carbon technologies that support low-carbon and climate-resilient development.¹⁹

The Climate Change Council (the **Council**) is established under the Climate Change Act, and it is the body mandated to advise the national and county governments on policy and legislative measures to ensure the attainment of low carbon and climate change resilient development.²⁰ The role of the Council also includes the approval and overseeing the implementation of the National Climate Change Action Plan. The Climate Change Act mandates the Cabinet Secretary to coordinate the preparation of National Climate Change Action Plans which ought to prescribe measures for, among others, enhance the efficiency and use of renewable energy in the transport sector.²¹

The Act establishes the Climate Change Directorate which is the lead government agency on climate change plans and ensures operational coordination on actions.²²

The National Environmental Management Authority is mandated to monitor the compliance of public and private bodies with their climate change duties.²³ The Act has been amended in September 2023 to accommodate carbon projects for carbon markets trading among other emerging issues.

4.2.3. *The County Government Act, No 17 of 2012*

It was enacted to give effect to the devolved government structure as provided for by the Constitution of Kenya to provide for the county governments' powers, functions and responsibilities to deliver services. The Act reiterates the county governments' constitutional functions, which includes enacting county legislation.²⁴ Some of the by-laws enacted and policies in place cover county transport and pollution, which are within the county governments' mandates. They are also tasked with designing county planning frameworks that integrate the economic, physical, social, environmental and spatial planning.²⁵

4.2.4. *The Traffic Act, No 39 of 1953*

This Act consolidates the laws relating to traffic on the roads and matters incidental to transport. With regards to conservation of the environment, its regulations stipulate that every vehicle should be so constructed, maintained, and used that no smoke or visible vapour is emitted therefrom. It also provides that every motor vehicle using solid fuel

19 Section 2 (g), *Climate Change Act*, 2016.

20 Section 6 (e), *Climate Change Act*, 2016.

21 Section 13 (3) (j), *Climate Change Act* 2016.

22 Section 9, (2), *Climate Change Act*, 2016

23 Section 17, *Climate Change Act*, 2016.

24 Section 5, *County Government Act*, 2012.

25 Section 104, *County Government Act*, 2012.



shall be fitted with an efficient appliance for the purpose of preventing the emission of sparks or grit, and also with a tray or shield to prevent ashes and cinders from falling onto the road.²⁶

The legislation falls short on encouraging use of vehicles that use renewable sources of energy that substantially reduce emissions.

There are terms used in the Act which cover certain elements of e-mobility. For instance, a bicycle is defined to mean any bicycle or tricycle not self-propelled thereby excluding any electric bicycle which is designed to propel itself forward. Additionally, motor vehicle is defined to mean any mechanically propelled vehicle, excluding any vehicle deriving its power from overhead electric power cables. However, there are no specific provisions touching on the electric vehicles which are excluded from the definition and thus the Act will need to be reviewed to cover electric vehicles.

4.2.5. *National Transport and Safety Authority Act, No 33 of 2012*

The National Transport and Safety Authority which is the body charged with the mandate of managing the road transport subsector is established under this Act. In addition to the registration and licensing of motor vehicles, the authority also conducts their inspection and certification.²⁷ One of its core functions is also ensuring the road transport system is safe, reliable and efficient.

The registration system is limited to motor vehicles defined to exclude any vehicle deriving its power from overhead electric power cables.

4.2.6. *Energy Act, No 1 of 2019*

The Energy Act was enacted with the objective of consolidating the laws relating to energy and to promote renewable energy amongst others. It tasks the Cabinet Secretary

26 Regulation 27, *Traffic Rules*, 1953.

27 Section 4, *National Transport Authority and Safety Act*, 2012

to promote the development and use of renewable energy technologies through promoting the utilisation of renewable energy sources for transportation.²⁸

4.2.7. *Urban Areas and Cities Act, No 13 of 2011*

The Urban Areas and Cities Act was established to provide for the legal framework for the governance and management of urban areas and cities as well as their classification.²⁹ County governments play a key role in its implementation and while doing so, they are guided by the National Urban Development Policy.³⁰ The Boards that are put in place by County Governments to manage cities and municipalities are bound to ensure that in the course of discharging their duties, they promote safe and healthy environments.³¹ One of their key roles is also the regulation and facilitation of public transport.

4.2.8. *Sustainable Waste Management Act, No 31 of 2022*

As the primary legislation that addresses the issues relating to waste management, the Sustainable Waste Management Act, 2022 seeks to promote sustainable waste management which engenders the right of Kenyans to a clean and safe environment.³² The guiding principles of the Act include the precautionary principle, the zero waste principle and the polluter pays principle.³³ Some the salient objectives of the Act include the promotion of sustainable waste management, improving the health of all Kenyan by ensuring a clean and healthy environment, reduction of pollution, promote circular economy practices for green growth amongst others.

It is important to note that the Act defines the term 'e-waste'. E-waste which it also refers to as electrical waste and waste electronic equipment is defined to mean waste resulting from electrical and electronic equipment including their components and sub-assemblies.³⁴ This Act is critical for the e-Mobility value chain as throughout the course of the life of an e-Mobility vehicle, there will have to be a regime that caters for their sustainable and environmentally friendly disposals.

The Act also establishes the Waste Management Council which is charged with the mandate to enhance intergovernmental coordination for sustainable waste management among other functions. The National Environment Management Authority is tasked with the development of waste management policies and enforcing the same in consultation with the county governments. County governments are also key players in waste management for the fact that waste management is a devolved function to wit the Act takes cognizance and provides for the roles they play.

4.2.9. *East African Community Customs Management Act, 2004*

The EACCMA provides for the law relating to the management and administration of customs and other services. The Act together with the East African Common External Tariff, 2022 sets out the import duties applicable to electrical mobility vehicles and components.

28 Section 75, *Energy Act*, 2019.

29 Section 3, *Urban Areas and Cities Act*, 2011

30 Ibid

31 Section 20, *Urban Areas and Cities Act*, 2011

32 Section 3, *Sustainable Waste Management Act*, 2022.

33 Section 4, *Sustainable Waste Management Act*, 2022.

34 Section 2, *Sustainable Waste Management Act*, 2022.

4.2.10. Value Added Tax Act, 2013

VAT is charged pursuant to the provisions of the Value Added Tax Act³⁵ (No 35 of 2013) (the **VATA**). The VATA provides for three rates of VAT; 0% in the case of a zero-rated supplies specified in the Second Schedule to the VATA and the standard rate of 16% in all other cases. Further, under the first schedule of the VATA, there are goods and services that are exempt from VAT.

The VATA imposes VAT on taxable supplies made by a registered person in Kenya.³⁶ Section 34 of the VATA requires a person to register for VAT where the person makes or expects to make an annual turnover of KES 5,000,000 (approximately USD 50,000) or more from the supply of taxable supplies.³⁷

Goods and services, the supply or importation of which are designated as exempt are not subject to VAT. These goods and services are set out under the First schedule to the VATA. Exempt services include financial services, insurance and reinsurance services, education services, medical and agricultural services.

The VATA defines a supply of goods as follows:

- (a) a sale, exchange, or other transfer of the right to dispose of the goods as owner; or
- (b) the provision of electrical or thermal energy, gas or water.

The role of fiscal incentives in promoting the uptake of e-Mobility is critical. As it stands, the Finance Act 2023 introduced various incentives for the e-Mobility sector under the VATA³⁸ including the zero rating of VAT on the importation or sale of e-Mobility vehicles and components as set out below;

4.2.11. *the supply of electric bicycles;*

4.2.12. *the supply of electric motorcycles of tariff heading 8711.60.00;*

4.2.13. *the supply of electric buses of tariff heading 87.02; and*

4.2.14. *the supply of solar and lithium ion batteries.*

The prevailing gap is the lack of VAT incentives for the supply of electric 3 and 4 wheelers as well as on the charging infrastructure.

4.2.15. Excise Duty Act, 2015

The Excise Duty Act was enacted with the objective of providing for the charging, assessment and collection of excise duty and the resulting administrative provisions. The Finance Act, 2023 amended the Excise Duty Act to provide that electric motorcycles are exempt from excise duty. However, the Act still provides that *electric powered motor vehicles of tariff no. 8702.40.11, 8702.40.19, 8702.40.21, 8702.40.22, 8702.40.29, 8702.40.91, 8702.40.99 and 8703.80.00* will be subject to excise duty at the rate of 10%.

35 Value Added Tax Act (No 35 of 2013)

36 Section 5, Value Added Tax Act.

37 Section 19(2), Value Added Tax Act.

38 Para 30 and 31, Second Schedule to Value Added Tax Act, 2013

Therefore, fiscal incentives would need to be introduced to exempt e-mobility supplies from excise duty to promote the uptake of e-mobility.

4.2.16. Standards Act (Cap 496)

The Standards Act is an act of Parliament whose objective is to promote the standardisation of the specification of commodities, and to provide for the standardisation of commodities and codes of practice, to establish the Kenya Bureau of Standard and to define its functions and provide for its management and control. The Standards Act provides the legal framework within which standards relating to e-mobility supplies and components will be developed.

4.2.17. Consumer Protection Act No.46 of 2012

The Consumer Protection Act, is an Act of Parliament to provide for the protection of the consumer, prevent unfair trade practices in consumer transactions and to provide for matters connected with and incidental thereto. Part VI of the Act regulates repair of motor vehicles and charging of repair fees.

4.2.18. Insurance (Motor Vehicles Third Party Risks) Act, CAP 405

This is an Act of Parliament to make provision against third part risks arising out of the use of motor vehicles. It stipulates that third party risks cover for motor vehicles is compulsory.

The introduction and growth of EVs necessitate insurance policies that cover the unique associated risks of EVs such as battery fires, risk of collisions and electrocutions, etc. A comprehensive EV insurance policy should include but not limited to battery cover, charging cable cover, cover for private charging station, autonomous driving cover, cover for injury and damage caused by charging cables.

4.2.19. Kenya Roads Act, No 2 of 2007

This is an Act of Parliament to provide for the establishment of the Kenya National Highways Authority, the Kenya Urban Roads Authority, and the Kenya Rural Roads Authority, to provide for the powers and functions of the authorities and for connected purposes. Section 52 provides that an Authority may, upon application, be exempted from such taxes and duties as the Minister responsible for Finance may, with the approval of Parliament, prescribe. This provision could promote the uptake of e-mobility in Kenya, as an incentive to EVs consumers.

4.2.20. Motor Vehicle Components and Accessories Act

This Act makes provision for the control and regulation of dealings in motor vehicle components and accessories, and for other purposes incidental thereto. Its schedule provides a list of the accessories of motor vehicles. The Schedule should be amended to include car parts and accessories unique to EVs such as power inverter, battery pack, charging port, etc.

4.2.21. Second Hand Motor Vehicle Purchase Act, CAP 484

The statute provides for the imposition of a tax on the purchase of certain second-hand motor vehicles and second-hand trailers. The Statute gives the Minister a wide discretion to make regulations prescribing anything for the better carrying out of the provisions of the Act. Incentives that would promote e-mobility could be introduced such as exemption of EVs from the second hand tax.

4.2.22. Public-Private Partnership Act, No 14 of 2021

This statute provides for the participation of the private sector in the financing, construction, development, operation or maintenance of infrastructure or development projects through public private partnerships; to streamline the regulatory framework for public private partnerships; and for connected purposes.

In consideration that the e-Mobility is in the initial development period in Kenya, a PPP is a viable opportunity that would promote its adoption. The government and the private sector can mobilise initiatives, construct and operate charging infrastructure and strategic measures.

4.2.23. Data Protection Act, No 24 of 2019

The purpose of enactment of the Data Protection Act) was to give effect to Article 31(c) and (d) of the Constitution that establishes the right to privacy. The operation of EV systems necessitates the collection and use of personal data by various companies and stakeholders from the purchase of the EV to charging points, thus they can directly and indirectly encounter the consumers' personal data. E-mobility ought to consider recommendation of EV dealers to register as data processor or controllers as applicable.

4.2.24. International Agreements: The Paris Accord

The Paris Agreement which entered into force on 4th November 2016 is a legally binding international treaty on climate change. It binds Kenya by dint of Article 2(6) of the Constitution of Kenya, 2010. The Paris Agreement calls on all nations to reduce greenhouse gas emissions. The Agreement works on a five-year cycle of increasing ambitious climate actions carried out by signatory countries. Since 2020, countries have been submitting their national climate change action plans, known as National Determined Contributions (NDCs). In their NDCs signatory countries outline specific targets and strategies for reducing emissions. Additionally, under the Paris Agreement signatory countries are encouraged to communicate actions they will take to build resilience to adapt to the impacts of climate change.

E-mobility helps in the achievement of emission reduction through replacement of internal combustion engine vehicles with electric vehicles which produce zero tailpipe emissions. Therefore e-mobility is a step in the right direction towards promoting the government's compliance with the Paris Agreement and other environment related treaties such as United Convention Framework on Climate Change. It aligns with internationally broader goals of transition to a low-carbon, sustainable future.

5. Policies, Plans and other Instruments

There are various policies, plans and various instruments that affect the e-Mobility sector in Kenya. We set out below a brief overview of the salient provisions of these policies.

5.1. Ministry of Roads and Transport Mandate (Presidential Executive Order)

Executive Order No. 1 of 2023 sets out the organisational structure of the government of Kenya for the purposes of assignment of functions within the ministries and state departments. The Ministry of Roads and Transport is organised into the State Department of Roads and the State Department of Transport.

The State Department of Roads is tasked with, among other functions, the national roads development policy in addition to the standardisation, development and maintenance of roads. On the other hand, the State Department of Transport is vested with the management of the transport policy and the registration, licensing and inspection of vehicles. In this regard, the e-Mobility Taskforce has validly been established under the auspices of the Ministry of Transport to develop a National e-Mobility Policy.

5.2. Kenya Vision 2030

Kenya Vision, 2030 is the state's development blueprint for the period between 2008 to 2030 whose vision is to make Kenya a middle-income country that provides high quality life for its citizens. Amongst its goals, Kenya aims to have a clean, secure, and sustainable environment by 2030. It is to be achieved by having in place specific strategies that will promote environmental conservation, improving pollution and waste management through the design and application of economic incentives.

This vision is implemented in 5-year successive Medium-Term Plans (**MTPs**):

5.2.1. *MTP I (2008-2012)*

The overall objective of this plan was to realise a higher and sustainable growth of the economy. With regards to transport, it mainly focused its objectives on building effective and reliable infrastructure that was critical to lowering the cost of doing business and increasing Kenya's economic competitiveness. It therefore targeted investments to accelerate the road network, rail, sea and air transport. MTP, I did not feature e-Mobility as a policy imperative.

5.2.2. *MTP II (2013-2017)*

MTP II was implemented when Kenya had just transitioned into a two-tier government framework in line with the CoK, 2010. MTP II emphasized the role that devolution would play in the attainment of the development goals of the nation as well as fostering inclusiveness and the creation of employment for the youth.

With regard to the transport sector, MTP II focused on the development of robust infrastructure with the prioritization of the expansion of road and railway networks, improvement of maritime and shipping facilities and the expansion and modernisation of aviation facilities. The development of e-mobility was not a feature in this medium-term plan.

5.2.3. *MTP III (2018-2022)- The Big 4 Agenda*

The overall objective of MTP III was the prioritisation of four areas commonly referred to as the Big 4: food and nutrition security; affordable housing; manufacturing and agro-processing; and universal health coverage. In relation to road transport policies, they were mainly focused on ensuring effective expansion of road transport network, regulatory regimes framework, road safety, and functional ICT system smart card driving licences.

5.2.4. *MTP IV (2023-2027)*

It aims to address emerging issues and what was lacking from MTP III. In the e-mobility space one of the challenges addressed are Climate change mitigation and adaptation

- (a) Increase uptake of electric mobility - develop and implement the policy.
- (b) Implementation of Kenya's action plan for the reduction of CO2 gas emissions in aviation sector.
- (c) Implementation of the National Climate Change Action Plan (NCCAP) 2023-2027.

MTP4 - Transport Programmes, Projects and Activities

- (a) E-Mobility
- (b) Development and implementation of e-mobility policy;
- (c) Establishment of E-mobility charging infrastructure; and
- (d) Promotion of electric motor vehicles (boda bodas, electric mass transit systems) manufacturing

5.3. **The Kenya Kwanza Commitment Plan (2022-2027): Bottom-Up Economic Transformation Agenda (BETA)**

Under President Ruto's Kenya Kwanza manifesto electricity, petroleum and e-mobility are quite pertinent given the prevailing imperative to promote the uptake of e-mobility. It states that since electricity is a crucial economic service, there is a need to enhance capacity, especially given that transportation will be a significant user of energy as electric vehicles replace internal combustion engine vehicles that run on fossil fuels. Additionally, it sets out the vision that charging infrastructure for electric vehicles will soon be built in all cities and along all major roadways.

Through financial and tax incentives, it also promotes the conversion of commercial carriers and public transportation vehicles to electric vehicles. The Kenya Kwanza government intends to accomplish this by utilising financial support from the Hustler Fund for the boda-boda industry to expand the newly growing EV motorbike assembly sector.

The platform also emphasises that the recent increase in fuel prices should be welcomed by making use of the accessible, affordable renewable energy sources. Therefore, accelerating the switch to EVs is advantageous for lowering GHG emissions and obtaining more affordable transportation.

5.4. National Climate Change Response Strategy, 2010

The goal of this multi-sectoral strategic document is to create a state that is robust and resilient to climate change. It seeks to strengthen the nationwide efforts to combat climate change and reduce Greenhouse Gas (GHG) emissions.

This strategy acknowledges that the transport sector, particularly as a result of high private car use, contributes significantly to rising emissions.³⁹ It therefore proposes interventions in the transport sector to include proper and urban transport planning to facilitate efficient and low GHG modes of transportation. E-Mobility is therefore a critical intervention to ensure lower GH emissions in Kenya.

5.5. Integrated National Transport Policy (INTP), 2012 (under review)

INTP was formulated in order to integrate transport with other national development priorities and to respond to the market needs of transport. Environmental sustainability runs at the centre of the policy which gives its mission as to develop and implement a transport system that meets development objectives in an environmentally sustainable manner among others.⁴⁰ The policy recognises the need to address the challenges facing sustainable utilisation of the environment in the sector.

On road transport, the policy notes that road freight contributes to air and noise pollution. It focuses on the regulation of transportation of hazardous materials which have the potential to degrade the environment. In addition, it provides that the government will seek to promote the use of environmentally friendly fuels and conduct regular inspections of motor vehicles to ensure control of noxious gaseous emissions.

In the railway sector, the policy recognises the positive impact that a transition from diesel-powered to electric-powered locomotives would have on the environment.⁴¹ It also identifies the same issue in the maritime sector and presents one of the policy actions as putting in place measures that will lead to the initiation of green ports.

5.6. National Climate Change Action Plan I (NCCAP1 2013-2017)

It was a measure to operationalise the NCCRS. The NCCAP views climate change as a crosscutting issue to be mainstreamed in national planning and development processes and in policy decisions across all sectors of the economy. It established Kenya's baseline emissions projections up to 2030 and developed a low carbon climate resilient development pathway for the country outlining priority adaptation and mitigation actions. It noted the air pollution in the transport sector being caused by the total vehicle population. Its mitigation actions mainly focused on improving traffic conditions and use of non-motorised modes of transport.

5.7. National Climate Change Action Plan II (NCCAP2 2018-2022)

This was a five year plan to steer Kenya's climate change action from 2018 to 2022. It identified the country's priority climate change adaptation and mitigation actions intended to contribute to the country's achievement of the low carbon climate resilient development pathway and the National Determined Contributions (NDC) target. Actions set out to reduce emissions in the transport sector included but not limited to completion of the Mombasa-Nairobi Standard Gauge Railway (SGR), as well as development of affordable and sustainable public transport through use of electric hybrid vehicles.

39 *National Climate Change Response Strategy*, Government of Kenya, 2010, page 14

40 Mission, *Integrated National Transport Policy*, 2012.

41 Para 263, *Integrated National Transport Policy*, 2012.

5.8. Climate Smart Agriculture Strategy 2017-2026

The strategy is conceptualised on the background that agriculture is not only impacted on but also contributes to climate change. Thus, it is essential to develop an agricultural system that is resilient to the ravages of climate change but minimizes GHG emissions. The objective of the strategy is therefore to build resilience of agricultural systems while minimizing emissions leading to food and nutritional security as well as improved livelihoods.

The strategy recognises that the agricultural sector relies heavily on the transport sector for the movement of products and that the emissions from the transport sector are expected to experience a threefold increase between 2010 and 2030. It therefore advances energy-efficient technologies and innovation which will result in a drop in emissions from the processing and transportation of agricultural inputs and products. Thus, the ministry responsible for transport would play a key role in doing so through the development and enforcement of minimum emissions from vehicles and machinery.

The promotion of energy-efficient technologies and innovation is identified as a key strategy and the output expected of the same will be a percentage reduction in the rate of emissions.

5.9. Ministry of Environment, Climate Change and Forestry Mandate (Presidential Executive Order)

Executive Order No. 1 of 2023 – Organization of the Government of Kenya – His Excellency Dr. William Ruto created a State Department for Environment and Climate Change to underline the government’s commitment to protecting Kenya from the adverse effects of global warming. The new department will be domiciled in the Ministry of Environment. The Ministry will also house the State Department for Forestry. The State Department for Environment and Climate Change in the ministry is tasked with among other functions the promotion of low-carbon technologies to reduce emissions as well as the National Environment Policy and Management and Climate Change/Action Policy.

5.10. Kenya National Adaptation Plan (NAP 2015-2030)

This national adaptation plan (NAP) builds on the foundation laid by the National Climate Change Response Strategy (NCCRS) and the National Climate Change Action Plan (NCCAP). Additionally, the NAP is the basis for the adaptation component of Kenya’s Intended Nationally Determined Contribution (INDC) that was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat. NAP aims to consolidate the country’s vision of adaptation supported by macro-level adaptation actions that relate to the economic sectors and county-level vulnerabilities to enhance long-term resilience and adaptive capacity. This NAP presents adaptation actions that cover the time frame 2015-2030.

The NAP provides a background of Kenya’s national circumstances, including socio-economic circumstances; and future climate scenarios that the country needs to consider in decision-making, planning, and budgetary processes.

The objectives of the NAP are to: • Highlight the importance of adaptation and resilience-building actions in development; • Integrate climate change adaptation into national and county-level development planning and budgeting processes; • Enhance the resilience of public and private sector investment in the national transformation, economic and social and pillars of Vision 2030 to climate shocks; • Enhance synergies between adaptation and mitigation actions to attain a low carbon climate resilient economy; and • Enhance resilience of vulnerable populations to climate shocks through adaptation and disaster risk reduction strategies.

5.11. National Communication 2 (NC2 2015)

This communication represents the commitment of the Kenyan Government and its people to address global warming and climate change. It recognises that the transport sector, particularly the road-subsector, is the main source of the growing contributor of greenhouse gas emissions. Consequently, it provides that addressing climate change in the transport sector means working to reduce greenhouse gas emissions.

5.12. Green Economy Strategy and Implementation Plan (GESIP 2016-2030)

The plan provides guidance to the national and county governments on the most effective ways to ensure higher economic growth rates whilst ensuring the same is embedded with the principle of sustainable development. The envisioned green economy would ensure development occurs in a low-carbon path which would promote resource efficiency and sustainable management of natural resources.

The plan recognises that inadequate information and access to finance on green technologies is one of the impediments to a green economy since it stifles technology transfer, adoption and adaptation. In a bid to promote sustainable infrastructure, the plan seeks to promote sustainable mobility through the seeking to reduce vehicular through fiscal and legal means. However, e-mobility is not identified as one of the Key Performance Indicators under this objective. In the management of waste, the development and implementation of legislation on extended producer responsibility of waste streams such as e-waste is given as one of the objectives that the government would work towards.

5.13. National Climate Change Framework Policy, 2018

This policy was developed to facilitate a coordinated and effective response to the local, national, and global challenges presented by climate change. It aims to enhance adaptive capacity and build resilience to climate variability and change while promoting a low carbon development pathway. The policy tasks the government to put in place mechanisms that promote clean technologies in all sectors of economic development; participating in voluntary emission reduction programmes when they support the country's sustainable development goals; and promoting the creation of green jobs by establishing enabling policy framework for investment and creating business friendly regulatory environments in areas such as renewable energy, efficient transport, and clean manufacturing.

5.14. National Policy on Climate Finance, 2017

This policy's purpose is to set out a guiding framework to enhance the State's financial systems and institutional capacity to effectively access, disburse, monitor and report on climate finance in an accountable and a transparent manner. Transport is in the scope for climate change policy in Kenya as consumption of fossil fuels by vehicles contribute significantly to GHG emissions. Climate finance provides opportunities and incentives for the transport sector to reduce GHG emissions and increase resilience by prioritising actions that include: low-emitting clean energy sources such as bio-fuels; fuel switching from fossil fuel to clean electricity; and climate-proofing infrastructure

5.15. Ministry of Transport Strategic Plan 2023-2027

The Ministry is currently undertaking to draft the Strategic Plan which will incorporate the development of E-mobility where Government will promote development of E-mobility in order to adhere to global targets for greenhouse gas emission reduce air pollution. This entails the development and implementation of E-Mobility Policy, establishment of E-Mobility charging infrastructure and promotion of electric motors manufacturing.

5.16. The National Automotive Policy (NAP), Sessional Paper No 1 of 2022

One of the main objectives of NAP is to enhance innovation, research and development for local design and engineering to promote clean, safe and efficient mobility products. It provides that the government will promote investments in research and development of commercially viable technologies such as electric powered cars including batteries and charging stations. Additionally it states that this will be achieved by: setting up a Technology Innovation Fund to acquire technologies; offering of incentives to motivate innovation and technology acquisition; and applying appropriate tax measures to encourage production of full electric powered vehicles. It also advocates for environmental conservation by encouraging green mobility options such as biofuels, compressed natural gas and fuel cell mobility so as to reduce overall GHG emissions.

5.17. National Energy Efficiency and Conservation Strategy (NEECS 2020)

The strategy aims to improve energy efficiency, which will lead to improved energy security, reduction in the expenditure of foreign currency reserves on energy imports, and lowered cost externalities associated with emissions.

The strategy notes that the transport sector consumes around 72% of petroleum products that are imported into the country with the road transport sector alone accounting for about 84% of the same. Further, it notes that Kenya has about two million vehicles 98% of which use either petrol or diesel and that fuel consumption is proportional to Carbon (IV) Oxide emissions.

The strategy identifies the increase in the uptake of e-mobility as one of the key targets in the transport sector. The indicator for the same would be the share of hybrid/electric vehicles imported into the country. It also sets an ambitious target of 5% of the annual import of vehicles to be electric by 2025.

Under the strategy, key partners would work towards the goal by introducing incentives for electric cars by lowering import duty for electric cars, bicycles and tuk-tuks and lowering vehicle road taxes, revising the Building Code to charging stations in public buildings and new estates and raising awareness on energy efficiency in vehicles and e-mobility.

5.18. Nationally Determined Contribution (Updated NDC 2020)

The NDC is the country's set targets for mitigating the greenhouse gas (GHG) emissions that cause climate change and its adaptation plans to adapt the climate impacts. Kenya submitted that it plans to abate GHG emissions by 32% by 20230 in line with the sustainable development agenda and the national circumstances across sectors including transportation. It prioritises mitigation activities in transport that include enhancement of energy and resource efficiency as well as low carbon and efficient transportation systems.

5.19. Draft 2022 National Green Fiscal Incentives Policy Framework

The Green Fiscal Incentives Policy Framework seeks to steer Kenya's economy onto a desired low-carbon climate-resilient green development pathway through a variety of fiscal and economic mechanisms. Green fiscal reforms can help shift consumption patterns, generate additional revenue, drive private investment in projects and programs that adopt climate-friendly production mechanisms. The policy sets out how the government Ministries, Departments and Agencies can enhance mobilization of climate finance from all sources: private, public, multi- lateral agencies, bilateral, philanthropic, etc. to finance Kenya's updated NDC and NCCAPs.

The framework considers green fiscal reforms as mechanisms that have been used by governments to correct environmental externalities, support national climate change goals, and promote clean energy investments. The mechanisms range from tax policies, subsidies and expenditure programs,

and regulatory instruments with fiscal components all of which have revenue implications. As such: government taxes can be used to stimulate a shift in production, consumption and investment in low-carbon climate-resilient and environmentally sustainable practices; concessional loans, guarantees and interest rate subsidies can be effective tools in overcoming investment barriers and leveraging private sector green investments; and government spending can directly target the delivery of environmental outcomes that the private sector might otherwise ignore.

The e-Mobility sector is critical in this regard as it is a key target of fiscal incentives that will need to be established that will promote the uptake of e-Mobility in Kenya.

CHAPTER 3

Research Design and Methodology



1. Introduction

This Chapter outlines the methodology used to develop the National Electric Mobility Policy, Strategy, and Regulations for Kenya. It provides the taskforce process design, data collection methods, data analysis techniques, and the ethical considerations of the process.

2. Taskforce Process Design

To achieve the deliverables of the e-Mobility Taskforce, the process employs a project management approach from the Project Management Institute (PMI). The principle for using this approach is to enable a systematic implementation of the Taskforce activities. Reference was made to the Project Management Body of Knowledge (PMBOK), 7th Edition and the PMI Practical Guide on Process Groups. The process was categorized into five phases; Initiating, planning, executing, monitoring and controlling and closing as shown in figure 1 below.

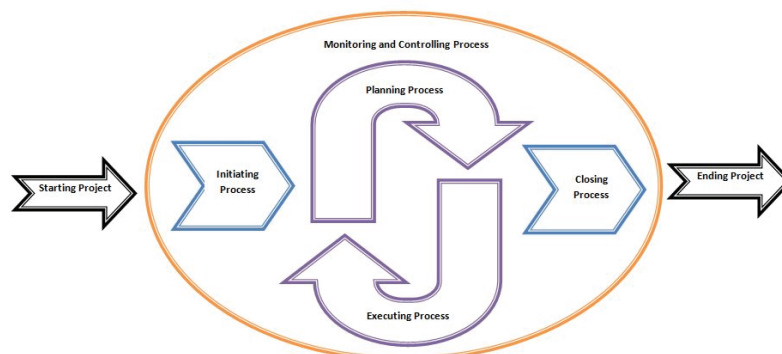


Figure 1: Project Management Process Groups (PMBOK 7th ed.)

3. Initiating Phase

According to PMBOK 7th Edition, the initiating process involves the activities performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase. This stage lays the foundation for the subsequent stages of the process. The emphasis of the initiating process is to align the stakeholders' expectations and to gain their formal approval.

The key activities in the initiating process are to develop the project charter and to identify stakeholders. The Taskforce developed a project charter which was used to formally authorize the activities of the Taskforce and provided the team with the authority to use organizational resources for the activities. The charter developed outlined essential Taskforce information i.e., the objectives, stakeholders, constraints, assumptions, a budget, and a risk management plan.

The Taskforce identified key stakeholders that would be impacted by the objectives of the e-Mobility Taskforce. Key stakeholders were listed, and a stakeholder matrix was developed.

4. Planning Phase

The planning phase involved establishing the entire scope of the tasks assigned to the Taskforce, defining the objectives, and developing the courses of action required to meet these objectives. The team developed 7 out of 9 components that are recommended by PMBOK, 7th Edition, to accomplish this phase. Different tools were employed in the 7 components to achieve the objectives of the planning phase. The components (plans) developed are; communication management, stakeholder management, risk management, cost management, schedule management, scope management and integration management.

4.1. Scope Management Plan

This component involved collecting the stakeholder requirements that are needed to meet the objectives of the Taskforce. The team defined the scope of the e-Mobility Taskforce that detailed the description of the Taskforce and the deliverables that were outlined in the gazette notice No. 10132 of 2023. From the defined scope, the team developed a work-breaking down structure (WBS) that broke down the deliverables into smaller deliverables as shown in table 2 below.

Phase	Activity	Task
Project Initiation	Launch of the Taskforce and Develop a Work Plan	• Presentation of the ToR and expectation of the Ministry of Roads and Transport. • Identify Communication Techniques & Protocols. • Break down Taskforce Work Plan. • Role Allocation to Taskforce Members. • Develop Taskforce Budget. • Identify Taskforce Sponsors

Project Planning	Document and Approve Project Plan	• Document Work Plan, Work Breakdown Structure, Role Allocation, Budget and Gantt Chart – (Project Plan). • Approval of Project Plan by Taskforce. • Present Project Plan to Taskforce Sponsors. • On-board Taskforce Sponsors.
Project Execution	Perform the activities outlined in the ToR as per the Gazette Notice 10132 of 2023.	• Review the existing policies, legal, institutional and operational environment around E-Mobility in Kenya. • Identify and recommend legal, policy, institutional frameworks necessary to support implementation and growth of E-Mobility. • Undertake assessment and recommendation on the impact of adopting the E-Mobility policy on green energy exploitation. • Review the impact of adopting E-Mobility on sustainability of the Road Maintenance Fuel Levy Fund. • Review the existing fiscal policy and make recommendations that support growth and development of E-Mobility in Kenya. • Review the human capital management and develop policies required to support the development, growth and implementation of the E-Mobility sector. • Consider the harmonization of the E-Mobility Policy, Legislation and guidelines within EAC region. • Assess and recommend appropriate integration, compatibility and location of E-Mobility facilities with transport planning and land use along Transport Corridors; • Assess and consider opportunities and platforms for benchmarking on regional and international standards with a view to ensuring compatibility and interfacing of E-Mobility facilities and seamless transportation across Kenyan borders. • Develop short, medium and long-term transition actions to promote and sustain E-Mobility in Kenya. • Assess and recommend the establishment of appropriate framework and structure for E-Mobility including developing a co-ordination framework for both National and County Governments on implementation of E-Mobility in Kenya. • Undertake stakeholders' consultations in line with the Constitution in order to collect and collate their views on the proposed policy.

Project Closure	Taskforce Closure Processes.	• Submission of the Draft National E-Mobility Policy. • Submission of the E-Mobility Strategy and Implementation Plan. • Submission of the E-Mobility Legislations and Regulations. • Submission of the E-Mobility Guidelines. • Submission of the Regulatory Impact Assessment (RIA). • Submission of the Taskforce Report and Recommendations. • High Level Presentation of the Taskforce Report and Recommendations. • Taskforce Closing Retreat/Meeting.
-----------------	------------------------------	---

Table 2: Work Breakdown Structure (WBS)

4.2. Schedule Management Plan

The schedule management plan was developed by establishing existing policies, procedures, and documentation that is relevant to the e-Mobility sector in Kenya.

The actions to be performed to review and summarize this literature were developed and sequenced by identifying relationships among them. The Critical Path Method (CPM) technique was used to estimate the number of work periods between each activity. This enabled the successful analysis of sequences, durations, and schedule constraints to come up with a working schedule.

Task	Sequence	Effort
Phase 1		
• Presentation of the ToR and expectation of the Ministry of Roads and Transport.	1 st	1 day
• Identify Communication Techniques & Protocols.	2 nd	1 day
• Break down Taskforce Work Plan.	3 rd	1 day
• Role Allocation to Taskforce Members.	4 th	1 day
• Develop Taskforce Budget.	5 th	1 day
• Identify Taskforce Sponsors	6 th	1 day
Phase 2		
• Document Work Plan, Work Breakdown Structure, Role Allocation, Budget and Gantt Chart – (Project Plan).	1 st	3 days
• Approval of Project Plan by Taskforce.	2 nd	1 day
• Present Project Plan to Taskforce Sponsors	3 rd	1 day
• On-board Taskforce Sponsors	4 th	7 days

Phase 3		
Review the existing policies, legal, institutional and operational environment around E-Mobility in Kenya.	1 st	7 days
Identify and recommend legal, policy, institutional frameworks necessary to support implementation and growth of E-Mobility.	9 th	14 days
Undertake assessment and recommendation on the impact of adopting the E-Mobility policy on green energy exploitation.	3 rd	7 days
Review the impact of adopting E-Mobility on sustainability of the Road Maintenance Fuel Levy Fund.	4 th	7 days
Review the existing fiscal policy and make recommendations that support growth and development of E-Mobility in Kenya.	5 th	7 days
Review the human capital management and develop policies required to support the development, growth and implementation of the E-Mobility sector.	6 th	14 days
Consider the harmonization of the E-Mobility Policy, Legislation and guidelines within EAC region.	7 th	7 days
Assess and recommend appropriate integration, compatibility and location of E-Mobility facilities with transport planning and land use along Transport Corridors;	8 th	7 days
Assess and consider opportunities and platforms for benchmarking on regional and international standards with a view to ensuring compatibility and interfacing of E-Mobility facilities and seamless transportation across Kenyan borders.	2 nd	14 days
Develop short, medium and long-term transition actions to promote and sustain E-Mobility in Kenya.	11 th	3 days
Assess and recommend the establishment of appropriate framework and structure for E-Mobility including developing a co-ordination framework for both National and County Governments on implementation of E-Mobility in Kenya.	12 th	14 days
Undertake stakeholders' consultations in line with the Constitution in order to collect and collate their views on the proposed policy.	10 th	21 days
Phase 4		
Submission of the Draft National E-Mobility Policy.	1 st	1 day
Submission of the E-Mobility Strategy and Implementation Plan.	2 nd	1 day
Submission of the E-Mobility Legislations and Regulations	3 rd	1 day
Submission of the E-Mobility Guidelines.	4 th	1 day
Submission of the Regulatory Impact Assessment (RIA).	5 th	1 day

• Submission of the Taskforce Report and Recommendations.	6 th	1 day
• High Level Presentation of the Taskforce Report and Recommendations	7 th	1 day
• Taskforce Closing Retreat/Meeting.	8 th	3 days

4.3. Stakeholder Management Plan

From the stakeholder management map that was developed in the initiating phase, the stakeholder engagement strategy was developed. The stakeholder matrix classified stakeholders into four categories - High Influence, Low Interest (HI, LI); Low Influence, Low Interest (LI, LI); High Influence, High Interest (HI, HI); and Low Influence, High Interest (LI, HI).

- **High Influence, Low Interest (HI, LI)** – These stakeholders are not directly involved in the sector. Their position has influence over the outcome of the project.
- **Low Influence, Low Interest (LI, LI)** – These stakeholders contribute to the sector as a primary task.
- **High Influence, High Interest (HI, HI)** – These stakeholders must be kept informed. Heavily involved in the sector but have no control over the direction of the sector.
- **Low Influence, High Interest (LI, HI)** – These stakeholders oversee the direction of the sector and have interest in the success of the sector.

The stakeholders classified under High Influence, High Interest quadrant were invited to make submissions to the Taskforce. UNEP, and World Bank presented comments to the Taskforce on 29th August 2023. GIZ presented to the Taskforce on 12th September 2023. WRI, GGGI and McKinsey who are classified in the Low Influence, High Interest quadrant were also invited to submit their comments to the Taskforce on 11th October 2023. These three were invited to present as they have existing e-Mobility activities in Kenya.

Table 1: Stakeholder Management Map

4.4. Communication Management Plan

The Communications Plan is a guide for the Taskforce as they disseminate information on the five deliverables of the task force and enhance public participation.

Objectives of the Communications Plan

- Clarity of purpose
- Target audience understanding
- Message consistency
- Stakeholder engagement
- Resource allocation
- Crisis Management
- Monitoring, Evaluation Accountability and Learnings

A situational analysis of the status of e-mobility in Kenya was done using the Political Economic Social Technological Environment and Legal (PESTEL) tool. This will help us understand how to target our communications to the different target audience based on the current situation.

Target Audience

Over several meetings, the target audience has been discussed and selected to whom the information will be disseminated through various communication channels.

- (a) Public authorities and policy makers
- (b) Electric Vehicles Manufacturers
- (c) Electric Vehicles Distributors
- (d) Industry and SMEs
- (e) Investors
- (f) Development Partners
- (g) People with Disabilities
- (h) Research institutions, TVETS and Universities
- (i) General public

Print

- (a) 2 feature articles on climate pages
- (b) 2-week strip adverts on spots pages
- (c) 1 memo card at the front of the newspaper

Television

- (a) 3 Television interviews
- (b) 3 weeks informercial (before news)
- (c) 1 livestream of a public participation meeting.

Radio

- (a) 2 weeks of radio spots
- (b) 2 weeks of one-on-one interviews for community sensitization (1 week before the various cluster public participation workshops and 1 week after)

Digital Media

- (a) Website landing page hosted on the Ministry of Transport website.
- (b) Task force social media pages – X, Facebook, TikTok, LinkedIn.
- (c) Bulk SMS by Safaricom and Airtel.

4.5. Stakeholder Engagement Plan

To ensure we encompass the views of all stakeholders, we will conduct various stakeholder engagement sessions to ensure public participation. The different stakeholders include:

- (a) County Officials in Transport through the Council of Governors
- (b) PSV and transport stakeholders
- (c) Special Interest Groups
- (d) General public
- (e) E-mobility Policy Validation Workshops

Stakeholder	Dates	Venue	Pax
County Officials	14 th November	Nairobi	150
PSV and Transport	15 th November	Nairobi	100
Public	23rd November	Mombasa, Kisumu, Nakuru, Eldoret, Garissa, Nairobi	240 for all the six clusters
Special Interest Groups	15th - 19th January	Nairobi	150
Validation Workshops	15th - 19th January	Nairobi	150

We will conduct six simultaneous stakeholder engagement workshops targeting the public to ensure their views are included in the e-mobility policy. We envisage that every team will have a set of questions guided by the six pillars that we have identified through information we have received and collated during the Call For Comments for the Development of the National Electric Mobility Policy.

Each team will have rapporteurs to collate all the information and submit their report by 24th November 2023.

Below is the breakdown of the public participation workshops which will be held in November.

Cluster	Date	Team Leads	Venue
Jumuiya ya Kaunti za Pwani	22 nd November	Githaiga Weru Judith	Mombasa
Lake Region Economic Bloc	22 nd November	Anne Nyaga Edwins Mukabana	Kisumu
Mt. Kenya and Aberdares Economic Bloc	22 nd November	Ibrahim Kinyanjui Anne Njoroge	Nakuru

North Rift Economic Block	22 nd November	Eng. Zacharia Lukorito David Mutisya	Eldoret
Frontier Council Development	22 nd November	Abdullahi Ali Ignatius Maranga	Garissa
South Eastern Economic Block + Nairobi	22 nd November	Robin Rotich Javan Odenyo Hesborne Mose	Nairobi

Timeline

Date	Activity	Action By
1st November	Invitation Letters • Council of Governors • Transport Stakeholders • GIZ	Anne Njoroge Robin Rotich
1 - 14th November	Visibility - Branding banners, t-shirts, reflectors, bottle books, pens, wrist band	Justo
14th November	Public Participation County officials Transport	Javan Odenyo
15th November	Public Participation Transport stakeholders	Edwins Mukabanah Githaiga Weru
23rd November (21st - 24th)	Public Participation all six clusters	All
4th - 9th December	Taskforce Retreat - Mombasa	All
23rd November - 2nd December	COP 28	TBC
November - Jan	Benchmarking visits. India, USA, Germany, RSA, China, Thailand, Netherlands	All
20th December	E-mobility Draft Policy	Drafting Team
28th December	Publish in the dailies	Robin Rotich

15th - 19th Jan	Validation - MDAs, DOP & SIGS - Council of Governors, Stakeholders and Public	Taskforce
25th Jan - 4th February	Handover	Taskforce

4.6. Risk Management Plan

The Taskforce developed a risk management plan to decide how to manage risk. The plan determined which risks may affect the delivery of the objectives of the Taskforce. Political, Economic, Social, Technological, Legal and Environmental (PESTLE) tool was used to list the potential risks to the achievement of the Taskforce objectives.

A mixed approaches analysis was performed on qualitative and quantitative risks. The risks with high potential impact were prioritized and mitigation options & actions were developed to address these risks. A risk matrix was used to classify the identified risks, as shown in the table below. The risk tracking table that lists all the identified risks attached in the annexes.

Risk Matrix		Severity				
		Insignificant	Minor	Moderate	Major	Severe
Likelihood	Almost Certain	Medium	High	Very High	Very High	Very High
	Likely	Medium	High	High	Very High	Very High
	Possible	Low	Medium	High	High	Very High
	Unlikely	Low	Low	Medium	Medium	High
	Rare	Low	Low	Low	Low	Medium

Table 4: Risk Matrix (Project Manager)

Risk Tracking

PESTLE Analysis.

4.7. Political

Description of Risk	Impact	Risk Response	Risk Level	Risk owner
Changes of administration within the government.	Delay achieving deliverables.	Ensure goodwill of permanent staff leadership	Very High	Secretariat
Changes in taxes	Delay achieving deliverables.	Ensure favourable taxation	Very High	Executive
Changes of interest from international partners.	International support delay.	Mobilize local resources	Medium	Secretariat

4.8. Economic

Description of Risk	Impact	Risk Response	Risk Level	Risk owner
Financial support delay.	Delays project deliverables & completion.	Diversify financial resource mobilization.	Very High	Secretariat
Availability of financial resources to meet objectives.	Cost overruns	Subsidized costs for Taskforce activities.	Very High	Secretariat

4.9. Social

Description of Risk	Impact	Risk Response	Risk Level	Risk owner
Negative perception of EVs by the public.	Inhibits stakeholder engagement.	Extensive public education.	High	Secretariat
Delays due to national and international holidays.	Pushes project completion.	Plan for early delivery deadlines.	Low	Secretariat

4.10. Technological

Description of Risk	Impact	Risk Response	Risk Level	Risk owner
Rapid changes in global EV technology.	Obsolete policies and regulations.	Continuous technology research. Partner with academia and private sector.	Medium	Secretariat
Accessibility of relevant skills on EV technology.	Delay achievement of deliverables.	Co-opting experts to support the process.	Medium	Secretariat

4.11. Legal

Description of Risk	Impact	Risk Response	Risk Level	Risk owner
Incoherent government policies.	Delay achievement of deliverables	Fast tracking processes of the Taskforce.	High	Secretariat
Delays due to procurement procedures.	Delay achievement of deliverables	Flexibility in the extension of the Taskforce period.	Very High	Secretariat
Legal suits e.g. court cases.	Delay achievement of deliverables	Follow the correct process of developing policies;	Medium	Secretariat
		Alternative dispute resolution.		

4.12. Environmental

Description of Risk	Impact	Risk Response	Risk Level	Risk owner
Natural disasters and epidemics e.g. El-Nino, COVID	Inhibits stakeholder engagement.	Use of technology to meet deliverables e.g. virtual meetings	Low	Secretariat
Local conflicts.	Inhibits stakeholder engagement.	Use of technology to meet deliverables e.g. virtual meetings	Medium	Secretariat

4.13. Integration Management Plan

This component of the planning phase integrates all the components into a cohesive Taskforce plan. This plan was shared with the Taskforce members for validation and verification.

5. Executing Phase

This process group is crucial as it involves executing the Taskforce plan into action. The Taskforce will collect data using primary and secondary data collection methods. The data will be analyzed, recommendations developed and compiled to create the National E-Mobility Policy.

5.1. Data Collection Methods

5.1.1. Primary Data Collection

Primary data collection is planned to be collected using push messages and stakeholder engagement workshops. Key stakeholders will be invited to present comments regarding e-Mobility to the Taskforce. As part of primary data collection, the Taskforce will request for comments from the public pre and post policy development through newspaper advertisements.

5.1.2. Secondary Data Collection

Secondary data will be collected from relevant academic publications, existing policies & regulations related to e-Mobility and government reports.

5.1.3. Data Analysis Methods

The collected data will be analyzed using qualitative tools i.e., Political, Economic, Social, Technological, Legal and Environmental (PESTLE) and Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis. Qualitative tools will be employed as the data collected is qualitative in nature. Quantitative data collected will be analyzed using statistical tools.

5.1.4. Monitoring and Controlling Phase

Monitoring and controlling will be achieved by employing ethical considerations, stakeholder validation and reflective team retreats. Ethical considerations will be achieved through continuously obtaining informed consent from all participants; and anonymizing all data to protect the privacy of the participants. Stakeholders in the e-Mobility sector will be invited by the Taskforce to comment on the developed policies and regulations. In a bid to encourage constant review of the objectives and deliverables, the Taskforce has scheduled team retreats to review the progress.

CHAPTER 4

Data Collection and Analysis of Results

1. Introduction

This Chapter provides an overview of the data collected by the Taskforce in the preparation of a National e-Mobility Policy. As set out in Chapter 3, the Taskforce conducted a call for public comments on the National e-Mobility Policy and received submissions from members of the public. This was part of a 2-phase approach for the Taskforce's initiative of engaging members of the public (**Phase 1 Stakeholder Engagement**). Guided by Article 10 of the Constitution of Kenya that enshrines public participation as a national value, including in the development and formulation of national policies, the e-Mobility Taskforce is keen to ensure that the process of developing a National e-Mobility Policy is consultative and involves the public as a key pillar of achieving its objectives.

This Chapter begins by providing an inventory of the submissions that have been received from the public as well as a summary of the key comments received. The Chapter concludes by analysing the comments received from the public from the Phase 1 Stakeholder Engagement.

1.1. Phase 1 Stakeholder Engagement - Inventory of the Submissions Received

The table below sets out an inventory of the submissions the Taskforce received from the public.

No.	Submission Title	Proponent
	Kenya Electric Mobility Policy Proposal	E-Mobility Association of Kenya (EMAK)
	Ze- mobility Accelerating e-mobility in East Africa	Open Capital
	Women Economic Empowerment and EVs in Kenya	Foreign Commonwealth & Development Office
	Submission of Memoranda for the Development of the National e-Mobility Policy	CFAO motors
	E-mobility policy -Electric Bicycles	e-Bee Mobility Kenya Limited
	E-volt Kenya E-mobility Policy Proposals	Evolt Kenya

	ZEV Country Partnership Model (ZEV Transition Council)	Foreign Commonwealth & Development Office
	Submission of Memoranda for the Development of the National e-Mobility Policy	BasiGo
	KPMG Advisory Services Limited Memorandum for Consideration by the e-Mobility Taskforce in the Matter of the National e-Mobility Policy	KPMG
	Submission of memorandum for the development of the National e-Mobility Policy -	CDH Kieti Law LLP
	Submission of Memoranda for the Development of the National e-Mobility Policy_AfEMA.pdf	Africa e-mobility Alliance (AfEMA)
	Uber Submission of Memoranda	Uber
	National Electric Mobility Policy - Stanbic VAF Opinion	Stanbic Bank
	Climate Aggregation Platform Financial Innovation Challenge- Electric Vehicle Africa Fund (EVAF) Feasibility Study	UNDP – P & J Company
	Memoranda -e-mobility Policy	Energy and Petroleum Regulatory Authority
	Simba Corporation's Proposed Memoranda for The Development of E Mobility Policy	Simba Corporation
	National e-mobility Comments	Josephine Mwasaru
	Comments Submitted By Anywhere Mobility Solutions Team	Anywhere Mobility Solutions
	ITPA -E-mobility policy comments	Independent Tea Producers Association
	Submission of Memorandum for Development of National e-mobility policy	Anthony Pyatich - Graduate Engineer
	Guide to Development of e-mobility in Kenya	Kenya Long Distance Truck Drivers and Allied Workers Union
	Nature Kenya Memoranda on the development of the National Electric Mobility Policy	Nature Kenya (EANHS)
	Submission of Memorandum for Development of National e-mobility policy	Musashi

1.2. Overview of the Submissions Received from Phase 1 Stakeholder Engagement

1.2.1. E-Mobility Association of Kenya (EMAK)

EMAK submitted a Kenya Electric Mobility Policy Proposal which is a comprehensive document that outlines a forward-looking approach to sustainable transportation in Kenya. The submission recognises that not all e-mobility sub-sectors are represented, with a notable absence of the critically important bus / mass transit sub-sector and a specific section on charging infrastructure and distributed energy. However, the focus of the submission is for Electric Bicycles, 2-3 Wheelers (e-motorcycles and tuktuks) and 4 Wheelers (passenger cars and trucks). Some of the key proposals contained in the submission include the following:

- (a) Tax Exemptions: The submission proposes tax exemptions on import duties for completely knocked down (CKD) electric vehicles and spare parts to incentivize local manufacturing and assembly of electric vehicles.

- (b) **Tax Policies:** The submission proposes tax-free imports of all electric four-wheelers, namely import duties, Excise tax, and Value-added tax (VAT), at a relatively low cost in terms of lost tax revenue. The waiver could be in for the period 2023 to 2030 in line with the government policy of shifting to 100% renewable energy by 2030.
- (c) **Investment Tax Credit:** The submission proposes an investment tax credit for companies that invest in electric vehicle manufacturing and assembly.
- (d) **Battery Tax Relief:** The submission proposes providing tax relief on critical components like batteries to encourage innovation and investment in advanced battery technologies, which are fundamental to the performance and affordability of electric vehicles.
- (e) **Electricity:** The submission proposes establishing a competitive regional pricing structure that encourages the widespread adoption of electric vehicles by significantly lowering tariffs.
- (f) **Charging Infrastructure:** The submission proposes allocating funding and resources for the development of charging infrastructure, safety measures, and research initiatives.
- (g) **Research and Development:** The submission proposes investing in research and development to support the growth of the electric vehicle industry.
- (h) **Align with Global Sustainability Goals:** The policy proposes that these measures align with Kenya's commitment to environmental sustainability, as they significantly reduce the carbon footprint associated with transportation, contributing to a greener, more resilient future.

1.2.2. *Open Capital*

The submission begins by introducing the concept of electric mobility and its potential benefits for Africa. It notes that the demand for electric vehicles (EVs) is increasing globally, and that Africa has the opportunity to leapfrog traditional fossil fuel-based transportation systems and transition directly to electric mobility. The brief highlights the importance of this transition for meeting climate goals, reducing air pollution, and improving public health outcomes.

The submission then provides an overview of the current state of the EV industry in Africa, with a focus on Kenya. It notes that two and three-wheeler EVs dominate the EV space in Africa, and that Kenya's EV sector is driven by a thriving private sector, though challenges persist. These challenges include the high cost of importing EVs, slow local assembly and manufacturing innovation, and a lack of EV charging infrastructure.

The submission then delves into the specific policy challenges facing Kenya's EV sector. It notes that despite reduced excise duty rates, importing EVs is still costly. It also highlights the slow pace of local assembly and manufacturing innovation, which is hindering the growth of a sustainable EV industry in Kenya. Additionally, the brief notes that a lack of EV charging infrastructure is causing range anxiety among consumers, which is hindering adoption. Finally, the brief notes that consumers lack awareness of the cost and functionality of EVs, which is also hindering adoption.

The submission then provides a set of policy recommendations for Kenya to overcome these challenges and accelerate the transition to electric mobility. These recommendations include fiscal incentives such as tax exemptions and rebates, non-

fiscal incentives such as public awareness campaigns and EV education programs, and regulatory measures such as EV charging infrastructure mandates and EV procurement targets for government fleets.

The submission concludes by emphasizing the importance of transitioning to electric mobility in Africa, and the role that policy can play in accelerating this transition. It notes that the recommendations provided in the brief are just a starting point, and that continued collaboration between government, industry, and civil society will be necessary to build a sustainable and equitable EV industry in Kenya and across Africa

1.2.3. Foreign Commonwealth & Development Office – Women Economic Empowerment and EVs in Kenya

The submission by the FCDO reviews the status of gender-inclusive design into EVs, with a focus on 2 and 3 wheelers and their impact on women's economic empowerment. It makes a compelling business case for the need to have designs that incorporate the needs of women since the same would result in increased the customer base, enhance innovation and productivity through women employees, and strengthen supply chains by engaging women entrepreneurs. The submission contended that the designs that are in the market for 2ws do not have wide cushioning saddles and step through frames alongside other features which are preferred by women and girls.

The submission provides that the design of electric vehicles in Kenya and sub-Saharan Africa can impact women's ability to use them due to various barriers such as design barriers, safety concerns, social norms, and cost. For example, women may face challenges in accessing charging infrastructure due to the lack of public charging stations in rural areas. Safety concerns such as harassment and theft may also discourage women from using electric vehicles. Additionally, social norms may limit women's mobility and restrict their access to transportation options.

However, there are initiatives being taken to promote gender-inclusive design and use of electric vehicles in Kenya and sub-Saharan Africa. The submission aims to inform programs that promote the use of electric two-wheelers and three-wheelers as a green alternative, with a particular focus on gender-inclusive approaches in the design and marketing of these products. The submission also examines the benefits of gender-inclusive design for women and their families, private sector manufacturers of electric vehicles, governments, and broader society. The submission provides recommendations for promoting gender-inclusive design and use of electric vehicles, such as increasing access to charging infrastructure, addressing safety concerns, and promoting women's participation in the electric vehicle industry.

The submission recommends that companies could ensure that gender is integrated into existing market analysis to identify the needs of women as customers of 2Ws and 3Ws. The specific design options should be developed through engagement with women. Providers should consider a variety pricing packages and models for EVs that enable access to low-income groups, including women.

The submission provides a series of recommendations in response to the identified barriers and opportunities. The recommendations are primarily for EV companies, manufacturers, and assemblers, as well as for donors aiming to increase uptake and promote equality and inclusion. The recommendations include:

- (a) Conduct market analysis into the needs of women using electric vehicles. This could include product testing and identifying design needs, as well as women's preferences and practical mobility needs in general.
- (b) Identify context-specific design options through engagement with women. E2W and E3W manufacturers should develop designs based on local country context and preferences. This could involve conducting market research with women's rights organizations and women-led organizations of persons with disabilities, through surveys or focus group discussions.
- (c) Increase access to charging infrastructure. This could involve working with governments and other stakeholders to increase the number of public charging stations, particularly in rural areas.
- (d) Address safety concerns. This could involve developing safety features such as alarms, GPS tracking, and secure parking facilities, as well as working with law enforcement to address harassment and theft.
- (e) Promote women's participation in the electric vehicle industry. This could involve providing training and employment opportunities for women in the manufacturing, sales, and maintenance of electric vehicles, as well as promoting women's leadership in the industry.

1.2.4. CFAO Motors

CFAO proposes a strategic direction that involves: policy development and regulation that creates a clear roadmap for the gradual phase out of fossil fuel vehicles; building institutional capacity; infrastructure capacity; financial incentives, public awareness and education; research and development; fleet electrification; incentives for charging infrastructure providers; data collection and analysis; partnerships and international collaboration; long term strategy planning and regular environmental impact assessments. The submission further proposes the creation of a framework for the following:

- (a) End of life and disposal of EVs and their accessories that would include life cycle assessment, extended producer responsibility, collection and recycling; battery management; data management; etc.
- (b) Development of carbon credits emanating from the e-mobility sector
- (c) Initiation development and implementation of standards and best practice in respect of the e-mobility value chain
- (d) Monitoring the impact of this policy implementation economically and environmentally.

1.2.5. e-Bee Mobility Kenya Limited

The submission is on the technical workings of an electric bicycle, classes of e-bicycles, and the overview of e-bicycle markets. The submission by e-Bee proposes several recommendations related propose the development of e-bicycle regulations and policy to include incentives and subsidies and the following:

- (a) Developing clear regulations and standards for e-bicycles in Kenya, including aspects such as speed limits, power ratings, safety requirements, and licensing for riders.
- (b) Establishing a harmonized system (HS) code for e-bicycles to facilitate their importation and exportation.

- (c) Introducing incentives and subsidies to encourage the adoption of e-bicycles, such as reduced import duties for e-bicycle components and lower taxes for e-bicycle sales.
- (d) Offering fiscal incentives for businesses and local entities to establish charging/swapping points and parking racks, which promotes infrastructure development and engages the private sector in the e-mobility transition.
- (e) Developing and enforcing standards for e-bicycles to ensure their safety and reliability within Kenya. This includes setting speed limits, making helmets mandatory based on specific situations or age groups, and requiring regular inspections.
- (f) Providing adequate laws, policies, and better facilities to support the integration of bicycles and electric bicycles in Kenya, as the current traffic laws governing motor-assisted bicycles are grossly insufficient.
- (g) Overall, these recommendations aim to promote the adoption and integration of e-bicycles in Kenya by addressing regulatory, economic, and infrastructure-related barriers.

1.2.6. *Evolt Kenya*

Evolt makes a case for market support and incentives for EVs with a benchmark for the UK. On charging infrastructure, they recommend grants for their development with an example of Sweden which has deployed charging infrastructure by leveraging on public private partnerships. On local manufacturing and assembly, tax incentives for manufacturers and research grants for local universities to develop EV technology are recommended.

To develop the required skills in EV related technology, vocational training programs and partnerships with technical institutions is recommended. On end life and disposal aspects of EV, it is noted that there is need for policies that define the environmentally responsible methods of recycling batteries and disposing EVs with the EU regulations on the same being fronted as an example.

The need to support local start-ups and businesses in e-mobility with policies such as preferential treatment for locally manufactured EVs and components to ensure local enterprises have a fair market and access to government contracts is also underscored. It is also suggested that the policy should have a monitoring and evaluation framework of the effectiveness of the policy.

1.2.7. *ZEV Country Partnership Model (ZEV Transition Council)*

The submission is on the ZEV Country partnership model. The model enables a coordination framework on multilateral and cross-sectoral coordination, collaboration, and dialogue on e-mobility as well as aggregate public and private sector support to identify opportunities for improving its overarching accessibility, inclusivity, and availability in the country. The partnership also helps countries navigate the technical assistance landscape easily, and access vital early-stage support quickly. By joining this hub, the country will gain access to consultants and specialists, partnership organizations, global and regional funders and on the ground, delivery partners amongst others. The Submission focuses on the ZEV India Partnership and the experiences the country has had so far under the ZEV facility in the past one year that the same has been under operation.

1.2.8. *BasiGo*

BasiGo is an e-mobility startup company that offers affordable electric bus solutions. BasiGo's E-Bus technology and financing solution makes electric buses more affordable than diesel buses by offering a complete solution that addresses both the upfront cost and operating cost of an electric bus. This solution includes financing options that make it easier for customers to purchase electric buses, as well as technology that optimizes the performance and efficiency of the buses. By reducing the total cost of ownership, BasiGo aims to make electric buses a cost-effective alternative to diesel buses.

The submission by BasiGo the following policy recommendations:

- (a) **Promote Local Assembly:** Provide the nascent EV industry ample runway to stabilize and gain traction. Synchronize with national milestones, like the 100% renewable energy target for 2030.
- (b) **Establish Milestone-based Timelines:** Kenya should adopt clear, milestone-linked timelines, drawing insights from initiatives like India's Faster Adoption and Manufacturing of (Hybrid and) Electric vehicles (FAME), the country's EV policy.
- (c) **Infrastructure and Direction:** Establishing safety and quality standards for EVs will prevent the influx of inferior products. Prioritizing the transition to electric buses in new registrations of public transport vehicles can further boost e-Mobility adoption. Steps such as the recent Energy and Petroleum Regulatory Authority (EPRA) guidelines for Public Charging Infrastructure Requirements like Fast Charge (DC & AC) recommending charger connector as Combined Charging System (CCS) (> 50 kW) - DC for 4 wheelers are steps in the right direction.

1.2.9. *KPMG*

KPMG Advisory Services Limited submission set out proposals for the development of the National Electric Mobility Policy in Kenya. The memorandum proposes several areas of consideration, including tax and regulatory incentives for transitioning to electric vehicles, infrastructure development, and public awareness campaigns.

Regarding tax and regulatory incentives, KPMG suggests implementing preferential custom duty rates on electric vehicles and their components, including batteries and charging equipment, to make EVs more affordable for consumers and incentivize their adoption. More importantly, they proposed the following:

- (a) **Custom Duty Remissions & Incentives:** Implement preferential custom duty rates (Import Duty, Excise Duty and Value Added Tax) on Electric Vehicles (EV) and their components, including batteries and charging equipment. This will make EVs more affordable for consumers and incentivize their adoption. Such incentives apply to different segments of the EV market.
- (b) **Carbon Tax Exemptions:** Since the government is in the process of enacting The Environmental Management and Co-ordination (Air Quality) Regulations, it can also exempt EVs from the proposed road tax rates compared to traditional vehicles. This can reduce the total cost of ownership for EVs.
- (c) **Lower Registration Fees:** KPMG suggests reducing registration fees for electric vehicles to make them more competitive with traditional combustion engine vehicles. Lowering the upfront costs can be a strong incentive for potential buyers.

- (d) Investment Allowance: KPMG recommends offering preferential income tax deductions for individuals and businesses that invest in EV infrastructure. This can help offset the higher initial costs of building charging stations and other EV infrastructure.

In terms of infrastructure development, KPMG emphasizes the importance of a comprehensive charging and battery exchange infrastructure across the country, encouraging public-private partnerships to rapidly expand the network of charging and exchange stations, especially in rural and underserved areas.

Finally, KPMG recommends launching public awareness campaigns to educate consumers and stakeholders about the benefits of e-mobility and to promote the adoption of electric vehicles.

1.2.10. CDH Kieti Law LLP

The submission makes key proposals on investments and financing, tax incentives and on the interplay between the private and public sector. On investment and financing, they recommend providing incentives for manufacturing plants, private sector investment in charging infrastructure, and encouraging investments in renewable energy. Training and skill development for the EV repair and maintenance workforce are emphasized.

Strong and stable tax incentives regime with tax credits or grants in developing advanced battery technologies and other EV components, subsidies to reduce initial of purchasing EVs are noted as essential to EV uptake. Capping electricity tariffs for charging stations, low or zero rates for EVs and their spare parts, and lowered registration fees are also suggested.

- 1.2.11. A proposal for the establishment of an intergovernmental agency that brings together NTSA, Ministry of Transport, Ministry of Energy and Ministry of Environment with representation for the private sector is recommended. On collaboration with county governments, it is suggested that a framework be developed that will integrate e-mobility initiatives with the county transport development plans.

1.2.12. Africa e-mobility Alliance (AfEMA)

In anticipation of a 'coming wave of used lithium-ion batteries', they suggest that a national working group should be put up to come up with guidelines on battery reuse and recycling. They also suggest several fiscal, non-fiscal and policy proposals. The key fiscal proposal in their recommendations is that the government should drop import duties, VAT and excise duty on all vehicle segments and lithium-ion batteries.

The key policy proposals that are suggested including on the tax policy- limiting tax exemptions to completely knocked down (CKD) vehicles, refine local content definitions, and centralize regulatory authority. On tax incentives the reduction of corporate taxes to 7.5% for companies establishing EV manufacturing for cars and buses is suggested. Retooling the National Machining Complex to provide R&D support for local manufacturing is also suggested.

The submissions suggest the establishment of a Battery end life working group with the task of delivering guidelines on second life and recycling battering and development of an assessment of the requirements to set up the stages of lithium-ion recycling in Kenya. The submission also recommends the setting of deadlines for the sales of ICE vehicles in Kenya and emphasizes on the need for payment systems integration so that vehicles with the appropriate socket may make use of any compatible charging station.

1.2.13. *Uber*

Uber in its submission provided that it is committing \$800 million in resources globally to help hundreds of thousands of drivers transition to EVs. This is one of four key actions that Uber is taking to reduce emissions, along with expanding Uber Green to make it easier for riders to choose to travel in hybrids or EVs, investing in their multimodal network to promote sustainable alternatives to personal cars, and being transparent and accountable to the public along the way.

Kenya has an enabling environment for green mobility, with over 90% of the national electricity grid drawn from renewable sources. The government has also created a highly appreciated, enabling environment for the industry through tax exemptions for EV manufacturers and importers, subsidies for the installation of charging infrastructure, and preferential charging tariffs. Uber has contributed to the development of e-mobility in Kenya by launching their first standalone electric mobility product on the continent, Uber Electric Boda, which offers an affordable, comfortable, and reliable means of mobility within Nairobi, as well as a zero-emissions method to help drive green transformation in the country. Uber believes that ride-hailing companies can make significant contributions to enabling the electric mobility transition by expanding convenient and affordable low-emission products for riders.

Uber recommends both fiscal and non-fiscal measures to promote e-mobility adoption in Kenya. Fiscal measures can include further import tariff reductions, tax incentives, and incentives for local manufacturing. Non-fiscal measures can include exploring preferential access rights and parking, particularly in urban areas, which would likely incentivize two and three-wheeled vehicle adoption given the access restrictions that exist on these. Uber is committed to continuing to support the government's efforts going forward and proposes workshops to bring together Kenyan policymakers with their global experts on sustainable transport to further e-mobility adoption in Kenya.

1.2.14. *Stanbic Bank*

The proposal recognizes that e-mobility is a potential solution to the pollution caused by the transport sector. It highlights the factors that has caused the slow adoption of EVs in Kenya: a substantial knowledge gap among the public concerning the existence of EVs, elevated cost of electricity, inadequate infrastructure, funding etc.

Notably, it brings out the case for banks and financial institutions to finance EVs as a win-win proposition for both banks and the environment, including promoting their CSR Corporate Social Responsibility. It recommends the following:

- (a) effective strategies and policies capable of surmounting the identified obstacles and expediting the transition to e-mobility.
- (b) county governments are involved in campaigns aimed at raising awareness about electric vehicles so as to hasten the widespread adoption of e-vehicles across all regions of the nation.
- (c) the government could extend tax breaks and subsidies to local manufacturers, thereby incentivizing the production of electric vehicles.
- (d) grants for research and development aimed at advancing e-mobility components like batteries and motors would contribute to cost reduction and enhance their overall appeal.

1.2.15. UNDP - Climate Aggregation Platform Financial Innovation Challenge

The Climate Aggregation Platform Financial Innovation Challenge's Electric Vehicle Africa Fund Feasibility Study is a report that explores the feasibility of establishing an Electric Vehicle Africa Fund to support the electric vehicle (EV) sector in Africa. The report was published by the consulting firm, PricewaterhouseCoopers (PwC), and is based on primary research and interviews with market stakeholders, including over 50 EV firms, carried out by PwC with market research support from the Africa E-Mobility Alliance (AfEMA).

The report provides an overview of the current state of the EV market in Africa, including the growth of the electric two-wheeler (E2W) market, which is expected to be a key driver of EV adoption in the region. The report highlights the benefits of EV adoption, including CO2 reduction, pollutant reduction, and oil import savings, as well as the potential for EVs to contribute to the achievement of the United Nations Sustainable Development Goals (SDGs).

The report also identifies the challenges facing the growth of the E2W sector in Africa, including high upfront costs, limited financing options, and a lack of charging infrastructure. To address these challenges, the report proposes a financing model for the Electric Vehicle Africa Fund, which would provide low-cost financing to E2W manufacturers and distributors, as well as charging infrastructure providers. The report also recommends the establishment of a regulatory framework to support the growth of the EV sector in Africa.

In addition to the financing model and regulatory framework, the report provides recommendations for addressing other challenges facing the EV sector in Africa, including the need for increased public awareness and education about EVs, the importance of developing local manufacturing capacity, and the need for collaboration between stakeholders in the public and private sectors.

Overall, the Climate Aggregation Platform Financial Innovation Challenge's Electric Vehicle Africa Fund Feasibility Study provides a comprehensive analysis of the opportunities and challenges facing the EV sector in Africa, as well as a roadmap for establishing an Electric Vehicle Africa Fund to support the growth of the sector. The report's recommendations have the potential to contribute to the achievement of the United Nations SDGs and to promote sustainable development in the region.

1.2.16. Energy and Petroleum Regulatory Authority

It first sets out its mandate in relation to EV charging infrastructure as espoused in the Energy Act, 2019.-The submission thereafter explains the purpose of the *EV Charging and Battery Swapping Infrastructure Guidelines 2023* that were launched by the Cabinet Secretary and its significance as the first step in establishing an environment for e-mobility.

The Authority recommends that the National e-Mobility Policy should consider the following to ensure there is no miscommunication, duplication, or regulatory overlaps. The proposed policy should provide for:

- (a) a capacity building framework for the e-mobility industry.
- (b) a framework for electric vehicles to contribute to the road maintenance kitty.

- (c) provides a clear roadmap for up-scaling e-mobility in Kenya with clear responsibilities.

1.2.17. *Simba Corporation*

The submission proposes that the expected policy objectives should be as follows: Transform Kenya into the preferred destination for EV manufacturing/assembling in East Africa; develop robust automotive policy, fiscal benefits & industrial ecosystem; create indigenous EV manufacturing/assembly value chains and develop charging infrastructure with favourable power tariffs through public/ private measures. It proposes a raft of sector specific measures as follows; .

- (a) Supply side policy measures - investment promotion subsidy i.e., through reimbursement of VAT, electricity tax exemptions, stamp duty tax exemption, employment incentives i.e. reimbursements of PAYE, transition support etc.
- (b) Demand side measures - From a demand perspective, purchase incentives and lower registration fees serve as key strategic levers to spur adoption.
- (c) Government interventions to actively encourage the private sector to establish public charging stations: new tariff category to decrease cost of operations.
- (d) Support measures - The Government of Kenya should undertake support measures to encourage the adoption of EVs in the Country such as prioritizing electrification of commercial vehicle fleets, promoting EVs in manufacturing/Assembly hubs, and taking steps to aggregate EV demand.

1.2.18. *Total Energies*

It proposes strategic areas of focus for the e-Mobility Taskforce:

- (a) transition to low carbon economy through adoption of a clear and cohesive policy that guides both the public and private sector stakeholders;
- (b) establishing safety and quality standards for EVs to prevent the influx of inferior EV products
- (c) Learn from proven strategies i.e. Thailand, Rwanda and India.

1.2.19. *Musashi*

The submission makes key recommendations on the carbon credits derived from EVs. It is proposed that the policies on the same should be clear with the inclusion of e-mobility projects and battery swap credits in the list of corresponding adjustments in the Kenya Carbon Credit Policy being critical. It is further proposed that carbon credits from EVs ought to be granted based on actual driving records and a minimum price guarantee offered for carbon credits derived from EVs. It is also suggested that the taxation of carbon credits from avoidance projects such as e-mobility should be differentiated from those from land-use.

It is further proposed that a definitive ban on ICEs is imposed in Nairobi and other major towns in order to promote EVs. While appreciating the incentives in the Finance Act 2023, Musashi suggests that e-mobility could be promoted through tax incentives for local part manufacturers as well as for companies that plan to initiate local assembly of lithium-ion batteries. These incentives could also be extended to communication infrastructure given that cloud connectivity is essential for urban safety and carbon credit management.

On safety, it is recommended that mandatory qualifications for aftermarket parts be imposed and KEBS ought to come up with battery safety regulations which may include shake tests. In line with the commitments of the Japan government in TICAD 8, it is suggested that the government, Musashi and ARC Ride could create a joint application to the Japanese government for the support of electric mobility charging infrastructure

1.2.20. Josephine Mwasaru

Proposes incentives from a societal standpoint i.e.;

- (a) comprehensive civic education emphasizing the significance of transitioning from conventional energy sources, elucidating its implications for the business sector, particularly within the fossil fuels industry,
- (b) comprehensive baseline assessments to provide an in-depth understanding of the current knowledge and perceptions of communities regarding Renewable Energy (RE) and e-mobility,
- (c) awareness campaigns ethical dimension comes into play concerning e-mobility when we consider the Democratic Republic of Congo and its cobalt resources, a critical component in battery production. It is essential to formulate policies that establish stringent criteria for engaging with battery manufacturers. These policies should require manufacturers to ethically source cobalt, maintain traceability of their supply chains, demonstrate commitment to environmental preservation, and possess approved waste management protocols endorsed by legal authorities.

1.2.21. Anywhere Mobility Solutions

The submission notes that there is inadequate charging infrastructure in the country (20 in the whole country with 16 of them in Nairobi) hence the need for waivers in manufacturing, assembly, and importation of charging infrastructure in order to increase these numbers

The submission also raised concerns on the fact that EVs are more expensive than conventional vehicles hence the need to keep up the fiscal and non-fiscal incentives.

It recommended the introduction of e-mobility technical unit courses at higher institutions of learning e.g TVETS to address the skills gap in the technical skills on EVs.

1.2.22. Independent Tea Producers Association

It recognizes that factories already are aware of renewable energy and the significance in cost of running factories with solar panels. Therefore, they recognize that tea factories have the advantage and have the capacity of owning EV lorries. However, they face the challenge of the cost of EVs as a lorry goes for Kenya Shillings 12-15 Million whereas a diesel lorry goes for Kenya Shillings 5 Million but second hand can go for as low as Kenya Shillings 1.2 Million but emit more GHG.

They provide the following possible solutions: reduction of tax obligations of purchasing EV trucks to promote a shift of the 1000 diesel trucks owned by ITPA to EV lorries and exemption of taxes on charging infrastructure.

1.2.23. *Anthony Pyatich - Graduate Engineer*

The submission suggested that tax exemptions, rebates, subsidies that directly lower the cost of EVs should be incorporated in the policy. The policy could also define the incentives being offered and specify the period within which they would be available. There would also be a need for policy to provide incentives for charging infrastructure.

To boost local manufacturing, there would be a need for research and development grants, skills development programs and public-private partnerships. On urban, rural and remote planning of e-mobility the policy could ensure accessibility, efficiency and sustainability through charging infrastructure integration.

1.2.24. *Kenya Long Distance Truck Drivers and Allied Workers Union*

The union proposes that the policy should provide for incentives which would encourage the uptake of EVs and the enabling charging infrastructure. These incentives should also promote research and development of electric vehicle technology as well as the promotion of local battery manufacturing facilities.

Clear regulations on EVs and charging infrastructure including safety, performance, and interoperability to ensure safety of consumers are also critical. The end-of-life framework of the EVs should be considered in the development of the policy. This would take the form of ensuring compliance with the Sustainable Waste Management Act, 2022. The submission also recommends several methodologies on the same including vehicle identification and tracking, decommissioning, hazardous waste disposal and battery recycling among others as critical in the end-of-life framework.

1.2.25. *Nature Kenya (EANHS)*

The submission by Nature Kenya notes that EVs are entirely clean as the environmental impacts of e-mobility go beyond zero-emission driving. Therefore, they propose that the policy should factor direct and indirect emissions during production of electricity, manufacturing of electric vehicles and associated equipment, management, disposal or repurposing devices, and waste management.

It is submitted that the government needs to:

- (a) promote other opportunities presented by innovative nature friendly sources of fuel,
- (b) expand charging infrastructure countrywide in all major towns to incentivize people to switch to electric mobility,
- (c) promote use of hybrid vehicles as an adaptation to the unreliable nature of electric power supply in the country,
- (d) provide incentives for the business sector to invest so that the majority of Kenyans can upvote the technology.

They also recommend that the policy be titled “*National Clean Mobility Policy*” to accommodate other objectives on non-electric sustainable mobility means.

2. Presentations made to the Taskforce

2.1. The Taskforce also invited key stakeholders to make presentations to the Taskforce on various key issues relating to e-mobility and the various initiatives that have been undertaken by the various stakeholders thus far on e-Mobility. These presentations were made to the Taskforce by the following organisations.

2.1.1. United Nations Environmental Programme;

2.1.2. World Bank;

2.1.3. GIZ;

2.1.4. Global Green Growth Institute;

2.1.5. World Resource Institute; and

2.1.6. McKinsey and Co.

We set out below a summary of the key takeaways from the various presentations.

2.2. UNEP

The UNEP Support to Electric Mobility in Kenya submission outlines the objectives, background, and strategic alignment of the Electric Mobility Strategy for Kenya. The strategy aims to support the formulation of a National Electric Mobility Policy and identify targets and milestones for the uptake of electric mobility in the country. UNEP further provided a detailed analysis of its e-mobility strategy for Kenya.

The submission begun by providing a brief overview of electric mobility, including its benefits, challenges, and potential for reducing greenhouse gas emissions. It also highlights the importance of electric mobility in achieving sustainable development goals and outlines the key components of an electric mobility system. The submission proceeds to provide a macro-economic review and outlook for Kenya, including an analysis of the country's energy mix, transport sector, and greenhouse gas emissions. It further highlights the potential economic benefits of electric mobility, including job creation, reduced fuel imports, and increased energy security.

The submission further outlines the strategic proposals for achieving the aspired E-mobility targets by thematic areas, including transport and infrastructure, environment, energy, and industry. This includes a detailed analysis of the policy, regulation, finance, and other supportive actions required to achieve the targets.

2.3. GIZ

GIZ made a presentation highlighting the efforts of GIZ Transport Projects worldwide to pursue transport projects that make a difference. With a focus on e-mobility, 20 out of 50 projects are dedicated to promoting sustainable transportation.

The presentation mentioned several e-mobility projects being pursued in Kenya, including the support of a BRT e-bus component with EU contribution, the promotion of electric mobility in Kenya, technical studies on electrification of infrastructure and e-buses, and the development of a regulation or standard for charging infrastructure and/or the deployment of e-buses.

The presentation further mentioned that GIZ is active in more than 30 countries, pursuing transport projects on behalf of German Federal Ministries and other donors. In the case of the Promotion of E-Mobility in Kenya, the project involves a financing agreement for BRT line 3 between Kenya and the EU, which is expected to be signed in 2023. The project also involves collaboration with NaMATA, the EU, EIB, and AFD to implement suggested activities. Additionally, GIZ's IMPROVE project involves cross-country exchanges, structured webinars, and dissemination workshops to promote international learning and the sharing of best practices.

GIZ also made a commitment to support the work of the e-Mobility Taskforce which was welcomed by the members of the Taskforce.

2.4. Global Green Growth Institute

The GGGI E-Mobility Initiative is a project aimed at creating an enabling environment for e-mobility in Kenya. The initiative is focused on piloting electric buses and developing a green transport investment plan to promote sustainable mobility and reduce greenhouse gas emissions. The project is funded by the Korea Ministry of Environment and is being implemented by the Global Green Growth Institute (GGGI).

The initiative has several components, including the development of an e-mobility roadmap, MRV, and ecosystem, as well as an e-bus pilot project on the Bus Rapid Transit (**BRT**) line. The project also includes capacity building and monitoring and evaluation activities. The overall goal of the initiative is to create an enabling environment for the adoption of e-mobility in Kenya.

The submission by GGGI provides an overview of the initiative, including its objectives, activities, and impact. It discusses the global trends in e-mobility and the role of strategic OEM targets in promoting the availability and affordability of electric vehicle models. The submission also highlighted the steps being taken by the Kenyan government to achieve its e-mobility targets by 2025 and 2030.

The e-bus pilot project on the BRT line is a key component of the initiative. The project is focused on the Bus Rapid Transit (BRT) Line 5 in Nairobi, which is set along Outer Ring road. The BRT project along Outer Ring road is funded by a loan through the Economic Development Cooperation Fund and Export-Import Bank of Korea. The e-bus pilot project will develop an implementation and management plan for e-buses and charging stations with a technical annex on the minimum requirements for the procurement of the electric buses and its associated charging infrastructure.

Overall, the GGGI E-Mobility Initiative is an important project aimed at promoting sustainable mobility and reducing greenhouse gas emissions in Kenya. The initiative is focused on creating an enabling environment for the adoption of e-mobility in Kenya through piloting electric buses and developing a green transport investment plan. The project is expected to have a significant impact on the environment and the economy of Kenya, and it is being closely monitored and evaluated to ensure its success.

2.5. World Resource Institute (WRI)

WRI's approach to collecting and analyzing data, proposing solutions, and building partnerships to scale electric mobility solutions in Kenya involves several key components. These include:

- 2.5.1. The Zero Emission Vehicle (ZEV) Approach: This approach provides decision-makers with a framework for transitioning to electric mobility, including guidance on policy and regulatory frameworks, infrastructure development, and stakeholder engagement.
- 2.5.2. The Change It component: This component focuses on implementing local proof-of-concept projects to demonstrate the feasibility and benefits of electric mobility solutions.

- 2.5.3. Technical Assistance: WRI provides technical assistance to cities and countries to support the development and implementation of electric mobility solutions.
- 2.5.4. Coalition Building: WRI works to build coalitions of stakeholders, including government agencies, private sector partners, and civil society organizations, to support the transition to electric mobility.

In addition to these components, WRI is involved in several specific initiatives and programs to support the transition to electric mobility in Kenya and other African cities. These include:

- 2.5.5. The TUMI E-Bus Mission: This initiative supports 20 cities in their transition towards electric bus deployment, with a goal of upscaling efforts in a network of 100 cities by the end of 2022.
- 2.5.6. Technical Assistance for African Cities: WRI Africa provides technical assistance to three African cities (Nairobi, Kampala, and Durban) to support the development and implementation of electric mobility solutions.
- 2.5.7. The Drive Electric Campaign: This research initiative analyzes challenges presented by the current electric vehicle supply chain in Kenya and other African countries, with a focus on improving value chain management and governance in the mobility sector.

Overall, WRI's approach to electric mobility in Kenya and other African cities is focused on reducing carbon emissions, increasing efficiency, and promoting safe and sustainable transportation options through a combination of data analysis, stakeholder engagement, and targeted initiatives and programs.

2.6. McKinsey & Company

McKinsey & Company submitted a report to the Taskforce on the potential for electric vehicles in Kenya. The report highlights the potential for electric motorcycles (E2Ws) to become a major market segment in Kenya. E2Ws are particularly well-suited to the country's urban areas, where they can help to reduce air pollution and traffic congestion. McKinsey & Company's research shows that E2Ws can be cheaper to operate than traditional ICE motorcycles, and that there is a strong interest in E2Ws among Kenyan consumers.

The report identifies several challenges that need to be addressed in order to accelerate the transition to electric mobility in Kenya. These include the need for more charging infrastructure, the need for innovative financing solutions, and the need for supportive government policies and regulations. The report also notes that there is a lack of awareness and education about EVs among Kenyan consumers, which could be a barrier to adoption.

The report provides a detailed analysis of the potential market size for EVs in Kenya, including both passenger vehicles and commercial fleets. McKinsey & Company's research suggests that there is significant potential for EV sales in the country, particularly in the commercial fleet segment. The report also notes that there is a need for more data and research on the Kenyan market in order to fully understand the potential for EVs.

The report highlights the importance of collaboration across the EV value chain in order to accelerate the transition to electric mobility in Kenya. This includes collaboration between manufacturers, utility providers, and other stakeholders to develop charging infrastructure, financing solutions, and supportive policies and regulations. The report also notes the importance of engaging with consumers and raising awareness about the benefits of EVs.

Overall, the McKinsey & Company report provides a comprehensive analysis of the potential for electric vehicles in Kenya and highlights the opportunities and challenges that need to be addressed in order to accelerate the transition to electric mobility in the country.

3. Analysis of the Data Collection Exercise from Phase 1 Stakeholder Engagement

The Taskforce received submissions from a wide array of industry participants and general members of the public as has been summarised above. We note that the submissions that have been received generally focused on creating a conducive regulatory and policy framework that incentivises and promotes the uptake of e-mobility in Kenya.

In view of the above, the Taskforce has formulated the following foundational pillars of the National e-Mobility Policy:

3.1. Comprehensive and Holistic Policy Framework

- 3.1.1. Scope of Regulation:** The policy framework should be holistic, covering all aspects of e-mobility including, electric bicycles, 2 wheelers, 3 wheelers, 4 wheelers, buses and trucks and not limited to all other forms of transport, which may include, marine, rail and air transport. This will also include aspects relating to charging infrastructure to road-worthiness and grid readiness. Comprehensive regulations will serve as the backbone for ensuring standardization and consistency.
- 3.1.2. Stakeholder Collaboration:** The policy framework should include various stakeholders like government agencies, manufacturers, distributors, energy companies, and end-users in the consultation and drafting process. This ensures that the policy addresses the nuanced challenges of all involved parties.
- 3.1.3. Adaptive Policy Design:** Given that electric mobility is a rapidly evolving field, the policy framework should be dynamic and adaptable to technological advancements and market changes.
- 3.1.4. Technology Neutrality:** The policy framework should avoid prescribing specific technologies, so as not to stifle innovation. The regulations should be designed to be technology-agnostic, focusing on performance outcomes.
- 3.1.5. Realizing the Carbon Markets Potential:** The policy framework should recognize that electric vehicle manufacturers, charging station operators, and even consumers could earn carbon credits based on the amount of CO2 emissions they help to reduce. These credits can be traded on a carbon market, providing an additional revenue stream and economic incentive for stakeholders in the e-mobility ecosystem.

3.2. Fiscal and Non-Fiscal Incentives

- 3.2.1. Tax Incentives:** The policy framework Introduce tax reliefs or exemptions for electric vehicles and charging infrastructure to incentivize adoption.
- 3.2.2. Subsidies and Grants:** Provide grants for research and development in e-mobility and subsidies for consumers and operators transitioning to electric mobility.
- 3.2.3. Addressing Financing Gap for e-Mobility:** Special financial instruments can be introduced to specifically fund the growth of the e-mobility ecosystem.

3.2.4. Public-Private Partnerships: Leverage private investment for the establishment of charging infrastructure, and other capital-intensive aspects of e-mobility.

3.2.5. **Priority Lanes and Parking Incentives:** Offering perks such as priority lanes for electric vehicles or dedicated parking spaces with charging stations can act as additional non-fiscal incentives.

3.3. Promote Local Manufacturing

3.3.1. Encourage local production: Encourage local production of e-mobility components such as batteries, charging systems, and vehicle parts, possibly through public-private partnerships.

3.3.2. Capacity Development: Establish vocational training centers focused on electric vehicle technology and infrastructure management.

3.3.3. Supply Chain: Leverage Kenya's raw material base for batteries and other electric vehicle components to ensure a sustainable and local supply chain.

3.3.4. Certification for Local Content: Establish a certification system for local manufacturers who meet specified criteria, thus making them eligible for certain benefits and incentives.

3.3.5. Import Substitution: After the achievement of critical mass volumes for e-mobility over a specific timeframe, the policy framework ought to encourage local assembly or manufacturing by imposing higher import duties on finished electric vehicles compared to parts.

3.4. Standards and Quality Assurance

3.4.1. Quality Assurance: Benchmark global standards and adapt to local standards that will ensure that electric vehicles and charging infrastructure adhere to safety standards.

3.4.2. Vehicle and Battery Safety: Establish specific safety criteria for electric vehicles, such as crashworthiness and electrical safety.

3.4.3. Charging Infrastructure: Safety regulations concerning voltage, current, and grounding for charging stations.

3.4.4. Battery Disposal: Guidelines for the safe disposal and recycling of electric vehicle batteries to mitigate environmental risks.

3.4.5. First Responder Training: Offer specialized training for emergency services on how to handle accidents involving electric vehicles and charging stations.

3.4.6. Public Safety Campaigns: Run public awareness campaigns on the safe usage of electric mobility products.

3.4.7. Interoperability: The policy framework should explore the potential for interoperability over a longer time frame to allow different makes and models of electric vehicles to utilize the same charging stations and/or battery swapping technology.

3.5. Licensing and Registration

- 3.5.1. **Operator Licensing:** Specific licenses for operators of electric vehicle charging stations and maintenance facilities.
- 3.5.2. **Record-Keeping:** A digital database for tracking and monitoring all registered electric vehicles and charging stations.

3.6. Monitoring and Evaluation

- 3.6.1. **Key Performance Indicators (KPIs):** Clearly define metrics to measure the success of the electric mobility transition. These could include but are not limited to the number of electric vehicles on the road, energy consumption, carbon emissions, jobs created, and local content produced.
- 3.6.2. **Baseline Studies:** Conduct comprehensive baseline studies to understand the current state of electric mobility in the country. This offers a starting point against which future progress can be measured.
- 3.6.3. **Periodic Reviews:** Regularly scheduled reviews should be a mandatory part of the policy. These reviews could be annual or bi-annual and should involve all stakeholders.
- 3.6.4. **Adaptive Management:** Use the data collected to adapt and fine-tune the policy framework. This is particularly important given the rapidly evolving nature of electric vehicle technologies.
- 3.6.5. **Transparency and Accountability:** Establish transparent protocols for data collection and reporting. This will build trust among stakeholders and could also serve as a valuable database for academics and industry experts.
- 3.6.6. **Public Reporting:** Regularly disseminate the findings of the M&E activities to the public to maintain transparency and build public trust in the initiative.
- 3.6.7. **Stakeholder Feedback:** Create mechanisms through which stakeholders can provide real-time feedback on policy implementation, and consider this feedback in periodic reviews to adapt the policy framework as needed.
- 3.6.8. **Cost-Benefit Analysis:** Periodic evaluation should also include a cost-benefit analysis to assess the economic impacts of the transition to electric mobility.
- 3.6.9. **Sustainability Checks:** Include long-term sustainability as one of the key aspects to monitor. Assess whether the initiatives are leading to a self-sustaining electric mobility ecosystem, or if they are overly reliant on state support.

CHAPTER 5

Tasks to be undertaken for remainder of the term of Taskforce

The Table below sets out a summary Of the schedule of activities for the Taskforce for the remainder of its term.

Description	Aug	Sept	Oct	Nov	Dec	Jan	Feb
Phase 1						30-Jan	
Project Initiation	29 Aug						
Project Planning			Oct 29				
Project Execution						31-Jan	
Policy Draft # 1			26-Oct				
Interim Report				6-Nov			
Stakeholder Review				25-Nov			
Policy Draft # 2				30 Nov			
Public Participation						15-Jan	
Policy Draft # 3 (Final)						30-Jan	
Strategy Development						30 Jan	
Phase 2							
Future Workstream							
Adoption & Legislative Enactment							
Public Awareness							
Policy Implementation							



Ministry of Roads and Transport

State Department for Transport

Contact **Us**

Transcom House, 8th Floor
P.O. Box 52692-00200
NAIROBI