NATIONAL ENVIRONMENTAL (ENERGY SECTOR) REGULATIONS, 2014

National Environmental Standard and Regulations Enforcement Agency (NESREA)

Simplified Summary

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EXECUTIVE SUMMARY

This regulation covers power generation, transmission and distribution from the following: Combustion processes fueled by gas eous, liquid and solid fossil fuels designed to deliver electrical or mechanical power, steam, heat, or any combination of these, r egardless of the fuel type; Renewable (hydro, wave, wind, solar, geothermal, biomass) sources; and Nuclear sources.

According to the National Environmental (Energy Sector) Regulations, the energy sector shall deploy energy -efficient processes that are cost-effective, provide greater energy security, encourage green investment in renewable energy and energy efficiency, reduce emis sions of greenhouse gases (GHGs), address the problems of environmental degradation, and ensure that energy sources are ecological ly sustainable.

CONTEXT

These Regulations shall encourage electrical power efficiency in all electrical appliances by adopting green technologies on the basis of life cycle approach, anchored on the 5Rs ('reduce, reuse, repair, recover and recycle') from cradle to cradle as stated in the National Environmental (Electrical/ Electronic Sector) Regulations, 2011.

LEGAL FOUNDATION

Sections 34 of the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007

OBJECTIVE

The objective of these Regulations is to prevent or minimize pollution and encourage energy efficiency in all operations and an cillary activities of the energy sector in achieving sustainable economic development in Nigeria.

These Regulations shall cover power generation, transmission and distribution from the following:

A. Combustion processes fueled by gaseous, liquid and solid fossil fuels designed to deliver electrical or mechanical power, ste am, heat, or any combination of these, regardless of the fuel type
B. Renewable (hydro, wave, wind, solar, geothermal, biomass) sources
C. Nuclear sources

SCOPE

This sector shall deploy energy efficient processes that are cost effective and meet the following requirements:

A. Provide greater energy security through the use of indigenous energy resources
B. Encourage green investment in renewable energy and energy efficiency in line with the Kyoto Protocol
C. Reduce emissions of greenhouse gases (GHGs)
D. Address the problems of environmental degradation resulting from pollution, deforestation and vegetation loss
E. Ensure that energy sources are ecologically sustainable.

GUIDING PRINCIPLES

These Regulations shall encourage electrical power efficiency in all electrical appliances by adopting green technologies on the basis of life cycle approach, anchored on the 5Rs ('reduce, reuse, repair, recover and recycle') from cradle to cradle as state d in the National Environmental (Electrical/ Electronic Sector) Regulations, 2011.

Where environmental damage occurs as a result of any incident, operators of facilities shall be required to take appropriate remedial actions as approved by NESREA.

STATUTORY REQUIREMENTS

Every power (generation, transmission and distribution) facility Requirements, shall:

- Submit an Environmental Impact Statement for new projects or modification of the original state of a facility or project incl uding expansion of existing ones before the commencement of activities;
- Submit an Environmental Audit Report (EAR) of an existing facility every 3 years;
- Where a facility is to be decommissioned, transferred or alienated for any reason whatsoever, conduct an environmental assessment and submit the report to NESREA for verification and approval;
- Submit an Environmental Management Plan for the existing facility every 3 years;
- The power transmission and distribution facilities shall submit a right-of-way maintenance plan to the relevant town planning authority and NESREA;
- Submit a copy of their license from Nigerian Nuclear Regulatory Authority (NNRA) to NESREA where the organisation or facility generates and manages radioactive waste;
- Organisations and facilities generating and managing waste shall submit their radioactive waste management plan approved by NNRA to NESREA.

The National Standards for effluent or emission limitations represent minimum standards and different effluent standards shall be required based on the condition of the receiving medium.

Power sector facilities shall comply with current and future extant regulations an d guidelines on renewable energy power plants and others from the relevant agencies

Transmission and Distribution Lines

The power transmission and distribution lines shall not be installed directly above residential buildings in conformity with the Nigerian Electricity Distribution Regulatory Commission (NERC) transmission and distribution codes.

Installation of power distribution poles and power lines shall have a minimum Right-of-Way (RoW) as stated in the NERC codes as

A. transmission lines - 330K.V—50m (25 meters both ways)
B. distribution lines - 132K.V—25m (12.5meters both ways)

Wooden Electric Pole Maintenance and Management

Wooden electric poles shall be treated to ensure chemical fixation to prevent leaching and to imp ede the formation of surface residues at the right-of-way.

A facility shall not use banned chemicals as listed in the treatment of electric poles.

Control of PCB containing Materials or Units.
A facility shall ensure the replacement of existing transformers and other electrical equipment containing PCBs with other en vironment-friendly alternatives on or before 2020; A facility shall ensure that transformers and equipment containing PCBs are stor ed on an impermeable pad or base with bund walls sufficient to contain the liquid contents in the event of leakage or spillage; A facility shall ensure that the storage area is roofed to prevent wash -off; A facility with transformer equipment that is more than 15 years old shall contact the Ministry responsible for environmental matters for appropriate storage, disposal of contaminated units and decontamination of the site.
KEY PROVISIONS
Emergency Response Plan
A facility shall have an emergency plan and set up machinery, which shall be readily accessible and available to combat pollution hazards. A facility shall install anti-pollution equipment for the treatment of effluent and emission to meet the prescribed effluent and emission standards. The installation of anti-pollution equipment made shall be based on the Best Available Technology (BAT) or the Best Practicable Technology (BPT).
Installation of AntiPollution Equipment
A facility shall install anti-pollution equipment for the detoxification or treatment of effluent and emission so as to meet the prescribed effluent and emission standards The installation of anti-pollution equipment shall be based on the Best Available Te chnology (BAT) or the Best Practicable Technology (BPT).
Pollution Control Organizational System
Every facility shall put in place an organizational system for pollution control and it shall assign a Pollution Control Mana ger (PCM) who shall oversee pollution control and prevention. Capacity building schemes shall be adopted to help environmental PCMs and operators to obtain required qualifications and cer tification by the National Environmental Standards and Regulations Enforcement Agency (NESREA).
Chemical Use
A facility shall submit to the nearest office of NESREA - a list of the chemicals used in the production of its products, details and storage conditions of stored chemicals, a list of obsolete or abandoned chemicals and the proposed plan for their environm entally sound management, and a list of hazardous chemicals used in the power generation, and distribution equipment. A facility shall ensure that the minimization of organic solvents and the use of ozone -depleting substances are in accordance with the provisions of the Montreal Protocol and Kyoto Protocol or any other relevant Multilateral Environmental Agreement (MEA) ratified and domesticated by Nigeria.
Restricted Chemicals
The use of restricted chemicals shall be approved by NESREA.

Management of Oil Stations and Fuel Dump Sites
Every facility shall ensure that there is no contamination arising from leakage of surface or underground, oil or fuel, or ch emicals storage tank likely to cause pollution of the environment including surface water and grou ndwater.
Effluent Limitation Standard
Where an effluent is discharged without pre-treatment from a facility, and the concentration of any of its parameters exceeds the permissible limits as specified in the effluent limitation guidelines (as seen in table 1 below), it shall be deemed non-compliant and polluted as such, it is prohibited.
Restriction on the Release of Toxic Effluent.
A facility shall not discharge effluent onto land, into a watercourse or into a water body unless the facility ensures that t he parameters of the effluent do not exceed the permissible limits. A facility shall not discharge or cause to be discharged any effluent into a water system used or earmarked as a source of potable water supply.
Discharge of Hazardous Waste and Sludge
Disposal of hazardous waste on water or land without prior treatment is prohibited. A facility shall not discharge sludge dir ectly into any water body and any discharge to any part of the environment is prohibited except under a sludge disposal license iss ued by NESREA.
Emission Standards
A facility shall comply with the prescribed emission standards. A facility with any source or potential source of emission sh all measure the emission of every priority air pollutant emitted, report emissions data, develop and implement a plan to control such emission in accordance with the emission standards and this plan shall be reviewed every 3 years by NESREA.
Priority Air Pollutants
A facility with any source or potential source of emission shall measure the emissi on of every priority air pollutant emitted, develop and implement a plan to control such emission in accordance with the standards as prescribed in Schedule I to these Regulations.
Pollution Abatement for Air Emissions
A facility, which emits gaseous su bstances, shall treat such to the permissible limits as prescribed in Schedule I to these Regulations using the appropriate treatment technologies.
Best Practices
A facility shall adopt best practices (as prescribed in Table 3) to minimize the exposure of its personnel to occupational hazards. To achieve this, every facility shall apply the BAT and best practices in the management of energy conversion technologies, environmentally friendly BAT with emission levels not exceeding the permissible limits as contained in the emission standards (Table 2), and alternati ve fuels, processes and environmentally friendly methods that shall result in the significant reduction of emission.

Table 1: Best Practices to Minimize Occupational Hazards	
Area	**Recommended Measures**
Non-Ionizing Radiation	• Identification of potential exposure levels in the workplace, and the use of personal monitors during working activities; • Training of workers in the identification of occupational Electromagnetic Field (EMF) levels and hazards; • Establishment of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers; • Implementation of action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the Institute of Electrical and Electronics Engineers (IEEE); • Personal exposure monitoring equipment should be set to warn of exposure levels that are below occupational exposure reference levels; • Action plans to address occupational exposure may include limiting exposure time through work rotation; increasing the distance between the source and the worker; or the use of shielding materials.
Heat	• Regular inspection and maintenance of pressure vessels and piping; • Provision of adequate ventilation in work areas to reduce heat and humidity; • Reducing the time required for work in elevated temperature environments and ensuring access to drinking water; • Shielding surfaces where workers come in close contact with hot equipment, including generating equipment, pipes etc.; • Use of warning signs near high-temperature surfaces and personal protective equipment (PPE) including insulated gloves and shoes.
Noise	• Provision of sound-insulated control rooms (noise levels <60dBA); • Design of generators to meet applicable occupational noise levels; • Identify and mark high noise areas and request that personal noise protecting gear is used all the time when working in such high noise areas; • Proper installation of equipment with dampers to prevent vibration.
Electrical Hazards	• Installation of hazard warning lights inside electrical equipment enclosures to warn of inadvertent energization;

	• Use of voltage sensors before and during the worker's entrance into enclosures containing electrical components; • Deactivation and proper grounding of live power equipment and distribution lines according to applicable legislation and guidelines whenever possible before work is performed on or proximal to them; • Provision of specialized electrical safety training to th ose workers working with or around exposed components of electric circuits; • Provisions for periodic retraining as necessary.
Fire and Explosions Hazards	• Use of automated combustion and safety controls; • Proper maintenance of boiler safety controls; • Implementation of startup and shutdown procedures to minimize the risk of suspending hot coal particles during startup; • Regular cleaning of the facility to prevent the accumulation of coal dust; • Removal of hot spots from the coal stockpile and spread until cooled, never loading hot coal into the pulverized fuel system.
Chemical Hazard	• Generation of ammonia on site from urea; • Use of aqueous ammonia in place of pure liquefied ammonia; • Use of sodium hypochlorite in place of gaseous chlorine.
Dust	• Use of dust controls wherever free silica levels in airborne dust exceed 1%; • Regular inspection and maintenance of asbestos, containing materials to prevent airborne asbestos particles.
Extended Producer Responsibility Programme	
All operators, importers, exporters, manufacturers, assemblers and distributors of various brands of electrical power product s or equipment shall subscribe to the extended producer responsibility programme for end-of-life and discarded electrical power pro ducts.	
Pollution (Noise, Vibration, Emission, Waste) Control	
• A facility shall conform with the guidelines for permissible noise levels as outlined in the National Environmental (Noise St andards and Control) Regulations, 2009. • A facility shall apply appropriate techniques in power plants to minimize vibrations to the environment and adjacent facilities. A facility shall ensure that emission levels from all power plants conform to permissible limits for National Environmental (Ai r Quality Control) Regulations, 2014.	

• Every facility shall ensure that all waste including waste oil, sludge and oil filters from the power generating plants are h andled and disposed of, as prescribed in the National Environmental (Sanitation and Waste Control) Regulations, 2009.	
Community Relations Programme	
Every facility shall have a sustainable community relations programme as part of compliance with corporate social responsibil ity.	
PART 3 - SAMPLING FOR ANALYSIS	
Collection and Analysis of Samples	
To determine license classification and license compliance, a facility shall examine samples according to standard analytical methods in a laboratory accredited by NESREA and the Ministry responsible for environmental matters as well as the Nigerian Nuclea r Regulatory Authority (NNRA) in the case of nuclear fallout. The whole sample volume is to be taken at one time, at the point of discharg e, at the nearest practicable point within 1 kilometre upstream and downstream of the point of discharge. The entire s ample volume shall be analyzed immediately after collection or within 24 hours after taking the sample.	
PART 4 - SPECIFIC REQUIREMENT FOR POWERPLANT	
Specific Requirement for Powerplant	
Hydro Power Plant	The National Environmental (Wetlands, River Banks and Lake Shores) Regulations, 2009, National Environmental (Coastal and Marine Area Protection) Regulations, 2011 and National Environmental (Surface and Ground Water Quality Control) Regulations, 2011 shall apply for energy generation from hydropower plants. All Hydro Power facilities shall be sited considering the existing national guidelines provided by the Ministry responsible for environmental matters and the Ministry responsible for water resources.
Nuclear Power Plant	Nuclear power plants shall be built in accordance with International Atomic Energy Agency guidelines as may be adopted by the Nigeria Atomic Energy Commission (NAEC) and Nigeria Nuclear Regulatory Agency (NNRA). Nuclear facilities shall install pollution abatement equipment to prevent environmental damages that may arise. The NNRA regulates the cleanup of contaminated sites, sets the permissible limit for nuclear waste and maintains a radioactive waste management system. The operator of a nuclear facility s hall be liable for damages to the environment in the event of a nuclear accident except for acts of armed conflicts, hostilities, civil war, insurrection or in the event of a grave natural disaster.
Fossil Fuel Power Plant	Fossil power plants are the facilities that use hydrocarbon as fuels in their reactors. The National Environmental (Mining and Processing of Coal Ores and Industrial Minerals) Regulations, 2009 shall apply for extraction of coal for energy generation. Fossil fuel facilities shall take co nsiderable measures to reduce noise pollution from turbines and other power generators including auxiliaries. They shall also take measures to conserve water in their utility operations such as cooling towers and demineralization systems.

Renewable Energy Power Plant	Operators of renewable energy power plants shall ensure that construction activities are not detrimental to the environment and human health, and do not interfere with the use of public space, land and airport facilities, bio-fuel fired power plants shall be designed in such a way that gaseous emissions associated with the energy production are minimized, and every tree felled for power generation shall conform with the provisions of the National Environmental (Control of Bush, Forest Fire and Open Burning) Regulations, 2011 and the National Environmental (Desertification Control and Drought Mitigation) Regulations, 2011.

Efficiency of Electrical Power Equipment

This regulation shall apply to power generation, transmission and distribution equipment as well as household electrical appliances in accordance with the National Environmental (Electrical and Electronic Sector) Regulations, 2011. All power equipment used in the electrical grid shall be operated at optimum efficiency in line with the Nigerian Electricity Regulatory Commission (NERC) approved codes, standards and regulations. Importers of electrical devices shall take into consideration the power needs of the country and adopt the best technologies to achieve maximum efficiency of 90% power rating. All sectors of the economy shall adopt green practices in the use of electrical appliances and be encouraged to use only appliances with higher energy efficiency ratings. The use of energy-efficient devices shall be promoted and the use of incandescent light bulbs shall be phased out within 10 years.

PART 5 - PERMITS, INDUSTRIAL EFFLUENT MONITORING AND REPORTING

Applicable Permits

The permitting procedures shall be as applied in the National Environmental (Electrical and Electronic Sector) Regulations, 2011 and the National Environmental (Permitting and Licensing Systems) Regulations, 2009. Facilities shall obtain the following permits as applicable the biodiversity conservation permit, the air quality permit, the waste and toxic substances permit, the power generation, transmission and distribution equipment import permits, or the power equipment installation permit. The permittee shall comply with the reporting requirements under NESREA's permit including submitting a duly signed incidence report (based on sampling analysis) and monthly effluent or emission datasheet to NESREA's field offices every quarter. The permittee shall, at its own cost, install monitoring equipment approved by NESREA to facilitate the accurate observation, sampling and measurement of the quality of waste discharges.

PART 6 - ENFORCEMENT

Enforcement

NESREA is responsible for enforcing all applicable standards and requirements. Based on any information available to it, it may take any enforcement action at any time as appropriate. An enforcement notice shall be served if NESREA believes that a facility has contravened, is contravening or is likely to contravene any condition of the permit. Where a person fails to comply with the enforcement notice within the specified period given, a second notice shall be served. Failure to comply with the second notice within the specified time limit will lead to the issuance of a suspension notice, sealing of the facility or premises or any other punitive action as may be necessary.

PART 7 - OFFENCES AND PENALITIES
Offences
• It is an offence for a facility and the operator of a facility to contravene a condition of a permit, make a false or mislead ing statement, fail to comply with guidelines and standards set out by NESREA, fail to handle effluent and sludge adequately, fail to maintain and file reports (quarterly and annually), and discharge effluent beyond the permissible level. • Any person who commits any of these offences shall upon conviction, be liable to a fine not exceeding N200,000 or to imprison ment for a term not exceeding 1 year or to both and an additional fine of N5,000 for every day the offence subsists. Where an offence under these Regulations is committed by a facility, it shall upon conviction, be liable to a fine not exceeding N1,000,000 an d an additional fine of N50,000 for every day the offence subsists.
KEY STAKEHOLDERS
• National Environmental Standards Regulations Enforcement Agency (NESREA) • Nigerian Nuclear Regulatory Authority (NNRA) • Rural Electrification Agency (REA) • Federal Ministry of Power (FMP) • Distribution Companies (DISCOs) • Energy Consumers
RELATED REGULATORY AND POLICY DOCUMENT
• National Environmental (Electrical and Electronic Sector) Regulations, 2011 • The National Environmental (Permitting and Licensing Systems) Regulations, 2009 • National Environmental (Control of Bush, Forest Fire and Open Burning) Regulations, 2011 • National Environmental (Desertification Control and Drought Mitigation) Regulations, 2011 • National Environmental (Sanitation and Waste Control) Regulations, 2009 • National Environmental (Air Quality Control) Regulations, 2014 • National Environmental (Wetlands, River Banks and Lake Shores) Regulations, 2009 • National Environmental (Coastal and Marine Area Protection) Regulations, 2011 • National Environmental (Surface and Gro und Water Quality Control) Regulations, 2011 • Nigerian Radioactive Waste Management Regulations