REPUBLIC OF KENYA

MINISTRY OF TRANSPORT, INFRASTRUCTURE, HOUSING, URBAN DEVELOPMENT AND PUBLIC WORKS
STATE DEPARTMENT FOR TRANSPORT

TERMS OF REFERENCE FOR CONSULTANCY

ON

DEVELOPMENT OF A NATIONAL ELECTRIC MOBILITY POLICY FOR KENYA

NOVEMBER 2021

TERMS OF REFERENCE FOR THE DEVELOPMENT OF A NATIONAL ELECTRIC MOBILITY POLICY FOR KENYA

1.0 Project Background

The World Bank jointly with the Government of Kenya is funding the Horn of Africa Gateway Development Project (HoAGDP) and the State Department for Transport is one of the Implementing Agencies for the Project. HoAGDP is a Regional Project that aims at enhancing regional trade facilitation, improvement of transportation and institutional strengthening. The Project components include institutional strengthening for the State Department to improve its capacity in policy formulation, regulation and oversight of the transport sector. In this regard, one of the activities under the Project is the Development of a National Electric Mobility Policy for Kenya.

The key objective of the State Department for Transport is to develop efficient, safe, sustainable, integrated and seamless multimodal transport system comprising air, marine, road and rail modes of transport. Transport is a key enabler to sustain and grow other major sectors of the national economy. Adequate regulatory framework is essential for optimal transport services.

1.1 Background for the Study

The increasing level of air pollution across the globe has been a cause of concern for policy makers. Transport is a major energy consumer and among the largest sources of Green House Gases (GHG) emissions. It is also one of the principal sources of urban air pollution, which impacts the local environment and human health. International trends signal that ownership of passenger vehicles will continue to grow in the coming decades. At the same time, the world will have to undertake measures to reduce total global GHG emissions by 40-70% below 2010 levels by 2050 in order to limit the worst impacts from global climate change.

The transport sector represented 15 percent of national greenhouse gas (GHG) emissions in 2015 in Kenya. This share is expected to rise to 17 percent by 2030 (Government of Kenya, 2017) with its growing motorization. Air pollution is a major contributor to respiratory diseases in Kenyan cities, with concentration of particulate

matter (PM) in many places exceeding recommended thresholds manifold. Kenya aims to achieve a low-carbon, climate resilient development pathway and transportation is one pillar of this mitigation plan to ensure a decrease in GHG emissions.

Electric mobility has gained prominence as a strategy to: mitigate GHG emissions, improve air quality, decrease fossil fuel dependency and boost energy security in the context of the increasing world-wide vehicle demand. Further, Kenya has initiated an array of policy options to regulate the impact of vehicle tail pipe emissions in the country. These measures include: the introduction of more restrictive emission standards, proposals for revision of age limit on imported vehicles, as well as separate discussions on a feebate and rebate system for imported and locally manufactured vehicles. Overall, electric mobility provides an opportunity for leapfrogging a number of these barriers. Increase in the uptake of electric mobility has been prioritized and included in the National Climate Change Action Plan (NCCAP) 2018-2022 as a mitigation action that can provide ease of mobility with minimal destruction to the environment.

The 2012 Integrated National Transport Policy (INTP) 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.

2.0 Rationale for Undertaking the Assignment

Kenya, through its Nationally Determined Contributions (NDC) to the Paris Agreement has updated its commitment to lower GHG emissions by 32% by 2030, relative to the Business as Usual (BAU) scenario of 143 $MtCO_2eq$, through among other measures, implementation of low carbon and efficient transportation systems. The National Climate Change Action Plan (NCCAP) 2018-2022, the main instrument for achieving the NDC target, has prioritized a number of measures for

the transport sector to mitigate climate change, key among them being electric mobility. The Action Plan has proposed awareness building, development of technology for electric mobility, piloting and use of electric modes of transport and exploring infrastructure needs for electric mobility. The transport sector will contribute to this objective by cutting emissions by at least 8 percent (minimum target).

Over the last 10 years, Kenya has successfully developed substantial power generation capacity and has overcome the shortfalls that had plagued the energy sector for decades. The country 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. Despite having an aggressive connection campaign in recent years resulting in doubling its connection base from 3.2 million 2014 to over 7 million currently, demand growth has been modest. This creates opportunities for serving demand for alternative uses like electric mobility.

Further, the Kenya National Energy Efficiency and Conservation Strategy (NEECS) (2020), developed by the Ministry of Energy, provides a roadmap towards setting and achieving energy efficiency goals. Under transport sector, NEECS has identified three targets namely: improvement of fuel economy, increasing the share of electric vehicles aiming to reach 5% of cars imported annually by 2025 and increase the number of commuter rail passengers from 116, 000 to 150, 000 per day. The strategy proposes regulatory actions and financial mechanisms to increase the ownership of electric vehicles in Kenya; these includes, provision of incentives through lower import duty for electric vehicles, revision of Building Code to incorporate charging stations in public buildings and estates, vehicle labeling and CO_2 taxation and awareness-raising for e-mobility.

In the recent past, interest in electric mobility in Kenya has continued to grow. Different entities are trying out different business models, models of ownership and applicability; some are importing used vehicles, some are importing and assembling components, others are retrofitting old ones, while others have opted for the leasing

and battery swapping models. Further, a clear understanding of what impacts an increased uptake of electric vehicles will have on the energy grid will be critical. An economy-wide understanding of the overall impact of uptake of electric mobility is key. This will consider impacts on the environment, health, and on the automotive industry and any other relevant sectors not listed here. The Consultant is expected to carry out a comprehensive assessment of the situation and detail mitigation measures in the compilation of background information that will inform what is captured in the policy.

Thus, the Consultant hired will provide background information necessary for introduction of electric mobility, develop a draft electric mobility policy as well an implementation plan for the policy.

3.0 Objectives

i. To develop an e-Mobility policy that will guide development of e-mobility in Kenya

ii. To provide strategic proposal for creation of a favorable and enabling environment to enhance uptake of electric vehicles and supporting infrastructure in Kenya

iii. To support the transport sector to meet its NDC goals and targets.

4.0 Scope of Services

The consultancy will assess and propose how the statutory environment can be structured to support electric modes of transport and prepare a National Electric Mobility Policy for Kenya. In this regard, this assignment will assess key areas in the structural set up that need to be addressed and propose mitigation and incentive options.

To deliver this assignment, the Consultant is expected to deliver the following tasks:

Task 1: Compilation of Background Information (Baseline) (30 working days)

This task will focus on the presentation of background on electric vehicles and general aspects of benefits and challenges for this mode of transportation.

The task will include an assessment of the following:

1.1 Current Situation of Traditional Mobility and E-mobility:

i. Review existing literature around electric mobility including but not limited to electric vehicle technologies (plug-in, hybrid and battery electric vehicle), Transmission Service Operators (TSO), Retrofitting Internal Combustion Engines (ICE), and infrastructure.
ii. Review the legal and regulatory environment including the taxation regime affecting electric mobility in the country
iii. Undertake infrastructure and operational aspect/challenges of electric mobility in Kenya
iv. Collect relevant data on e-mobility and make projections to inform the policy
v. Undertake review of passenger/freight traffic in the country and in particular major towns to establish/quantify mobility demand – to inform traditional/electric vehicle supply
vi. Assess and identify the challenges impacting on public acceptance of electric vehicles high purchase cost, limited driving range, time required to recharge, inconvenience of recharging, limited model choices and level of automation and propose strategies to address the drawbacks.
vii. Review opportunities for e-mobility in Kenya and advise the government on their implementation
viii. Review opportunities for e-mobility support to gender mainstreaming and women involvement in transport
ix. Assessment of mobility impacts on environment and health (GHG emission, air pollution, and pollution associated diseases
x. Assess local capacity of local dealers, assemblers and the Small and Medium Enterprises (SMEs) including the jua kali sector to effectively carry out repair and maintenance. Propose appropriate strategies to fill the gaps.

1.2 Governance and Stakeholder Analysis

a. Institutional settings and governance structures
b. Existing mobility networks and interlinkages
c. Coordination framework
d. Relevant players (charging, vehicles, components, IT, energy, local manufacturing potential)

1.3 Policy, Including Fiscal and Non-Fiscal Incentives

Possible socio-economic-environmental opportunities (Potential benefits and implication – including impact on Road Maintenance Fund)

i. Market structure and regulation
ii. Technical and Economic analysis - Assess the impact of the drawbacks of electric vehicles to public acceptance by considering high purchase cost, limited driving range, time required to recharge, inconvenience of recharging, limited model choices and level of automation.
iii. Evaluate the local manufacturing potential for electric vehicles and their components as well as industry financing requirement
iv. Human capital development and jobs

1.4 Compilation of International Best Practice and Policies on Electric Mobility

The Outputs of this task: Baseline report on e-mobility concept in Kenya, incorporating the results from activities 1.1-1.4.

Task 2: Electric Vehicles Forecasts and Implication on Power Sector (15 working days)

This task will seek to clarify the implications of an increased EV uptake on electricity sector utilities and infrastructure. The consultants will be informed by among other sources, the results of ongoing studies that are looking into an integrated electric mobility scenarios analysis for the country and will therefore form a good basis for this task:

i. Supply-demand balance and energy mix (current and future) and expected evolution in costs of electricity
ii. EV Deployment Forecasts and their electricity grid impacts (both energy and peak loads), including assessment of clustering impacts on the grid, especially need for upgrades at the local distribution level such as transformers
iii. Electricity integrated resource/ distribution network planning for addressing needs of EVs and charging infrastructure (interface with advanced metering infrastructure {AMI} of utility)
iv. Integration needs with respect to distributed renewable energy and energy storage infrastructure, demand response, and adaptive load control platforms
v. Opportunities and challenges of EVs as distributed energy resources (smart/ controlled charging {V1G}, as well as bidirectional integration {V2G}), addressing electricity theft/ commercial losses
vi. Dynamic pricing and managed charging, new actors (e.g. aggregators), new tariff designs
vii. Charging infrastructure considerations
viii. Mobile air-conditioning implications

Output: Report: E-mobility Concept Validation in Power Sector in Kenya

Task 3: Strategic Framework for E-mobility: Short- and Long-Term Actions to Promote and Sustain E-mobility in Kenya (45 working days)

Under this task, the consultant will be expected to:

i. Develop an electric mobility policy document with short, medium and long-term actions to promote and sustain e-mobility in Kenya including regulations, standards and proposals for County Government roles and frameworks around electric mobility
ii. Develop a Strategic Implementation Plan for the policy clearly identifying lead actors and time frame
iii. Advise on the best business delivery models for upscaling e-mobility:

- Infrastructure in busy public spaces, government installations, privately owned investments such as malls for public transport vehicles, and personal vehicles
- Regulatory and policy measures (including electricity licensing modalities, dynamic /Time of Use (ToU) electricity tariffs, EV industry policies)
- Propose a mechanism for batteries disposal (E-waste management) to avoid their impact on environment
- Propose inspection and maintenance standards

iv. Develop a robust Communication Strategy that clearly identify measures such as public awareness campaign, display of EVs, demonstration, press releases, website for EVs related information that improve public awareness

v. Develop proposals for financial incentives, innovative structures for private sector capital mobilization, investments for deployment, possible financial options for the potential electrification of transport

vi. Prepare a capacity development strategy for public and private stakeholders to strengthen local decision makers for the development of the industry

Expected outcome of this task: Electric mobility policy document that includes short, medium and long-term actions with necessary regulatory framework, Strategic Implementation Plan, Communication Strategy, best business delivery models, proposals for financial incentives and innovative structures to promote e-mobility in Kenya, capacity building strategy on e-mobility in the transport sector.

Task 4: Dissemination and Report Thereof (15 Working days)

Conduct wider dissemination of the Policy and the Strategic Implementation Plan and incorporate additional inputs. The task will include preparation of presentation materials, organize several (at least 7 counties) dissemination workshops and prepare recommendations for action

5.0 Duration

The Consultant will complete the services within 6 calendar months from the time of contract signing. All data and reports from the study belong to the Client.

6.0 Deliverables Schedule

S. No.	Deliverable (10 hard copies and soft copy)	Timelines
1.	Inception Report - will present the methodology to carry out the assignment and timelines, and identify information gaps, challenges and need for guidance required from the Government	2 weeks after commencement
2.	Inception Workshop - to in addition provide clarity of the assignment to stakeholders	Within one week after submission of the Inception Report
3.	Interim Report containing a succinct analysis of critical information relevant for development of an electric mobility policy. This report will combine inputs from task 1 and 2 (Baseline report on e-mobility concept in Kenya + E-mobility Concept Validation in Power Sector in Kenya).	6 weeks from submission of Inception Report
4.	Validation Workshop – on Interim Report	Within two weeks of submission of the Interim Report
5.	i. Draft electric mobility policy with clearly articulated issues and is informed by inputs from the background information and stakeholder feedback (task 3)	7 weeks after the validation workshop
	ii. Strategic implementation plan, Communication Strategy, capacity building strategy, for the electric mobility policy (task 3)	

6.	Validation Workshop	Within one week after submission of the draft policy
7.	Draft Final Reports - Policy Document, Implementation Plan	One week after workshop
8.	Dissemination Workshops and Report (task 4)	Two weeks from submission and Report in one week after the workshops
9.	Final Reports - Policy Document, Implementation Plan	One week after workshops

7.0 Logistics and Facilities

The Consultant will be responsible for providing all the necessary resources to carry out the Services including office, office equipment and other requisite logistics.

Consulting firms are requested to submit as part of their technical proposal, a contingency plan detailing how they will continue the performance of the Contract with a minimum of delay, interruption or other disruption in the event of a security or health and safety event which affects their ability to perform the services.

8.0 Reporting and Client Input

i. The Consultant will report to the Principal Secretary of State Department for Transport
ii. There shall be an Electric Mobility Multi-Agency Team to oversee the study deliverables with the Director Road and Rail as the chair and Principal Economist as the contact person
iii. The client will facilitate access to reports and available data relevant to the assignment
iv. The client will review the study reports submitted and organize validation workshops within one week of receipt

v. The Client will facilitate communication between the Consultant and relevant Government Agencies

9.0 Professional Qualifications

The Consultant/Consortium should have the following qualifications:

- Demonstrated track record of at least 10 years of working experience on transport systems/projects specifically in multimodal transport planning including public transport
- Substantial expertise in legal/regulatory, policy and institutional frameworks
- Communication skills in English, as demonstrated by project delivery in English, are a must
- Strategy to carry out the scope of work in light of the ongoing COVID-19 Pandemic
- Demonstration of a strong understanding of the electric vehicle industry, policy and market environment as well as experience in e-mobility, e-mobility business models, charging infrastructure, the energy sector and experience in Kenya and/or East Africa will be an added advantage

The consultant shall mobilize for this study the following key personnel:

i. **Transport Economist and Overall Project Lead**

This person will have:

- A minimum Masters degree in Transport Economics or a related field with at least 10 years of experience in the economic and financial evaluation of transport infrastructure projects, demand estimation, analysis of public transport investments, transport policy, cost recovery system
- In-depth knowledge that will enable him to undertake various analyses to assess the impact of electric mobility on energy sector
- Good experience in economic evaluation of transport systems and undertaking baseline and feasibility studies
- Experience in conducting market research and working with policymakers/regulators

- Good understanding of appraisal in the increasingly important public-private financing investment arrangements, preferably in a 'developing country' context
- Familiarity with global electric vehicle landscape is a plus

ii. **Policy and Regulatory Expert**

This person will:

- Have a minimum of a Master's degree in law, public policy, economics/planning or any other related field with at least 10 years of working experience in policy, planning and regulation setting specifically within the transport sector
- Have a good knowledge of the legal and regulatory environment of the transport sector
- Have a good experience in legal, institutional and policy analysis and formulation
- Have a better understanding and practical experience in analysis of the impact of various legal/regulatory interventions related to transport systems
- Having a good understanding and experience in legal and regulatory aspects pertaining to electric mobility is a plus
- Knowledge of the regional/national context will be an added advantage
- Familiarity with global electric vehicle and mobility landscape is a plus

iii. **Energy Expert**

This person will have:

- Minimum of a master's degree in one or more of the following fields: electrical engineering, mechanical engineering, power system engineering, automotive engineering, environmental sciences or a closely related field
- A minimum of 10 years working in the energy sector and with at least 3 years' experience in transport system
- Good experience in assessing:

i. The impacts on power supply-demand balance, load flow analysis, infrastructure technical and commercial losses assessment, at both transmission and distribution levels;

ii. The need for grid reinforcement and upgrades including generation, storage, transmission and distribution systems, measuring devices, transformers, and load management tools.

- Experience in power sector financial modelling is highly encouraged
- Experience in technical assessment of vehicles, electricity generation, use, alternatives and options development; practical experience in improving efficiency of vehicles; practical experience in vehicle energy consumption.
- Familiarity with global electric vehicle and mobility landscape is a plus

In addition to the above key staff, the winning bid should be able to demonstrate the following expertise:

i. **Gender/Social Development Expertise** – having advised public institutions/NGOs/ private companies operating in the infrastructure space in emerging markets on gender and other social development issues; understanding of gender issues as they pertain to public transport and micro-mobility operations; experience particularly in development of data collection approach with a gender and socio-economic lens.

ii. **Disability Expert** – have experience in carrying out disability assessment in the infrastructure sector. Experience working with disability civil society organizations.

iii. **Spatial Analysis** – experience in analysis and synthesis of spatial data in production of scenario maps used in information of policy; demonstrated experience in application of GIS and remote sensing tools and GPS techniques in spatial planning in transport network planning

iv. **Business Model Development** - financial and business modelling expertise for transport infrastructure projects using limited resource financing. Knowledge of emerging markets' PPP infrastructure deals and having experience of working for a commercial enterprise in a capacity of an Investment Officer. Experience in electric mobility or micro mobility business model development is a plus

v. **Environmental Expert** – an Environmentalist with a post graduate degree in Environmental Science and 7 years working experience. Experience in GHGs emissions forecasts and calculations as well as analysis of impacts of e-mobility interventions in terms of emissions, pollution, health is a plus

vi. **Transport Planning Expertise -** in-depth understanding of all matters pertaining to multimodal transport systems; integrated public transport systems with micro mobility planning and management; private operator's operations; regulations, licensing and oversight.

12.0 Acceptance of Deliverables

All deliverables are to be delivered in English, with all background material being made available electronically, and subject to approval by the State Department for Transport. If necessary, the Team will engage editors to ensure that all outputs meet a standard of quality that is fit for public dissemination. All written materials should be packaged concisely with graphics, figures, and tables as required to facilitate communications. All data files should include annotations in English that will enable the State Department for Transport to retrace analytical steps and make future use of all data and analysis. The Consultant will adjust the content of the deliverables in line with comments made by the State Department for Transport.

The State Department for Transport shall own all rights, title and interest, including all intellectual property rights, in and to any reports, document, computer software (in source code and object code form), or other deliverable (whether in hard-copy or digital files) created or used under this assignment. The Team will provide additional soft copies of all data in Microsoft Excel formats. For the avoidance of doubt, this will include all data used in the development of assignment tasks such that all analysis should be replicable after completion of the assignment without requiring any additional data sources.