

POLICY PAPER



EV Importation and Industrialisation

KENYA



ZE-Mobility



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POLICY PAPER

EV Importation and Industrialisation KENYA

Gaps, Opportunities, and Policy Options

Africa E-Mobility Alliance (AfEMA)

P.O BOX 46427-00100

87 Rhapta Road, Nairobi

AfricaEMA.org

The Africa E-Mobility Alliance (AfEMA)
connects stakeholders in electric mobility ecosystems across Africa.

AfEMA actively drives awareness, activates markets, and catalyses advocacy efforts to transform the transportation landscape into a zero emission sector. We envision that by 2030, 30% of all vehicles sold in Africa will be Zero Emission Vehicles (ZEVs). Our work informs and accelerates that transition.

info@AfricaEMA.org

www.AfricaEMA.org

+254 702 499 185

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List of Acronyms

AfEMA	Africa E-Mobility Alliance
CKD	Completely Knocked Down
EV	Electric Vehicle
FBU	Fully Built Unit
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ICE	Internal Combustion Engine
KEBS	Kenya Bureau of Standards
KENGEN	Kenya Electricity Generating PLC
KPLC	Kenya Power and Lighting PLC
M&E	Monitoring and Evaluation
MCDA	Multi-Criteria Decision-Making Analysis
NCCAP	National Climate Change Action Plan
NDC	Nationally Determined Contribution
NTSA	National Transport and Safety Authority
OCA	Open Capital Advisors
R&D	Research and Development
UNEP	United Nations Environment Programme
USD	United States Dollar
VAT	Value Added Tax
ZE-Mobility	Zero Emissions Mobility Africa

Executive Summary

The Kenyan government has made clear its intentions to transition to a cleaner green economy, spearheaded by electric mobility, which will deliver substantial savings and social benefits. However, the current lack of a comprehensive national e-mobility policy creates gaps and obstacles to this transition by creating an unclear policy environment and haphazard incentives. These gaps also represent clear opportunities to help transition Kenya to zero emission vehicles.

A strong policy can create an estimated additional \$168 million for the economy over the next three years, reduce balance of trade pressures, and help the government meet climate commitments.

Reviewing policy alternatives explored by other countries, we identify two main pathways: EV importation and industrialization.

Larger economies like China and India have successfully prioritised local manufacturing. However, this option is not viable for smaller economies like Kenya, which rely on imports.

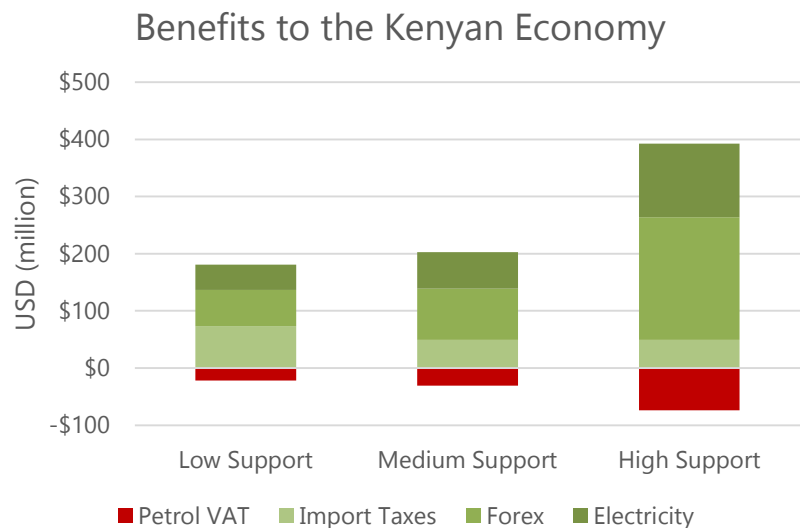
Therefore, a comprehensive policy for Kenya would now prioritise imports over local manufacture:

- Align financial incentives to encourage imports of EVs instead of ICE vehicles, by eliminating import duties, excise duties, and VAT on imports of all electric vehicles and lithium-ion batteries.
- Simplifying registration and updating CSRP/HS codes.

The policy should also support local value addition with strategic industrialisation policies:

- Prioritising import benefits for unassembled (CKD) imports, to stimulate local industry.
- Pass a National Automotive Act to boost assembly and maintenance industries updating and operationalising the 2022 policy to give clear direction to the sector.

Aligning the long-term policy and strategy across all relevant government bodies to provide a stable and predictable policy environment will unlock investment opportunities, and drive Kenya towards a wealthier, healthier future.



Introduction

The global landscape of transportation is undergoing a transformative shift with an accelerating uptake of electric vehicles (EVs). In recent years, there has been a noteworthy surge in the global adoption of EVs, signalling a pivotal moment in the transition towards sustainable and more eco-friendly mobility. Additionally, as concerns over climate change and air quality intensify, governments, industries, and consumers are increasingly recognizing the potential of EVs to mitigate environmental impacts associated with traditional internal combustion engines (ICEs). Most importantly, governments are formulating and implementing policies that foster enabling environments to stimulate the growth of the EV sector within their respective countries. In this context, 'policy' encompasses a range of instruments—such as laws, codes, regulations, strategies, and guidelines—used by governments to communicate intentions and influence actions of various actors, to achieve specific outcomes.

Simultaneously, as EV adoption gains momentum globally with the help of these conducive environments, countries face the crucial decision of whether to procure EVs and components from international markets or embark on local parts manufacturing. Some countries such as China, India, South Africa, and Morocco have chosen domestic EV manufacturing to boost their economies and expand supply chains—a strategy called EV industrialisation. On the other hand, other countries are relying mainly on EV importation due to the lack of investment in local manufacturing, and local expertise and to reduce costs. Therefore, governments are actively reevaluating and adapting their policies to accommodate both EV importation and local manufacturing to drive uptake. However, the degree of advancement of the EV sector varies from one country to another, and as a result, implementations of these policies also vary across countries.

Globally, EV supply chains are centred in East Asia, particularly in China, which dominates battery and EV component exports. Notably, China controls over 80% of global raw material refining, 77% of battery production, and 60% of component production.¹ To improve accessibility to inputs, China has invested heavily in relationships with input providers and has created local supply chains for battery manufacturing and charging. Moreover, the sector benefits from ample government support and access to capital with \$100 billion invested in e-mobility initiatives between 2009 and 2019. In 2019 alone, government support accounted for approximately 30% of the total revenue generated by the Chinese EV industry.² Furthermore, the government has also invested heavily in increasing the capacity and reliability of renewable energy production, allocating \$760 billion towards the sector between 2010 and 2019.³

In Africa, the transition to EVs has largely revolved around imports and small-scale manufacturing. Currently, South Africa serves as the primary host for automotive manufacturing in Africa – primarily attributed to the government's focus on local production through providing incentives that discourage companies from importing EVs but rather manufacture them locally. Likewise, other countries such as Morocco and Egypt, are implementing ICE bans and restrictions and providing financial incentives

¹ GlobalData Thematic Intelligence, "Industrial Policy: How China Drove a Wedge between US and EU," *Power Technology* (blog), February 16, 2023, <https://www.verdict.co.uk/china-industrial-policy/>.

² Daphnée Benayoun and Laura Amaya, "Catalyzing Investment in Electric Mobility: The Case for Africa and the Middle East" (Dalberg / FMO, April 2022).

³ Benayoun and Amaya.

such as import tax reductions to encourage the importation of EVs instead of ICE vehicles. However, many African countries experience political instability and lack comprehensive EV policies and dedicated implementing bodies to drive both imports and local manufacturing. Therefore, to successfully promote EV adoption in Africa, along with providing financing and capacity building, it is of utmost importance to address policy challenges and ensure sustainable implementation.

In Kenya, the EV sector boasts a thriving start-up ecosystem, with over 40 startups providing electric bicycles, motorcycles, tuktuks, cars, and buses. Among the roster of 2,079 EVs officially registered in Kenya in August 2023, 72% were electric motorcycles.⁴ However, insufficient investments hinder the nation's current vehicle manufacturing capabilities, given that local production is capital-intensive and manufacturing capacity is relatively inflexible. Consequently, companies heavily rely on imports of fully built units (FBUs) or component parts, which are then assembled locally to meet domestic demand.⁵ Nevertheless, these imports face high taxation, which ultimately burdens end-consumers. Similarly, just like some other African countries, the Kenyan EV sector also lacks holistic and well-defined policies, further impeding its growth. While there are ongoing government initiatives aimed at promoting EV adoption, the sector still requires a coordinated effort to effectively implement these initiatives.

To stimulate EV importation and industrialisation in Kenya, several policy interventions are necessary. For that reason, this policy paper assesses existing policies and identifies opportunities that can be harnessed to spur EV importation and industrialisation in Kenya. Specifically, this policy paper seeks to:

- Conduct a comprehensive review of current policies supporting the importation and industrialisation of electric vehicles in Kenya and 8 other countries, assessing their impacts and identifying gaps and opportunities
- Use these findings to develop alternative policies targeting the shortcomings in existing policies, to promote sustainable EV importation and industrialisation in Kenya
- Conduct a cost-benefit analysis of implementing additional EV fiscal incentives to existing ones in Kenya

This policy brief was informed by extensive desk research, a literature review of global best practices, and direct consultations with EV companies, government bodies, and NGOs to gather in-depth insights into policies, their gaps, and recommendations for driving the EV sector forward in Kenya.

⁴ Kenya Ministry of Transport, August 2023.

⁵ Interviews with Kenya EV Private Sector Companies, July 2023.

Importation and industrialisation of EVs today

Overview of the EV value chain in Kenya

In the context of the global supply chain, Kenya primarily assumes the role of a consumer rather than a manufacturer of EVs and their constituent components. However, the EV value chain in Kenya covers three broad stages:⁶

EV manufacturing

This primarily includes vehicle integration and assembling, and battery design and manufacturing. Most players at this stage import components and spare parts, which they assemble and customize to meet local EV requirements. Some of these companies include Fika, Arc Ride, and Powerhive, among others.⁷

However, EV manufacturing in Kenya is still in its early phases, largely because it demands significant capital investment, and the industry landscape is fragmented. Additionally, some assemblers lack the requisite technical expertise, tools, and equipment necessary to develop EVs that meet the required standards. This limitation further constrains their capacity to develop tailored, locally relevant EV solutions for the market.

Operations

Operations encompass sales and distribution of EV vehicles, charging and battery swapping, and digital tracking. Sales and distributors include companies like Mazi Mobility and Ampersand, and key companies providing charging, battering swapping, and digital tracking infrastructure include EV Chaja, Knights Energy, and KenGen.⁸

Most of the distributors are primarily focused on importing and selling electric motorcycles and scooters, and some are building distribution partnerships with international companies rather than positioning themselves as direct competitors.

However, there are currently only around forty publicly available EV charging stations, though there are nearly a hundred battery swapping stations for two-wheelers.⁹ Similar to manufacturing, establishing these facilities demands a substantial capital investment, primarily due to the high costs associated with infrastructure development and the unreliability of expensive electricity. Businesses also need to maintain a large inventory of batteries with the risk of low battery utilisation leading to losses.

⁶ Open Capital research and analysis, n.d.

⁷ “Opportunity and Investment Potential for Electric Vehicles in Kenya” (UK Aid, October 2021), <https://carolofafa.com/files/opportunity-and-investment-potential-for-electric-vehicles-in-kenya-manufacturing-africa-october-2021.pdf>.

⁸ “Opportunity and Investment Potential for Electric Vehicles in Kenya.”

⁹ “Accelerating E-Mobility in East Africa – A Case for Kenya” (ZE-Mobility, August 2023), https://assets.foleon.com/eu-central-1/de-uploads-7e3kk3/48218/ze-mobility_policy_brief_final___.67259de8d765.pdf.

Support

Support primarily includes service and maintenance, asset financing, and EV for ride-hailing and logistics. Service and maintenance include technical support, repairs, and replacements, and most companies provide these to their customers. Asset financing primarily includes vehicle financiers such as Watu and M-Kopa that provide various financing options such as PAYGO to increase the affordability of EV vehicles. Lastly, ride-hailing, and logistics companies use EVs for a range of on-demand services such as rides and deliveries – examples of these companies include Uber, Jumia, and Wetu, the former of which recently launched an Uber Electric Boda option, the first in Africa.

Most Kenyan companies include service and maintenance in their after-sales offerings. Asset financing in this sector is usually facilitated by third-party providers, who are now venturing into e-mobility to access capital from green sources at lower rates. However, ride-hailing and logistics firms in Kenya are hindered by a limited charging infrastructure and high financing expenses, as demonstrated by NopeaRide's liquidation.¹⁰

Market enablers

In Kenya, several market enablers are also contributing to the growth and development of the EV value chain. Examples include:

- a. Government agencies such as the Ministry of Energy and Ministry of Trade that are part of the task force developing and implementing policies to drive the sector.
- b. Standards bodies such as the Kenya Bureau of Standards and the Energy and Petroleum Regulatory Authority that establish industry-specific standards to ensure quality and safety in the EV sector and related sectors.
- c. Industry associations such as AFEMA and EMAK that represent and advocate for the interests of EV companies and related activities.
- d. Training and research institutions such as Strathmore University that conduct research on various aspects of EV technology, including battery technology, charging infrastructure, energy management, and policy frameworks. They generate knowledge and innovations that can be applied in the EV industry.

This dynamic landscape of stakeholders across the value chain contributes to the overall development of the sector.

¹⁰ “NopeaRide, Kenya’s First EV Taxi Service, Shuts down | TechCrunch,” accessed October 12, 2023, <https://techcrunch.com/2022/11/29/nopearide-kenyas-first-ev-taxi-service-shuts-down/?guccounter=1>.

EV importation and industrialisation policies in Kenya

The Kenyan government has implemented a variety of fiscal and non-fiscal policies to promote EV importation and industrialisation, and each type is explored below.

The fiscal policies mainly focus on tax exemptions and reductions, specifically aimed at stimulating both importation and industrialisation for assemblers. Below is a sample of the fiscal policies currently in effect in the country.

Table 1: Examples of fiscal policies currently implemented in Kenya.

Policy	Description
Finance Act 2019 ¹¹	This was the first major incentive for e-mobility in Kenya that reduced the excise duties from 20% to 10% for all EVs.
Finance Act 2023 ¹²	The Act amended: • The VAT Act 2013 by adding several segments such as electric motorcycles, bicycles, and buses to the list of zero-rated goods. • The Excise Duty Act 2015 by exempting electric motorcycles from the \$100 excise duty per unit. • The corporate tax rate from 30% to 15% for the initial 5 years of operation for companies setting up new assembly plants using CKD parts. Companies can extend the benefit for an additional five years by increasing their local value addition to 50%.
The Tax Procedures (Unassembled Motorcycles) (Amendment) Regulations 2023	The Act: • Eliminated the need for assemblers to have bonded warehouses as a prerequisite for attaining accreditation, a crucial step for accessing the duty remission scheme for CKD motorcycles. • Previously did not cover lithium-ion batteries but now includes electric motorcycles in the category of CKD imports, encompassing both the electric motor and the lithium-ion battery.

The above policies have led to a significant increase in the number of EVs registered in the country, particularly in the case of electric motorcycles, which are now three-quarters of the EVs in the country.¹³ This surge is partially credited to the Finance Act of 2023.

On the other hand, the non-fiscal policies have primarily focused on setting targets for the country's EV fleets, integrating e-mobility into national transport strategy, and developing EV infrastructure. For example:

¹¹ "Finance Act 2019" (Government of Kenya, November 7, 2019),

http://kenyalaw.org/kl/fileadmin/pdfdownloads/AmendmentActs/2019/FinanceAct_No23of2019.PDF.

¹² "Finance Act 2023" (Government of Kenya, June 26, 2023), <https://kra.go.ke/images/publications/The-Finance-Act--2023.pdf>.

¹³ Africa E-Mobility Alliance data and analysis, n.d.

- The Kenya National Energy Efficiency and Conservation Strategy set a key target of reaching 5% of total annual vehicle imports being electric or hybrid vehicles by 2025 by providing incentives to lower import duties for electric cars, bicycles, and tuk-tuks.
- The Kenya Bureau of Standards (KEBS) released 24 specific safety standards for EVs, adapted from existing ISO standards. These encompass 14 for electric road vehicles, 4 for mopeds, and 3 for hybrid EVs. These standards are pivotal in establishing a quality benchmark for EVs.
- The National Building Code and the National Energy Policy highlight the need for charging and battery-swapping infrastructure. The National Building Code in particular mandates the allocation of parking spaces for EV charging in commercial buildings.

In addition to these non-fiscal policies, the Cabinet Secretary for Roads and Transport appointed a task force in 2023 to develop a National Electric Mobility Policy. Their focus is on reviewing and enhancing legal, policy, and institutional frameworks to boost e-mobility in Kenya, aligning with East African Community standards. The taskforce is expected to complete its work in June 2024, and after this policy will need to be taken up by Parliament and relevant bodies.

Policy challenges affecting EV importation and industrialisation in Kenya

While the current policies demonstrate strong potential for boosting the Kenyan EV sector, policy gaps still exist impeding their effectiveness. The following section delves into these gaps and their impact on the sector. We categorize the gaps into three groups: cross-cutting challenges, importation challenges, and industrialisation challenges.

Key challenges affecting both EV importation and industrialisation encompass the absence of a comprehensive e-mobility strategy, skill gaps, insufficient EV infrastructure, and limited public sector demand for EV adoption.

- a. **Lack of an overarching e-mobility strategy and implementing bodies.** Kenya lacks comprehensive policies that singularly address e-mobility importation and industrialisation, clear road maps for implementation, and well-defined roles and responsibilities for the different stakeholders active in the sector. This leads to fragmented efforts among stakeholders which hampers the growth of the sector. For instance, in the realm of EV industrialisation, the 2019 Draft National Automotive Policy identified 37 motor vehicle parts produced in Kenya but lacked specific provisions for EVs.¹⁴ This is attributed to the historical vision within Kenya's legal framework, which primarily envisioned the nation as an importer of vehicles rather than a manufacturer. Additionally, the country lacks policies targeting charging infrastructure further creating a dent in the enabling environment for players active at this stage.
- b. **Lack of a formally established, well-coordinated inter-ministerial or inter-agency body** dedicated to supporting the industrialisation of EVs. However, the Cabinet Secretary of the Ministry of Transport appointed a cross-sectoral task force in August 2023 to develop an e-mobility policy, and the industry awaits the results. Overall, to ensure the effectiveness of any policy framework, it is essential to have robust, well-funded institutions for implementation. Government ministries must maintain close communication to strategize and put policies into action. Achieving EV importation and industrialisation demands a coordinated approach across various sectors and effective collaboration between relevant ministries.
- c. **A gap in appropriate skills for the electric vehicle transition.** Discussions with industry and government stakeholders have unveiled a significant skills gap, highlighting a mismatch between the skills present in the market and those essential for local EV assembly and manufacturing. This discrepancy stems from a lack of curriculum alignment in training institutions with industry demands. Notably, there appears to be no established policy guiding the connection between education policies, especially in tertiary institutions, and the imperative need for a skilled workforce in the industry.
- d. **Still nascent EV-appropriate infrastructure.** Kenya's road infrastructure is primarily tailored for ICE vehicles, presenting specific challenges for EVs. Industry feedback highlights that electric buses, due to battery placement, often have lower ground clearances. Many roads exhibit potholes and large, uneven bumps, potentially increasing the risk of vehicle damage.

¹⁴ "Sessional Paper No. 1 of 2022 on National Automotive Policy."

As EV adoption rises in Nairobi and other counties, policies regarding road infrastructure must be revised to accommodate EV needs.

- e. **Staggered demand for EV growth** within the public sector. For investors to establish or expand EV assembly and manufacturing in Kenya, there needs to be an increased demand for EVs. Current policies are not effectively leveraging the potential of stimulating EV adoption within the public sector, which is the largest procurer of goods and services. Interviewed government officials indicated that the industry is prepared to fulfil procurement requests for EVs, but adequate lead time is required to ensure that the necessary supply chain arrangements are established. Implementing policies that allocate specific quotas to EVs is a crucial step towards driving their industrialisation.

Importation barriers include high duties, uneven policy distribution, non-standardised processes, and complex registration procedures, alongside knowledge gaps.

- a. **Import duties and excise duties remain.** Import duties and excise duties continue to exert a significant impact on the prices of imported EVs in Kenya. Despite the reduction of VAT on most EV segments under the Finance Act of 2023, Kenya obtained an EAC exemption to increase the import duty on cars, buses, and goods-carrying vehicles to 35%.¹⁵ These taxes place a substantial burden on EV importers.
- b. **Inequitable distribution of policy benefits across EV segments.** The Finance Act 2023 represents a significant stride for Kenya's e-mobility sector. However, tuk-tuks, passenger cars, and charging equipment did not make the list of vehicle segments eligible for tax breaks and benefits. Although e-tuk-tuk retailers have been informed they will be classified as motorcycles, there remains a need for further clarity on this matter. Particularly, DC fast charging equipment, priced at around \$25,000 for a 60 kW charger, may incur up to \$10,000 in taxes.¹⁶ It's crucial, especially for the transition to EVs and increased electricity consumption, that EV charging equipment is readily available.
- c. **Non-standardised importation processes.** The lack of standardised pre-verification inspection for EVs poses a risk of subpar quality vehicles being imported into the country. This concern is especially pronounced with used EVs, particularly passenger cars in their second or third life, which make up most electric cars imported into Kenya. These used batteries often have diminished range, potentially tarnishing the market's perception with the image of lower-quality products.
- d. **Cumbersome registration processes.** The registration of EVs with the necessary government authorities encounters various bottlenecks, such as sluggish internal procedures and a lack of coordination between different agencies. Additionally, registration processes still demand engine size specifications for motorcycles. It appears that officials at both NTSA and KRA are still in the process of adapting to this new product category, which is slowing down registrations – but is expected to improve with time and experience.¹⁷

¹⁵ “East African Community Gazette Vol. AT 1 – No. 11” (East African Community, June 30, 2023), <https://www.eac.int/documents/category/gazette>.

¹⁶ Interviews with Kenya EV Private Sector Companies.

¹⁷ Interviews with Kenya EV Private Sector Companies.

- e. **Limited knowledge of CRSP / HS codes.** Related to the previous issue, the Kenya Revenue Authority lacks adequate information on EV types for precise identification and taxation at the point of entry. Import taxes, excise duties, and VAT are usually determined by the current retail selling price (CRSP) or the commercial invoice. However, KRA often selects a CRSP that surpasses the value stated on the invoice, especially with used EV imports.

Using the commercial invoice method also has drawbacks. Typically, KRA would have a fixed CRSP for vehicles of a specific model and age, regardless of additional features like air conditioning or other add-ons, which would not be included in taxation when the bus model has a standard CRSP. In contrast, with a commercial invoice, an EV might face higher tax compared to an ICE bus of similar value, as the add-ons in the EV are taxed. As the market advances, KRA should ensure that CRSP, usually categorised by HS code, are both accessible and regularly updated to accurately mirror market prices.

- f. **Unclear status of e-bikes.** Electric bicycles imported to Kenya are navigating an uncertain policy landscape, as they don't serve as a direct replacement for conventional ICE vehicles as readily as other EVs. E-bicycles are typically capable of higher speeds than pedal-only bicycles, and they are variously labelled as bicycles or motorcycles with little clarity over how they should be taxed and regulated. Furthermore, the Finance Act 2023 exclusively grants VAT exemptions for completely built units (CBUs). This represents a lost opportunity to boost increased local assembly and value addition.
- g. **Passenger car sector dominance by used ICE vehicles.** Imported used ICE vehicles, arriving as CBUs, offer minimal advantages to Kenyan industrialisation strategies or labour. Despite this, they enjoy lower prices, outcompeting the local manufacturers. Furthermore, establishing assembly and manufacturing plants is resource-intensive; vehicle assembly plants demand substantial investments, ranging from \$2.5 million to \$20 million, and necessitate a wide array of locally available parts.¹⁸

EV industrialisation is hampered by an ICE-oriented local industry, insufficient financing, and a shortage of manpower.

- a. **Adapting regulations for ICE motorcycles to fit electric motorcycles.** To boost local value, motorcycles that qualify as CKDs enjoy the advantage of reduced import duties from 25% to 10%, according to the Tax Procedures (Unassembled Motorcycles) Regulations. However, these CKD guidelines are tailored for traditional motorcycles in Kenya, which share similar designs making it easier for local manufacturers to produce parts for them. Electric motorcycles, on the other hand, are more experimental in design and come from various manufacturers, potentially making them less compatible with locally made parts. This disrupts electric motorcycle companies aiming to qualify for CKD benefits and enhance local value addition. While this issue is expected to gradually resolve itself through collaboration between local parts providers and selected international manufacturers to expand the market and obtain CKD benefits, the government must maintain strict adherence to providing these benefits exclusively for CKD-imported motorcycles. Entities like the Motorcycle Assemblers Association of Kenya play a vital role in ensuring a smooth transition.

¹⁸ Mariam Bommett and Jackson Wambua, "Automotive Sector Profile" (Kenya Association of Manufacturers, n.d.), <https://kam.co.ke/wp-content/uploads/2021/04/Automotive-sector-profile-2020-1.pdf>.

- b. Lack of adequate financing and human resources.** The Numerical Machining Complex, a parastatal under the Ministry of Industry, Trade, and Cooperatives, is accredited to manufacture machinery for EVs and their associated infrastructure components. However, it lacks finances and human resources, hampering its efficiency in technical operations. Furthermore, its processes have been critiqued for being slow and bureaucratic, posing difficulties for companies engaged in design and prototyping work.¹⁹

These gaps have created uncertainty for investors and manufacturers, who are concerned about legal and regulatory risks, as well as supply chain complexities and sector-specific requirements. Moreover, the absence of policy backing for manufacturing and charging infrastructure presents substantial challenges for those looking to invest and operate in this space. Kenya should establish and enact an EV importation and industrialisation policy framework customised to its specific national circumstances and development goals.

¹⁹ Interviews with Kenya EV Private Sector Companies.

EV policy benchmarking against other countries

The growth of e-mobility in various countries has been propelled by the adoption and implementation of enabling policies. In our assessment, we examined policy mechanisms and their impacts in eight different countries. This analysis provides valuable insights and learnings that Kenya can leverage to enhance EV importation and industrialisation.

We categorised these countries into three groups based on the maturity of their EV adoption. South Africa, Rwanda, Togo, Malawi, and Zambia are in the nascent phase, albeit at varying stages within this emerging phase. The Philippines and India are in the growth phase, while China has reached the mass adoption phase. This comparative study across these three groups allowed us to pinpoint key strategies that Kenya can draw lessons from.

Some of the outstanding policies and strategies implemented by the different countries are explored below:

a. Development of national EV policies

Countries in more advanced stages of EV adoption, such as China and India, possess a singular comprehensive policy document that outlines a clear roadmap for the development of their respective e-mobility sectors, particularly in terms of EV industrialisation and importation. The implementation of these plans typically follows a phased approach, spanning between 6 to 10 years, with a review after each phase drawing on the lessons learned from the preceding stage.

Furthermore, countries with robust manufacturing and assembly capabilities such as South Africa place a strong emphasis on implementing incentives for EV industrialisation. Conversely, those without such capabilities tend to focus more on incentives for EV importation. A review of the progress made by countries with a centralised EV policy shows that they have not only met but, in some cases, even exceeded their projected adoption targets.

b. Setting in place policy coordinating entities

Countries such as India and China have EV policies often spanning multiple sectors, requiring the involvement of various government ministries overseeing diverse economic domains. These typically encompass industry and trade, finance, energy, infrastructure, and urban development. An examination of countries that have effectively cultivated their EV sectors highlights the crucial role played by the institutional framework in policy execution. Notably, a key element is centralised coordination under a single ministry or government entity, ensuring consistency in the formulation and implementation of any EV-related policies.²⁰

c. Prioritisation of EV imports vs. local manufacturing

Countries with strong automotive manufacturing, like China, India, and South Africa, typically offer limited exemptions for importing EVs. Instead, they focus on stimulating local EV production and protecting the domestic industry through measures like production-linked incentive schemes. This is because providing benefits for importing electric vehicles can undercut local manufacturers.

²⁰ “Global EV Outlook 2023: Catching up with Climate Ambitions” (International Energy Agency, 2023), <https://iea.blob.core.windows.net/assets/dacf14d2-eabc-498a-8263-9f97fd5dc327/GEVO2023.pdf>.

Developing heavy industries like EV manufacturing can bring significant economic benefits, including higher wages, reduced foreign exchange losses, and economic diversification.

India, for example, has incentivised local EV manufacturing by eliminating import duties on EV battery production equipment.²¹ This directly supports companies in localizing a larger portion of their manufacturing process, resulting in the expansion of a robust EV manufacturing sector, particularly in two- and three-wheelers. In Kenya, investors with capital costs for manufacturing equipment can receive a tax deduction of up to 100% of the investment value, along with an extra 50% subsidy from the government if the investment is made outside Nairobi. Implementing a similar removal of import duties on EV manufacturing equipment could significantly benefit Kenya's EV sector.

In contrast, countries without robust EV manufacturing tend to emphasise incentives for importation. With the exception of South Africa, Kenya and other benchmarked countries in Africa place significant emphasis on importing specific EVs, especially 2-wheelers, 3-wheelers, and their components. Rwanda and Togo have both dropped import duties, excise duties, and VAT on all EV imports, leading to higher-than-average EV deployment.²² Given Kenya's urgency to deploy EVs at scale, the country must balance encouraging imports with concurrently developing the local industry.

d. Lowered corporate taxes for EV manufacturers

India, Rwanda, and Kenya are providing lower corporate taxes to attract private-sector players and streamline operations in the sector. Although it's a temporary advantage, it can offer crucial support for emerging companies setting up their assembly lines and manufacturing facilities. In India, the Production Linked Incentive (PLI) Schemes for advanced cell chemistry, electric vehicles, and EV component manufacturing extend subsidies to companies with substantial investments in EV production.²³ Kenya is currently following suit. The time-limited nature of these benefits is essential to ensure they assist early-stage companies without becoming a prolonged subsidy for corporate activities.

e. Setting local production targets

Countries with emerging EV sectors, although not global leaders, tend to utilize local production targets. In Thailand for example, the 30 by 30 goal sets a target of 30% of local vehicle production to be EVs by the year 2030, with a much more ambitious follow up goal of 100% by 2035.²⁴ However, none of the countries in this study employed this approach, as they were already established giants or too early on the EV manufacturing growth slope. For instance, China, already the global leader in EV manufacturing, instead emphasizes demand-side targets, such as the goal for 80% of new public

²¹ "Union Budget 2023-24: Govt Removes Customs Duty on Import of Goods, Machinery for Making Li-Ion Cells - India Today," accessed October 13, 2023, <https://www.indiatoday.in/auto/story/union-budget-2023-24-govt-removes-customs-duty-on-import-of-goods-machinery-for-making-li-ion-cells-2329164-2023-02-01>.

²² Togo First, "Togo : 100% d'abattements de droits de douanes sur les motos électriques neuves," accessed October 13, 2023, <https://www.togofirst.com/fr/finances-publiques/2001-9272-togo-100-dabattements-de-droits-de-douanes-sur-les-motos-electriques-neuves>.

²³ "India Needs ₹33,750 Cr Investment to Achieve Domestic Li-Ion Battery Manufacturing Target: CEEW," Fortune India, February 6, 2023, <https://www.fortuneindia.com/macro/india-needs-33750-cr-investment-to-achieve-domestic-li-ion-battery-manufacturing-target-ceew/111679>.

²⁴ "Thailand Unveils Roadmap to 30% EV Production in 10 Years," Nation Thailand, May 13, 2021, <https://www.nationthailand.com/blogs/special-edition/40000851>.

sector vehicles to be new energy vehicles. While this approach may not yield immediate concrete benefits for Kenya, it could serve as a framework for establishing a long-term vision and aspirations for the sector.

f. Provision of demand-side incentives

Countries that have successfully fostered local EV industrialisation, such as India and China, have implemented demand incentives to ensure that increased EV production aligns with market absorption. While these nations have primarily focused on subsidizing their local EV industries through financial support measures, they have also set EV procurement targets for public entities. The latter option is viable for Kenya, which faces significant fiscal constraints, as a means to bolster the local industrialisation of EVs. Additional incentives aimed at stimulating EV demand include priority registration, preferential parking, and reduced electricity costs for EV charging.

g. Preferences for knocked-down imported vehicles

The most straightforward policy for policymakers to promote local EV value addition involves offering additional import tax benefits for vehicles brought in as semi-knocked down (SKD) or CKD units, rather than CBUs. Surprisingly, none of the mentioned countries have pursued this approach explicitly for EVs. Policymakers in Rwanda and Malawi expressed uncertainty about why this hasn't been implemented, suggesting it might be due to the complexities of import taxation regulations.²⁵ While this approach could greatly benefit Kenya by ensuring a minimum level of local value addition, it necessitates close collaboration with the industry to determine the achievable degree of local value addition within a specific timeframe. Passenger cars, in particular, have been identified as a challenging vehicle segment for local assembly, and any new policies should consider this while still striving for increased local value addition.

²⁵ Interviews with policymakers.

Policy opportunities and recommendations

Kenya's Finance Act of 2023, with its associated tax reductions on imported EVs and component parts, is a positive step towards promoting e-mobility and achieving cleaner air for all Kenyans. However, there remains room for improvement. Through a comprehensive review of the country's current policy framework, benchmarking against other countries, and stakeholder interviews, three key policy approaches have emerged to enhance the importation and industrialisation of EVs in Kenya:

 Adoption of a national e-mobility policy	 Establishment of robust fiscal incentives for EVs	 Operationalisation of the National Automotive Policy of 2022
Kenya currently lacks a comprehensive e-mobility that singularly addresses e-mobility importation and industrialization The appointment of a Taskforce in August 2023 is a clear indication that the government is cognizant of the glaring gap occasioned by the absence of such a policy The adoption of a national e-mobility policy delves into eight key strategies that the government can implement in the policy to ensure the execution of a comprehensive plan	Commendable fiscal measures have already been put in place, particularly through the Finance Act of 2023 However, additional incentives, such as the elimination of import duties, are still necessary to drive EV importation and industrialization, much like the impact they have on boosting EVs in India The establishment of robust fiscal EV incentives addresses four additional incentives for the Kenyan market, leveraged from countries with booming EV sectors	The National Automotive Policy of 2022 has been enacted to support the development of the Kenyan automotive sector However, the policy currently falls short of comprehensively addressing e-mobility in Kenya and has not been fully implemented Operationalisation of the National Automotive Policy of 2022 explores additional provisions of the policy that could potentially support the development of EVs in Kenya

These approaches are interconnected and together they can significantly advance the growth of the EV industry in Kenya. We explore each of the approaches below:

National e-mobility policy and strategy

The primary objective of a national policy is to offer clear and detailed guidance to both public and private sectors regarding the government's priorities and the direction of a specific economic sector. A robust policy and strategy for e-mobility, such as in India and China would establish stability and assurance in policy, indicating the government's committed intentions to potential investors. This, in turn, would foster a conducive environment for the development and expansion of e-mobility in Kenya, while streamlining operations for EV companies within the country. Moreover, the policy should encompass all aspects of the EV value chain, ensuring comprehensive coverage of activities and stakeholders within the sector.

Regarding importation and industrialisation, the policy can encompass the following eight strategies to ensure comprehensiveness and is listed from most critical to least critical - though all should be recognised as important to support the rollout of e-mobility in Kenya.

- Setting specific criteria for imported pre-owned EVs regarding age, mileage, and tax benefits, considering Kenya's inclination towards used vehicles, particularly cars. Likewise, setting clear requirements for importing EV components such as SKDs, CKDs, and spare parts. This will standardize and streamline the importation process, ensuring that the EVs and

components meet the desired standards and that Kenya avoids sub-standard products on the road which could impact public acceptance of EVs or lead to safety incidents.

- Facilitating the rollout of charging infrastructure as charging networks allay range anxiety and are therefore crucial for the widespread adoption of EVs. It lays the foundation for a more accessible and convenient charging network, ultimately encouraging more consumers to make the switch to electric vehicles and moving EVs to mainstream adoption.
- Establishing and enforcing safety standards in the EV sector to ensure the importation and local manufacturing of safe, reliable, and high-quality EVs. Additionally, these standards should be harmonised with those of the East African Community to promote uniformity and to facilitate cross-border trade and cooperation. Increasing consumer trust in the sector and establishing a reputation for safety is expected to ensure demand for EVs and uptake.
- Providing guidance on industrialisation initiatives to address key needs, such as the potential for exporting locally manufactured or assembled EVs outside Kenya. This will highlight the country's significantly underutilised assembly capacity, and is expected to increase local content and value addition, providing more widespread benefits to the Kenyan economy.
- Strengthening synergies between industry and academia to ensure the availability of a well-equipped and skilled workforce. Currently, e-mobility companies face a shortage of skilled labour, requiring additional resources for on-the-job training. Upskilling the workforce will accelerate the transition and improve public trust in the sector.
- Providing demand-side incentives such as procurement of EVs by public entities. This is critical to provide initial demand for e-mobility companies and support their scaling up, as well as providing national leadership for the transition.
- Including a precise timeline for the implementation of the policy. Unclear timetables create uncertainty in government actions and rollout. A phased approach is highly recommended as it allows for systematic progress and adoption of policies.
- Indicating the primary government ministry or entity that will coordinate the implementation of the e-mobility policy framework, and clarifying the roles of other key government entities and agencies within the EV ecosystem. Currently, a lack of coordination between government bodies hampers the rollout and creates confusion around roles. Specifying the roles of ministries such as trade and industry, transport, and energy, as well as EPRA, KPLC and others is critical to creating a cohesive approach to the execution of a national e-mobility policy. This will guarantee a unified and seamless implementation of the policy framework.

Robust financial incentives for EVs

While the Kenyan government's current import incentives are commendable, gaps remain in the form of high import taxes, particularly on 4-wheelers. The experience of other countries – in particular, Rwanda and Togo – provides guidance for potential solutions to cut costs and boost support for EVs in Kenya. We therefore propose strengthening fiscal incentives across all EV segments, starting with further reductions in import taxes.

Specifically, we propose the following fiscal incentives, listed here from most critical to least critical:

- **Removing import duty, excise duty, and VAT** on all imported EV segments and lithium-ion batteries. Additionally, these benefits should be made exclusively for CKD vehicles to push for more local assembly and manufacturing. These taxes – which compounded can add up to 80% on the cost of vehicles – reduce affordability for EV consumers. This would be far and away the most impactful policy and should be prioritised, as lowering costs would significantly benefit both EV affordability and companies' ability to scale. The impact of this policy on scaling up EV deployment is modelled in detail in the cost-benefit analysis section.
- **Extending tax benefits** to imported battery electric vehicles and **excluding hybrid vehicles** to prevent unnecessary expenditure on a stepping-stone technology that is expected to also be phased out in due time. This would serve primarily to reduce wasteful government expenditure on high-end hybrid vehicles for higher-income consumers.
- **Eliminating VAT on battery swap services** to ensure equitable treatment between wholesale EV sales and battery swap services. The fiscal incentive framework should explicitly assess whether VAT should be charged on battery swaps. If VAT is removed from import duties but still applies to battery swaps, it implies government endorsement of direct EV retail and home charging over battery swapping. Charging VAT on battery swaps could help offset the loss of VAT on fuel, but caution is needed since VAT is already levied on the electricity being resold in battery swaps.
- **Extending tax exemptions** or reductions to **EV charging infrastructure** to drive the development and deployment of a robust charging network. This is important to building out the initial stages of the Kenyan EV charging network in order to provide trust and reduce consumer range anxiety.

Given that fiscal incentives are key to driving importation and industrialisation, below is an analysis of how import taxes could affect the Kenyan economy.

Operationalising the National Automotive Policy (2022)

The 2022 National Automotive Policy proposes actions to boost local assembly and manufacturing in Kenya's currently small industrial automotive sector, encompassing cars and motorcycles. However, it has yet to be fully implemented with an Automotive Act to put this policy into action. Such an Act offers a chance to include provisions that can significantly promote the industrialisation of EVs in Kenya, if guided to address EV industrialisation.

The proposed establishment of a National Automotive Council, as outlined in the national policy, would offer essential drive and guidance to accelerate the growth and development of EV industrialisation in the country. Aligning with the direction set by the envisioned National E-Mobility Policy, timely drafting and adoption of a National Automotive Bill would ensure synergy in its provisions regarding locally manufactured parts for EVs and local assembly. The National Automotive Policy already lists 37 motor vehicle parts currently produced in Kenya but their suitability for EVs should be thoroughly assessed.²⁶ The government should further extend efforts by identifying EV components that can be locally manufactured and directing investment towards those industries.

Additionally, the policy should encompass various key regulations and incentives, including a local content policy with a clear roadmap for increasing local value addition. Additionally, it should aim to revitalise and upgrade the Numerical Machining Complex to serve as a capable partner for local research and development. To kickstart the industry and enhance its attractiveness, the policy can also reduce the corporate tax rate for companies establishing electric vehicle operations to 7.5%.

Implementing a National Automotive Act would provide both clarity and strong incentives to companies to increase local content and value addition. While a national automotive industry is resource- and time-intensive to build, the experience of countries such as South Korea or Morocco provides a clear case for investing in it. Such a national automotive industry – with provisions and focus on electric vehicles – would provide Kenya with the benefits of industrialisation, in the form of local jobs, upskilling, and forex retention, while setting the country as a regional leader.

²⁶ “Sessional Paper No. 1 of 2022 on National Automotive Policy.”

Policy priorities

To effectively advance Kenya's e-mobility sector, it is crucial to implement all three policy strategies. However, the Kenyan government must establish clear priorities to send strong signals to investors, entrepreneurs, and consumers.

Firstly, crafting and adopting a comprehensive e-mobility policy framework is paramount in order to provide long-term guidance and stability for the sector. This should be considered the primary priority by the government as it is both low-cost and strategically critical. As the policy framework itself should not require a significant budget development can begin immediately. During the course of developing the e-mobility policy framework a wide range of government bodies will need to be consulted and addressed, which should also help seed cross-ministerial efforts. The completion, release, and implementation of the comprehensive framework will assign responsibilities amongst government authorities for further policy development and make clear Kenya's short- and long-term strategic approach to e-mobility. This will guide policymakers as well as implementing bodies, and provide stability and clarity to EV companies and investors.

Yet, for it to substantially impact the industry, this strategy necessitates rigorous fiscal policies. A policy framework without teeth will remain only aspirational, and rigorous fiscal policies – such as exempting all electric vehicle segments from import duties, VAT, and excise duties for a time-limited period – are needed to achieve electrification of the Kenyan vehicle fleet. These fiscal incentives will boost the business case, support companies to scale and lower costs, and result in lower-cost EV offerings for Kenyan consumers. The rollout of these incentives will also be supported by the clear foundation of an e-mobility policy framework.

Additionally, the operationalisation of the National Automotive Policy through the enactment of an Automotive Act, along with any accompanying regulations, is vital to boost local content and stretch towards the goal of EV industrialisation. This should be done with a clear focus on providing targeted benefits for the local EV auto industry. However, as Kenya will remain primarily a vehicle import market for the foreseeable future, industrialisation should be phased and not come at the cost of a much slower rollout of EVs.

Thus, the policy measures are prioritised as follows:

1. Adoption of a national e-mobility policy and strategy
2. Establishment and execution of robust financial incentives for EVs
3. Operationalisation of the National Automotive Policy of 2019

Furthermore, as previously stated, the effective implementation of these policies necessitates capable governing bodies to ensure accountability. Below are some of the proposed government bodies that can implement each of the policies, as per their pre-existing responsibilities:

Policy		Government body
Develop a comprehensive e-mobility strategy	Establish a national e-mobility strategy	Ministry of Transport
	Adopt a national e-mobility policy	Parliament
	Assess the role of importing used EV passenger cars	Technical Committee
	Review the usage of CRSP for import taxation	KRA
	Clarify whether e-bikes are to be treated as motorcycles or as bicycles	KRA
	Clarify whether e-tuk-tuks are to be treated as motorcycles	KRA
Provide financial incentives to import EV vehicles and infrastructure	Remove import duties, excise duties, and VAT on all CKD vehicle segments, lithium-ion batteries, and charging equipment. Restrict benefits to BEV.	Parliament
Boost the automotive industry	Adopt an Automotive Act	Parliament
	Adopt a local content policy that will determine the parts to be excluded from the CKD kits, with a view to encouraging additional parts manufacturing in Kenya.	Ministry of Trade and Industry
	Adopt the Finance Act (2022) benefits for motor vehicle manufacturers into law and provide additional benefits to EV manufacturers.	Parliament
	Halve the corporate taxes again to 7.5% for companies setting up electric vehicle manufacturing.	Parliament
	Revive, retool, and reform the Numerical Machining Complex	Ministry of Trade and Industry

Modelling impacts of fiscal incentive options

Methodology

Given that most of our recommendations lean towards fiscal incentives, we conducted a cost-benefit assessment to understand the potential economic impacts of additional EV importation incentives in Kenya. To do this, we analysed three potential policy scenarios: i) low support (no policy scenario), ii) medium support (Finance Act 2023), and iii) high support, as detailed in Table 2 below.

For comparison purposes, we utilized the Finance Act 2023 as a benchmark, given its current effectiveness in driving EV importation in Kenya. Thus, we sought to determine the potential impact of the other scenarios if they were to also be implemented. We operated under the assumption that these fiscal policies would remain in effect for at least the next three years.

Table 2: Policy scenarios used to assess the cost-benefit analysis of additional fiscal incentives

Scenario	Policy Changes
Low Support Scenario <i>Pre-Finance Act 2023</i>	No changes to import duties, rates between 10% for CKD vehicles and 25% for CBU vehicles
	No changes to VAT, charged at 16% for all vehicles
	Reduction of excise duties from 20% to 10% for CKD EVs
Medium Support Scenario <i>Finance Act 2023</i>	No changes to import duties, rates between 10% for CKD vehicles and 25% for CBU vehicles
	VAT-exemption for e-bicycles, e-motorcycles, e-buses, and lithium-ion batteries; remaining segments charged at 16%
	Excise duties exempted for e-motorcycles
High Support Scenario	Import duties exempted (0%) on all EV segments and Li-On batteries
	VAT exempted on all EV segments and Li-On batteries
	Excise duties exempted on all EV segments and Li-On batteries

To assess the benefits of the above to the Kenyan economy, we conducted a survey with 14 e-mobility players in Kenya. While there may be other e-mobility companies in Kenya that we were unable to reach, we engaged most of the largest and most well-funded companies. We assumed

that any others would be less directly relevant. Likewise, the companies consulted were either accredited assemblers, had assembly partners, or planned to become assembly partners. Moreover, proposed changes in Tax Procedures (Unassembled Motorcycles) Regulations would remove the need for bonded warehouses (costing around \$50,000) to be authorized motorcycle assemblers. This change would allow more companies to benefit from duty remission schemes for importing CKD motorcycles. Therefore, our modelling assumed all players would import vehicles in CKD form.

These companies were surveyed on the number of vehicles they plan to import in the next three years under three different policy scenarios. All respondents foresaw an incremental increase in vehicle imports with each augmentation of Kenyan fiscal incentives. This expectation arises from two direct mechanisms and several indirect ones.

Directly, the savings resulting from reduced import taxation would enable companies to either make additional imports or lower prices, thereby stimulating demand.

Indirectly, these tax reductions are likely to instil greater confidence in the Kenyan e-mobility ecosystem and the government's dedication to it, leading to amplified investment and customer demand.

Assumptions

We identified four key underlying assumptions to support the cost-benefit analysis across the three scenario policies. These assumptions and their impacts are outlined below:

VAT charged on petrol

Imported EVs were assumed to be imported in place of ICE vehicles, reducing fuel consumption and in turn reducing government revenue from VAT on fuel. This is considered a key tax revenue for the government and was recently raised under the Finance Act 2023 from 8% to 16%.

Electricity consumption

The increased presence of EVs on the road will result in higher electricity sales and increased revenue for KPLC, KenGen, and other key players in the Kenyan electricity supply chain. The consumption of electricity from EVs is anticipated to be concentrated in urban areas with reliable access to electricity, aligning with KPLC's objective of boosting sales on the existing grid.

On the other hand, electricity bills encompass at least nine additional taxes and charges on top of the base rate, which includes VAT. For simplicity, an average of 52% in fees and surcharges was factored into the cost of electricity, all considered as a benefit to the Kenyan economy. However, overall revenue from electricity is allocated to electricity generators (base rate, WRA, fuel energy cost), regulators (Energy Regulatory Commission levy and the Rural Electrification Programme), and the central government (through VAT). Although these benefits are collectively considered in this assessment, providing a detailed breakdown would require significant space.

Forex savings

Importing petrol for ICE vehicles results in the outflow of foreign exchange, particularly valuable US dollars, to external markets. This outflow would decrease with fewer ICE vehicles in Kenya. Presently, Kenya is grappling with record-high levels of debt and is approaching a debt ceiling of \$80

billion, imposed in June 2022. Reducing forex losses from petrol imports would be a positive step for Kenya's balance of payments.

In our analysis, we assumed that the price of a barrel of imported petrol in Kenya would revert to May 2023 levels of \$113. This is a moderate estimate, considering that at that time, the price of international crude oil was around \$80, which falls approximately in the middle of the range observed in the last decade of oil prices.

Import taxes

Import taxes, encompassing import duty, excise duty, VAT, railway development levy, and import declaration fees, would be levied by the Kenyan Revenue Authority on imported vehicles. The charges will vary significantly, as high fiscal incentives essentially involve a trade-off between tax rates and import volumes. Customs duties and other import taxes constitute approximately 6.7% of Kenya's government revenue and are crucial for government operations. Some of these taxes also allocate funds for specific services, such as railway construction (from the railway development fund) and contributions to the African Union and other international organizations (from the import declaration fees).

In our analysis, we assumed that rates for each of these taxes would remain constant and that both the railway development levy and import declaration fees would be maintained in all three scenarios.

Limitations

As with any cost benefit analysis, there were limitations to this analysis. The analysis did not include deregistrations, as the industry is young and they are expected to be minimal. Deregistrations are also not reliably tracked by any source in Kenya.

The analysis also did not assess the impacts on health through reduced air pollution. This is because calculating health benefits, and their resultant financial benefits, are incredibly complicated to do with any degree of accuracy. Vehicle age, engine specifications, wind conditions, local topography, population demographics are all required in one form or another, and this was thus deemed to be outside of the scope of this analysis. However, we are certain that the transition to electric vehicles will result in net benefit to population health through a net reduction in local air pollutants from removing ICE vehicles from the road.

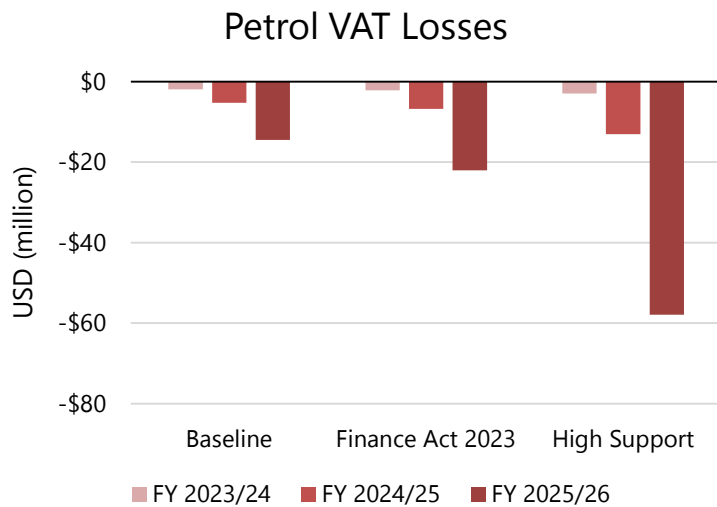
Finally, there are a handful of other taxes and financial impacts that fell outside of the scope of this analysis, such as around the economic impacts of petrol stations, charging stations, and swap stations. These should be assessed in later studies.

Cost implications

The primary source of direct revenue loss for the Kenyan government, as a result of transitioning to EVs, will be attributed to the reduction in VAT generated from the importation and sale of petrol for ICE vehicles, which will be replaced by EVs. In Kenya, VAT is levied twice: first during the import process, calculated based on the CIF value of petrol plus excise tax, and subsequently at the point of sale, accounting for transportation costs from port to pump.

In all three scenarios, VAT was considered as a final 16% addition to the petrol price, allowing us to assess the loss. Given the current petrol prices and the increase in VAT from 8% to 16% as stipulated

in the Finance Act 2023, we estimated that each litre of petrol sold earns the Kenyan government 26.72 KSh, equivalent to \$0.20.



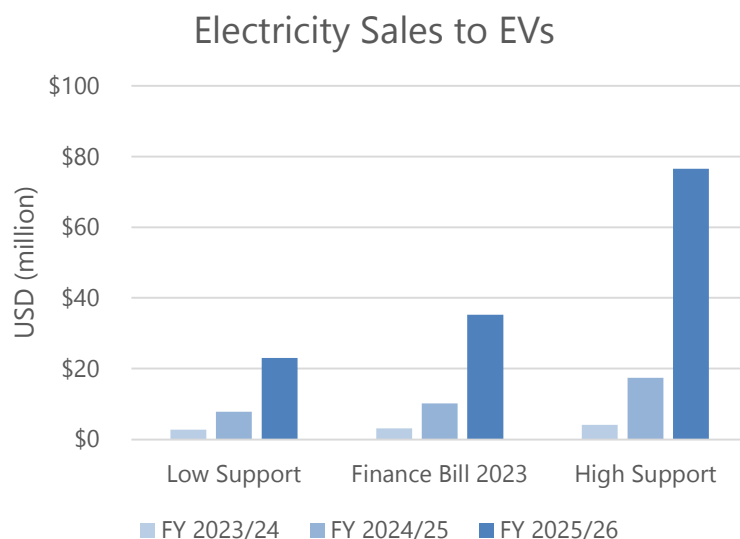
Hence, the transition from ICE vehicles to electric vehicles will redirect government revenues from VAT on fuel to VAT on electricity. The losses, much as the benefits, are expected to accelerate with the rapidly growing sector.

Benefits

The main advantage of implementing fiscal incentives in Kenya lies in the transformation of the transportation industry from an energy importer to a key driver of domestic electricity production. By mid-2026, adhering to the provisions of the Finance Act 2023, we anticipate ~ \$190 million in economic benefits for Kenya. This is roughly \$17 million higher than what would be achieved without any specific policies in place. However, if the government were to further reduce import duties, excise duties, and VAT across all EV segments, additional benefits such as electricity consumption rates, forex savings, import taxes, and emission reductions could potentially surge to as high as \$168 million. We explore these additional benefits across the three scenarios below.

Consumption of electricity

As EVs gain traction nationwide, there will be a significant surge in electricity purchases. In the 2021-22 financial year, KenGen supplied 7,918 gigawatt-hours of electricity. However, with the implementation of a robust policy package by the Kenyan government, including the removal of excise duties, import duties, and VAT, by the 2025-26 financial year, EVs alone could account for 555 gigawatt-hours. This represents 7% of the country's total consumption.



This shift would inject \$98 million into the electricity sector over the next three years, a threefold increase in revenue compared to a scenario without any specific policies. A high-support policy would significantly bolster the financial stability of Kenya's electricity sector, especially at a juncture when

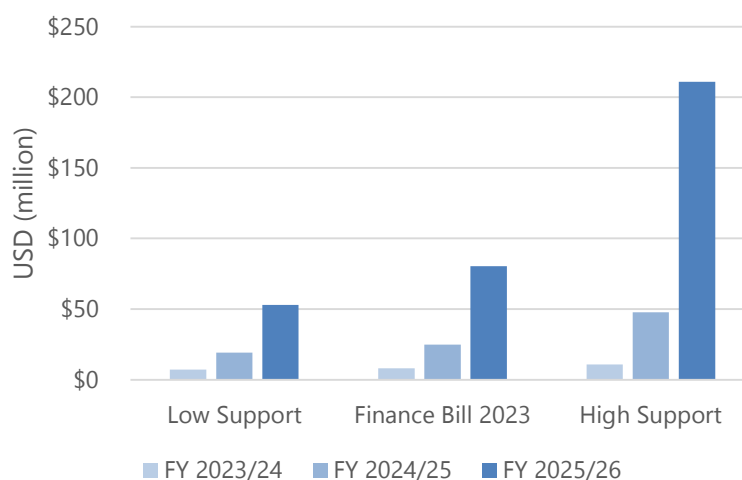
the country is addressing debts associated with expanding the grid to low-income, rural households.²⁷

Forex savings

Foreign exchange savings were computed based on the price of a landed barrel of petrol upon entry in Kenya, prior to taxation or transportation, which amounts to \$113.86. Currently, Kenya has an estimated 1.4 million motorcycles; if 15% of these are transitioned to electric, as indicated by retailers to be achievable by 2025/26, Kenya could prevent the importation of 1.6 million barrels of petrol in

that year alone.²⁸ Moreover, the adoption of e-buses will markedly decrease oil imports, considering that individual ICE buses can consume approximately 70 litres per day.

Savings from Avoided Petrol Imports



Import taxes

If the Kenyan government were to replicate Rwanda's approach and abolish VAT, import duty, and excise duty on imported vehicles, it could result in a significant reduction or potentially the complete elimination of these charges. However, the government would continue to enforce the railway development levy (RDL) and import declaration fees (IDF).

Under the high support scenario, the government would collect \$10.4 million less compared to a scenario with lower support. This reduction is relatively small, particularly when considering that the effective tax rates would decrease by approximately 40% due to the absence of import duty and excise duty. This is attributed to a notable surge in imports, driven by the increased affordability of EVs, which would be more readily embraced by Kenyan consumers.

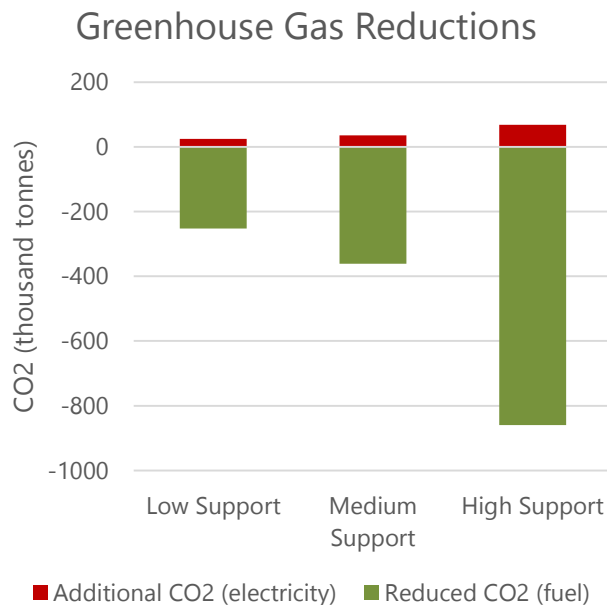
Emission reductions

We also calculated the resulting reductions in emissions by utilizing the projected vehicle fleet deployments of e-mobility companies across the three scenarios. If each EV replaces an ICE, we anticipate a decrease in petrol consumption, leading to a corresponding reduction in associated CO₂ emissions, at a rate of 2.3 kg per litre. However, some minimal CO₂ emissions are created from

²⁷ "KPLC Abridged 2023 Retail Tariff Application to Energy & Petroleum Regulatory Authority," Energy and Petroleum Regulatory Authority (blog), January 25, 2023, <https://www.epra.go.ke/kplc-abridged-2023-retail-tariff-application-to-energy-petroleum-regulatory-authority/>.

²⁸ Simon Muli, "Fact-Checking Statistics about Kenya's 'Boda Boda' Transport Sector," Medium, July 6, 2021, <https://pesacheck.org/fact-checking-statistics-about-kenyas-boda-boda-transport-sector-4a66fc677d63>.

fossil fuel generators within the Kenyan grid. These were most recently estimated at 0.098 kg per kWh by the International Renewable Energy Agency (IRENA) in 2021.²⁹



Overall, the Finance Act 2023 is poised to help Kenya reduce an additional 98 thousand tonnes of CO₂ over the next three years compared to a no-policy baseline. Under a more robust approach, with added import incentives in the high-support scenario, this reduction could accelerate to 467 thousand tonnes of CO₂. In this more ambitious scenario, Kenya could triple its annual CO₂ reductions, avoiding a total of 594 thousand tonnes of CO₂ in 2025/2026 alone. This would constitute 2.5% of Kenya's estimated greenhouse gas emissions in 2021, signifying a substantial stride towards fulfilling Kenya's commitment to reduce 30% of the greenhouse gas emissions anticipated in a business-as-usual approach.

Conclusions

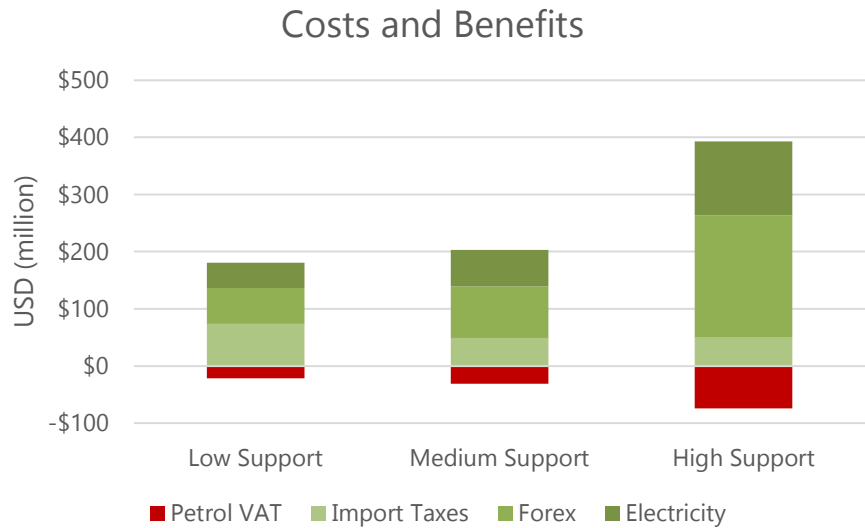
Without the Finance Act 2023, industry players were planning to provide nearly 40,000 EVs by mid-2026. While this would be a significant step forward from where we are today, it would still fall far short of Kenya's goals, most notably the goal of 5% of annual car imports being electric - by a factor of 100. Reaching these goals and delivering savings to Kenyan consumers and cleaner air to all Kenyans, will require much stronger support.

The Finance Act 2023 marks a positive step forward. The removal of VAT, particularly on segments like e-motorcycles and e-buses, is poised to stimulate companies to nearly double their imports. Although Kenya may incur a loss of approximately \$9 million in VAT from petrol sales and an additional \$22 million from reduced import taxes over the next three years, compared to a scenario with no policy in place, it is anticipated to conserve an additional \$33 million through reduced oil purchases and an extra \$15 million from electricity procurements - resulting in a net gain of \$17 million.

Furthermore, companies will have the capacity to nearly double their deployments, increasing from an estimated 39,651 EVs under the Low Support Scenario to 69,801. This will lead to additional, yet unquantified, social and health benefits. It is important to note that this calculation does not account for the lives saved due to reduced air pollution or the positive impacts on climate mitigation.

²⁹ "Energy Profile - Kenya" (International Renewable Energy Agency), accessed October 13, 2023, https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical_Profiles/Africa/Kenya_Africa_RE_SP.pdf.

Turbocharging this support by removing import and excise duties on all EV segments would result in a huge upswing of adoption, with an estimated total EV fleet of 249,000 in Kenya. Petrol VAT losses would increase by an additional \$42 million and import tax losses by \$10 million compared to the Finance Act 2023, they would be considerably outweighed by the policies benefits. Forex savings would increase by a staggering \$130 million, and electricity sales would more than double to reach \$98 million. This would provide a major win for the Kenyan government's commitments, along with an additional net \$168 million for the Kenyan economy compared to a no-policy scenario and \$152 million over the Finance Act 2023 policy regime. The government should therefore plan to increase its support and import incentives for electric vehicles.



Driving forward

The uptake of e-mobility in Kenya promises significant benefits in air pollution reduction and improved balance-of-payment through reduced forex losses, and has witnessed notable progress, propelled in part by government initiatives like the Finance Act 2023 and other similar policies. This pivotal legislation has provided a foundational framework for the growth of the EV sector, offering incentives and setting the stage for a more sustainable automotive landscape. However, amidst this forward momentum, critical policy challenges persist, necessitating further strategic action for the sector to reach its full potential.

Governments universally confront a critical decision regarding imports versus domestic production of EVs as indicated by benchmarking other country's policies with Kenya. Kenya is currently import dependent, although it derives certain advantages from local assembly, notably in the assembly of motorcycles and buses. Therefore, the Kenyan government ought to embrace a comprehensive e-mobility policy that addresses both short-term importation and longer-term industrialization. This policy should emphasize an escalation in imports while concurrently safeguarding local value addition. Moreover, it is imperative to synchronize long-term policy and strategy across all pertinent government entities. Addressing additional uncertainties surrounding the categorization of e-bicycles and tuk-tuks, as well as refining the utilization of CRSP for assessing the value of EV imports, must also be prioritized.

Similarly, the participation of EV retailers in any given market hinges on the operational conditions they face. Introducing robust support, mirroring the initiatives of Rwanda and Togo in eliminating VAT, import duty, and excise tax on CKDs, would yield substantial gains for the local economy, enhance environmental conditions, and advance climate commitments. Ensuring the consistency, conciseness, and clarity of these policies would establish a highly conducive environment. Our estimations indicate that such measures could expedite and amplify benefits to the tune of \$168 million and curtail CO2 emissions by 564 thousand tonnes over the next three years, in stark contrast to a scenario devoid of policies and low support.

Kenya stands in need of a comprehensive e-mobility policy that not only provides a clear vision and stability but also emphasizes importation as a starting point, gradually progressing towards enhancing local value addition through assembly and parts manufacturing. As such, we strongly recommend the Government of Kenya takes proactive steps in formulating a national e-mobility strategy, reinforcing import incentives, and enacting an automotive bill to stimulate EV assembly and manufacturing. Likewise, in addition to fiscal incentives, it is vital for Kenya to extend support to its local automotive sector, fostering the creation and implementation of a robust e-mobility policy while aligning pertinent government agencies. Prioritizing CKD imports can guarantee a baseline of local value addition, while judiciously selecting components for local production can significantly amplify local benefits.

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Appendix

Country benchmarking

Policy and regulatory frameworks on EV importation and industrialisation in 8 countries were reviewed – South Africa, Rwanda, Togo, Malawi and Zambia which are considered to be in the nascent phase of e-mobility adoption – though each is still at a different stage even within this emergent phase; Philippines and India considered to be in the growth phase; and China which is in the mass adoption phase.

Rwanda's e-mobility sector is at a very nascent stage with a fairly similar profile to Kenya in terms of the vehicles that are largely targeted for the transition to e-mobility – 2 & 3 wheelers. The country is also located in the East African region and is a member of the East African Community, as is Kenya. The country's geographical proximity to Kenya also presents some similarities in context from which some comparisons could be made. Togo located in Togo provides a perspective from the Western part of the African continent. Motorcycles are dominant in Togo with thousands of electric motorcycles already deployed.

Malawi and Zambia, located towards the southern part of Africa are in the very earliest stages of EV adoption, out of the countries selected. They do however present an important perspective on the priority areas that have been identified for policy interventions. South Africa, an industrial giant, will also provide a helpful comparison of a more advanced EV market in Africa, even though still quite nascent from a global perspective. The country has a more mature vehicle manufacturing and assembly sector which can provide some insights on what policy initiatives Kenya could adopt or adopt to also spur EV manufacture and support its EV supply chain as a whole.

India and Philippines are countries identified as being in the growth phase of e-mobility and having similar income levels to Kenya. These two countries have adopted a number of comprehensive policies that encourage EV importation, local manufacture and assembly which can provide significant insights. China, which is currently the world leader in EV exports, has been developing its EV industry longer than any other country in the world. Its longer history on EV policy development provides significant learning opportunities for Kenya.

The countries identified present a good selection of countries at different stages of the EV development spectrum. This diversity has facilitated a review of the various policy pathways that have been, are being or are proposed to be implemented, their resulting impacts and an assessment of their effectiveness.

Comparison of key policies

Import duties	ICE	EV	Vehicle segments	Year
Philippines	5-25%	0%	a) all battery electric vehicles ³⁰	2023
Rwanda	25%	0%	a) all battery electric vehicles b) lithium-ion batteries c) charging station equipment	2022
Togo	25%	0%	a) all battery electric or plug-in hybrid vehicles b) lithium-ion batteries	2022
Zambia	25-30%	15%	a) e-motorcycles (previously 25%) b) e-cars (previously 30%) ³¹	2022
Malawi	25%	0%	a) goods vehicles (pickups) b) e-buses	2023

VAT Policy	ICE	EV	Vehicle segments	Year
Rwanda	18%	0%	a) all battery electric vehicles b) lithium-ion batteries c) charging station equipment	2021
Togo	18%	0%	a) all battery / plug-in hybrid vehicles b) lithium-ion batteries	2022
Kenya	16%	0%	a) e-bicycles b) e-motorcycles c) e-buses d) lithium-ion batteries	2023

Excise Duties	ICE	EV	Vehicle segments	Year
Rwanda	5-15%	0%	a) all battery electric vehicles b) lithium-ion batteries c) Charging station equipment	2021
Togo	5-10%	0%	all import duty, excise, and VAT is combined in a single 53.5% import tax	2022
Malawi	0-60%	0%	a) goods vehicles (pickups) b) e-buses	2023

³⁰ "Executive Order No. 12 series of 2023", Office of the Presidency, Philippines.

<https://www.officialgazette.gov.ph/downloads/2023/01jan/20220113-EO-12-FRM.pdf>

³¹ "Zambia Implements 2023 Budget Tax Changes", Orbitax. <https://orbitax.com/news/archive.php/Zambia-Implements-2023-Budget--52031>

Kenya	10%	0%	a) e-motorcycles (entirely exempted)	2023
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China

China's dominant role in the electric vehicle (EV) downstream supply chain, including batteries, is reinforced by around 81% of batteries and 78% of electric motors for EVs sold within the country being produced by Chinese manufacturers.³² This leadership stems from over a decade of policies prioritising the integration of a domestic supply chain. Its first national policy was the Energy Saving and New Energy Auto Industry Development Plan (2012-2020). Key aspects of this policy included increased fiscal and tax policy support through guiding enterprises to increase investment in technology development, engineering, standard formulation and market application, subsidising the private purchase of EVs and encouraging the adoption of EVs in government procurement for use by public institutions.³³

The plan also introduced reduced parking fees, preferential charging fees, car purchasing and licence plate issuance for EVs. It also noted the need to grow the required skills relevant to the EV industry such as electrochemistry, automotive electronics, vehicle engineering mechatronics, research and business management. It also noted the need for an overall development plan for EVs and charging facilities which includes incorporating charging facilities into urban comprehensive transposition system planning and urban construction-related industry planning as well as implementing safeguard measures through the adoption of EV standards and certification requirements.³⁴

China introduced the "Dual credits" policy in 2017, later strengthening it in 2019, incentivizing new energy vehicle (NEV) production by assigning positive credits to NEVs and negative credits to conventional vehicles. China's guidance documents, like the "Twelfth Five-Year Plan" and the New Energy Vehicle Industry Development Plan (2021-2035) steer EV and EV battery manufacturing, while efforts extend to energy storage integration and collaboration in the power market. The Chinese government also incentivizes charging infrastructure, provides purchase subsidies of up to RMB 100,000 per vehicle, and generous tax exemptions to further encourage EV adoption.

Impact

As a result of these aggressive policies, by the end of 2020, China had placed 4.92 million NEVs on the road accounting for more than 50% of the global total in that year. It currently remains the current frontrunner accounting for around 60% of all global electric car sales. More than half of the electric cars on roads worldwide are now in China and the country has already exceeded its 2025 target for NEVs.³⁵

³² Global EV Outlook 2023: Catching up with climate ambitions, International Energy Agency
<https://www.iea.org/reports/global-ev-outlook-2023>

³³ Energy Conservation and New Energy Auto Industry Development Plan (2012-2020) http://www.nea.gov.cn/2012-07/10/c_131705726.htm

³⁴ Ibid

³⁵ Global EV Outlook 2023: Catching up with climate ambitions, International Energy Agency
<https://www.iea.org/reports/global-ev-outlook-2023>

India

In 2013, the Indian government launched the National Electric Mobility Mission Plan 2020, targeting 6-7 million local sales of EVs and hybrid vehicles by 2020. This plan introduced a composite scheme of different policy levers such as supply side and demand-side incentives, technology development and promotion of charging infrastructure. A key feature of this plan to accelerate the industrialisation of EVs is the Faster Adoption and Manufacturing of Electric (& Hybrid) Vehicles in India (FAME India). The first phase, FAME I ran from 2013 to 2019 and The FAME scheme also emphasised the need for synergies to be established among government, industry and academia to increase domestic capacities of product and technology development.

The second Phase, FAME II is currently running having commenced in April 2019 to run until March 2024 and will provide production-linked incentives (PLI) totalling 25,938 crore (\$3.12 billion) for the automobile and auto component industry which includes EVs and their components. The PLI scheme also covers manufacture of EV batteries under the PLI scheme for Advanced Chemistry Cell with a budgetary outlay of 18,100 crore (\$2.18 billion).

Impact

India now leads in the sales of electric three-wheelers owing to policy support and innovative business models.³⁶ EV sales reached nearly 50 000 in 2022, 4 times more than in 2021, while total car sales increased by just below 15%. Leading domestic manufacturer Tata accounted for over 85% of EV sales, including through sales of its small BEV Tigor/Tiago, which quadrupled. This growth in domestically assembled or manufactured EVs attests to the positive impact of the industrialisation policies implemented in the country.

³⁶ IEA Global EV Outlook

South Africa

South Africa has an Automotive Masterplan for 2021-2035 which charts the course for domestic automotive industry growth and support. This ambitious plan targets increasing the country's vehicle production to 1% of global output by 2035 and advancing local content in South African-manufactured vehicles to 60%. The Masterplan takes cognisance of emerging technology changes and notes that the country would initially follow the adoption of plug-in hybrid vehicles followed by battery-electric vehicles but notes that the country is likely to lag behind developed markets in the manufacture and adoption of EVs. It is instructive to note that despite recognition of this trajectory on EVs industrialisation of EV in the Masterplan itself, the plan fails to capture any recommendations for the active industrialisation of EVs in South Africa.

With regard to EV importation, EVs face a 25% import duty, whereas buses and trucks incur a 20% duty. Moreover, EVs are more susceptible to ad valorem tax due to their luxury classification, compounded by their high price, resulting in substantial ad valorem amounts. These taxes can reach up to 30% of the vehicle's price, culminating in a total tax burden averaging around 42% for EVs and hybrids. Consequently, the substantial import taxes have led to elevated EV prices compared to internal combustion engine (ICE) vehicles.

Impact

Despite having one of the leading automotive manufacturing and assembly sectors in Africa, at present South Africa has no centralised and co-ordinated incentive framework that supports industrialisation of EVs.³⁷ With regard to EV importation, there are no incentives in place further contributing to the slow uptake of EVs. Importation incentives are key because as is the case in many countries in the nascent stages of EV development, the South African market is highly price sensitive. Despite the lower running costs of EVs, the upfront cost of an EV (includes hybrid and BEVs) is on average 33% higher than for an ICE vehicle.³⁸ The effects of a lacking clear policy framework on EV industrialisation and importation is a strikingly low number of EVs for one of Africa's leading economies – approximately 1,000 out of a total country fleet of 12 million automobiles as at 2022.³⁹

Consequently, this situation is poised to exacerbate the price discrepancy between ICEVs and EVs manufactured by the same company.

³⁷ It is reported that a national EV policy and strategy are under development and are due to be finalised by March 2024 <https://mybroadband.co.za/news/energy/489239-good-news-for-electric-cars-in-south-africa.html>

³⁸ Towards an inclusive rollout of electric vehicles in South Africa, Trade & Industrial Policy Strategies, Policy Brief 3/2022 https://www.tips.org.za/policy-briefs/item/download/2223_8d1bdabe219e678ad4ad53003e804d79

³⁹ <https://www.statista.com/statistics/1285954/number-of-electric-vehicles-in-africa-by-select-country/>

Philippines

The Philippines EV market is fairly nascent with the majority of EVs in the country comprising electric tricycles and motorcycles with the total number of EVs estimated at 14,000 in total.⁴⁰ From 2021 the Philippines has adopted a number of policies to incentivise the growth of its e-mobility sector most notably, the Electric Vehicle Industry Development Act of 2022 and subsequently also adopted a Comprehensive Roadmap for the Electric Vehicle Industry.⁴¹ In January 2023, the government reduced import tariff rates for electric vehicles and their component parts (excluding electric motorcycles) from 30% to 0% for a period of 5 years.⁴²

Impact

The reduction in tariffs having been quite recently adopted means that the impact is yet to be fully assessed and documented. The exclusion of motorcycles and their component parts from the list of exemptions however means that the impact may be quite limited because the cost of electric cars remains high relative to those of ICE vehicles and many of those adopting EVs in the Philippines mainly use 2-wheelers and 3-wheelers.

⁴⁰<https://cleantechnica.com/2023/08/07/philippine-electric-vehicle-summit-to-push-more-vehicle-electrification-infrastructure-battery-development-policy-dialogue/>

⁴¹ https://www.doe.gov.ph/sites/default/files/pdf/energy_efficiency/CREVI%20as%20of%2005-04-2023.pdf

⁴² Executive Order No. 12 temporarily modifying the rates of import duty on electric vehicles, parts and components <https://www.officialgazette.gov.ph/2023/01/13/executive-order-no-12-s-2023/>

Rwanda

The Government of Rwanda implemented the most comprehensive policy package for electric mobility in Africa. Being a small country that is heavily import-dependent, Rwanda eliminated import duties, excise duties, VAT, and withholding tax on all electric vehicle imports, including all vehicle segments, lithium-ion batteries and EV charging equipment.

To encourage industrialisation, Rwanda provided a tax holiday and a 15% corporate income tax for EV assemblers and manufacturers.

To spur growth, Rwanda also provided a range of other benefits, including lowering the electricity tariff for e-mobility to that of large industry, free licensing for commercial EVs, and prioritising EVs for government hired vehicles.

Impact

In Rwanda, the removal of nearly all import taxes has been a major boon to companies operating in the country, reducing the costs of imports by 40% or more. Ampersand, the largest e-motorcycle provider in Rwanda, has been able to convert those savings into higher volumes and accelerate deployment, becoming the first lithium-ion motorcycle company in East Africa to reach 1,000 motorcycles on the road.

However, being an early adopter, Rwanda faced a few implementation challenges. One key issue was that while VAT was removed from the importation of lithium-ion batteries, VAT on battery swapping services was left ambiguous. This meant that companies using battery swapping had to still charge VAT on battery swaps, putting them at a disadvantage to those selling vehicles outright while the legislation was being clarified.

In addition, the fact that hybrid vehicles were included in the benefits has led to a spike in imports of hybrid passenger cars. These do not have the same level of social and environmental benefits as pure electric vehicles being used for public transportation, and the government is considering closing off the benefits to hybrid vehicles.⁴³

⁴³ Interview with BBOX, Aug 14, 2023.

Togo

Following Rwanda's lead, Togo has officially removed import duties, excise duties, and VAT on all electric motorcycle imports, since the 2022 Finance Act.⁴⁴ This was expanded to all electric and hybrid vehicles in the 2023 Finance Act.⁴⁵ In Togo, this is done by reducing the taxable value of the goods, rather than reducing the import duty rate, so in both Finance Acts the taxable value of the electric vehicles was reduced 100%. In addition, the vehicles were exempted from paying the 0.5% national solidarity tax (PNS) and a 5% IS / IRPP tax.

Impact

Despite it being in the tax code, e-motorcycle operators in Togo face an uncertain environment, as the policy has been reportedly removed twice and re-imposed the same. The 48% total tax burden that would be removed for e-motorcycles could have a significant impact. Yet one company has faced a two-month wait in the ports to get the requisite import reductions, indicating the rollout has been far from perfect.⁴⁶

However, other companies have fared better. Spiro, the largest e-motorcycle provider in Africa, has grown their fleet in Togo from around 1,000 to 4,000 vehicles in the country.

Zambia

The government halved import duties from 30% to 15% for imported electric vehicles, while VAT and excise duties remain in place. VAT is a consistent 16% on top of all charges, while excise duties range from 10%-30% depending on the purpose of the vehicle and the engine size. There is also an additional carbon emission surtax, which ranges from \$4.3 to \$17.⁴⁷

Impact

The policy has had no noticeable impact, as taxes remain up to 47% to 73% on top of the CIF value of the imported EV. There are few e-mobility companies in Zambia, and none have reported any boost from this bill

⁴⁴ <https://www.togofirst.com/fr/finances-publiques/2001-9272-togo-100-dabattelements-de-droits-de-douanes-sur-les-motos-electriques-neuves>. Article 7. Original law here: <https://www.droit-afrique.com/uploads/Togo-LF-2022.pdf> Moreover, electric vehicles (EVs) and hybrid electric vehicles (HEVs) are subject to an average levy of 17%, while manufacturers of internal combustion engine vehicles (ICEVs) produced in South Africa may qualify for rebates under the Automotive Production and Development Programme (APDP).

⁴⁵ Article 7. <https://www.otr.tg/index.php/fr/impots/reglementations-fiscales/dernieres-publications/lois-2/334-loi-n-2022-022-portant-loi-de-finances-exercice-2023/file.html>

⁴⁶ Interview with Motorhino, Aug 14-15, 2023.

⁴⁷ There is widespread confusion about the existence and rate of the carbon emission surtax. The initial 2009 law points to it being 50,000 ZMW (\$2,567) to 200,000 ZMW (\$10,268), but there is little reason to believe this exorbitant rate was ever charged. Contacts in the Zambian e-mobility space were unaware of its existence. The 2020 Zambia Revenue Authority Motor Vehicle Duties guide was thus used, which places it at 84 - 330 ZMK.

<https://www.zra.org.zm/wp-content/uploads/2020/02/2020-SPECIFIC-MOTOR-VEHICLE-DUTIES.pdf>

List of stakeholders interviewed

- Ampersand
- ARC Ride
- BasiGo
- BBOX
- Biliti
- Chaji
- Drive Electric
- eBee
- Ecobodaa
- Equator Mobility
- EV Chaja
- Exodus Mobility
- GEAPP
- GIZ
- Kenya Renewable Energy Association
- Ministry of Trade and Industrialisation
- Ministry of Transport
- Roam
- Sanguo Ventures
- Siemens Stiftung
- UNEP
- World Resources Institute