ELECTRICITY LAWYER

SIMPLIFIED LEGAL *And* REGULATORY GUIDE:

Nigerian Electricity Regulatory Commission (NERC) Distribution Code for the Nigeria Electricity Distribution System

CONTENTS

OVERVIEW

Nigerian Electricity Regulatory Commission (NERC) Distribution Code for the Nigeria Electricity Distribution System

OVERVIEW

The Distribution Code for the Distribution Sector of the Nigerian Electricity Supply Industry contains a set of rules and guidelines supporting the adequate performance of distribution companies in electricity supply. In its five parts, the Code provides directives regarding essential parameters for electricity distribution such as distribution planning and connection, distribution operation, construction and maintenance, and data registration.[1] These directives constitute the Distribution Code and apply to distribution licensees in the electricity supply industry. For a complete understanding of the Code, it must be read in conjunction with the Market Rules,[2] Grid Code,[3] Customer Service Standards of Performance for Distribution Companies,[4] and other regulations governing the operational aspects of the electricity industry. The Distribution Code is divided into four sub-codes: The Distribution Planning & Connection code, Distribution Operation Code, Construction and Maintenance Code, and the Data Registration Code.

The Glossary of Terms referenced in this guide can be found in the main Code[5]and in our Glossary of Industry Terms.

ENABLING LAW

The Electric Power Sector Reform Act[6] serves as the enabling law for the Distribution Code. Through the power to make appropriate technical codes and manuals that may be required for the safe, reliable and efficient operation of the system,[7] gained from the Electric Power Sector Reform Act (EPSRA)[8], the Nigerian Electricity Regulatory Commission (NERC)was vested with the ability to promulgate the Distribution Code.[9] The EPSRA besides serving as the enabling law, also gives legal backing to the processes leading up to the establishment of the Distribution Code which include the unbundling of the power sector,[10] the establishment of distribution companies licensed to perform the functions of distributing electricity in authorized areas on 230V up to 33kV networks of the Nigerian electricity industry,[11] and the bestowed responsibility on distribution companies to oversee retail operations to end users of electrical energy.[12] Please refer to EL's guide on the Electricity Act.

OBJECTIVE

Nigerian Electricity Regulatory Commission (NERC) Distribution Code for the Nigeria Electricity Distribution System

OBJECTIVE

The rationale behind the promulgation of the Distribution Code includes the following:[13]	• The facilitation of an efficient usage of Electricity for all Users of the Distribution Networks, without any act of undue discrimination between Users or class of Users. • The facilitation of healthy competition in the generation and supply of electricity

KEY PROVISIONS

Nigerian Electricity Regulatory Commission (NERC) Distribution Code for the Nigeria Electricity Distribution System

KEY PROVISIONS

The following are the key provisions in the Distribution Code to be noted by persons or entities looking to participate in the Nigerian Electricity Supply Industry, whilst engaging in electricity supply activities:

Application of the Distribution Code

It must be noted that the provisions contained in the Distribution Code apply to all Distribution Companies and Users of the Distribution network in the Nigerian power sector. All Distribution Companies and Users of the Distribution Network are responsible for the implementation of the provisions contained in the Code and are expected to comply with these provisions except in permitted exceptional circumstances granted by the Commission.[14] Users for the purpose of the Code are:

- Directly Connected Generators.
- Directly Connected Power Customers.
- Inter-connected Distribution Network Operators.
- Energy Retailers or Marketers.[15]

Role of Distribution Companies (DisCos)

Subject to the terms and conditions stipulated in licences, the general roles of Distribution companies include the following:[16]

- Providing connection and delivering electricity to Users in accordance with applicable laws, licences and the technical and safety parameters contained in the Distribution Code and other industry regulations, at a level of service quality consistent with the applicable Customer Service Standards of Performance Code.
- Procuring ancillary Services on behalf of the Transmission and System Operator and recovering the costs of procuring such Ancillary Services.
- Handling network emergencies and restoring the Network back to its normal conditions in a safe and functional manner.
- Performing Demand forecasting.
- Examining and accepting Users connections.
- Ensuring proper metering at all Connection Points to their distribution networks.
- Ensuring compliance with and enforcing the Distribution Code and other Health and Safety Regulations for the Network.
- Consolidating the proper execution of system tests pertaining to the network to ensure Health and Safety of personnel and Equipment.
- Gaining necessary information from Users of the Distribution Network to perform adequate planning operations for the development of the network.

- Testing and monitoring Users' equipment or apparatus connected to the network to ensure their compliance with the Distribution Code and other relevant regulations.
- Making reports on scheduled and planned actions and unexpected occurrences such as faults, outages, network upgrading; to network Users, Connectors, and the Regulator; and
- Complying with the Transmission Grid Code and protecting the integrity of the Transmission Network.

Distribution Companies also have the obligation to:[17]

- Always preserve or restore the operational integrity of the Distribution System and the Transmission System.
- Comply with provisions in the Electric Power Sector Reform Act, their Distribution Licences or Concessions, and the Grid Code.
- Preserve the safety of equipment to prevent damages to plants, apparatus, or persons.

Users of the Distribution network are required to aid and cooperate with Distribution companies in this regard.

Unforeseen Circumstances

In cases where circumstances not envisaged within the Distribution Code arise, the Distribution company involved will be expected to promptly and in good faith, consult with the Distribution Code Review Panel and Users of the Distribution Network regarding what should be done. If an agreement is not reached in due time, the Distribution Company can determine what should be done under the applicable circumstance, in accordance with the Distribution Code. Nonetheless, the Distribution company must still refer the unforeseen circumstance(s) and its determination to the Distribution Code Review Penal for consideration.[18]

If an agreement still cannot be reached, the matter should be referred to the Distribution Code Review Panel for consideration, in accordance with the Distribution Code.[19]

Following any determination that is reached, it is worthy of note that Users of the Distribution Network are required to comply with all instructions given by the DisCo, provided that such instructions are consistent with the technical characteristics of the User's System and the principles established in the Distribution Code, and do not endanger the safety of its equipment or staff.[20]

Derogation

If a User has any difficulties in complying with or following the provisions of the Code, such User must inform the Commission and the affected DisCo of such difficulties

and must comply within 30 working days.[21] If the User however believes, based on special circumstances, that it would be unreasonable (following grounds of cost and technical considerations) to remedy such non-compliance or that it would require an extended period to remedy such non-compliance, such User must promptly submit to the DisCo, a request for derogation from such provision.[22]

A request for derogation must contain the following information:[23]

- Details of the Equipment and Connection Point in respect of which derogation is sought.
- If relevant, the nature and extent of non-compliance.
- The provision of the Distribution Code which the DisCo or User that requests the derogation is or will be unable to comply with.
- The reason for the non-compliance; and
- Any remedial actions to be taken and the date by which compliance could be achieved (if remedy of the non-compliance is possible).

It is worthy to note that Distribution companies can also apply for derogation to the Commission. NERC keeps a register of all such derogations granted to DisCos; identifying the name of the DisCo in respect of whom the derogation has been granted, the relevant provision of the Distribution Code concerned, and the period of the derogation.[24]

Confidentiality

Distribution companies are not allowed to disclose information such as terms and conditions of licences and concessions to any other User or any person without the prior written consent of the provider of the information, unless such is done in accordance with specific requirements within the Distribution Code or other applicable codes approved by the Commission, or the information to be disclosed is so disclosed for a use provided in the Distribution Code. It must be noted however, that this duty of confidentiality does not apply to information required by the Commission.[25]

Distribution Code Disputes

Where there is any dispute regarding interpretation of provisions of the Distribution Code or any disputes arising out of or in connection with the Code, the parties in dispute will be required to amicably solve the dispute between or amongst themselves.[26] If in any case however, the matter cannot be resolved amicably, it will be resolved by the Distribution Code Review Panel[27] whose decision will be binding on all parties.[28] Nonetheless, any of the parties who asserts the decision of the Panel to be unfair, may appeal against the decision to the Commission for consideration.[29]

Distribution Planning

Distribution companies will be responsible for distribution planning which in turn includes:[30]

- Forecasting future demand on its distribution areas.
- Analyzing the impact of connecting new facilities to the Distribution Network.
- Planning the expansion of the Distribution System to ensure its adequacy to meet forecast demand and the connection of new Generation, Loads; and
- Identifying and correcting problems on Quality of Supply, Power Quality and System Losses in the Distribution System.

Users of the Distribution network are required to cooperate with the DisCos in maintaining the Distribution planning data.[31]

Distribution companies are also required by the Code to develop a five-year Distribution plan which will include:

- Energy and Demand Forecasts.
- Distribution feeder routing and sizing.
- Distribution Reactive Power compensation plan.
- Distribution Losses reduction plan.
- Other Distribution reinforcement plans; and
- A summary of the technical and economic analysis performed to justify the 5-year Distribution Plan.

The plan is to be submitted to the Commission for approval, following which once it is approved, the Commission will have the right to audit and monitor the effective implementation of the plan.

In developing the distribution plan, the DisCo will be required to undertake the following system studies, amongst others:[32]

- Voltage drop studies.
- Short Circuit studies.
- Three-Phase Short-Circuit studies.
- System loss studies; and
- Distribution Reliability studies.

Applications for Connections or Modifications to Connections

Users looking to gain connection or modify connection to the Distribution System must submit to the DisCo, relevant Standard Planning Data and Detailed Planning Data.[33] If requested, the User will also submit relevant historical planning data for the previous year and or forecast planning

data for the next five years.[34] What is to be contained in the Standard Planning Data will be communicated to the User by the DisCo,[35] however, a Detailed Planning Data must include additional information necessary for the conduct of a more accurate Distribution Planning study; this covers circuit parameters, switchgear, and Protection arrangements of Equipment directly connected to or affecting the Distribution System.[36]

Furthermore, Users seeking a new or modified connection will have to submit a connection application to the DisCo.[37] The Distribution company will furnish the User with relevant system data upon request, [38] while the User will provide the DisCo with any information requested about the nature or use by the User, of electrical equipment on the User's premises.[39]

Once the processing of the application leads to the DisCo granting the new or modified connection, the DisCo will make a proposal to the User which must be accepted within 30 days from the date of receipt of the proposal.[40] Once the proposal is accepted, both the DisCo and the User will sign a Connection agreement or an amended Connection agreement.[41]

If the application is rejected, however, the DisCo will notify the User as to why the application was not acceptable. The DisCo will subsequently inform the User of the amendments required to make its application acceptable to the DisCo. The DisCo is to report this situation to the Commission.[42]

It is worthy of note that if the DisCo and the User cannot reach an agreement on the proposed connection or modification to an existing connection, the DisCo or the User will have the right to bring the matter before the Commission for resolution. NERC will have the reasonable right of access to any information that it deems fit to resolve such disagreement.[43]

Load Forecast

Distribution companies are also required to forecast the demand for power within its area of supply annually. There would also be long term forecasts formulated and projected over a five-year period.[44]DisCos are expected to undertake these forecasts using Prudent Industry Practice and the following will be considered:[45]

- Energy sales per customer category
- Degree of electrification
- Electricity Prices
- Population growth trends

- National economy trends
- Demand side management and loss reduction effects
- Specific projects, either Government or private sponsored that will imply the appearance of new loads in the DisCo's licence or concession area.
- Conservation programmes, Demand side management or off-peak usage programmes which the DisCo may be sponsoring, which are intended to reduce the User's future Energy and peak Demand.
- Significant public Events.
- Expected schedules for Generators connected to Distribution.
- Interconnection with adjacent DisCos, if existing; and
- Any other information within the DisCo's knowledge that could have some influence in the Load Forecast.

Proposals for System Tests

Notably, when a DisCo or User intends to undertake a system test which will affect the system of others, a six (6) month notice or any other timeframe agreed to by the DisCo, must be given by the person proposing the test to the DisCo or User whose system will be affected.[46]The proposal must be in writing and must contain details of the nature and purpose of the proposed System Test and will indicate the extent and situation of the Plant or Apparatus involved.[47]

Following the process of the system test and its conclusion, the proposer of the test will be responsible for preparing a written report of the System Test for submission to the DisCo and other members of the Test Panel which regulates system tests.[48] This report will include a description of the Equipment and/or Apparatus, tested and of the System Test carried out, together with the results, conclusions and recommendations for submission to other members of the Test Panel.[49]

Safety

Users of the Distribution Network will be required to supply to Distribution companies, a copy of its local safety instructions relating to its side of the connection point at each connection site while Distribution companies will supply to each User a copy of its Local Safety Instructions relating to the DisCo side of the Connection Point at each Connection Site.[50]

It must be noted that prior to connection, both the User and the DisCo must have approved each other's relevant Local Safety Instructions in relation to Isolation and Earthing.[51]

Furthermore, for each Connection Point, DisCo and each User must always have person(s) – also known as Safety Co-coordinator(s) – to be responsible for the co-ordination of Safety Precautions when work is to be carried out on the network or parts of it which necessitates the provision of Safety Precautions on High Voltage Equipment.[52]

Operational Planning

The objectives of the provisions of Operational Planning as set out in the Code is to specify the information that is required by DisCos from Users about their Forecasted Demand or the generation capacity that is required for their Distribution Systems to operate effectively.[53]

Timescales and Data

Date gathering and timescales are to be agreed between the DisCos and the Users. Due recognition would be given by the DisCos to voltage levels and capacity of plants and apparatus when accessing information requirement.

Information must be provided on a minimum weekly basis where week one starts in the first week of January as published periodically.

Demand Forecast

The DisCos are mandated to collect Demand forecast information for each Grid Supply Point on their network for them to meet the requirement of the Distribution and Grid Code. Where the Demand or change in Demand is greater than 1MW at a connection point, the DisCos would aggregate the forecast information provided by Users where appropriate and provide forecast information for their planning period to the System Operator. The Code stipulates rolling timescales to be involved in the Operational Planning Phase, Programming Phase and Control Phase. This is indicated in the schematic below[54]:

Operational Planning Phase	
Long Term	Calender years 1 and 2 ahead
Short Term	The current calendar year 52 weeks

Programming Phase	
Programming Phase	24 hours to 8 weeks ahead inclusive

Control Phase	
Control Phase	0 to 24 hours ahead

DisCos and Users must take the following factors into account when conducting Demand forecast in the operational planning phase.

- Historic Demand data and trends.
- Weather forecast (responsibility for weather correction of Users Demand rest with the User).
- Incidence of major events or activities.
- Directly Connected Generation Set Schedules.
- Interconnection with adjacent DisCos.
- User's operated Demand Control.
- Any other factor reasonably considered necessary.

The DisCos are also mandated to carry out Energy audit of its total system for the purpose of enhancing overall reliability of their operations.[55]

Maintenance Plants

Every year, DisCos are expected to prepare a Long-Term Program that covers two (2) years ahead which would include Distribution system outages and directly connected generating plants outages. Users and directly connected generators must also provide to the DisCo information relating to their Provisional Maintenance Plan. The Long-Term Program must be developed considering the forecasted Demand, the implemented Maintenance Plan, the request by Users for changes in their maintenance schedule, the requirement for the maintenance of the Grid, the need to minimize the total cost of the required maintenance, and any other relevant factor. If the User is not satisfied with the maintenance schedule, the User may explain his concern and request changes to the DisCo who would take into consideration the Users request. The DisCo is also expected to make all reasonable attempts to revise the Long-Term Program to accommodate the User's concern. The Medium-Term Program is expected to be updated to form the basis of the Short-Term Program. The Short-Term Program would form the basis of issuing the programming fees and future programs for ten (10) weeks ahead.[56]

Demand Estimation

The DisCo is expected to estimate the hourly and daily Demands at each interconnection point based on relevant Load Curves drawn on day-ahead basis subject to modifications depending on the communications received from any specific User or caused by a contingency. The Users in question must provide the DisCo with the necessary data in relation to their Demands of their installations.[57]

Outage Planning

The DisCos must also provide outage programs to the System Operator on a month-ahead basis. The outage program is expected to contain identification of Lines and Equipment of the Distribution System proposed to be taken out of service, date of start of outage, duration of outage, quantum of load restricted at any interconnection point during outage. The outage plan must come into effect only after the System Operator releases the finally agreed Transmission Outage Plan.[58]

Contingency Planning

The Code provides that in the case of a Total or Partial Transmission System Blackout, a contingency situation may occur. Local breakdowns in the Distribution System or a breakdown in the Equipment/Apparatus of Users of the Distribution System or TSP at the point of interconnection can also cause a contingency on a section of the Distribution System. Contingencies are categorized into three and they are summarily highlighted below:

System Blackout (Total or Partial)	The DisCo must follow the black start procedures outlined by the System Operator as required by the Grid Code in the event of a total or partial blackout at any point of interconnection. At each interconnection, the DisCo must develop a list of important and non-essential loads in order of priority to be picked up throughout the restoration process. The System Operator must approve the schedule before it may be sent to the Commission.
Distribution System failure	A Distribution System Failure is defined as a two-hour or more interruption in power supply in any section of the Distribution System due to a breakdown in any portion of the Distribution System. For such a Distribution System Failure, the DisCos will develop a restoration process.[59]
Failure of Equipment of the Transmission Licensee	The DisCo must promptly contact the System Operator or an authorized person at the TSP substation to determine the likely restoration time and load limit from the affected substation. As needed, the DisCo may adopt the Demand Side Management strategy in accordance with an agreement with its network's Users.[60]

Demand Management and Load Shedding

For maintaining the Load Generation balance as specified by the System Operator, Demand Management may be used. This may also be necessary owing to a circuit or equipment failure or any other type of operational problem. Demand Management relates to these methods of Demand Reductions:

- Voluntary User Demand Management initiated by the DisCo.
- Automatic under frequency load shedding.
- User Demand reduction including Voltage Reduction.
- Emergency manual User Demand reduction.

Temporary load shedding will be implemented as directed by the System Operator to maintain the load generation balance. This may be necessary owing to a shortage of power, a circuit or equipment failure, or any other operational situation. In the case of a dramatic drop in frequency, User Demand may be disconnected automatically at a designated area in compliance with Grid Code standards. This arrangement must be properly coordinated as part of a larger design, and it must consider any operating needs or Essential Load. In collaboration with the Users supplied through such point, the DisCo should estimate Loads that may be shed in discrete blocks at each Grid Supply Point. In this sense, such Users must work with the DisCo. The DisCo will determine the sequence of Load Shedding activities and provide the complete method to the person(s) in control of the substations where such Load Shedding is required.

Planned rotational load shedding may be utilized to divide the available power among impacted Users if there is a persistent period of deficit due to any limitation in the Transmission System and/or Distribution System. The public should be quickly alerted of the DisCo's arrangements through the media in the event of load shedding under the DisCo's scheduled load shedding rotas. Users with contract Demands of [1 MW] or more, as well as Essential Loads like as hospitals and public waterworks, will be alerted by phone or any other means available.[61]

Metering and Protection

For Operational metering at the Distribution System substations, the minimum requirements are indicated in the table below[62]:

33 kV/11 kV substations	• 33 kV Bus Voltage • 11 kV Bus Voltage • 33 kV incoming/outgoing current in each phase and each circuit • Power Transformer Primary and Secondary Currents in each phase of every Transformer • 11 kV outgoing feeder currents in each phase for each feeder • Power Factor in each 11 kV feeder • Load survey meters having memory duration of at least 45 days for all the incoming and outgoing feeders (both 33 and 11 kV)
User's system with Demand of 1 MW and above	• Voltage • Current • Load • Power Factor

The Code goes further to distinguish between tariff and commercial metering. In line with the Grid Code, the Metering Code, and the Transmission Connection Agreement, tariff metering shall be provided at each point of connection between the Distribution and Transmission Systems, whereas Commercial metering is required at the connection points between the User's System and the Distribution System and is controlled by the Metering Code and the Distribution Connection Agreement. DisCos must install the following meters of all their lines connecting the Generating Stations and substations for the measurement of Energy import/export from each line, energy generated in generating units or Power Park Modules and Energy consumed in Power Stations and substations:

- Active Energy import
- Active Energy export
- Reactive Energy import
- Reactive Energy export

It should be noted that all metering equipment must comply with the provisions of the Metering Code.

Communications

The DisCo, Users, and TSP must create reliable communication linkages for the exchange of data, information, and operation instructions. User here refer to:

- Consumers with a demand of 1 MW or more
- Consumers linked to the AV network AV FOR VERIFICATION
- Power Park Modules or Directly Connected Generating Units

The DisCos and Users of the Distribution System must use communication equipment that complies with the appropriate International Telecommunications Union (ITU) and International Electrotechnical Commission (IEC) standards. To ensure effective information sharing, the DisCo and each User linked to its Distribution System shall elect officers and agree on communication routes. If a User connected to the Distribution System performs an operation on his or her system that has or may have an operational effect on the Distribution System, the User must notify the DisCo in accordance with the Code.

SCADA- Supervisory Control and Data Acquisition

The Code specifies that SCADA facilities must be required in the control centre of DisCos for the transmission and collection of signals, plus indications to and from Remote Terminal Units (RTU). These signals may be upgraded periodically to meet operational requirements. RTU with their communication facilities must be installed in the bulk load supply points of the DisCos area and on major Users load centres to collect real time operational data to be transmitted to the DisCos control centre. The DisCos have the responsibility to provide and maintain wiring and signaling, integrity, security and reliability of the communication and data gathering equipment from these RTU to their control centres.

All information carried by SCADA, Metering Equipment, computer, and communications Equipment used by the DisCos must be secured against unauthorized access.

The procedures that govern security and access must be developed by the Distribution Code Review Panel and adopted by the DisCos and must also allow for adequate access to the Equipment and information by the DisCos and their authorized agents for the purpose of maintenance, repair, testing and taking of readings.[63]

Incident and Accident Reporting

By virtue of the Code, Significant Incident includes

- Malfunctioning of Equipment, Apparatus connected to the Distribution Network.
- A person, or animal receives an electric shock, whether mild or serious or suffers an injury or burn, directly or indirectly due to electrical causes.[64]

Reporting timelines as specified in the Code are as follows:

Timelines	Actions
Within 12 hours	The DisCo employee in charge of the affected Equipment, Apparatus, or location must notify the occurrence to the highest accountable official of the DisCo in charge.
Within 24 hours	A designated officer from the impacted DisCo should arrive on the scene and examine the issue, including the likely cause of the accident, customer losses, and equipment damage.[65]
Within 24 hours	NERC will investigate every Significant Incident. It should be done as soon as feasible, but not more than twenty (20) days in any event. It should be a thorough investigation that may or may not include members of the security forces to determine the fundamental reasons of the accident, which can be difficult to determine.[66]

Reliability Analysis

The improvement in Reliability of power supply to customers shall be taken into consideration when planning to extend and improve a Distribution System. Before and after the extension and upgrade program, the Reliability indices of power supply in the region served by the Distribution System will be estimated. If there is no data at the commencement of the deregulation process, automatically there would be no information for analyzing the Reliability limits under which the Distribution System is operated.

Factors such as the Momentary incoming supply failures, Momentary interruptions on 33 and 11 kV feeders, Breakdown on LT feeders, Prearranged shutdowns on lines and feeders, Blowing out of Distribution Transformer fuses, Individual fuse off calls and Accidents/vandalization of Distribution System Infrastructure shall be considered subject to availability of data.[67]

Safety Logs

The DisCo and Users must keep Safety Logs, which are a chronological record of all communications related to safety coordination sent and received by the Safety Co-ordinator under the Code. The Safety Logs must be kept for a minimum duration of one year.[68]

Distribution System Construction and Maintenance

The Code prescribes that for proper operation of the Distribution System, best utility practices must be maintained in working practices. Therefore, the operations of each DisCo must satisfy the following below[69]:

- The minimum technical requirements for DisCos and Users of the Distribution Network for operating a safe and reliable Distribution System
- The obligations and accountabilites of DisCos ensuring a safe, reliable and efficient Distribution Network.

Construction Practice

The set up and construction of distribution lines are required to be done in accordance with the Nigeria Electricity Supply and Installation Standards.[70] Also, electric poles are to be erected vertically (for Low Voltage lines however, the lines may be of horizontal or vertical configuration, but

preference is always given to vertical configuration and not horizontally and they must be maintained within the reasonable limits of tolerance. For instance, concreting of foundation from the bottom up to 150 mm above the planting depth must be done in all the types of soil conditions at anchor locations, cut points and transformer centres and all other locations that are considered necessary. Specifically, the Code prefers concreting all poles in non-cohesive soil.[71] In addition, the conductors of 11 kV and 33 kV lines are expected to be arranged in delta formation, which is generally by placing the top conductor on the top of the pole on an insulator with a bracket clamp and placing the bottom conductors on insulators that are mounted on a suitable cross arm.[72]

The Code further specifies that earthing should be done in accordance with the most recent NCP 9, NIS/IEC 60364-5-54 (1980-01) and the Nigerian Electricity Supply and Installations Standards Regulation. It is also required that in all 33 kV substations only cast-iron pipes are to be used for earth electrodes.[73]

In addition, these earth electrodes, other than those used for earthing of the fence should not be installed close to the metal fence, to avoid the possibility of the fence becoming live and then dangerous.[74]The pole that mounts the Distribution transformers should be made easily accessible to the public, mechanisms such as "Danger signs" are encouraged to be used through visible display.[75]

Off-Schedule Inspections

To maintain the Distribution System at the required level of Reliability in operation, the Code specifies that the following kinds of inspections should be carried out:

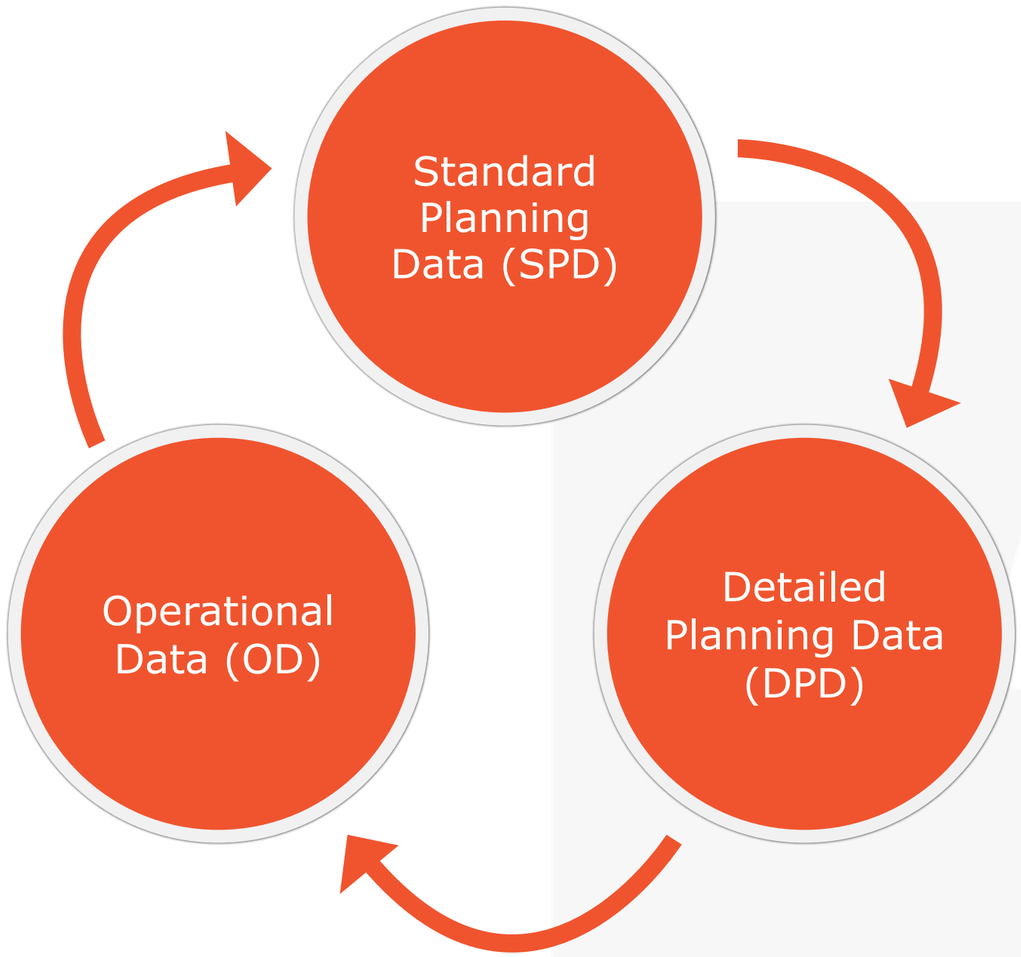
Special inspections	These inspections must be carried out immediately when there has been a severe weather conditions, such as heavy windstorms to detect any damage and necessary actions to be taken.

Emergency inspections	These are carried out on a line equipment during the equipment's breakdown, to determine the cause of trouble as quiclkly as possible in order to restore power supply.
Follow up inspections	Where there has been one or more short time interruptions due to temporary faults, the inpection will be carried out to locate and identify the cause of interruption and suitable action to be taken.
Check inspections	These inspections shall be conducted periodically by the Engineer in charge of the Distribution System to check the conditions of the System and point out defects that may have not been noticed by maintenance staff at first instance.

Data Registration

The Code mandates that all DisCos and Users update and exchange data periodically. This data is referred to as "Distribution Data Registration Requirements (DDRR)" and it provides a series of schedules that summarizes all the requirements for information of a particular type. The DDRR also specifies procedures and timings for the supply of data and subsequent updating. In addition, the DDRR includes existing and prospective Directly Connected Generators.[76]The objective of the DDRR is to collate and list in a readily identifiable form all the data to be provided by each category of Users to the DisCo under the Distribution Code and the DisCo to each category of User under the Distribution Code.[77]

The data required under the Code are[78],[79] :



SPD is the data that is required to be supplied by all Users when making application for connection to and/or use of the Disco's Distribution System in order that the DisCo may assess the implications for making the connection

OD is data which is required by the DisCo for the day to day operation of Users of the Distribution System.

DPD is the data which is required to be supplied by the Users specified for connection to and/ or use of the DisCo's Distribution System

All data must be submitted in writing and User's data may be changed after prior consent has been sought from the DisCo. The User is also solely responsible for the accuracy of data that is supplied to the DisCo.[80]

KEY STAKEHOLDERS

Nigerian Electricity Regulatory Commission (NERC) Distribution Code for the Nigeria Electricity Distribution System

KEY STAKEHOLDERS

Nigeria Electricity Regulatory Commission

NERC established the Distribution Code based on its power to make appropriate technical codes and manuals that may be required for the safe, reliable, and efficient operation of the distribution system, based on powers vested by the Electric Power Sector Reform Act. The Commission also has the authority to approve amendments to be made to the Distribution Code from time to time.[81]

Distribution Code Review Panel

The Distribution Code Review Panel is established and maintained by the distribution companies under the administration of the Nigerian Electricity Regulatory Commission (NERC). The panel is responsible for improving and developing the Code through regular review, consultation, research, and other methodologies found appropriate from time to time. The funding of the panel is handled by distribution companies through an appointed agent.[82]

The Distribution Code Review Panel performs the following functions:[83]

- Reviewing the operation of the Distribution Code in accordance with the provisions of relevant industry rules and regulations.[84]
- Aiding the DisCos in determining what action to take when unforeseen circumstances not provided for in the Code arise; a process which is done in good faith with DisCos and Users of the Distribution Network.[85]
- Reviewing all suggestions for amendments to be made to the Distribution Code, which is then approved by the Commission.[86]
- Maintaining and ensuring publication of the current version of the Distribution Code.
- Publishing recommendations regarding amendments to the Distribution Code that any of the DisCos or the Panel believes are necessary or desirable and the reasons for the recommendations.
- Issuing guidance in relation to the Distribution Code and its implementation, performance and interpretation when asked to do so by any User; and
- Establishing and maintaining joint coordination arrangements with the Grid Code Review Panel to coordinate changes to and consistent development of the Grid Code and the Distribution Code.

PRICING
AND TARIFFS

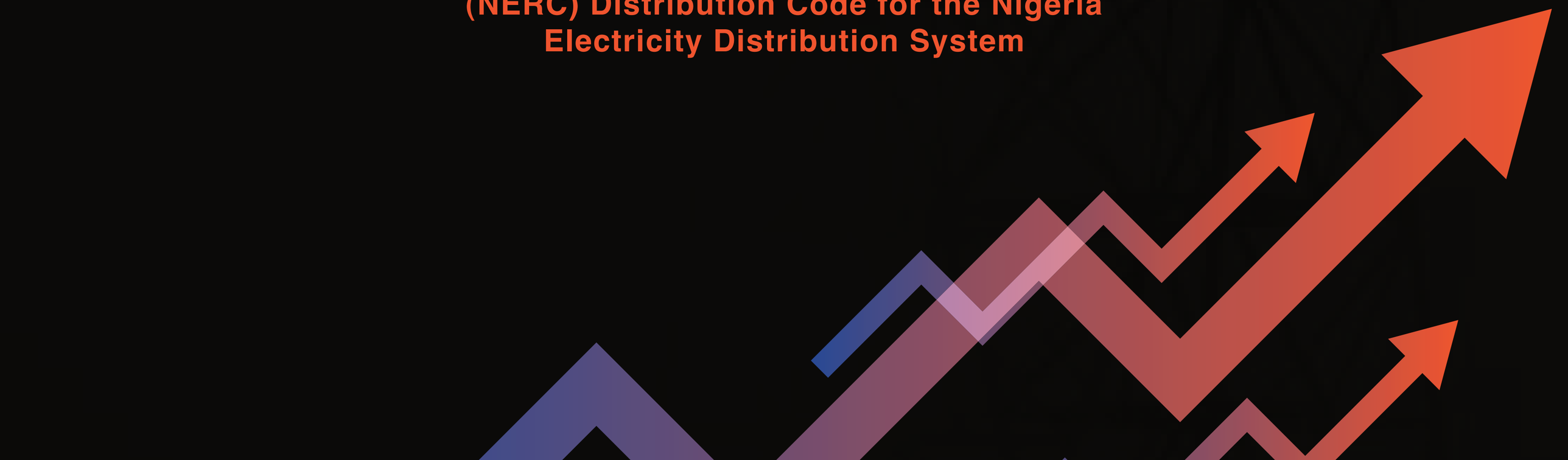
Nigerian Electricity Regulatory Commission (NERC) Distribution Code for the Nigeria Electricity Distribution System

PRICING AND TARIFFS

The Distribution Code does not specifically provide for pricing and tariffs.

INCENTIVES AND INVESTMENT OPPORTUNITIES

Nigerian Electricity Regulatory Commission (NERC) Distribution Code for the Nigeria Electricity Distribution System



INCENTIVES AND INVESTMENT OPPORTUNITIES

There are no opportunities for investment in the Distribution Code.

SANCTIONS AND PENALTIES

Nigerian Electricity Regulatory Commission (NERC) Distribution Code for the Nigeria Electricity Distribution System

SANCTIONS AND PENALTIES

The Code provides that Users consistent failure in compliance with its provisions can lead to the disconnection of the applicable User's plant, equipment, or apparatus.[87]

Referenced Statutory Instruments

- Electric Power Sector Reform Act, 2005
- Market Rules for the Nigerian Electricity Supply Industry, 2009
- Grid Code for the Nigeria Electricity Supply Industry (NESI) – Version 03, 2018
- Customer Service Standards of Performance for Distribution Companies, 2007

Endnotes

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14 Section 1.4.1
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16 Section 1.5.1
17 Section 2.2.2
18 Section 2.2.3
19 Section 2.2.4
20 Section 2.2.5
21 Section 1.4.1(a)
22 Section 3.5.2
23 Section 3.5.5
24 Section 3.5.9
25 Section 3.7.1
26 Section 4.3.1
27 Section 4.3.2
28 Section 4.3.3
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30 Section 2.1.1
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32 Section 2.5
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36 Section 2.2.4
37 Section 3.1.1
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40 Section 3.2.7
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50 Section 6.4.1
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75 Section 1.3.19
76 Part 5, Section1.1
77 Section 1.2
78 Part 2, Annex 3.1
79 Part 2, Annex 3.1
80 Schedules A-G specify the data required.
81 Section 2.4.1
82 Section 4.1.1
83 Section 4.1.3
84 Section 1.4.1(c)
85 Section 2.2.3, 2.2.4
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