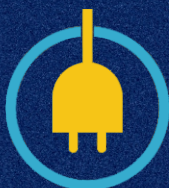




Adoption of Electric Vehicles (EVs) in Nigeria: Feasibility and Investment Opportunities

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Overview

The automotive industry is experiencing a rapid shift to decarbonization, evidenced by the growing sales of electric vehicles (EVs) globally. A 2024 report by the International Energy Agency (IEA) indicated that the sales of EVs may reach around 17 million before the end of 2024¹. This shows a stark increase in market sales compared to 2023 which was indicated with a global sale of around 14 million EVs. As of 2023, EV sales were 3.5 million higher than 2022 sales. When compared to its internal combustion engine (ICEs) counterpart, an incremental market share of around 14% was recorded as compared to 9% in 2021. Also, nearly 1 in every 4 cars sold was electric (Fig 1)².

As of 2023,  **EV sales were 3.5 million higher than 2022 sales.**

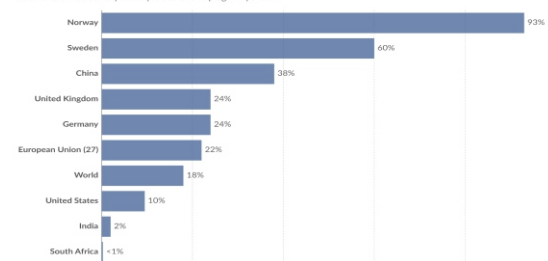
¹<https://www.iea.org/reports/global-ev-outlook-2024>

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² *ibid.*

Share of new cars sold that are electric, 2023

Electric cars include fully battery-electric¹ and plug-in hybrids².



Data source: International Energy Agency, Global EV Outlook 2024.

OurWorldInData.org | CC BY

¹ Fully battery-electric: Cars or other vehicles that are powered entirely by an electric motor and battery, instead of an internal combustion engine.
² Plug-in hybrid: Cars or other vehicles that have a rechargeable battery and electric motor, and an internal combustion engine. The battery in plug-in hybrids is smaller and has a shorter range than battery-electric cars, so over longer distances, the car starts running on gasoline once the battery has run out.

Fig 1. Shares of New electric cars sold globally³

Nigeria's electric vehicle (EV) industry is currently evolving but at a slow pace, despite the removal of the decades-old fuel subsidy in 2023. Despite its nascent status in terms of adoption, local manufacturing, and infrastructure development, CNG is being promoted by the government as the transition fuel in the country. This is indicated by the significant progress made by the Presidential CNG Initiative (Pi-CNG), including the mobilization of 50 million USD in the first five months of 2024⁴. Nonetheless, the EV private sector is also seeing major development and is receiving its own share of investment opportunities.

³<https://ourworldindata.org/electric-car-sales#:~:text=Sales%20of%20electric%20cars%20started,%2C%20it%20was%20almost%2040%25.>

⁴<https://www.premiumtimesng.com/business/business-news/694974-presidential-cng-initiative-attracts-50-million-investment.html>

Nigeria's EV market is dominated by electric two- and three-wheelers, primarily used for commercial purposes. However, there is a gradual shift as more industry players aim to expand the EV sector. Companies such as Blackpace and Ardova Group are leading efforts to scale up the market with four-wheelers and fast-charging infrastructure. Additionally, firms like Possible EVs are making significant strides in accelerating the EV market with electric cars, including models from Tesla and Mercedes. A significant milestone occurred with the unveiling of the first electric bus in Lagos on April 30th, 2023. The governor of Lagos state introduced the arrival of these buses under the Lagos State Mass Transit Scheme, in collaboration with Oando Clean Energy Limited (OCEL). Initially, two buses were deployed for the proof of concept phase, followed by the rollout of approximately 50 buses for the pilot phase. These phases were slated to span nine months before a full-scale rollout comprising around 100 buses will commence. The plan includes rolling out a total of 12,000 electric buses over 7 years. This initiative aimed to alleviate the mass transportation challenges within the state. However, considering the substantial cost of electric buses, ranging between 400,000 USD and 500,000 USD (approximately four times the cost of diesel buses in Lagos)⁵, achieving the target of 100 buses within the designated

⁵<https://businessday.ng/news/article/lagos-electric-bus-plan-faces-familiar-foes/>

time frame remains uncertain. OCEL has also expressed intentions to establish EV charging infrastructure in Lagos through a Public-Private Partnership (PPP) with the Lagos Metropolitan Area Transport Authority (LAMATA).

During the COP28 climate summit held in Dubai, President Tinubu introduced proposals to implement a fleet of 100 electric buses as part of the nation's strategy to diminish its carbon emissions. Additionally, the Ogun state government⁶, under the stewardship of Governor Abiodun, has set in motion plans to inaugurate an E-mobility program, targeting the electrification of existing fleets of two-wheelers and buses within the state. This initiative coincides with the state's recent launch of Compressed Natural Gas (CNG) fleets.

Sterling Bank, through its electric mobility initiative called Qore Mobility, partnered with LINKS, a Commonwealth program funded by UK Aid, to empower women in Kano State. Starting in the first quarter of 2024, Qore Mobility will deliver 120 electric tricycles to female riders in Kano (Fig 1)⁷. This initiative not only promotes inclusivity and sustainability but also aims to reshape the future of transportation. The project is backed by The Alternative Bank, which provides essential financing for these

⁶<https://www.esi-africa.com/news/nigerian-state-to-electrify-bikes-trikes-under-new-e-mobility-project/>

⁷<https://businessday.ng/news/article/sterling-banks-qore-mobility-set-to-empower-kano-women-with-electric-tricycles-in-q1-2024/>

electric tricycles. By fostering gender inclusion and economic growth, Qore Mobility contributes to Nigeria's energy transition policy and reduces carbon emissions. Additionally, the group plans to install battery swapping infrastructure within the Kano metropolis to support these electric tricycles.

However, despite these advancements, to improve the market flexibility of electric vehicles, certain standards, regulations, and policy implementations which are currently not available or at best not in completion stage, are essential for facilitating their adoption in the country. For instance, removing import taxes on EVs would be a critical step in enhancing their entry into the Nigerian market.



Fig 1. Pilot Tricycle project (Photo credit: [Nairametrics](#))

Existing Policies and Regulations

The EV space in Nigeria does not currently have working standards, policies or regulations that will effectively drive the sector's growth, although the National Automotive Design and Development

Council (NADDC)⁸ under the leadership of Engr Jelani Aliyu developed a draft national action plan in 2022 for the development of electric vehicles in Nigeria. This proposed action plan aims to access five policy levers which will accelerate the uptake of EVs in Nigeria. These policy levers include incentives and subsidization, infrastructure development, disincentives of ICE vehicles, manpower and skills development, regulations and legislation. However, to achieve a full scale growth and GHG mitigations as outlined in Nigeria's Nationally Determined Contributions (NDCs)⁹, It is important to establish a working framework for EVs including electric vehicles and charging infrastructures. In terms of standards and regulations, there are no standards and regulations that are specific to electric vehicle infrastructure.

Similarly, the Nigerian Automotive Industry Development Plan (NAIDP) outlines key initiatives and policies for the electric vehicle (EV) sector in Nigeria¹⁰. The policy document sets a goal of achieving 30% local EV production by 2033, focusing on EV assembly. This target includes the production of two-wheelers, three-wheelers, and four-wheelers, aiming

⁸<https://naddc.gov.ng/wp-content/uploads/2024/05/Nigerian-Automotive-Industry-Development-Plan-2023.pdf>

⁹https://climatechange.gov.ng/wp-content/uploads/2021/08/NDC_File-Amended-_11222.pdf

¹⁰<https://naddc.gov.ng/wp-content/uploads/2024/05/Nigerian-Automotive-Industry-Development-Plan-2023.pdf>



to create 33,000 to 54,000 direct jobs and 600,000 to 1,000,000 indirect jobs. Fiscal incentives for EV assemblers include a 10-year tax holiday, while consumers, particularly those in cab or courier services, will benefit from a three-year tax holiday.

While standards for electricity generation, transmission and distribution are available in Nigeria, providing a structure for developing charging infrastructure, further refinement is needed. The Electricity Act of 2023¹¹ outlines four options for generating electric power: (1) off-grid systems using renewable energy sources such as solar and wind, (2) grid-connected power, (3) embedded energy where electricity is distributed through networks controlled by independent system operators, and (4) captive energy generated off-grid and consumed by the generator. Additionally, regulations from the Nigerian Electricity Regulatory Commission (NERC) support the supply of power to EV charging stations. However, there is a pressing need for specific standards and regulations tailored to EV charging infrastructure to enhance the availability and reliability of these charging stations. Establishing clear guidelines will boost investor confidence and promote the widespread deployment of EV charging networks across Nigeria.

¹¹<https://placng.org/i/wp-content/uploads/2023/06/Electricity-Act-2023.pdf>



Electric Vehicle Challenges in Nigeria

The sector faces several imminent challenges, which are listed below:

- One of the most significant being the lack of comprehensive policies and regulations. This regulatory gap has hindered investment opportunities, causing stagnation in the sector. Recently, the Nigerian government, through the Presidential CNG Initiative¹², unveiled several projects to install CNG plants and refueling stations nationwide to expand the adoption of CNG vehicles. While this initiative aims to diversify the country's energy mix, it may inadvertently deter the adoption of electric vehicles by diverting attention and resources away from the EV sector. To foster a balanced approach, it is crucial to develop and implement policies that equally support the growth of both CNG and electric vehicle infrastructures.
- Also, the upfront cost of EVs deters its acceptability growth within the country. The average cost of an electric vehicle is around 53,000 USD (appr. 78 million Naira)¹³. This is in stark contrast to the average

¹² <https://pci.gov.ng/>

¹³<https://autofinance.chase.com/electric-vehicles/cost#:~:text=Electric%20vehicle%20price%20tags&text=The%20average%20cost%20of%20a%20fully%20electric%20vehicle%20is%20about%20%2453%2C438.&text=This%20compares%20to%20%2448%2C808%20for,in%20the%20U.S.%20in%202023.>



cost of a new ICE vehicle priced at about 48,000 USD (appr. 70 million Naira)¹⁴. Moreover, while used ICE vehicles can be purchased at substantially cheaper prices (Around 17 million on average), there is currently no market for used EVs at cheaper prices. Nonetheless, the price gap is expected to close as the cost of battery packs subsides and more companies develop cheaper models of their existing fleets.

- There must be a framework that supports infrastructural development for local manufacturing of electric vehicles, as this will help enhance its acceptability and accessibility. However, while this framework is of paramount importance, financing channels must be put in place to support them. While there are EV companies like SAGLEV and JET Motors that support inhouse manufacturing of electric vehicle components, the prevailing challenge in meeting market sustainability is hinged on the availability of finance.
- Furthermore, Nigeria's energy access gap has become a persisting problem that hinders the adoption rate of electric vehicles. As of 2021, only 60% of the nation's population have access to electricity according

to World Bank Data¹⁵. This implies that only 26% of rural populations have access to electricity, indicating several challenges attributed to poor infrastructure management during generation, transmission and distribution of electricity.

- Lastly, there is limited awareness as to the existence and use of EVs. While EVs are mostly predominant in urban areas, there is still a gap in the level of awareness in rural areas.

Policy Recommendations

While adequate policy is primarily important to attract financing opportunities as well as the acceptability and accessibility of electric vehicles in Nigeria, it is important to also develop a strategic framework for incentives, skill developments and infrastructural support as this will provide a convenient and enhanced working environment for companies and indigenous manufacturers. While the NAIDP seeks to ensure rapid EV adoption by improving local production, more is needed to be done in terms of financing to ensure a smooth transition. In addition to NAIDP provisions, we briefly describe these recommendations below.

¹⁴ *ibid.*

¹⁵<https://data.worldbank.org/indicator/EG.ELC.ACC.S.ZS?locations=NG>



Incentives for local electric vehicle production and investment:

To foster the growth of the electric vehicle (EV) industry within the country, it is recommended to implement a comprehensive set of incentives aimed at encouraging local production and investment. These incentives include tax reductions for companies involved in EV manufacturing, investment and R&D tax credits, and grants and low-interest loans to support capital investments and startups. Import duty exemptions for critical raw materials, components, and manufacturing equipment will further reduce costs. Developing dedicated EV industrial parks with subsidized land rates and ready-to-use infrastructure will facilitate new setups. Workforce development programs, including skill development and apprenticeships, will ensure a skilled labor pool. Market development initiatives such as fleet purchase incentives and consumer rebates will drive demand for locally produced EVs. Public-private partnerships will promote collaborative R&D and pilot programs, while streamlined regulatory processes will ease the establishment of manufacturing facilities. By engaging stakeholders, implementing the policy in phases, and conducting public awareness campaigns, the country can boost economic growth, create jobs, reduce emissions, drive technological innovation, and enhance energy security.



Infrastructural development for electric vehicles:

Investing in comprehensive infrastructural development for electric vehicles (EVs) is essential for promoting sustainable transportation. This initiative should focus on expanding charging infrastructure in urban areas, highways, and rural regions, mandating the inclusion of EV charging stations in new developments, and retrofitting existing structures. Modernizing the grid with smart technologies and integrating renewable energy sources is crucial to meet the increased electricity demand from EVs. Financial incentives such as subsidies, grants, tax credits, and low-interest loans can encourage businesses and local governments to invest in EV infrastructure. Regulatory support through updated building codes, utility regulations, and zoning laws will further facilitate infrastructure development. Public-private partnerships can leverage shared expertise and resources, while public awareness campaigns and workforce training programs ensure widespread adoption and support. Increased funding for research and development, along with pilot programs for innovative technologies, will drive advancements in EV infrastructure. Implementing this strategy involves a phased approach: assessment and planning, initial deployment, expansion and optimization, and continuous

evaluation. This comprehensive plan will accelerate EV adoption, delivering significant environmental and economic benefits.



Skill Development Initiatives:

To enhance workforce employability and productivity, comprehensive skill development initiatives are essential. Regular, data-driven assessments should identify current and future skill gaps across industries, supported by partnerships with businesses, educational institutions, and labor organizations. Developing industry-relevant curricula in collaboration with experts and establishing vocational training centers and online platforms will address emerging fields like AI, data analytics, renewable energy, and healthcare. Public-private partnerships can co-create training programs, leveraging corporate social responsibility funds and establishing apprenticeship and internship opportunities. Inclusivity is crucial, targeting underrepresented groups with scholarships and financial aid. Integrating advanced technologies like VR, AR, and AI in training, along with digital literacy programs, ensures readiness for the digital economy. A national framework for certification and accreditation will maintain quality, while robust monitoring and evaluation will track program effectiveness. Career counseling and job placement services should align training with career aspirations, and entrepreneurship training can encourage self-employment. Policy and regulatory support, including tax incentives for

companies investing in training, will bolster these initiatives. Effective implementation requires stakeholder engagement through a National Skill Development Council, adequate funding from public and private sources, and widespread awareness campaigns. Pilot programs in key sectors will refine approaches before broader rollout, ensuring best practices and lessons learned are shared. This strategic approach aims to significantly enhance workforce capabilities, driving economic growth, reducing unemployment, and promoting social equity.

A Call to Action

Nigeria stands at a critical juncture in its journey toward sustainable transportation and economic growth. Developing a robust local electric vehicle (EV) manufacturing sector presents a unique opportunity to reduce carbon emissions, create jobs, and drive technological innovation. Achieving this vision requires concerted efforts from government bodies, private enterprises, and the general public. Given this, the following has to be in place:

1. The government must establish comprehensive policies and regulations, prioritize infrastructure investments, and integrate smart technologies and renewable energy sources.
2. The private sector should focus on research and development, local manufacturing capabilities, and

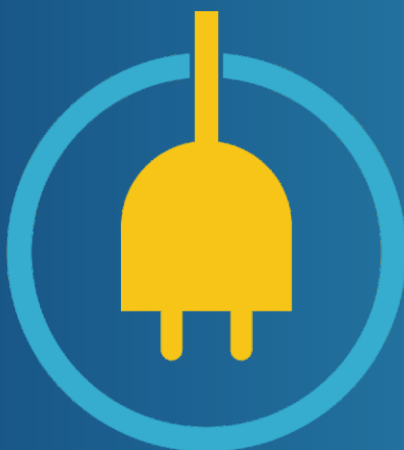


supply chains for EV components, supported by incentives such as subsidized industrial parks and low-interest loans.

3. Public awareness campaigns and comprehensive skill development programs are essential to educate citizens and create a skilled workforce.
4. Engaging in global partnerships will help share knowledge and attract investment.

5. Immediate actions include finalizing and implementing the national action plan for EV development, investing in local production facilities, and advocating for supportive policies.

By taking these steps, Nigeria can harness the potential of its emerging EV market, creating a sustainable, economically vibrant future and driving the nation toward a cleaner, greener future.



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