



Health and Safety in the Nigerian Electricity Industry

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Introduction

In March 2026, a high-tension cable fell onto lower-voltage lines supplying homes in Manchok, Kaura Local Government Area of Kaduna State. The incident resulted in the deaths of three individuals, including a toddler and a 10-year-old, with three others sustaining injuries¹. In August 2025, a high-tension power line snapped and fell directly on a point-of-sale (PoS) operator in Awka South Local Government Area of Anambra State, while he stood outside his business premises². In another tragic electrocution in Kabusa, Abuja, a young boy, Samuel Ayodele lost his life after a live wire fell from a pole within the community.

NERC's Q1 2026 accident statistics recorded 24 accidents, resulting in 17 fatalities and 13 injuries involving employees and third parties. Although these figures represent a decline from the 46 accidents, 26 fatalities and 17 injuries recorded in Q4 2025, the number of incidents recorded in Q1 2026 remains significant. These events highlight the dire consequences of ageing infrastructure, poorly maintained lines, inadequate hazard response, the urgent need for timely maintenance, public safety awareness, and stronger regulatory enforcement across the Nigerian electricity supply network.

Generating, transmitting, and distributing electricity, including developing the infrastructure required for sustainable energy, poses significant risks. High-voltage transmission lines, substations, transformers, and other electrical installations are inherently dangerous and, if not properly managed, can result in injuries, fatalities, and property damage. These risks do not merely exist in theory; they manifest in real and often tragic incidents, including electrocution, electrical fires, equipment explosions, and the collapse or failure of electrical infrastructure. Despite these risks, electricity remains indispensable to modern society, as human activities and economic development heavily depend on a stable and efficient energy supply. Across industries, businesses, healthcare, education, and households, electricity plays a central role in ensuring productivity, efficiency, and improved quality of life.

The Two Dimensions of Electricity Safety

Health and safety in the electricity sector may broadly be understood in two interconnected dimensions: technical safety and personal safety. Although both aim to prevent harm arising from the generation, transmission, distribution, and use of electricity, they address the problem using different approaches. Technical safety focuses on the safety and integrity of the electrical system itself, while personal safety focuses on protecting individuals who may be exposed to hazards arising from that system.

Technical safety concerns the design, quality, construction, installation, operation, and maintenance of electrical systems and equipment. Its objective is to ensure that electricity infrastructure is properly designed and constructed, performs its intended function reliably and does not create avoidable risks. This is achieved through technical standards and specifications governing electrical installations, equipment, meters, transformers, substations, conductors and other components of the electricity network.

The reason is that the risk of electrical accidents can be substantially reduced where infrastructure is properly designed, installed, tested, certified and maintained. Technical safety requirements therefore address matters such as the quality and suitability of electrical equipment, the proper execution of installations, the integrity of power systems and networks, and the periodic inspection and maintenance of electrical infrastructure. In Nigeria, technical safety is regulated in instruments including the Electricity Act 2023, the NEMSA Act 2015, the Nigerian Electricity Supply and Installation Standards (NESIS) Regulations, and the various technical codes applicable to the Nigerian Electricity Supply Industry.

Personal safety, on the other hand, primarily concerns protecting individuals from the hazards associated with electricity. The relevant individuals may include electricity workers, consumers, and members of the public who may come into contact with, or otherwise be exposed to, electrical infrastructure. The focus is therefore on preventing injury, death and damage to property resulting from foreseeable exposure to electrical hazards.

¹Isa Isawade; 'PM News' available at <https://pmnewsnigeria.com/2026/03/22/tragedy-as-toddler-2-others-electrocuted/> accessed on 22 March 2026

²Ikenna Obianeri 'Punch' available at https://punchng.com/pos-operator-killed-in-anambra-as-high-tension-wire-falls/?utm_source=chatgpt.com#google_vignette accessed on 22 March 2026

Personal safety measures include controlling access to dangerous electrical installations, maintaining safe clearances around power lines and other equipment, providing appropriate barriers and warning signs, implementing safe working procedures, investigating electrical accidents and electrocutions, and taking remedial action where hazardous conditions are identified. The objective is to ensure that individuals are protected from foreseeable electrical risks, including risks that may arise even where the underlying equipment or installation technically complies with applicable standards.

While technical safety seeks to reduce the likelihood of a hazard arising in the first place, personal safety seeks to protect people from hazards that may arise despite technical controls.

For example, requiring a transformer to comply with approved engineering standards, be properly installed, and undergo the necessary inspection and certification is a technical safety measure. Similarly, requiring homes to use approved sockets, switches, cables, and other electrical equipment is a personal safety measure intended to protect users from electric shock, burns, or other electrical hazards. Together, they provide the foundation for protecting life, property and the public in Nigeria's electricity sector.

Regulatory Oversight of Electricity Safety

The division of responsibility for electricity regulation in Nigeria is rooted in the constitutional allocation of legislative powers between the Federation and the States. Under the Constitution of the Federal Republic of Nigeria 1999 (as amended), the National Assembly is empowered to legislate on electricity and the establishment of electric power stations, the generation and transmission of electricity in or to any part of the Federation and from one State to another, the establishment of a national grid system, and the regulation of the right of persons or authorities to use, work or operate plant, apparatus, equipment or works designed for the supply or use of electrical energy.

The Constitution therefore places matters concerning the national electricity system, including inter-State generation and transmission and the national grid, within the legislative competence of the Federation.

The Constitution also recognises legislative competence at the State level. Particularly, under the Electricity Act 2023, a State may elect to establish and regulate its own intrastate electricity market. Where a State satisfies the applicable requirements, regulatory oversight of the State's intrastate electricity market may be transferred from NERC to the relevant State Electricity Regulatory Commission or Authority. NERC has issued transfer orders to States that have completed the process, transferring regulatory oversight of intrastate electricity operations to their respective State regulators.

In practice, the decentralisation does not mean that the Federal regulatory role has been displaced entirely. NERC has retained the responsibility for electricity activities that remain within the federal regulatory sphere, including inter-State generation, transmission, supply, trading and system operations and even some of the activities within the state. In States that have not exercised the option to establish and regulate their own electricity markets, NERC continues to regulate the relevant electricity activities in accordance with the Electricity Act 2023.

A distribution network may operate within a State, while its connection to the wider electricity system may involve infrastructure and operations falling within federal jurisdiction. Effective safety regulation therefore requires not only clearly defined regulatory responsibilities but also coordination between NERC, State electricity regulators and specialised technical institutions such as NEMSA.

Amongst the Agencies, regulatory framework combines the specialised technical and safety mandate of NEMSA with the broader regulatory functions of NERC and, where applicable, State Electricity Regulatory Authorities.

NEMSA is the principal agency responsible for enforcing all statutory technical safety and electrical safety compliance within the Nigerian Electricity Supply Industry. Its statutory mandate includes enforcing technical standards and regulations and conducting technical inspection, testing, and certification of electrical installations, electricity meters, and instruments. NEMSA also monitors the technical condition of electricity infrastructure, certifies installations and equipment, investigates electrical accidents and electrocutions, and takes enforcement action when it identifies breaches of applicable technical standards or regulations.

NERC is responsible for the federal technical and economic regulation of the electricity industry, including establishing technical standards, operational, and quality-of-service standards, regulating federal electricity activities, and protecting electricity consumers. It also administers the relevant industry codes and has powers to enforce compliance with the Electricity Act 2023, applicable regulations, licences and regulatory requirements.

The Electricity Act 2023 introduced a decentralised regulatory structure which gave states the power to regulate power within their jurisdictions. Where a state has established and assumed responsibility for its own electricity market, the relevant State Electricity Regulatory Authority (SERC) will exercise regulatory functions over intrastate generation, distribution, supply, and other electricity activities within its jurisdiction. Where a state has not established such an authority, NERC continues to exercise the applicable regulatory functions within that state. State electricity regulators may therefore have responsibilities relating to technical standards, safety, service quality, consumer protection and compliance within their respective state electricity markets.

Thus, while NEMSA provides specialised technical oversight through inspection, testing, certification and enforcement of technical standards, NERC or the relevant SERC, depending on the applicable regulatory jurisdiction, regulates the conduct of electricity sector participants and their compliance with the broader legal, licensing, service quality and consumer protection requirements applicable to them. Where a State SERC decides to establish a technical inspection body to monitor standards and technical requirements for electricity equipment within that State, that inspection body may monitor technical inspection responsibilities instead of NEMSA.

Safety Enforcement in Practice

The decentralisation of the electricity sector therefore makes coordination between the different regulatory institutions particularly important. A single electrical accident may raise questions about the technical condition of an installation, compliance with applicable technical standards, and the conduct of the responsible electricity provider. Effective information sharing and coordination between NEMSA, NERC and the relevant State Electricity Regulatory Commission are therefore necessary to ensure that safety incidents are properly investigated and that responsibility for enforcement is clear.

Safety regulation extends beyond creating technical standards. It involves inspecting infrastructure, identifying unsafe conditions, certifying installations, requiring rectification of defects and, where necessary, enforcing compliance. NEMSA's inspection of the Afikpo 33kV feeder and Nibo Injection Substation, which identified 31 critical defects and led to a directive requiring EEDC to undertake corrective measures, illustrates the practical application of these powers.

The experience of other jurisdictions demonstrates that electricity safety regulation can operate effectively within systems involving multiple regulators. The United Kingdom, Australia, South Africa and the United States each employ different regulatory structures, but their experiences highlight the importance of clearly defined institutional responsibilities, consistent technical standards and cooperation between regulatory bodies. These lessons are relevant to Nigeria as it develops its decentralised electricity regulatory framework.

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