

# Energy Transition for Emerging Mobility Models in Africa



## HIGHLIGHTS

- ✦ The COP28 was another opportunity for Africa to examine her net-zero commitments and review the rights of African countries to exploit their natural resources endowments sustainably while exploring new collaboration models to help protect lives, livelihoods, and ecosystems on the continent.
- ✦ Africa is home to 1.5 billion people, growing at 2.4%, with an urbanization rate of 42%. The mobility needs of 1.5 billion Africans (2.5 billion by 2050) are indeed enormous and need to be met sustainably. The African transport sector is the second highest emitter of CO<sub>2</sub> in the continent (31% or 367 million tonnes).
- ✦ Major opportunity areas for clean energy transitioning in the African transportation sector include electric mobility solutions, alternative fuels and energy sources, and smart and sustainable infrastructure.
- ✦ In the short term, African governments must assess their urban transportation systems, develop robust policy frameworks, introduce short-term incentives for electric vehicle (EV) adoption for mass transit and collaborate with private sector entities to accelerate the installation of charging infrastructure in major cities.
- ✦ There is a need for government across all levels to leverage public-private partnerships models to explore and promote the use of clean fuels in public transportation /multi-modal transportation i.e. water, rail, bus, etc. across the continent.
- ✦ Considering the continent's rich renewable energy resources, Africa's starting point for energy transition is potentially strong. Some elements such as a strong political will, supportive regulatory environment, right financial frameworks, and global partnerships must be activated to deliver desired long-term outcomes.



[COP28](#), the 2023 United Nations' annual climate change conference presents another opportunity for [UNFCCC parties](#) to negotiate and agree on how to tackle climate change, limit emissions and halt global warming. The conference took place from November 30 to December 12, 2023, at the United Arab Emirates, and featured the first "global stock take," a comprehensive assessment of progress since the Paris Agreement. COP28 was the first to feature expanded stakeholder involvement, including high-emissions sectors and private organizations in the oil and gas sector.

"Just Energy Transition" was one of the four focus areas of the African Development Bank (AfDB) Group session at the COP28. In the first week of the conference, the Bank and its partners mobilized over \$175 million for the Alliance for Green Infrastructure in Africa (AGIA) to help advance the programme toward its first close of \$500 million of early-stage project preparation and development capital. Some other COP28 wins for the continent include the launch of \$80 billion energy transition strategy by Mozambique, the \$10billion Africa and Middle East SAFE Initiative, funding for the [€410 million](#) Omi Eko project secured by the Lagos State Government (Nigeria), AfDB's partnership with the Battery Energy Storage Systems (BESS) Consortium, AfDB's partnership agreement with the Global Green Bond Initiative, and many others. According to [AfDB estimates](#), Africa needs around \$2.8 trillion to respond adequately to climate change over the 2020-2030 period, but receives only \$30 billion annually in climate finance flows.

Africa is home to 1.5 billion people, growing at 2.4%, with an urbanization rate of 42%. Recent forecast shows that by the year 2050, Africa will have [25%](#) (circa 2.5billion people) of the global population and the fastest urban growth rate globally. Africa's urban transition offers great opportunities, but it also poses significant challenges. One of such challenges is the need for cheaper, cleaner, reliable, and more sustainable energy alternatives for homes, manufacturing sector and mobility. The mobility needs of 1.5 billion Africans (2.5billion by 2050) are indeed enormous.

But why should Africa bother about clean energy for its transportation needs when the continent accounts for the lowest (3%) energy-related CO2 emissions globally?

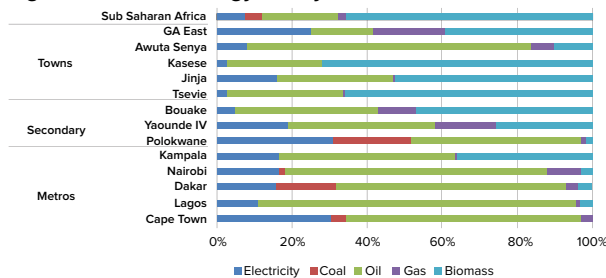
The recent post-Covid global energy crisis has shown how overdependence on hydrocarbons hurts countries' energy systems, markets, and economies, and also highlights the benefits of an accelerated scale-up of cheaper and cleaner sources of energy. This is in addition to the increasing existential threats of climate change on the continent. This report explores the need for African countries to gradually transition to transport systems that are powered by cleaner, cheaper, and more sustainable energy alternatives.



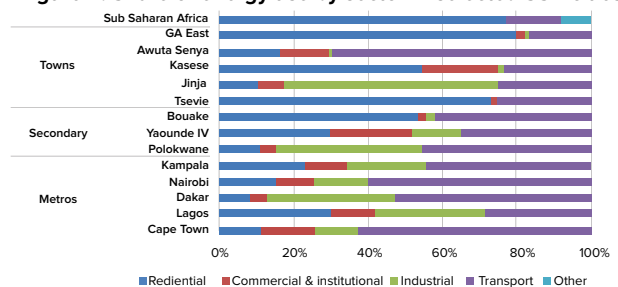
## Energy market landscape in Africa

Africa’s rich natural resources are not limited to hydrocarbons, sunshine, and other energy sources. Africa has abundant renewable energy resources (Solar PV: 1,449,742 TWh/y, Wind: 978,066 TWh/y, Hydropower: 1,478 TWh/y, etc.) but these remain significantly under-exploited. Minerals such as lithium, cobalt, and nickel are crucial for clean energy technologies globally and found in abundance in parts of Africa, especially in the Democratic Republic of Congo, Namibia, and Zimbabwe. Despite Africa being rich in renewable resources, we still depend heavily on hydrocarbon to power urban mobility/transportation needs. Figures 1 & 2 below shows how much African cities depend on hydrocarbons (coal, oil, gas) to meet their growing energy needs.

**Figure 1: Share of energy use by fuel in selected SSA cities**



**Figure 2: Share of energy use by sector in selected SSA cities**



Source: Nana. J. (2022)

Renewables account for **only 2%** of energy demand in Africa, whilst oil, natural gas, coal and biomass account for 23%, 16%, 13% and 45% respectively. Across most African cities, majority of the cars, motorcycles, light trucks and boats are primarily powered by gasoline whilst diesel fuel is used by some trucks, buses trains, boats and ships.

Similarly, aviation gasoline and jet fuel are used in many types of airplanes and helicopters even as natural gas and propane are now increasingly used for some cars, buses, trucks, and ships. The continued dependence on hydrocarbons as primary energy source has implications for livelihoods of Africans, the continent’s economic growth path, urbanization challenges and her 2050 net-zero commitments.

What are the major consequences of Greenhouse Gas emissions? CO2 emissions into the atmosphere from the burning of fossil fuels come with material environmental consequences, particularly global warming. Already, the average global temperature has increased by 1°C. Warming above 1.5°C risks further sea level rise, extreme weather, biodiversity loss and species extinction, as well as food scarcity, worsening health, and poverty for millions of people worldwide. Global warming exacerbates water shortages in already water-stressed regions and is leading to an increased risk of agricultural droughts affecting crops and biodiversity of ecosystems. As temperatures rise, destructive storms have become more intense and more frequent in many regions.

Nigeria witnessed heavy floods across 32 states in 2022, with economic loss estimated at over \$7 billion, 2.4 million people displaced and 665 casualties according to the National Emergency Management Agency (NEMA).

Climate change increases the factors that put and keep people in poverty. Floods may sweep away urban slums, destroying homes and livelihoods. Heat can make it difficult to work outdoor jobs. Water scarcity may affect crops. Over the past decade (2010–2019), weather-related events displaced an estimated 23 million people on average each year, leaving many more vulnerable to poverty. Most refugees come from countries that are most vulnerable and least ready to adapt to the impacts of climate change. Similarly, changes in the climate and increases in extreme weather events are among the reasons behind a global rise in hunger and poor nutrition, as fisheries, crops, and livestock may be destroyed or become less productive.



## Opportunities for energy transition in African transportation sector

The African transport sector is the second highest emitter of greenhouse (CO<sub>2</sub>)gases in the continent, responsible for an estimated 31% of the 1.2 billion tonnes of CO<sub>2</sub> from fossil fuel combustion released into the continent’s atmosphere in 2018. By choosing sustainable energy sources for transportation purposes, African nations can not only protect the climate, but also create new jobs, engender significant sustainable economic growth, and reap the associated social and health benefits. Current estimates indicate that Africa has the potential to generate 1,000 times more renewable energy than it needs to meet its own future demand by 2040. The table below summarizes some key opportunities for energy transition in urban mobility across African cities.

**Table 1: Opportunity areas for clean energy transitioning in African transportation sector**

Opportunity areas	Insights
<p><b>Electric mobility solutions</b></p>	<ul style="list-style-type: none"> <li>• <b>Public transport electrification:</b> Governments can incentivize the transitioning of public transportation, such as buses and taxis, to electric vehicles (EVs), in addition to the development of charging infrastructure.</li> <li>• <b>E-mobility initiatives:</b> The use of electric bikes, scooters, and rickshaws for short-distance travel can help reduce the reliance on traditional, fuel-powered modes of transportation. Start-ups and entrepreneurs can play a crucial role in introducing and expanding these e-mobility solutions.</li> </ul>
<p><b>Alternative fuels and energy sources</b></p>	<ul style="list-style-type: none"> <li>• <b>Biofuels and natural gas:</b> Exploring alternative fuels, such as biofuels and natural gas, for existing fleets can be a transitional step towards a cleaner urban transportation system. Governments can provide incentives for the adoption of these alternative fuels, reducing the carbon footprint of urban mobility.</li> <li>• <b>Hydrogen fuel cells:</b> Investing in hydrogen fuel cell technology for buses and other mass transit vehicles offers a promising avenue for sustainable urban mobility. Hydrogen-powered vehicles emit only water vapor, providing a clean alternative to traditional combustion engines.</li> </ul>
<p><b>Smart and sustainable infrastructure</b></p>	<ul style="list-style-type: none"> <li>• <b>Integrated transportation planning:</b> Cities can invest in integrated transportation planning that prioritizes sustainable modes of transport, such as walking, cycling, and public transit. This not only reduces energy consumption but also addresses issues of congestion and promotes healthier lifestyles.</li> <li>• <b>Smart traffic management:</b> Implementing smart traffic management systems can optimise traffic flow, reduce idling times, and enhance fuel efficiency. Advanced technologies, including sensors and real-time data analytics, can be deployed to improve overall urban mobility.</li> </ul>
<p><b>Policy and regulatory support</b></p>	<ul style="list-style-type: none"> <li>• <b>Incentives for green transport:</b> Governments can introduce financial incentives and regulatory frameworks to promote the adoption of green and sustainable transportation options. This may include tax breaks, subsidies, and preferential treatment for environmentally friendly vehicles and infrastructure projects.</li> <li>• <b>Emission standards and regulations:</b> Implementing and enforcing strict emission standards for vehicles can accelerate the shift towards cleaner technologies. Regularly updating and enforcing these standards ensures that the urban mobility sector continues to reduce its environmental impact.</li> </ul>

## Exhibit 1: Nigeria's recent clean energy initiatives for urban mobility.

### PPIAF - Sustainable green e-mobility solutions in Nigeria

With support from the World Bank, the Public – Private Infrastructure Advisory Facility (PPIAF) helped study the options for Nigeria's potential future engagement with e-mobility, emphasizing the need for financing structures that cannot be addressed using public finances alone. The study recommended facilitating e-buses in Nigeria with subsidies and financing solutions that account for the high upfront costs and prioritizing the use of renewable energy sources. The study also recommended private-sector driven urban e-mobility system starting from Lagos and followed by Abuja, Ibadan, Kaduna, and Kano.

### COP26 net zero pledge

At the COP26 in 2021, Nigeria took on the net-zero pledge, by committing to reach net-zero emissions by 2060. On the global methane pledge, Nigeria joined over one hundred countries aiming to reduce global methane emissions by at least 30% from 2020 levels by 2030. On February 2nd, 2022, the Federal Executive Council of Nigeria approved the nation's Energy Transition Plan (ETP) that defines a pathway to achieving net-zero target in 2060. Nigeria is so far the only African country with an Energy Transition Plan (ETP), with strategic focus on five sectors: Power, Cooking, Oil and Gas, Transport and Industry. The ETP seeks to create thousands of jobs, connect the population to modern energy services and manage the potential job loss in the oil sector because of global decarbonization.

### Recent Investment in Compressed Natural Gas (CNG)

The current administration has recently (October 2023) revealed plans to deliver **one million** CNG vehicles by 2027. The initiative is expected to start with the rollout of 55,000 conversion kits for petrol-powered vehicles by the Presidential Compressed Natural Gas Initiative (PCNGI). The initiative also targets over 11,500 new CNG-enabled vehicles through local assembly and manufacturing, a move to also cushion the impact of the fuel subsidy removal on transportation. This will create an estimated 50,000 jobs, and save the country an estimated \$20 billion over a 10-year period.

There is considerable interest in implementing CNG initiatives that leverage and harness locally available natural gas in Nigeria. Both energy security concerns and the need to mitigate local air pollution and reduce exposure to vehicular emissions underpin this interest. This can help to reduce dependence on fuel imports as well as cut down toxic emissions from a large ageing vehicle fleet running on diesel and gasoline.

### Launch of electric-mass transit in Lagos

The Lagos state government, in a drive to reduce carbon emissions and increase efficiency, partnered with Oando Clean Energy Limited to launch the first phase of its Sustainable Transport Initiative for Lagos State in June 2022. The initiative will see Oando Clean Energy introduce electric buses to the current fleet of BRT buses operated by Lagos Metropolitan Area Transport Authority (LAMATA). The roll-out of the electric buses kicks off with a three-month Proof-Of-Concept (PoC) phase, aimed at establishing the viability of electric vehicles for mass transportation in the state, and expected to generate over 30,000 jobs. The initiative will collaborate with the world's leading companies to drive the production of buses that have zero tail pipe emissions, regenerative braking systems as well as reliable and robust battery and motor systems to navigate difficult terrains and traffic conditions.

Similarly, Lagos state recently commissioned the 27-kilometre Lagos Blue Line rail system designed to run on the Mile 2-Orile-Marina corridor and powered by an 18 megawatts independent power plant. The Lagos Rail Mass Transit (LRMT) Blue Line started operating between Marina and Mile 2 in October 2023 with 54 trips daily and is expected to transport about 250,000 passengers daily. The Blue Line is one of the six light rails under the Lagos Rail Mass Transportation System designed by LAMATA.

### Electric Vehicles

In June 2021, former Nigeria's Vice President Yemi Osinbajo unveiled the Hyundai Kona by Stallion Motors, the country's first electric vehicle (EV). Since then, several auto makers have announced plans to set up EV assembly plants in the country. Saglev, announced plans to launch its advanced electric vehicle assembly plant in Ikorodu Lagos, whilst Nigerian-owned vehicle manufacturer Innoson Vehicle Manufacturing (IVM) has equally announced plans to establish an EV factory in the country. As more EVs are most likely to be seen on Nigerian roads soon, the challenges of EV infrastructure (especially charging stations) and technical know-how must be urgently addressed for sustainability.

### International Cooperation and Funding Opportunities

There have been recent commendable efforts by rich countries to fund energy transition in Africa. At the COP28, the governments of Germany, France and Japan, along with philanthropic organisations and African and global institutions, pledged over **\$175 million** to the Alliance for Green Infrastructure in Africa to build new green infrastructure.

Similarly, Africa raised **US\$1 billion** at COP28 for transforming health systems to cope with climate change induced illness and protect vulnerable African population. In January 2023, the European Union launched the Just and Green Recovery Team Europe Initiative for South Africa, as part of its Global Gateway programme. The initiative includes over EUR 280 million as grants for green recovery policy reforms, unlocking green investments, and building a knowledge-based transition in South Africa. In May 2023, the Africa Finance Corporation and Japan Bank for International Cooperation (JBIC), signed a Memorandum of Understanding to collaborate on infrastructure projects that accelerate energy transition in Africa.

In 2022, the G7 countries announced a \$600 billion lending initiative, the Partnership for Global Infrastructure Initiative (PGII), to fund sustainable infrastructure projects in developing countries, with a particular focus on Africa. Also, the US announced it was mobilizing \$200 billion for developing countries over the next five years in the form of grants, financing, and private sector investments in tackling the climate crisis and bolstering global energy security. Some deals have already been announced, including a \$2 billion solar energy project in Angola. The Africa Development Bank recently approved a \$7.8 million grant from the Sustainable Energy Fund for Africa (SEFA) for the Africa Energy Transition Catalyst Programme, which aims to increase renewable energy generation across the continent.

Similarly, the Africa Carbon Markets Initiative (ACMI) was launched at COP 27 with the goal of expanding Africa's participation in voluntary carbon markets. The ACMI is aiming to produce 300 million credits annually in Africa by 2030 and 1.5 billion credits annually by 2050. In 2021, Gabon became the first country in Africa to receive payments for reducing carbon emissions. The payment is part of the breakthrough agreement between Gabon and the multi-donor UN-hosted Central African Forest Initiative's (CAFI) for a total of \$150 million over 10 years.



## Addressing the energy gap between Africa and the developed nations

There is an existing gap between Africa and the developed countries in terms of energy transition. Bridging the green energy gap requires a comprehensive and multi-faceted approach that takes into consideration the unique challenges and opportunities present in each region. Here are some strategies that can be pursued.

### 1. Investment in renewable energy infrastructure:

Developed countries can provide financial support and investment in the development of renewable energy infrastructure in Africa. This could include funding for solar, wind, hydroelectric, and geothermal projects. International organizations, governments, and private sector entities can collaborate to provide funding and expertise.

### 2. Technology transfer:

Developed nations can facilitate the transfer of green energy technologies to African nations. This could involve sharing knowledge and expertise in areas like solar panel manufacturing, wind turbine construction, energy storage solutions, and grid management.

### 3. Capacity building:

Training and educating local professionals in Africa about renewable energy technologies and their maintenance can help build a skilled workforce that can drive the green energy transition. This includes training in installation, operation, and maintenance of renewable energy systems.

### 4. Policy and regulatory support:

Governments in Africa and the developed countries can work together to create favourable policy environments for green energy investments. This could involve providing incentives such as tax breaks, subsidies, and regulatory frameworks that encourage the adoption of renewable energy sources.

### 5. Regional cooperation:

African countries can collaborate with each other to pool resources, share experiences, and jointly address energy challenges. Regional organizations can facilitate knowledge sharing, policy harmonization, and coordinated efforts to develop cross-border renewable energy projects.

## Exhibit 2

### Transport sector energy transition in Dakar, Senegal

The Senegalese capital wants 15% of its local electricity production to come from renewables by 2035, and it is looking to cut reliance on diesel power generation from 90% in 2013 to 5% by 2035. Dakar's climate plan is being developed as part of its pledge under the C40 Cities Leadership Programme to be net-zero carbon by 2050. As elsewhere, transport dominates Dakar's energy demands, reflecting its deteriorating roads and ageing vehicle fleet. The city has an ambitious mobility and urban planning strategy to address these issues and reduce air pollution. To enhance urban mobility within the city, the Dakar BRT was built, spanning over 18 kilometres in Dakar, Senegal has now reduced commute time (45 minutes instead of 90 minutes) and will use electric buses to reduce its carbon footprint (59,000 tonnes avoided annually according to Dakar Mobilité).



## Energy Transition Roadmap for African Countries

*How might African countries transition from hydrocarbons to clean energy alternatives as they strive to meet the mobility demands of rapid urbanization?*

A starting point would be articulation of a comprehensive energy transition roadmap that is bespoke to each country's energy economics, and involves a combination of strategic planning, policy implementation, infrastructure development, and stakeholder collaboration. Breaking down the energy transition roadmap into short-term and long-term action steps helps provide a more practical and phased approach to the transition. We provide some insight below.

### Table 2: Short-to-mid-term action steps (1-5 years)

Focus area	Insights
<b>Current state assessment and planning</b>	<ul style="list-style-type: none"> <li>• Conduct a rapid assessment of the current state of urban transportation.</li> <li>• Identify priority areas for emission reduction and improved air quality.</li> <li>• Establish a working group for data collection and analysis.</li> <li>• Assess the implementation of the 10-year tax relief for in-country electric vehicle manufacturers</li> </ul>
<b>Policy framework</b>	<ul style="list-style-type: none"> <li>• Introduce short-term incentives such as tax breaks for electric vehicle (EV) purchases.</li> <li>• Enforce immediate emission standards for new vehicles entering the market.</li> <li>• Begin public awareness campaigns about the benefits of sustainable transportation.</li> </ul>
<b>Investment in charging infrastructure</b>	<ul style="list-style-type: none"> <li>• Identify key urban areas for initial deployment of EV charging stations.</li> <li>• Collaborate with private entities to accelerate the installation of charging infrastructure.</li> <li>• Seek funding from international organizations for the initial phase of infrastructure development.</li> </ul>
<b>Promotion of electric public transportation</b>	<ul style="list-style-type: none"> <li>• Pilot electric buses or taxis in selected urban areas.</li> <li>• Offer subsidies for public transportation operators to transition to electric fleets.</li> <li>• Develop partnerships with manufacturers for affordable leasing options.</li> </ul>
<b>Integration of smart mobility solutions</b>	<ul style="list-style-type: none"> <li>• Implement low-cost traffic management solutions, such as smart traffic lights.</li> <li>• Initiate public-private partnerships for the development of basic intelligent transportation systems.</li> <li>• Explore opportunities for using existing technologies for real-time data analysis.</li> </ul>

**Table 3: Long-Term Action Steps (5-10 years)**

Focus area	Insights
<b>Policy framework</b>	<ul style="list-style-type: none"> <li>Strengthen and expand emission standards to cover a broader range of vehicles.</li> <li>Implement regulations that phase out the use of high-emission vehicles.</li> <li>Develop a comprehensive policy framework for sustainable urban mobility</li> </ul>
<b>Investment in charging infrastructure</b>	<ul style="list-style-type: none"> <li>Scale up the deployment of EV charging stations to cover a larger geographic area.</li> <li>Explore innovative financing mechanisms, such as public-private partnerships, for sustained infrastructure development.</li> <li>Collaborate with energy companies to ensure a reliable and sustainable power supply for charging stations.</li> </ul>
<b>Promotion of electric public transportation</b>	<ul style="list-style-type: none"> <li>Expand electrification of public transportation fleets to cover major cities.</li> <li>Develop incentives for private transport companies to adopt electric or hybrid vehicles.</li> <li>Enhance public awareness campaigns on the long-term benefits of electric public transportation.</li> </ul>
<b>Integration of smart mobility solutions</b>	<ul style="list-style-type: none"> <li>Implement advanced smart traffic management systems to optimize urban mobility.</li> <li>Explore the integration of artificial intelligence for predictive traffic modelling.</li> <li>Invest in smart infrastructure to support autonomous and connected vehicles.</li> </ul>
<b>Sustainable urban planning</b>	<ul style="list-style-type: none"> <li>Integrate sustainable mobility into long-term urban development plans.</li> <li>Prioritize the development of pedestrian-friendly zones and cycling infrastructure.</li> <li>Implement zoning regulations that encourage mixed-use development and reduce the need for long-distance commuting.</li> </ul>
<b>Research and development initiatives</b>	<ul style="list-style-type: none"> <li>Establish research partnerships with universities and research institutions.</li> <li>Invest in local research and development for sustainable transportation technologies.</li> <li>Facilitate knowledge exchange with international organizations and research bodies.</li> </ul>
<b>Monitoring and evaluation</b>	<ul style="list-style-type: none"> <li>Regularly assess the impact of implemented policies on emission reduction targets.</li> <li>Adjust policies and strategies based on monitoring results.</li> <li>Publish progress reports to keep the public informed and engaged.</li> </ul>
<b>International collaboration</b>	<ul style="list-style-type: none"> <li>Strengthen partnerships with international organizations for technical support.</li> <li>Collaborate with neighbouring countries on cross-border transportation initiatives.</li> <li>Participate in international forums to share experiences and learn from successful global models.</li> </ul>

### Exhibit 3: What more can the Nigerian government do to facilitate energy transition for urban mobility?

Over the last two decades, the federal and state governments in Nigeria have implemented several reforms to drive low-carbon transport solutions across major cities. Few examples include the Climate Change Bill in 2021, partnership with the World Bank on the PPIAF, granting of pioneer status available to companies involved in independent power generation, introduction of feed-in tariffs (FIT) to accelerate investment in renewable energy sources, the electrification of mass transit, amongst other initiatives.

These strides notwithstanding, the potentials for clean energy transportation in Nigeria's major cities of Lagos, Abuja, Ibadan, Kaduna, Port Harcourt, and Kano remain untapped. To achieve the desired scale and impact, we highlight some short and long-term actionable policy options for the federal government:

#### In the short-to-mid-term, the Federal Government needs to:

- 1. Develop e-mobility policy framework:** There is a need for the government to conduct a robust current state analysis and develop a comprehensive e-Mobility policy framework for Nigeria. The policy must show short, medium, and long-term priorities, and address various aspects of infrastructure, technology adoption, standardization, regulatory frameworks, and incentives to encourage the sustainable growth of electric mobility across various Nigerian cities. This will serve as a blueprint and guide for the state governments, private sector, and international partners.
- 2. Build charging infrastructure and standardization:** The federal government need to commence urgent deployment of robust EV charging infrastructure network at strategic locations in major cities. Government should equally implement standardized charging protocols and connectors to ensure interoperability and ease of use for EV owners.
- 3. Promote the acquisition and use of EVs by some MDAs:** the government can mandate certain Ministries, Departments, and Agencies (MDAs) to acquire and use electric vehicles (EVs) as part of a broader strategy to inspire market adoption. This approach, often referred to as "fleet electrification," has been employed by various governments worldwide to stimulate the growth of the electric vehicle market.
- 4. Leverage public-private partnership models:** There is a need for government across all levels to leverage public-private partnerships to explore and promote the use of clean fuels in public transportation /multi-modal transportation i.e. water, rail, bus, etc. across the continent.
- 5. Provide incentives and subsidies:** EVs and other clean energy transport modes needs to be made attractive and economically viable to grow adoption in the short-term. This is required to address specific challenges, such as high upfront costs, limited charging infrastructure, and consumer hesitancy. Incentives could come in the form of purchase incentives, reduced registration fees, tax incentives for EV assemblers, exemption from toll fees, grants for R&D, etc.
- 6. Invest in capacity building:** The federal government needs to intervene strategically towards the development of skilled manpower with specialties in EV-specific components such as batteries, electric motors, and charging systems. Mechanics and technicians need to be equipped with the necessary skills for maintaining and repairing electric vehicles and charging stations.

#### In the long-term, the Federal Government needs to:

- 1. Invest in infrastructure:** Long-term planning should consider the anticipated growth in EV adoption. This would require significant infrastructure investment in the form of power generation and distribution, smart grid technologies, energy storage technologies, charging infrastructure network (on highways, city hubs, workplaces, The FGN could allocate 1% of savings from subsidy removal to green energy investments.

2. **Promote research and development:** For sustainability, there is need to allocate resources to research and development initiatives focused on advancing renewable energy technologies, energy storage solutions, and energy efficiency. Through the necessary strategic partnerships, Institute for Sustainable Energy (ISE) can be set up in selected universities to promote learning, research, innovation, and industry collaboration.
3. **Prioritize collaboration and partnerships:** Foster collaboration with private-sector stakeholders, including automakers, charging infrastructure providers, and technology companies. Public-private partnerships can drive innovation, investment, and the development of a sustainable electric mobility ecosystem.
4. **Drive international cooperation:** The FGN must collaborate with international organizations and financial institutions to access global funding opportunities for sustainable energy initiatives. The government must also participate in global initiatives focused on sustainable transportation and electric mobility. This includes sharing best practices, technology transfer, harmonizing standards, etc. There is opportunity for Nigeria to lead e-mobility advocacy and practice in Africa, given the size and complexities of Nigerian cities.
5. **Sustain robust public sensitization:** Maintain continuous public awareness campaigns to educate Nigerians about the benefits of electric vehicles, dispel myths, and address market concerns. This includes promoting the environmental, economic, and health advantages of clean energy transport alternatives

COP28 was another opportunity for the continent to examine her net-zero commitments, and review the rights of African countries to exploit their natural resources sustainably and explore new collaborations towards protecting lives, livelihoods, and ecosystems on the continent. The transport sector accounts for an estimated 31% of annual fossil fuel related greenhouse gas emissions in the continent. The mobility needs of 1.5 billion Africans (2.5 billion by 2050) are indeed enormous, hence the need for the continent to embark on gradual transition towards clean energy alternatives. The continent can capitalize on the following key strategies to foster sustainable change:

- 1 **Adoption of electric mobility:**  
Encourage the electrification of public transport, including buses, boats, and taxis, and support the introduction of electric bikes, scooters, and rickshaws for short-distance travel.
- 2 **Smart and sustainable infrastructure:**  
Invest in integrated transportation planning that prioritizes sustainable modes, such as walking, cycling, and public transit. Implement smart traffic management systems to optimize traffic flow and reduce fuel consumption.
- 3 **Exploration of alternative fuels:**  
Consider alternative fuels like biofuels, natural gas, and hydrogen fuel cells to reduce the carbon footprint of urban transportation.
- 4 **Policy and regulatory support:**  
Introduce incentives, tax breaks, and regulations that promote the adoption of green and sustainable transportation options. Enforce strict emission standards for vehicles to drive the transition towards cleaner technologies.

**Public awareness and education:**

- 5 Raise awareness about the environmental impact of transportation choices and promote sustainable travel behaviour, encouraging a shift towards cleaner and more efficient urban mobility options.

By embracing these opportunities and implementing a comprehensive approach, African cities can not only address the challenges of urbanization but also pave the way for cleaner, more efficient, and accessible transportation systems, contributing to a sustainable and resilient future.





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## About Verraki

Verraki is a proudly African company partnering with enterprises and governments to accelerate the development and transformation of Africa by providing business solutions designed for Africa. We build and implement technology solutions for seemingly intractable challenges, provide advisory services to drive the capacity and motivation for change, and curate innovative ventures to unlock new sources of growth across our continent.

A fusion of two words: ‘Versorium’ (Latin for Turn Around) and ‘Meraki’ (Greek word used to describe the action of doing something with soul, creativity, pouring oneself into a task), Verraki aptly captures the essence of our company; to turn around African enterprises and governments via smart, future-focused solutions and business insights, new growth opportunities, helping to unleash their potential, turnaround their performance and achieve the seemingly impossible, with the sole goal of creating a better future for Africa.

We are committed to enabling the African (start-up) story by supporting high-impact socially-conscious entrepreneurs and catalysing self-sustaining enterprises and governments within the continent to deliver affordable services across critical sectors.

## Our Growth Optimisation Offering

The contemporary business environment is dramatically different from what it was ten years ago, and it continues to evolve at an increasing rate. Consumer trends, macroeconomic shifts, technological advances, changing competitive dynamics, climate change, supply chain disruptions, digitalisation and pandemics are accelerating the pace of change, leaving many businesses struggling to grow amidst the turbulence.

At Verraki, we understand client needs and provide innovative new approaches that help enterprises and governments to explore new market opportunities including expansion into new regions, identification of new channels, targeting of new customer segments, or even the creation of new product categories in a way that moves them from “surviving” to “thriving.” Verraki develops and delivers the practical tools, frameworks, and organizational capabilities required to gain competitive advantage, and achieve sustainable growth, utilising customer insights, big data, and proprietary knowledge to achieve a deeper understanding of demand, customers, competitors, and opportunities.

Our seasoned executives and team have a broad range of multibillion-dollar P&L experience delivering long-term growth and optimisation vision, strategies, and management at global Fortune 500 companies.

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