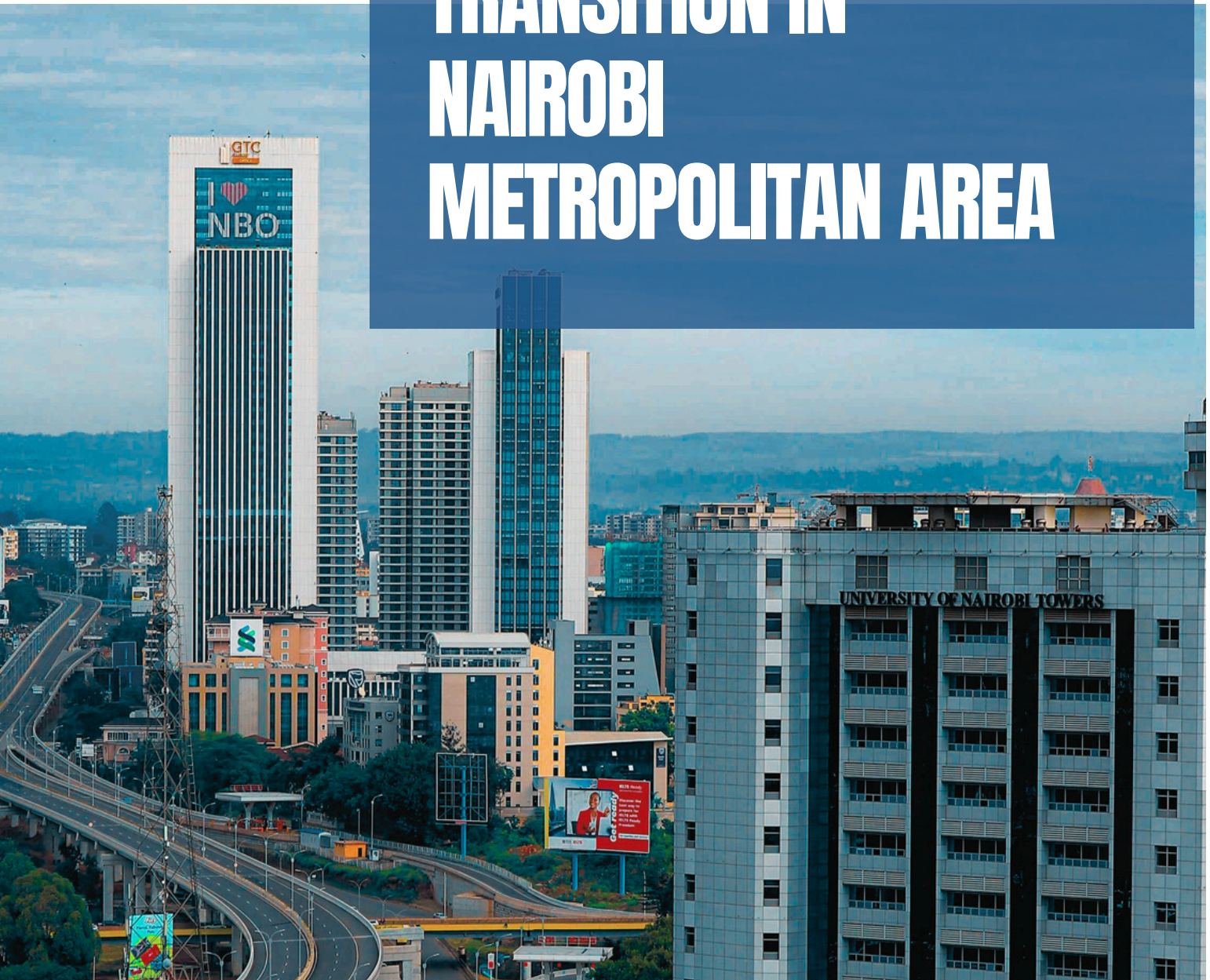


E-MOBILITY TRANSITION IN NAIROBI METROPOLITAN AREA



**A SURVEY OF PSV SACCOS OPERATING ELECTRIC
BUSES**

A SURVEY OF PSV SACCOS OPERATING ELECTRIC BUSES

Introduction

- The global shift toward electric mobility (**e-mobility**) is accelerating in response to the climate crisis, rising fuel costs, and urban pollution. With transport accounting for more than 40% of urban emissions in sub-Saharan Africa, the sector has become a critical entry point for climate-smart urban development (World Bank, 2021). Kenya, a regional leader in renewable energy generation, is well positioned to lead the adoption of electric mobility solutions.
- Kenya is undergoing a gradual shift toward sustainable transport, with Nairobi Metropolitan Area at the heart of the country's e-mobility transformation. The Nairobi Metropolitan Area (NMA), which includes Nairobi City and its peri-urban counties, is home to over 10 million residents and faces daily challenges related to congestion, poor air quality, and inefficient transport systems. Within this context, public service vehicles (PSVs), particularly matatus, dominate daily mobility but remain largely informal and diesel-dependent.
- This report presents the findings of a field-based survey conducted by the National Public Transport Alliance (NAPTA) to assess the early uptake of electric buses in the PSV sector. Focusing on six pioneering SACCOS and bus companies currently piloting electric vehicles, the study explores operational experiences, perceptions of drivers and stakeholders, and institutional barriers that must be addressed to enable scale. The findings contribute to policy discussions on sustainable transport, local climate action, and inclusive mobility transitions.



BACKGROUND AND SCOPE

The survey targeted the following SACCOs and companies with operational e-buses:

- Embassava (4 buses)
- OMA Services (5 buses)
- MetroTrans (4 buses)
- City Hoppa (3 buses)
- SuperMetro (1 bus)
- East Eagle (1 bus)

All e-buses in this sample were supplied by BasiGo, currently the dominant player in Kenya's electric bus market through a lease-to-own model. The buses are primarily 26-seaters, with only one 36-seater in circulation.

OBJECTIVES OF THE SURVEY

The survey targeted the following SACCOs and companies with operational e-buses:



01

To assess operational experiences and perceptions of drivers, SACCO leaders, and other stakeholders regarding electric buses.

02

To identify institutional, financial, and technical opportunities and constraints affecting e-mobility adoption in public transport.

03

To develop practical recommendations for scaling up electric bus fleets in Nairobi and beyond.



METHODOLOGY

- This survey employed a mixed-methods approach combining quantitative and qualitative data collection. Primary data was gathered through structured questionnaires and in-depth interviews with PSV drivers, SACCO officials, and fleet managers involved in electric bus operations.
- A total of 6 SACCOs and companies were selected based on their participation in pilot programs with BasiGo, a private EV supplier in Kenya. These included: Embassava, OMA Services, SuperMetro, MetroTrans, East Eagle, and City Hoppa. Approximately 30 respondents were interviewed between February and April 2025.
- Secondary data from industry reports, policy documents, and academic literature was integrated to contextualize findings. Data was analyzed using thematic content analysis and descriptive statistics.

KEY FINDINGS

Operarational Experience

Driving Range & Charging:

E-buses typically cover 250 km per charge. To ensure operational efficiency, drivers maintain charge levels above 20%.

Charging takes ~2 hours, but congestion at charging stations leads to co-sharing nozzles.

Cost of Operation:

Drivers perceive e-bus operating costs to be nearly 50% lower than diesel buses, mainly due to reduced fuel and maintenance expenses.

Queuing Priority:

E-buses are given priority in SACCO queues due to higher revenue, passenger preference, and to maintain battery charge.

Comfort & Performance

Drivers reported good comfort and ease of use. Some noted increased light reflection from windshields and low clearance as concerns.



EMPLOYMENT AND INCENTIVES



Target System

Most SACCOS maintain aggressive daily revenue targets (e.g., Ksh 23,000 in Embassava) to meet leasing and SACCO obligations.



Driver Compensation

Daily pay ranges between Ksh 1,500–2,000. Some SACCOS, such as Embassava, offer structured bonuses for performance.



Training

BasiGo provides 4-day training programs. Drivers express need for more technical training on diagnostics and repairs.



TECHNOLOGICAL AND SYSTEM ENHANCEMENTS



Cashless Payment Systems:

Most SACCOS have adopted cashless fare systems with different providers, simplifying revenue reconciliation.



CCTV Surveillance:

Onboard CCTV has improved passenger safety, reduced extortion by traffic officers, and minimized revenue leakages.



Traffic Concerns:

: E-buses consume more power in stop-and-go traffic. Drivers recommend dedicated bus lanes to enhance efficiency.

REGIONAL AND GLOBAL CONTEXT



Global E-Bus Transition Trends

- China: Over 400,000 e-buses operate nationally. Strong government incentives, city-level mandates, and local manufacturing have spurred adoption.
- Latin America (e.g., Colombia, Chile): Public-private partnerships and city-led procurement programs are accelerating the transition.
- Europe: The EU is promoting electric public transit through the Green Deal, with cities like Amsterdam and Oslo phasing out diesel buses entirely.

Regional Context – East Africa

- Uganda: Kiira Motors has developed locally assembled electric buses for intercity use, supported by government partnerships.
- Rwanda: Kigali is piloting electric bus corridors with incentives on charging infrastructure and tax exemptions.



KENYAN CONTEXT

Kenya has ambitious climate goals under:

- National Climate Change Action Plan (NCCAP)
- Green Economy Strategy and Implementation Plan
- Kenya National Energy Efficiency and Conservation Strategy
- However, adoption remains nascent with under 25 e-buses in operation, primarily supplied by BasiGo and Roam.

Challenges Identified

Challenge

Details

High Initial Costs

Leasing costs and battery technology remain expensive.

Limited Charging Infrastructure

Charging stations are insufficient; existing ones are congested.

Monopolistic Supply Chain

BasiGo's dominance limits market competitiveness and flexibility.

Inadequate Technical Training

SACCO drivers are not fully trained in mechanical/diagnostic aspects.

Low Clearance and Flood Vulnerability

Risk on uneven roads and in floods.

Lack of Policy Enforcement

No national enforcement of green public transit or dedicated lanes.

Low Awareness of Environmental Benefits

Cost savings drive adoption more than environmental concerns.

Electricity Supply Risks

Grid reliability and tariffs pose long-term scaling risks.

POLICY AND INSTITUTIONAL RECOMMENDATIONS

1. Subsidize Charging Infrastructure: Partner with counties and private sector to build open-access charging networks.
2. Incentivize Local Assembly: Offer tax breaks to OEMs like Isuzu, AVA to enter the e-bus market.
3. Enforce Fleet Greening Targets: Set transition quotas for SACCOs under NTSA/County Governments' oversight.
4. Standardize Driver Training & Certification: MoTIHUD and NTSA should roll out accredited training programs in partnership with TVETs.
5. Develop E-Mobility Business Models: Develop a scalable e-mobility business model for matatu operators, including financing options

ALIGNMENT WITH NATIONAL AND GLOBAL GOALS

1. Kenya Vision 2030: Supports a low-carbon development path.
2. National Transport Policy: Advocates for sustainable, safe, and efficient transport systems.
3. Sustainable Development Goals (SDGs):
 - SDG 11 – Sustainable Cities & Communities (Target 11.2)
 - SDG 13 – Climate Action
 - SDG 9 – Industry, Innovation, and Infrastructure

CONCLUSION

This survey reveals strong initial traction and driver satisfaction with e-bus operations, despite barriers in infrastructure, training, and market diversity. Nairobi is poised to lead sub-Saharan Africa in e-mobility adoption if systemic and policy-driven actions are swiftly implemented.





THANK YOU



Contact Us

 www.napta.co.ke

 Info@napta.or.ke

 +254719282866