

## LEGAL BUSINESS

## AELEX NOTES

# Nigeria must design legal and regulatory framework for electric vehicles to meet NDC targets - Part I

By Raymond Ofagbor

RECENT survey data shows that Nigeria accounts for over 75% of the registered vehicles in West Africa, with an ever-increasing number of vehicles plying the roads. The overwhelming majority of these vehicles have internal combustion engines which require astounding amounts of Premium Motor Spirits ('PMS') and diesel to run daily. The demand consumption figure for PMS and diesel as fuel for vehicular transportation has risen to over 66.9 million litres in recent years with no signs of abating. This trajectory comes at a cost - an escalating environmental toll and growing dependency on fossil fuels which are diametrically opposite to our ambition to meet carbon reduction targets and usher in a new era of clean energy. To realistically achieve the targets expressed in the 2021 Updated NDC ('Nationally Determined Contributions') it is imperative to construct sustainable electric vehicle (EV) infrastructure under a robust legal and regulatory framework.

EVs are powered by electric motors using the energy stored in rechargeable batteries installed in the car. To efficiently power EVs, three levels of infrastructure are required - grid and utility to supply the power; charging stations which could be privately installed in homes and offices or installed for use by the public in designated areas; and Electric Vehicle Supply Equipment ("EVSE") which refers to the cables and other equipment that connect the EV to the charging station to charge the battery. There are complex requirements for these three levels of infrastructure to work in creating a sustainable environment for mass EV adoption but the possible gains for energy independence and environmental security make a compelling case for adoption of EVs in Nigeria.

This article delves into the challenges militating against the full adoption of EVs in Nigeria at scale, illuminating the path towards a future where electric vehicles take the lead in Nigeria's transportation sector.

## Current state of EV infrastructure in Nigeria.

Charging equipment for EVs is



classified by the rate at which the batteries are charged. Charging times vary based on how depleted the battery is, how much energy it holds, the type of battery, and the type of charging equipment (e.g., charging level, charger power output, and electrical service specifications). The charging time can range from less than 20 minutes to 20 hours or more, depending on these factors. These factors greatly influence the infrastructural requirements for the use of EVs particularly in public transportation.

Nigeria's network of roads and highways has a total length of about 195,000 km for which there are over 27,000 registered filling stations to ensure sufficient supply of fuel to the millions of cars that ply these roads daily. In comparison, public EV charging infrastructure is essentially non-existent in Nigeria, and future development plans are neither ambitious nor pristine enough.

EVs currently used in Nigeria rely mostly on private charging stations installed in private homes and offices. At the Federal level, the National Automotive Design and De-

velopment Council (NADDC), commenced a pilot project to deploy solar-powered charging electric vehicle stations in three states in Nigeria. In the last 3 years, the NADDC has set up EV charging stations at Usman Dan Fodio University in Sokoto State, the University of Lagos in Lagos State and in the University of Nigeria Nsukka in Enugu State.

Globally, a significant infrastructural requirement for EV adoption is the availability of public charging stations with the capacity to support extremely fast charging ('XFC'). This is due to the need to ensure that drivers are never too far from a charging station and can re-energize their vehicles in comparable times to combustion engine vehicles that rely on PMS or diesel. The reticence to use an EV because of the fear of the batteries running out without a charging point within range is known as range anxiety. Availability and accessibility of public charging points therefore increases EV adoption as more people will be convinced that there will always be a place to charge their cars during trips. Without range anxiety, drivers may even consider opting for higher-priced EVs with less range and rely on more frequent charging stops. Charging stations at workplaces and public destinations may also help bolster market acceptance by offering more flexible charging opportunities.

In addition to widespread availability, public charging infrastructure needs to be adaptable to accommodate the technological advances in EV and battery technology. It also requires significant capital investment. For example, the UK government, in 2022, budgeted J1.6 billion to build 300,000 charging

points across the UK within a 10-year period. These charging points will outnumber the petrol pumps currently in operation in the UK by a ratio of five to one. This ambitious infrastructure target is partly due to nascent European Union rules that require charging points to be located no more than 60km apart.

It is evident that the available infrastructure in Nigeria is desperately insufficient and will require concerted efforts through the deployment of incentives, revamping of the regulatory framework, financing, training, and capacity building, to upgrade.

## Applicable legal and regulatory framework

There is no regulation in Nigeria that is specific to EV infrastructure. However, the general laws applicable to the power industry contemplate and make provisions that can serve as the regulatory basis for building EV infrastructure.

Under the Electricity Act 2023, power may be generated for use through any of four options. There is grid-connected power where the electricity generated is evacuated on the Transmission Company of Nigeria (TCN) grid. The second option is known as embedded energy where electricity is directly evacuated through a distribution system which is connected to a transmission network operated by a System Operations Licensee. Another option is the captive generation of off-grid electricity that is entirely consumed by the generator itself which has an installed capacity exceeding 1 MW, with no upper limit. The last option is Off-grid (including mini-grids) which are small-scale projects of up to 1 MW of electricity generation for distribution to a single or a limited number of customers.

EV Charging stations can therefore either be grid-connected or off-grid stand-alone facilities, but they usually combine elements of power generation, distribution and transmission which are all activities regulated and licensed under the Electricity Act by the Nigerian Electricity Regulatory Commission (NERC). Power generation companies connect to the transmission grid subject to the Grid Code. The Code con-

tains the day-to-day management operating procedures and principles governing the development, maintenance, and operation of an effective, well-coordinated and economic transmission system for the electricity sector. The Grid code is significant for the operation of public charging stations.

With respect to quality and standards for constructing and installing EV charging infrastructure, the Nigerian Electricity Management Services Agency (NEMSA) is the agency under the Electricity Act charged with the responsibility to ensure that all major electrical materials and equipment used in Nigeria are of the right quality and standards. Other NERC regulations and standards may also apply to the generation, distribution, and transmission elements of supplying power to EV charging points as well as applicable tariffs to purchase power from the charging points.

While the regulators may apply international best practice standards to ensure that EV infrastructure built in Nigeria is fit for purpose, a specific regulation for EV infrastructure is still imperative as some challenges to EV adoption and building sustainable EV infrastructure can only be addressed by specific regulation.

A great example of EV-specific regulation is the recently adopted regulation in the UK which is meant to help improve charger availability, speed, and reliability. The new rules are part of the European Union's "Fit for 55" package that aims to reduce emissions by 55% by 2030. They focus on reducing the distance between chargers and increasing average charging speeds.

In Part II of this article, we shall explore challenges to EV specific regulations and possible solutions.

*AELEX is a full service Commercial & Dispute resolution law firm with offices in Nigeria and Ghana. Contact us: [www.aelex.com](http://www.aelex.com); @aelexpartners on LinkedIn, Twitter, Instagram and Facebook; [info@aelex.com](mailto:info@aelex.com)*

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