
# GLOSSARY OF TERMS

## Access Right:[1]

This includes the right to pass through a piece of land or right-of-way over or under land for the purpose of laying, installing, mounting, building, repairing, or maintaining any facility or equipment used for the purpose of generation, transmission, or distribution of electricity.

## Account:[2]

This means a bank account held by the Payment Agent, the Market Operator, a Participant, or a Service Provider used for the purpose of money flows associated with the Market Rules.

## Accuracy Class:

This means an index indicating the permissible error in measurements.

## Act:

This means a primary legislation enacted by an Act of parliament in a country.

## Active Energy:

This means the electrical energy produced, flowing, or supplied by an electric circuit during a time interval, being the integral with respect to time of the instantaneous Power measured in units of watt-hours (Wh) or standard multiples thereof (for example, kWh & MWh).

## Active Power:

This means the product of voltage and the in-phase component of alternating current measured in units of watts (W) or standard multiples thereof (for example, kW & MW).

## Active Solar:

This refers to energy from the sun collected and stored using mechanical pumps or fans to circulate heat-laden fluids or air between solar collectors and a building.

**Actual Frequency:**

The Interconnection frequency measured in Hertz (Hz).

**Adequacy:**

The ability of the electric system to always supply the aggregate electrical demand and energy requirements of the end-use customers, considering scheduled and reasonably expected unscheduled outages of system elements.

**Adjacent Balancing:**[3]

A Balancing Authority whose Balancing Authority Area is interconnected with another Balancing Authority Area either directly or via a multi-party agreement or transmission tariff.

**Administrative Authority:**

The governmental authority exercising jurisdiction over application of an electricity law.

**Administrative and general expenses:**

Expenses of an electric utility relating to the overall directions of its corporate offices and administrative affairs, as contrasted with expenses incurred for specialized functions.

**Admission Application:**[4]

This means the document which an Applicant Participant, must submit to the Market Operator when applying for admission to participate in the Wholesale Electricity Market pursuant to the Market Rules.

**Adverse Reliability Impact:**

The impact of an event that results in frequency-related instability; unplanned tripping of load or generation; or uncontrolled separation or cascading outages that affects a widespread area of the Interconnection.

**Affiliate (in relation to a licensee):**

Any holding company or subsidiary of the licensee or any subsidiary of a holding company of a licensee.

**Agence de Régulation du Secteur de l'Eau Potable et de l'Energie Electrique (ARSEE):**[5] This is the electricity regulatory authority for Gabon.

**Agence de Régulation du Secteur de l'Electricité (ARSEL):**[6]

The literal translation for this is the Electricity Sector Regulatory Agency. It is the primary electricity regulatory agency for Cameroon.

**Agence de régulation du secteur électrique (ARSEL):**[7]

This is the primary electricity regulatory agency for Congo Brazaville.

**Aggregation:**[8]

This means a combination of two or more load sites.

**Aggregator:**

Any marketer, broker, public agency, city, county, or special district that combines the loads of multiple end-use customers in negotiating the purchase of electricity, the transmission of electricity, and other related services for customers.

**Agreements:**[9]

This means conditions agreed between the Market Operator and a Participant, or the System Operator and a Participant such as Market Participation Agreement, Reliability Must-Run Agreement, Black Start Agreement, Interconnector Capacity Entitlement Agreement, and other agreements executed by the System Operator or the Market Operator in connection with the provision of services, or required for implementing, the Market Rules or the Grid Code.

**Ah (Ampere-Hour):**

A unit of measure for battery capacity. It is obtained by multiplying the current (in amperes) by the time (in hours) during which current flows; for example, a battery which provides 5 amperes for 20 hours is said to deliver 100 ampere-hours.

**All-electric home:**

A residence in which electricity is used for the main source of energy for space heating, water heating, and cooking. Other fuels may be used for supplementary heating or other purposes.

**Alternating Current (AC):**

An electric current that reverses its direction many times a second at regular intervals. It is also electric current that regularly and periodically changes direction at a frequency of 50 Hertz.

**Alternator:**

This is an electrical generator that converts mechanical energy to electrical energy in the form of alternating current.

**Amendment:**

This refers to formal changes made to relevant rules or legislation governing the electricity sector.

**Ammeter:**

An instrument for measuring the flow of electrical current in amperes; ammeters are always connected in series with the circuit to be tested.

**Ampacity:**

The maximum amount of electric current a conductor or device can carry before sustaining immediate or progressive deterioration.

**Ampere (A):**

A unit of measure for the intensity of an electric current flowing in a circuit; one ampere is equal to a current flow of one coulomb per second.

**Anchorage:**

A secure point of attachment to which the fall protection system is connected.

**Ancillary Purposes:**

This means works that are generally connected with repair maintenance or inspection of electricity facilities.

**Ancillary Service:**

A service, other than the primary production of electricity, which is used to operate a stable and secure Power System including but not limited to: Reactive Power, Operating Reserve, Frequency Control and Black Start Capability.

**Ancillary Works:**

This means works that are generally connected with repair maintenance or inspection of electricity facilities.

**Apparent Power:**

Measured in volt-ampers (VA); apparent power is the product of the rms voltage and the rms current.

**Apparatus:**

This means all equipment belonging to users of the electrical network, in which electrical conductors are used, supported or which they form a part of.

**Applicant:**

This means the person or entity making an application for a licence, or for an amendment, renewal, or extension of the tenure of a licence under a primary or secondary legislation governing an electricity sector.

**Applicant Participant:**[10]

This means any person who has initiated with the Market Operator, the application process required to become a Participant in accordance with the Market Rules.

**Application:**

This means an application for a licence, or for an amendment, renewal, or extension of the tenure of a licence under a primary or secondary legislation governing an electricity sector.

**Arbitration Tribunal:**[11]

This means a tribunal constituted pursuant to Rule 43.7 of the Market Rules for the resolution of a dispute.

**Arbitrator:**[12]

A member of the Dispute Resolution Panel appointed to the Arbitration Tribunal pursuant to Rule 43.7 of the Market Rules to arbitrate a Dispute.

**Arbitrage:**

The simultaneous purchase and sale of identical or similar assets across two or more markets to profit from a temporary price discrepancy.

**Area of Supply:**

This means the area within which a Distribution Licensee is authorized by its licence to supply electricity.

**Armature:**

The movable part of a generator or motor; it is made up of conductors which rotate through a magnetic field to provide voltage or force by electromagnetic induction.

**Associated User:**

This means a User of the electrical network who does not own the assets at a Connection Point but has a contractual interest in the test results or data flowing from a Metering System.

**Audit Report:**[13]

This means the audit report that presents audit results and recommendations to the System Operator and the Market Operator.

**Authorisation:**

This means the legal instrument issued by the competent authority which allows the carrying out of an activity in the electricity sector and establishes that the operator fulfils the conditions and obligations under the law and its implementing instruments.

**Authorisation Procedure:**[14]

This means the procedure prescribed by regulatory authorities for authorising the construction of electricity generating capacity and significant infrastructure.

**Authorité de Regulation (ARE):**[15]

This is the energy regulatory authority for Mauritania.

**Automatic:**

Self-acting, operating by its own mechanism when actuated by some impersonal influence – as, for example, a change in current strength; not manual; without personal intervention. Remote control that requires personal intervention is not automatic, but manual.

**Autorité de Régulation des secteurs de l'Electricité et de l'Eau potable (AREE):**[16]

This is the Regulatory Authority for the Electricity and Drinking Water sectors in Guinea.

**Autorité Nationale de Régulation du Secteur de l'Electricité (ANARE-CI):**[17]

This is the National Electricity Sector Regulatory Authority for the country of Côte d'Ivoire.

**Authorité de Regulation Multisectorielle (ARM):**[18]

This is the regulatory authority for the electricity sector in Niger.

**Automatic Meter Reading:**

This is a metering system capable of supporting through a separate two-way communication; a set of functionalities – remote readings, tamper information, auto connection and disconnection, prepayment, post-payment, tariff changes, and consumer information.

**Autonomous Regulatory Agency for the Electricity Sector in the Central African Republic (ARSEC):**[19]

This is the electricity regulatory authority for Central African Republic.

**Auto-Producer:**

Entities which generate electricity and or heat, wholly or partly for their own use as an activity which supports their primary activity.

**Auto-Production:**[20]

All the operations allowing an Auto-producer to transform any source of primary energy into electricity mainly for the satisfaction of its own needs.

**Auxiliary Services:**

Services required in the electricity transmission and distribution system

**Available Transfer Capacity or "ATC":**[21]

This means Interconnector capacity made available to allow trading of electricity between the Power System and other Control Areas.

### Backup Generator:

A generator that is used only for test purposes, or in the event of an emergency, such as a shortage of power needed to meet customer load requirements.

### Backup Power:

Electric energy supplied by a utility to replace power and energy lost during an unscheduled equipment outage.

### Balance Responsibility:[22]

This means the responsibility to settle fiscal balances between Eligible Customers and suppliers.

### Balancing:

This generally involves matching supply and demand on a real-time basis, ensuring the frequency, power flows and voltages stay within operational limits.

### Balancing Authority:

The responsible entity that integrates resource plans, maintains Demand and resource balance within a Balancing Authority Area, and supports Interconnection frequency in real time.

### Balancing Authority Area:

The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.

### Band:[23]

These are service categories used to measure the tariff rates to be paid by certain consumers.

**Base Load:**

The minimum amount of electric power delivered or required over a given period at a steady rate.

**Battery:**

This means a component that produces electricity from a chemical reaction.

**Big Quantities:**[24]

The level of the quantity of electric power that is greater than the threshold determined by an Order of the Minister in charge of electric power.

**Bilateral Contract:**

An agreement between two parties for the sale and purchase of electricity under a set of pre-specified conditions such as energy price, energy amount, time of delivery, etc.

**Bill:**

This means the document issued by an electricity distribution company as evidence of the indebtedness of a customer.

**Bio-Fuel:**

This means non fossil fuel produced from crops and plants.

**Bio-Fuel Blend:**

This means the mixture of a proportion of bio-fuel and petroleum-based fuel.

**Bio-Fuel Production:**

This means the process and method employed to transform energy crops and plants into bio-fuel.

**Biomass:**

This means organic matter like agricultural crops and residue, wood and wood waste, animal waste, aquatic plants, and organic components of municipal and industrial waste.

**Biomass Energy:**

Energy produced by burning organic matter in a fluid to produce steam used to power turbines.

**Blackout:**

A total crash of the power grid due to an imbalance between power generation and power consumption.

**Black Start Capability:**

The capability of a Power Station to commence operation without an outside energy supply to energize a defined position of an electric grid.

**Black Start Resource:**

A generating unit(s) and its associated set of equipment which can be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for Real and Reactive Power capability, frequency, and voltage control, and that has been included in the Transmission Operator's restoration plan.

**Board of Electricity Regulation (Office de Regulation de l'Electricité, ORE):**[25]

This is the Regulatory authority for electricity in Madagascar.

**Bonding:**

The electrical interconnecting of conductive parts, designed to maintain a common electrical potential.

**Botswana Energy Regulatory Authority (BERA):**[26]

This is the primary energy regulatory authority in Botswana.

**Breach:**

This means any non-compliance with provisions of the law regulating the power sector

**Bulb:**

The glass part of an electric lamp, which gives out light when electricity passes through it.

**Bulk Power System:** This includes –

(A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and
(B) electric energy from generation facilities needed to maintain transmission system reliability.

The term does not include facilities used in the local distribution of electric energy. (Note that the terms "Bulk-Power System" or "Bulk Power System" shall have the same meaning.)

**Bulk Supply:**

This means the supply of electricity in bulk by an electricity power producer to another electricity power producer or any electricity supplier.

**Bulk Trader:**[27]

This means the trading Licensee holding a bulk purchase and resale Licence or temporary Licence, authorised to purchase generation from successor generation companies and independent power producers, for resale to distributors and eligible customers.

**Bulk User:**

An end-point industrial or commercial vendor or buyer of extra high, high, and medium voltage electricity who is authorized to buy electricity directly from the conveyor, producer, or seller.

**Business Plan:**

A formal statement of a set of business goals, the reasons they are believed to be attainable, and the plan for reaching those goals. A business plan will also contain background information as specified by relevant authority the organization trying to reach certain goals in the power sector.

**Business Rules:**[28]

This means the Nigerian Electricity Regulatory Commission (Business Rules of the Commission) Regulations, 2006, and as amended.

**Buyer:**

This means a person licensed in accordance with primary or secondary legislation governing the power sector and authorized to purchase power from existing and or new generating companies, including the holder of a bulk trading licence and the holder of a distribution licence.

**By-Pass Sales:**

This means sale of electricity by providers of production capacity to persons other than the main public electrical utility within the electricity sector.

**Cable:**

This is an assembly of one or more wires running side by side or bundled, which is used to transport electric current.

**Cable Jacket:**

A protective covering over the insulation, core, or sheath of a cable.

**Cable Sheath:**

A conductive protective covering applied to cables. A cable sheath may consist of multiple layers, of which one or more is conductive.

**Cable Terminal:**

A device that provides insulated egress for the conductors.

**Calendar Year:**

This means the period of twelve months commencing on the 1st of January and ending on the 31st of December of any given year.

**Calibration Tests:**

This means a series of tests and checks performed to determine that the accuracy of any instrument that measures or tests electrical parameters.

**Call for Applications:**

Call for tenders relating to a perimeter determined where the candidate submits bids based on a specification charge prepared by the granting authority.

**Call for Tenders:**

The procedure by which relevant authorities choose technical and financial proposals evaluated based on objective criteria previously brought to the attention of candidates.

**Call for Projects:**

Call for tenders relating to a specific perimeter where the candidate proposes technical solutions, after a call for demonstrations of interest.

**Candidate Competitions:**

This is a term peculiar to Gabon. It relates to the procurement and tendering process in the country's electricity sector.

**Capacitance:**

The ability of a body to store an electrical charge. It is measured in farads as the ratio of the electric charge of the object (Q, measured in coulombs) to the voltage across the object (V, measured in volts).

**Capacitor:**

A device used to store an electric charge, consisting of one or more pairs of conductors separated by an insulator. Commonly used for filtering out voltage spikes.

**Capacity:**

In relation to a distribution system, this means the capability of the network to convey electricity under a range of load and generation conditions in accordance with reasonable and prudent operating practice.

**Capacity (purchased):**

The amount of energy and capacity available for purchase from outside the system.

**Capacity Emergency:**

A capacity emergency exists when a Balancing Authority Area's operating capacity, plus firm purchases from other systems to the extent available or limited by transfer capability, is inadequate to meet its demand plus its regulating requirements.

**Capital Cost:**

In relation to metering, this means the cost of the meter, meter accessories, financing costs, return on investment, communication infrastructure costs, installation costs, testing and certification of the metering system and all associated cost.

**Captive Power Generation:**

Generation of electricity, which is consumed by the generator itself, and not sold to a third-party.

**Captive Power Plant:**

An electrical power plant used and managed by an industrial or commercial energy user for generating electricity for their own use.

**Carbon Dioxide (CO2):**

A colourless, odourless, non-poisonous gas that is a normal part of Earth's atmosphere. Carbon dioxide is a product of fossil-fuel combustion as well as other processes. It is considered a greenhouse gas as it traps heat (infrared energy) radiated by the Earth into the atmosphere and thereby contributes to the potential for global warming. The global warming potential (GWP) of other greenhouse gases is measured in relation to that of carbon dioxide, which by international scientific convention is assigned a value of one (1).

**Carbon Output Rate:**

The amount of carbon by weight per kilowatt hour of electricity produced.

**Case of Emergency (with reference to a right of entry on or to land or premises):**[29]

This means a case in which the person requiring entry to the land or premises in question has reasonable cause to believe that circumstances exist which are likely to endanger life or property, and that immediate entry to such land or premises is necessary to verify the existence of the circumstances or to ascertain their cause or to effect a remedy.

**Cathode:**

This is a negatively charged electrode.

**CBN:**[30]

This means the Central Bank of Nigeria

### CCGT – Combine Cycle Gas Turbine:

A generating unit comprising one or more gas turbine units (or other gas-based units) and one or more steam units where in normal operation, the waste heat from the gas turbine is passed to the water/steam system of the associated steam unit(s) directly connected to the hot gas line which enable those units to contribute to improve efficiency of the combined cycle operation of the module.

### Central Electricity Board (CEB):[31]

This is the central electricity regulatory agency for Mauritius.

### Central Physical Plant:

A plant owned by, and on the grounds of, a multibuilding facility that provides district heating, district cooling, or electricity to other buildings on the same facility. To qualify as a central plant, it must provide district heat, district chilled water, or electricity to at least one other building. The central physical plant may be by itself in a separate building or may be in a building where other activities occur.

### Certificate:

A type of permit for public convenience and necessity issued by a utility commission, which authorizes a utility or regulated company to engage in business, construct facilities, provide some services, or abandon services.

### Charge:

The physical property of matter that causes it to experience a force when placed in an electromagnetic field

### Charge Density:

This is the amount of electric charge per unit length, surface area, or volume.

### Check Meter:

This is a regular kilowatt-hour meter which is used to cross-check the measurements of electricity utilized by a particular instrument.

**Check Metering:**

This means the metering and/or calculation process undertaken to determine electricity usage by a particular instrument.

**Check Metering System:**

This means the commercial metering system which will be used by relevant stakeholders to determine electricity usage by a particular instrument.

**Circuit:**

A closed path in which electrons from a voltage or current source flow. Circuits can be in series, parallel, or in any combination of the two.

**Circuit Breaker:**

An automatic device for stopping the flow of current in an electric circuit. To restore service, the circuit breaker must be reset (closed) after correcting the cause of the overload or failure. Circuit breakers are used in conjunction with protective relays to protect circuits from faults.

**Clearance:**

The clear distance between two objects measured surface to surface.

**Climbing:**

The vertical movement (ascending and descending) and horizontal movement to access or depart the worksite.

**Code of Conduct:**

This means any rules established by relevant authorities governing behaviour, relationships, and practices between licensees and their affiliates.

**Co-Generation:**

This means a process which simultaneously produces two or more forms of useful energy.

**Co-Generator:**

A generating facility that produces electricity and another form of useful thermal energy (such as heat or steam), used for industrial, commercial, heating, or cooling purposes.

**Combined Cycle:**

An electric generating technology in which electricity is produced from otherwise lost waste heat exiting from one or more gas (combustion) turbines. The exiting heat is routed to a conventional boiler or to a heat recovery steam generator for utilization by a steam turbine in the production of electricity. This process increases the efficiency of the electric generating unit.

**Combined Cycle Unit:**

An electric generating unit that consists of one or more combustion turbines and one or more boilers with a portion of the required energy input to the boiler(s) provided by the exhaust gas of the combustion turbine(s).

**Command:**

This means an instruction to perform a defined function.

**Commercialization:**

The purchase and sale of electricity to customers, including resale.

**Commercial Meter:**

This means the Meter which measures energy usage and demand.

**Commercial Metering System:**

This means the system to be used by relevant stakeholders to measure energy usage and demand.

**Commercial Sector:**

An energy-consuming sector that consists of service-providing facilities and equipment of businesses; Federal, State, and local governments; and other private and public organizations, such as religious, social, or fraternal groups. The commercial sector includes institutional living quarters. It also includes sewage treatment facilities. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a wide variety of other equipment.

**Commissioner (in view of electricity projects):**[32]

The person saddled with the responsibility of bringing new, refurbished, or disconnected projects into operation.

**Commissioning:**[33]

The process of bringing new, refurbished, or disconnected projects into operation.

**Commissioning Certificate:**[34]

This means a legal approval issued to a licensee authorizing project connection to a network after passing prescribed technical tests as contained in the Commissioning Report.

**Commissioning Report:**[35]

This means the technical report of all network tests carried out according to prescribed standards for project commissioning.

**Common Carrier:**

This means an electricity transmission or distribution line.

**Common Services:**[36]

This means an electricity distribution network service that ensures the integrity of the distribution system and benefits all users that cannot practically be connected to the network on an individual basis.

**Common Use:**

Simultaneous use by two or more utilities of the same kind.

**Communications Link:**

This means a means of communication between a system or Device and another system or Device to exchange information.

**Community:**

This means a group of people within the same geographic location organized under a local leadership structure or a legally recognised corporate entity and in both cases capable of entering contracts and being capable of suing and being sued.

**Compensation:**

Payment made to private owners of property for deprivation of such ownership for purpose of executing power projects.

**Competent Authority:**

This means a corporate body governed by public law and empowered to conclude, sign, or issue the legal instruments required for carrying out activities related to electricity supply.

**Competition Transition Charge:**

A non-bypassable charge levied on each customer of the distribution utility, including those who are served under contracts with nonutility suppliers, for recovery of the utility's stranded costs that develop because of competition.

**Complainant:**

This means a customer or relevant stakeholder who has suffered or is suffering an injury and has brought their claims before relevant authorities for determination.

**Complaint:**

This means any allegation in writing made by a complainant.

**Compliance Monitor:**

The entity that monitors, reviews, and ensures compliance of responsible entities with reliability standards.

**Compulsory Acquisition of Land:**

This is the power of government to acquire private rights in land without the willing consent of its owner or occupant to benefit society.

**Concentrating Solar Power or Solar Thermal Power System:**

A solar energy conversion system characterized by the optical concentration of solar rays through an arrangement of mirrors to generate a high temperature working fluid.

**Concession Agreement:**

An agreement signed exclusively between the State and an operator allowing the latter to use clearly-defined State Land for the purpose of generating, transmitting, and distributing electricity based on specifications.

**Concessions to generate and transmit electricity for industrial purposes:**

These are concessions respectively for the generation and transmission of electricity that allow for the development and operation of electricity generation and transmission activities between electricity generation and industrial sites and/or between generation sites and interconnection sub-stations to transmission grids, by any firm operating an industrial production activity, with a view to meeting its industrial needs.

**Concessionaire:**

The operator holding one or more concessions.

**Conciliation:**

Procedure followed by the Regulator of the electricity sector for the amicable settlement of conflicts between electricity sector operators and their customers.

**Conductor:**

Any material where electric current can flow freely. Conductive materials, such as metals, have a relatively low resistance. Copper and aluminium wire are the most common conductors.

**Conductor Shielding:**

An envelope that encloses the conductor of a cable and provides an equipotential surface in contact with the cable insulation.

**Conduit:**

A structure containing one or more ducts.

**Conduit System:**

Any combination of duct, conduit, conduits, manholes, hand-holes, and/or vaults joined to form an integrated whole.

**Congestion:**

A condition that occurs when insufficient transfer capacity is available to implement all of the preferred schedules for electricity transmission simultaneously.

**Connect:**[37]

In relation to Embedded Generation, means to be connected to a distribution system or to a consumer installation that is connected to a distribution system.

**Connected Community:**

This means Community connected to the distribution network of a Distribution Licensee.

**Connected Load:**

The sum of the continuous ratings or the capacities for a system, part of a system, or a customer's electric power consuming apparatus.

**Connection:**

This means the electrical equipment and materials that allow the transfer of electricity between the distribution system and an electrical system that is not part of that network and includes any transformers, switchgear, switch, or relay at the point of interconnection that are necessary for the transfer but does not include the lines and switchgear at the connection that form part of the transmission or distribution system.

**Connection Agreement:**

This is an agreement with an electricity or gas network operator for a power plant or equipment to be connected to that network.

**Connection and Operation Standards:**[38]

In relation to a Distribution Licensee or Embedded Generation –

(a) means requirements, as may be amended from time to time by a Distribution Licensee, that:

(i) are set out in written policies and standards of the Distribution Licensee.

(ii) relate to the connection of embedded generation and the operation of the distribution system, including requirements relating to the planning, design, construction, testing, inspection, and operation of assets that are or proposed to be connected to the distribution network.

(iii) are made publicly available.

(iv) reflect, or are consistent with, reasonable and prudent operating practice; and

(v) comply with the relevant provisions of the Technical Codes.

(b) includes the following, as may be amended from time to time by a

Distribution Licensee –

(i) the Distribution Licensee's congestion management policy,

(ii) the Distribution Licensee's emergency response policies;

and

(iii) the Distribution Licensee's or Commission's safety standards.

**Connection Capacity:**

This means the maximum capacity of a connection as stated in the associated Connection Agreement.

**Connection Offer:**[39]

This means a formal offer made by the Distribution Licensee to the Embedded Generation Licensee for connection to the distribution system.

**Connection Point:**

A point of connection between the power plant or equipment and the electricity or gas network operator.

**Connector:**

A coupling device that joins electrical terminations to create an electrical circuit.

**Conservation:**

This means any reduction in consumption of energy because of increase in the efficiency in supply and use of energy.

**Consequential Load Loss:**

All Load that is no longer served by the Transmission system because of Transmission Facilities being removed from service by a Protection System operation designed to isolate the fault.

**Constrained Facility:**

A transmission facility (line, transformer, breaker, etc.) that is approaching, is at, or is beyond its System Operating Limit or Interconnection Reliability Operating Limit.

**Construction:**

An energy-consuming subsector of the industrial sector that consists of all facilities and equipment used to perform land preparation and construct, renovate, alter, install, maintain, or repair major infrastructure or individual systems therein.

**Construction Costs (of the electric power industry):**

All direct and indirect costs incurred in acquiring and constructing electric utility plant and equipment and proportionate shares of common utility plants. Included are the cost of land and improvements, nuclear fuel and spare parts, allowance for funds used during construction, and general overheads capitalized, less the cost of acquiring plant and equipment previously operated in utility service.

**Consumer:**

These are users of electrical energy. Electricity consumers cut across Residential, Commercial, and Industrial categories.

**Consumer Charge:**

An amount charged periodically to a consumer for such utility costs as billing and meter reading, without regard to demand or energy consumption.

**Consumer Installation:** This includes –

I. an electrical installation; and
II. any fittings that are used, or designed or intended for use, by any person in or in connection with the generation of electricity so that electricity can be injected into a distribution system.

**Contact Path:**

An agreed upon electrical path for the continuous flow of electrical power between the parties of an Interchange Transaction.

**Contestable Customers:**[40]

These are large electricity end-users with the authority to choose their own electricity providers.

**Contingency:**

The unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element.

**Contract of Supply:**

This means a contract between the operator of an electricity undertaking and any other person for the supply of electricity to that person.

**Contract Receipts:**

Purchases based on a negotiated agreement that generally covers a period of 1 or more years.

**Contract Register:**

The record established and maintained by the electricity market operator on the quantity of generation capacity contracted in the electricity market.

**Contravention:**

This means non-compliance with or infringement of any of the provisions of the laws governing activities in the electricity sector.

**Control:**

This comprises all the operations or actions carried out to verify the compliance of activities, appliances, equipment, installations or procedures with the instruments and standards in force.

**Control Area:**

This means a transmission system or interconnected transmission systems and interconnected generating units, bounded by metering and telemetry equipment that permits a system operator to apply a generation control scheme in order to - (a) match the electrical output of the generating stations within the control area and energy purchased from entities outside the control area, less energy sold to entities outside the control area, with the load within the control area; (b) maintain scheduled interchange with other control areas, within the limits of good utility practice; (c) maintain the frequency of the control area's electric power systems within

reasonable limits in accordance with good utility practice; (d) maintain power flows on transmission facilities within appropriate limits to preserve reliability; and (e) provide sufficient generating capacity to maintain operating reserves in accordance with good utility practice.

**Cooperative Electric Utility:**

An electric utility legally established to be owned by and operated for the benefit of those using its service. The utility company will generate, transmit, and/or distribute supplies of electric energy to a specified area not being serviced by another utility.

**Corona:**

A corona discharge is an electrical discharge brought on by the ionization of a fluid such as air surrounding a conductor that is electrically charged. Spontaneous corona discharges occur naturally in high-voltage systems unless care is taken to limit the electric field strength.

**Cost of Meter Asset:** [41]

This means the cost of a meter, metering accessories and all associated costs of meter installation plus a return on investment as approved by regulatory authorities in the power sector.

**Cost of Service:**

A ratemaking concept used for the design and development of rate schedules to ensure that the fixed rate schedules recover only the cost of providing the electric service.

**Cost-of-Service Regulation:**

A traditional electric utility regulation under which a utility is allowed to set rates based on the cost of providing service to customers and the right to earn a limited profit.

**Cost of Service Studies:**

These are studies undertaken to determine the total cost incurred by a utility in providing service to its customers and the allocation of the identified costs to applicable customer classes.

**Court:**

This means a court of competent jurisdiction.

**COVID-19:**

This means the Coronavirus that emerged from Wuhan, China in the year 2020, which resulted in a world-wide pandemic.

**Credit Mode:**

This means a mode of operation of a Short Message Service where Consumers are billed for some or all their Consumption retrospectively.

**Cross Subsidies:**

This means the subsidisation of one class or group of consumers by another class or group of consumers.

**Cryptographic Algorithm:**

This means an algorithm for performing one or more of the following functions – Encryption; Decryption; digitally signing or hashing of information, data, or messages; or exchange of Security Credentials.

**CT:**

This is an acronym for current transformer

**Current (I):**

The flow of an electric charge through a conductor. An electric current can be compared to the flow of water in a pipe. Measured in amperes.

**Current-Carrying Part:**

A conducting part intended to be connected in an electric circuit to a source of voltage. Non-current-carrying parts are those not intended to be so connected.

**Current Density:**

The amount of electric current traveling per unit cross-section area.

**Current Limiter:**

This is a metering device that stores in its register a prepaid energy value which decreases with consumption over a specific period. It cuts off supply whenever the rate of depletion is higher than replenishment for the specific period thereby requiring load adjustment.

**Curtailment:**

A reduction in the scheduled capacity or energy delivery of an Interchange Transaction.

**Customer:**

This means any person or organization supplied with electricity for his or its own use by a Distribution company or by any other person engaged in the business of supplying electricity to the public.

**Cut-off Date:**[42]

This means the date on which the Licensee conducts enumeration and appraisal on the land, to determine the number, ownership, interest of persons and value of the properties, crops and trees that would be affected by its proposed electricity project.

**Cycle:**

The change in an alternating electrical sine wave from zero to a positive peak to zero to a negative peak and back to zero

**Dam:**

A physical barrier constructed across a river or waterway to control the flow of or raise the level of water. The purpose of construction may be for flood control, irrigation needs, hydroelectric power production, and/or recreation usage.

**Danger:**

This means risk to the environment, health, life, person or property of anyone from shock, fire or otherwise arising from the importation, exportation, generation, transmission, distribution, supply and use of electrical energy or from the exploration, production, importation, exportation, transportation, refining, storage and sale of coal, or from the production, storage, distribution and supply of any other form of energy.

**Data Integrity:**

This means the state of data being unaltered by parties not authorised.

**Data Registers:**

This means the equipment which receives, registers, and stores the information received from meters. Data registers could be incorporated into the Meter itself or constitute a separated piece of equipment.

**Day-ahead Demand Forecast:**

This means the Demand Forecast for a subsequent 24 hours starting at 00:00hrs.

**Day-ahead Schedule:**

A schedule prepared by a scheduling coordinator or the independent system operator before the beginning of a trading day. This schedule indicates the levels of generation and demand scheduled for each settlement period that trading day.

**DC:** Direct Current

**Dealer:**

A natural person or corporate body authorized to supply electricity purchased from producers or from the market to users.

**Decentralized Production:**

Electricity production unit designed to meet the electricity needs of users located far from interconnected networks and unable to be connected thereto in the medium term.

**Declaration:**

This is an administrative formality fulfilled with the competent authority to carry out certain activities related to electricity supply.

**Decommissioning:**

This refers to the retirement of an electrical or nuclear power plants, including decontamination and/or dismantlement.

**Dedicated Connection Assets:**[43]

This means those assets installed for the purpose of connecting an embedded generation unit to the existing distribution system and which are expected to always remain for the sole use of the Embedded Generation unit over the lifetime of the installation

**De-Energisation:**

This means the operation of any isolating device, breaker or switch or the removal of any fuse whereby no electricity can flow to or from an electrical system.

**Defect:**

This means any fault, imperfection or shortcoming in the quality, quantity, standard of service, equipment or material which is required to be maintained by or under any law or regulation in force or under any contract, express or implied.

### Deficiency:

This means any fault, imperfection, shortcoming or inadequacy in the quality, nature and manner of service which is required to be maintained by or under any law or regulation in force or has been undertaken to be performed by a Distribution company in pursuance of a contract agreement or otherwise in relation to electricity service or performance standard; viz, interruption/failure of power supply, voltage complaints, metering problems including meter shifting, charges/payments (billing problems), disconnection/ reconnection of power supply to the customer,

new connections/extensions in load, notice of supply interruptions, making and keeping regular/special appointments, violations of electricity supply code(s), contraventions of rules or regulations made thereunder with regard to customer interest.

### Delegatee:

This means a person to whom power to do something is delegated. This nomenclature is mostly used interchangeably with licensee and concessionaire in French speaking Sub-Saharan African countries.

### Delivered Energy:

The amount of energy delivered to the site (building); no adjustment is made for the fuels consumed to produce electricity or district sources. This is also referred to as net energy.

### Delivery Point:

Any apparatus or instrument used to effectively convey electricity from the distributor to the consumers, from producer to transporters and bulk users, and from transporters to distributors and bulk users.

### Demand:

The rate at which electric energy is delivered to or by a system or part of a system, generally expressed in kilowatts or megawatts, at a given instant or averaged over any designated interval of time.

### Demand Bid:

A bid into the power exchange indicating a quantity of energy or an ancillary service that an eligible customer is willing to purchase and, if relevant, the maximum price that the customer is willing to pay.

### Demand Charge:

That portion of the consumer's bill for electric service based on the consumer's maximum electric capacity usage and calculated based on the billing demand charges under the applicable rate schedule.

### Demand Charge Credit:

Compensation received by the buyer when the delivery terms of the contract cannot be met by the seller.

### Demand Forecast:

An estimate of future Demand typically worked out by using mathematical forecasting techniques and historical Demand data, weather forecasts and other pertinent information.

### Demand Interval:

The period during which flow of electricity is measured (usually in 15-, 30-, or 60minute increments.)

### Demand Side Management:

This is the modification of consumer demand for electricity through various methods such as financial incentives and education with the goal to encourage the consumer to use less energy during peak hours or to move the time of energy use to off-peak times such as night-time and weekends.

### Dependable Capacity:

The load-carrying ability of a station or system under adverse conditions for a specified period.

**Deponent:**

This means any person swearing to an affidavit.

**Depreciation and Amortization of property, plant, and equipment:**

The monthly provision for depreciation and amortization (applicable to utility property other than electric plant, electric plant in service, and equipment).

**Derate:**

A decrease in the available capacity of an electric generating unit, commonly due to:

- A system or equipment modification
- Environmental, operational, or reliability considerations. Causes of generator capacity deratings include high cooling water temperatures, equipment degradation, and historical performance during peak demand periods. In this context, a derate is typically temporary and due to transient conditions.

The term derate can also refer to discounting a portion of a generating unit's capacity for planning purposes.

**Deregulation:**

The elimination of some or all regulations from a previously regulated industry or sector of an industry.

**Derogation:**

A direction from the competent authority relieving a licensee from its obligation to comply with a technical standard or code in its licence in specified circumstances and to a specified extent.

**Designated Area:**

This means an established human settlement hierarchy or framework within a national or regional development plan or similar settlement or plan.

**Designated Person:**

A qualified person designated to perform specific duties.

**Device:**

This means a physically distinct part of a system.

**Dielectric Constant:**

A quantity measuring the ability of a substance to store electrical energy in an electric field.

**Dielectric Strength:**

The maximum electric field that a pure material can withstand under ideal conditions without breaking down (i.e., without experiencing failure of its insulating properties).

**Diesel-Electric Plant:**

A generating station that uses diesel engines to drive its electric generators.

**Diode:**

A semiconductor device with two terminals, typically allowing the flow of current in one direction only. Diodes allow current to flow when the anode is positive in relation to the cathode.

**Direct Access:**

The ability of a retail customer to purchase electricity or other energy sources directly from a supplier other than their traditional supplier.

**Direct Consumer:**

This means a person directly connected to the transmission grid at a delivery point, other than a distribution licensee.

**Direct Control Load Management:**

The magnitude of customer demand that can be interrupted at the time of the seasonal peak load by direct control of the system operator by interrupting power supply to individual appliances or equipment on customer premises. This type of control usually reduces the demand of residential customers.

**Direct Current (DC):**

An electric current that flows in only one direction or is time-independent

**Direct Electricity Load Control:**

The utility installs a radio-controlled device on the HVAC equipment. During periods of particularly heavy use of electricity, the utility will send a radio signal to the building in its service territory with this device and turn off the HVAC for a certain period.

**Direct Load Control:**

This Demand-Side Management category represents the consumer load that can be interrupted at the time of annual peak load by direct control of the utility system operator.

**Direct Use:** Use of electricity that –

- is self-generated,
- is produced by either the same entity that consumes the power or an affiliate, and
- is used in direct support of a service or industrial process located within the same facility or group of facilities that house the generating equipment.

**Direct Utility Cost:**

A utility cost that is identified with one of the DSM program categories (e.g., Energy Efficiency or Load Management).

**DisCo:**

This means a Distribution Company and all its legally permitted operating functions.

**Disconnect:**

In respect of a connection, means to operate switching equipment so as to prevent the transfer of electricity through the connection.

### Disconnecting or Isolating Switch:

A mechanical switching device used for changing the connections in a circuit or for isolating a circuit or equipment from a source of power.

### Dispatch Day:

A period in the electricity dispatch process from 00.00 hours to 24.00 hours in the same calendar day.

### Dispatch Licence:

This means a licence granted by competent authority to a licensee to exercise dispatch rights over generation licensees and others, if any, to meet the requirements of distribution licensees, direct consumers, and others, if any.

### Dispatch Licencee:

This means a person who is granted a dispatch licence.

### Distribution Network Operator:

A natural person or corporate body responsible for operation, maintenance and, where necessary, development of the distribution network in a given area.

### Distribution Provider (electric):[44]

Provides and operates the wires between the transmission system and the end-use customer. For those end-use customers who are served at transmission voltages, the Transmission Owner also serves as the Distribution Provider. Thus, the Distribution Provider is not defined by a specific voltage, but rather as performing the Distribution function at any voltage.

### Distribution Receiving Point:

This means a physical point at which a distribution licensee receives electric energy directly from a generation licensee, including from a generation licensee directly or indirectly owned or controlled by the distribution licensee.

### Distribution System:

This means any system consisting mainly of cables, service lines and overhead lines, meters, electrical apparatus/equipment, plus related system used in the safe operation of an Electricity Network.

### Distribution System Operator:

This means an operator of the distribution system facilities.

### Distribution Utility:

This means a person licensed to distribute and sell electricity without discrimination to consumers in an area or zone designated by competent authority.

### Distributor:

This has the same meaning as Distribution Company - any natural person or corporate body setting up and/or operating low or medium voltage electricity networks and selling and/or supplying electricity to users.

### Disturbance:

An unplanned event that produces an abnormal system condition.

### Diversity:

The electric utility system's load is made up of many individual loads that make demands upon the system usually at different times of the day. The individual loads within the customer classes follow similar usage patterns, but these classes of service place different demands upon the facilities and the system grid. The service requirements of one electrical system can differ from another by time-of-day usage, facility usage, and/or demands placed upon the system grid.

### Divestiture:

The stripping off one utility function from the others by selling (spinning-off) or in some other way changing the ownership of the assets related to that function.

Stripping off is most associated with spinning-off generation assets so they are no longer owned by the shareholders that own the transmission and distribution assets.

**Docket**:

A formal record of an Energy Regulatory Commission proceeding(s). These records are available for inspection and copying by the public. Each individual case proceeding is identified by an assigned number.

**DSM:** Demand-Side Management

**Duct:** A single enclosed raceway for conductors or cable.

### Earthing:

A way of providing a connection between conductors and the earth by an Earthing Device which is either: immobilized or locked in an earthing position. Where the Earthing Device is Locked with a Safety Key, the Safety Key must be secured in a Key Safe. Key Safe must be retained in a safe custody; or maintained and/or secured by such other method which must be in accordance with the Local Safety Instructions of the DisCo or that of the User, as the case may be.

### Economic Dispatch:[45]

The allocation of demand to individual generating units connected to the national grid, to effect the most economical production of electricity.

### Economic Regulatory Agency (ARE):[46]

This is the agency that regulates electricity in Cape Verde.

### Economy of Scale:

The principle that larger production facilities have lower unit costs than smaller facilities.

### Effectively Grounded:

Intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to limit the build-up of voltages to levels below that which may result in undue hazard to persons or to connected equipment.

### Electric Current:

The flow of electric charge. The preferred unit of measure is the ampere.

**Electric Energy:** The ability of an electric current to produce work, heat, light, or other forms of energy. It is measured in kilowatt-hours, megawatt-hours, and terawatthours.

**Electrical Energy:**

This means energy involving the use of electric current which may be produced either by mechanical, chemical, photovoltaic or any other means.

**Electrical Equipment:**

Any equipment used to mount an electrical installation or that can be plugged into it.

**Electric Expenses:**

The cost of labour, material, and expenses incurred in operating a facility's prime movers, generators, auxiliary apparatus, switching gear, and other electric equipment for each of the points where electricity enters the transmission or distribution grid.

**Electrical Facilities:**

These mean any equipment, apparatus or installation used to generate, transmit, supply, or make use of electricity, including – (a) any generating stations, electric lines, substations, transformers, and switchgear equipment; and (b) any buildings or civil works used for such purposes and any site on which such equipment, apparatus, installation, or buildings are located.

**Electrical Fittings:**

This means electric lines, fittings, apparatus, and appliances designed for use by consumers of electricity for lighting, heating, motive power and other purposes for which electricity can be used.

**Electric Generator:**

A facility that produces only electricity, commonly expressed in kilowatt-hours (kWh) or megawatt hours (MWh). Electric generators include electric utilities and independent power producers.

**Electrical Grid:**

All the generation, transmission, and distribution structures that help transport electricity from production sources to delivery points.

**Electric Hybrid Vehicle:**

An electric vehicle that either (1) operates solely on electricity but contains an internal combustion motor that generates additional electricity (series hybrid); or (2) contains an electric system and an internal combustion system and is capable of operating on either system (parallel hybrid).

**Electric Industry Reregulation:**

The design and implementation of regulatory practices to be applied to the remaining traditional utilities after the electric power industry has been restructured. Reregulation applies to those entities that continue to exhibit characteristics of a natural monopoly. Reregulation could employ the same or different regulatory practices as those used before restructuring.

**Electric Industry Restructuring:**

The process of replacing a monopolistic system of electric utility suppliers with competing sellers, allowing individual retail customers to choose their supplier but still receive delivery over the power lines of the local utility. It includes the reconfiguration of vertically-integrated electric utilities.

**Electrical Installation:**

This means an electric supply line or electrical apparatus placed in, on or over land or a building and used or intended to be used for or for purposes incidental to the conveyance, control or use of electricity supplied or intended to be supplied by a licensee and includes additions and alterations to an electrical installation.

**Electrical Installation Licence:**

This means a licence authorizing a person to carry out electrical installation work for, business, training, or teaching purposes either for gain or reward or for no charge at all.

**Electrical Installation Work:**

This means the work of installing, altering, or adding to an electrical installation and the supervision of such work.

**Electric Motor Vehicle:**

A motor vehicle powered by an electric motor that draws current from rechargeable storage batteries, fuel cells, photovoltaic arrays, or other sources of electric current.

**Electric Non-Utility:**

Any entity that generates, transmits, or sells electricity, or sells or trades electricity services and products, where costs are not established and recovered by regulatory authority. Examples of these entities include, but are not limited to, independent power producers, power marketers and aggregators (both wholesale and retail), merchant transmission service providers, self-generation entities, and cogeneration firms with Qualifying Facility Status.

**Electric Operating Expenses:**

Summation of electric operation-related expenses, such as operation expenses, maintenance expenses, depreciation expenses, amortization, taxes other than income taxes, Federal income taxes, other income taxes, provision for deferred income taxes, provision for deferred income-credit, and investment tax credit adjustment.

**Electric Plant (physical):**

A facility containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

**Electric Plant Acquisition Adjustment:**

The difference between (a) the cost to the respondent utility of an electric plant acquired as an operating unit or system by purchase and (b) the depreciated original cost, estimated if not known, of such property.

**Electrical Plant:**

This means any plant, equipment, apparatus or appliance or any part thereof used for, or connected with, the generation, transmission, distribution, or supply of electricity but does not include – an electric supply line; or a meter used for ascertaining the quantity of electricity supplied to any premises; or an electrical equipment, apparatus, or appliance under the control of a consumer.

**Electric Power:**

The rate at which electric energy is transferred. Electric power is measured by capacity and is commonly expressed in megawatts (MW).

**Electric Power Grid:**

A system of synchronized power providers and consumers connected by transmission and distribution lines and operated by one or more control centres.

**Electric Power Industry:**

Stationary and mobile generating units that are connected to the electric power grid and can generate electricity. The electric power industry includes the "electric power sector" (utility generators and independent power producers) and industrial and commercial power generators, including combined-heat-and-power producers, but excludes units at single-family dwellings.

**Electric Power Plant:**

A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

**Electric Power Sector:**

An energy-consuming sector that consists of electricity only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.

**Electric Power System:**

A network of electrical components deployed to supply, transfer, and use electric power. An example of a power system is the electrical grid that provides power to homes and industries within an extended area.

**Electric Power Utility:**

Any activity involving the generation, transmission, distribution, exportation or importation of electricity, storage of water for the generation of electricity not intended for the exclusive use of the producer concerned.

**Electric Rate:**

The price set for a specified amount and type of electricity by class of service in an electric rate schedule or sales contract.

**Electric Rate Schedule:**

A statement of the electric rate and the terms and conditions governing its application, including attendant contract terms and conditions that have been accepted by a regulatory body with appropriate oversight authority.

**Electric Supply Equipment:**

Equipment that produces, modifies, regulates, controls, or safeguards a supply of electric energy.

**Electric Supply Line:**

This means a wire, conductor or other means used for the purpose of conveying, transmitting, transforming, or distributing electricity, together with a casing, coating, covering, tube, pipe, pillar, pole or tower, post, frame, bracket, or insulator enclosing, surrounding, or supporting it or part of it, or an apparatus connected therewith for the purpose of conveying, transmitting, transforming, or distributing electricity.

**Electric Supply Station:**

Any building, room, or separate space within which electric supply equipment is located and the interior of which is accessible, as a rule, only to qualified persons. This includes generating stations and substations, including their associated generator, storage battery, transformer, and switchgear rooms or enclosures, but does not include facilities such as pad-mounted equipment and installations manholes and vaults.

**Electrical System Energy Losses:**

The amount of energy lost during generation, transmission, and distribution of electricity, including plant and unaccounted for use.

**Electric System Loss:**

Total energy loss from all causes for an electric utility.

**Electric System Reliability:**

The degree to which the performance of the elements of the electrical system results in power being delivered to consumers within accepted standards and in the amount desired.

**Electric Utility:**

A corporation, person, agency, authority, or other legal entity or instrumentality aligned with distribution facilities for delivery of electric energy for use primarily by the public.

**Electrical Worker:**[47]

This means a person who carries out electrical installation work specified in the certificate issued to him by a regulatory authority in the electricity sector.

**Electrician:**

This means any person who installs, maintains, or repairs electrical plant or electrical fittings on the premises of licensees or consumers.

**Electricity:**

Electric power generated from water, petroleum, biofuel, gas, peat, solar energy, wind energy, geothermal energy, nuclear energy, and any other source.

**Electricity and Water Regulatory Commission (CREE):**[48]

This is the electricity and water regulatory authority for Mali.

**Electricity and Water Regulatory Commission (EWRC):**[49]

This is the electricity and water regulatory authority for Sierra Leone.

**Electricity Control Board (ECB):**[50]

This is the primary electricity authority for Namibia.

**Electricity Demand:**

The rate at which energy is delivered to loads and scheduling points by generation, transmission, and distribution facilities.

**Electricity Exchange:**

A type of energy exchange in which one electric utility agrees to supply electricity to another. Electricity received is returned in kind later or is accumulated as an energy balance until the end of a specified period, after which settlement may be made by monetary payment.

**Electricity Generation:**

The process of producing electric energy or the amount of electric energy produced by transforming other forms of energy, commonly expressed in kilowatt hours(kWh) or megawatt hours (MWh).

**Electricity Grid:**

This means the integrated electricity transmission and distribution systems.

**Electricity Market:**

This means the market where licensees who are authorized to generate, import, or export electric power offer to sell electrical energy to retail licensees for resale to consumers through the power systems operated by licensees who are authorized to carry out transmission and distribution of electricity and includes all the rules and regulations governing transactions between licensees, the system operator, and consumers.

**Electricity Meter:**

This means an instrument used to measure, store, and display the amount of electrical energy passing through an electrical circuit or circuits.

**Electricity Network:**

This means any connection of cables, service lines and overhead lines, meters, electrical apparatus/equipment used to transport electric power on a Transmission or Distribution Network or both.

**Electricity Projects:**

Any project that is for the purpose of generation or transmission or distribution of electricity.

**Electricity Public Service Obligation:**

This aims to guarantee, while respecting of the general interest, the supply of electricity in sufficient quantity and whose quality conforms to generally accepted standards, respecting the principles continuity of service, equal treatment of users regarding charges and advantages, and at the lowest cost.

**Electricity Regulatory Authority (ERA):**[51]

This is the primary electricity regulatory authority for Uganda.

**Electricity Sales:**

The number of kilowatt-hours sold in a given period; usually grouped by classes of service, such as residential, commercial, industrial, and other. "Other" sales include sales for public street and highway lighting and other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

**Electricity Service:**

This means anything that has to do with the supply, billing, metering, and maintenance of electrical energy to customers.

**Electricity Supplier:**

Natural person or corporate body authorized to sell electricity to an intermediate or final user.

**Electricity Undertaker:**[52]

A licensee who owns or operates any installation works or services for the commercial generation, transmission, wheeling, distribution, or supply of electricity.

**Electricity Undertaking:**

This means any installation works or services for the commercial generation, transmission, wheeling, distribution, or supply of electricity, which is owned or operated by a licensee.

**Electrolyte:**

Any substance which, in solution, is dissociated into ions and is thus made capable of conducting an electrical current. The sulfuric acid – water solution in a storage battery is an electrolyte.

**Electromagnetic Compatibility (EMC):**

This means the ability of electrical and electronic equipment to function properly in its environment, which might also contain other equipment, without causing any electromagnetic disturbance in the environment. EMC comprises conducted and radiated electromagnetic emissions and conducted and radiated electromagnetic susceptibility.

**Electromagnetic Disturbance:**

This means electromagnetic phenomena that might degrade the performance of a device, equipment, or system, or adversely affect living or inert matter.

**Electromagnetic Interference (EMI):**

This means degradation of the performance of a device, equipment or system caused by electromagnetic disturbance.

**Electromechanical Meter:**

A meter that carries out an analogue measurement of the consumption of electricity using a rotating disc in an electromagnetic field.

**Electromotive Force (EMF):**

A difference in potential that tends to give rise to an electric current. It is measured in volts.

**Electron:**

A tiny particle which rotates around the nucleus of an atom. It has a negative charge of electricity.

**Electron Theory:**

The theory which explains the nature of electricity and the exchange of 'free' electrons between atoms of a conductor. It is also used as one theory to explain direction of current flow in a circuit.

**Electronic Meter:**

This means a meter that carries out digital measurement of the consumption of electricity without moving parts.

**Element:**

Any electrical device with terminals that may be connected to other electrical devices such as a generator, transformer, circuit breaker, bus section, or transmission line. An Element may be comprised of one or more components.

**Eligible Customer:**[53]

A customer that is eligible to purchase electricity from a licensee other than a distribution licensee.

**Embedded Generation:**[54]

The generation of electricity that is directly connected to and evacuated through a distribution system which is connected to a transmission network operated by the licensee vested with system operations functions. It also means the generation of electricity that is directly connected to and evacuated through a distribution system

**Embedded Generator:**[55]

A Licensee generating electricity that is directly connected to and evacuated through a distribution system.

**Embedded IEDN:**[56]

This means an IEDN connected to a distribution network that is connected to the transmission system operated by the system operation licensee.

**Embedded Power Park Module:**

This means a Power Park Module connected to a Distribution System or to a Directly Connected Customer System

**Emergency:**

The failure of an electric power system to generate or deliver electric power as normally intended, resulting in the cut-off or curtailment of service.

**Emergency Backup Generation:**

The use of electric generators only during interruptions of normal power supply.

**Emergency Credit:**

This means credit (that can be made available) to ensure that the Supply is not interrupted in circumstances (including situations of emergency) defined by the Supplier to the Premises.

**Emergency Energy:**

Electric energy provided for a limited duration, intended only for use during emergency conditions.

**Emergency Generation:**

This means the short-term generation of the Plant above its rated capacity

**Emergency Reserve:**

Reserve which is only used in emergencies which is typically made up from contracted interruptible Load, gas turbines (e.g., open cycle) and other Emergency Generation.

**Emphyteutic Lease**:

An emphyteutic lease is a long-term contract between the State of Djibouti and a person to exploit land in return for a periodic agreed fee payment.

**Enclosed:**

Surrounded by case, cage, or fence designed to protect the contained equipment and limit the likelihood, under normal conditions, of dangerous approach or accidental contact by persons or objects.

**End Customer:**

Any natural or legal person who purchases electricity for their own consumption.

**End User:**

A firm or individual that purchases products for its own consumption and not for resale (i.e., an ultimate consumer).

**End-user-tariff:**[57]

This means the rate per unit of electricity paid by consumers of a distribution utility or consumers of a generation utility (eligible customers).

**Energized:**

Electrically connected to a source of potential difference, or electrically charged to have a potential significantly different from that of earth in the vicinity.

**Energizer:**

This means a device which converts electric power into brief high voltage pulse which has the effect ranging from uncomfortable to painful but non-lethal.

**Energy:**

This means electrical Energy produced, flowing through, or supplied by Generation Facilities, the Transmission System or Distribution Systems being the integral with respect to time of the instantaneous power, measured in units of watt hours or standard integers or multiples thereof.

**Energy and Petroleum Authority (EPRA):**[58]

This is primary energy regulatory authority in Kenya.

**Energy and Water Utilities Regulatory Authority (EWURA):**[59]

This is the principal electricity and water regulatory authority for Tanzania.

**Energy Audit:**

This means the verification, monitoring and analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption.

**Energy Charge:**

That portion of the charge for electric service based upon the electric energy (kWh) consumed or billed.

**Energy Control:**

All the measures and actions carried out to ensure the judicious use of energy and development of renewable energy sources.

**Energy Cost:**[60]

This means the variable cost in the Generator's Power Purchase Agreement normally comprising an Energy element and a variable operations and maintenance element.

**Energy Credit:**[61]

This means the value of prepaid electricity in kWh that is issued to a customer upon vending with a Distribution Licensee for access to electricity on a prepaid meter.

**Energy Demand:**

The requirement for energy as an input to provide products and/or services.

**Energy Efficiency:**

A ratio of service provided to energy input; All technical or managerial measures aimed at optimizing the energy output of installations according to the principle of least-cost production.

**Energy Efficiency, Electricity:**

Refers to programs that are aimed at reducing the energy used by specific end-use devices and systems, typically without affecting the services provided. These programs reduce overall electricity consumption (reported in megawatt hours), often without explicit consideration for the timing of program-induced savings.

**Energy Exchange:**

Any transaction in which quantities of energy are received or given up in return for similar energy products.

**Energy Expenditures:**

The money directly spent by consumers to purchase energy. Expenditures equal the amount of energy used by the consumer multiplied by the price per unit paid by the consumer.

**Energy Price:**

This means a price at which the Generator offers to supply specified amount of Energy, other than in respect of Ancillary Services, as a constituent of the Price Offer.

**Energy Regulatory Authority (ARENE):** [62]

This is the primary energy regulator for Mozambique.

**Energy Regulation Board (ERB):**[63]

This is the energy regulatory authority for Zambia.

**Energy Resources:**

These include hydropower, solar, biomass, wind, and geothermal hydrocarbon.

**Energy Sector:**

Sectors dealing with electricity, petroleum products, coal, natural gas, bio-energy, solar energy, renewable energy resources, and other energy resources.

**Energy Security:**

This means the availability, adequacy, reliability, and environmental sustainability of energy supply.

**Entity:**

An individual, corporate body, organisation, institution, or state agency whether licensed or not by relevant authorities who may be permitted to invest in a network licensee's network.

**Environmental Impact Statement:**

A report that documents the information required to evaluate the environmental impact of a project. It informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the environment.

**EPC:**

This means Engineering, Procurement and Construction.

**Equipment:**

Any machinery, Apparatus (stand alone or connected) that forms part of a System or sub-System involved in production, transportation, and consumption of electricity.

**Equipment or Appliance:**

This means any equipment or appliance which consumes, generates, transmits, or supplies energy and includes any device that consumes any form of energy.

**Establishment:**

An economic unit, generally, at a single physical location where business is conducted or where services or industrial operations are performed. However, "establishment" is not synonymous with "building."

**Eswatini Energy Regulatory Authority (ESERA):**[64]

This is the primary electricity regulatory authority in Swaziland.

**Ethiopian Energy Authority (EEA):**[65]

The EEA is the principal energy regulatory authority in Ethiopia, and it is empowered by the Act to supervise the operations of licensing in the energy sector of Ethiopia.

**Exchange Agreement:**

A contractual agreement in which quantities of crude oil, petroleum products, natural gas, or electricity are delivered, either directly or through intermediaries, from one company to another company, in exchange for the delivery by the second company to the first company of an equivalent volume or heat content.

**Expatriate:**

A person who lives outside their native country.

**Expert Witness:**[66]

This means a person invited by stakeholder entities in the power sector to provide specialized information relevant to an application before the concerned entity.

**Export:**

This means the flow of electricity out of a Premises, and like terms shall be construed accordingly.

**Exportation:**

Sale of electricity produced in a country to a public or private body for sale or use on a foreign market.

**Expression of Interest:**

A formal declaration by a potential bidder of its interest in participating in the bidding for additional capacity generation.

**Extension Assets:**

This means those assets installed to lengthen or otherwise extend the existing distribution system to facilitate the connection of an embedded generation unit and which are not for the sole use of the embedded generation unit.

### Facilities charge:

An amount to be paid by the customer in a lump sum, or periodically as reimbursement for facilities furnished. The charge may include operation and maintenance as well as fixed costs.

### Facility:

An existing or planned location or site at which prime movers, electric generators, and/or equipment for converting mechanical, chemical, and/or nuclear energy into electric energy are situated or will be situated. A facility may contain more than one generator of either the same or different prime mover type. For a cogenerator, the facility includes the industrial or commercial process.

### Failure or Hazard:

Any electric power supply equipment or facility failure or other event that, in the judgment of the reporting entity, constitutes a hazard to maintaining the continuity of the bulk electric power supply system such that a load reduction action may become necessary and reportable outage may occur.

### Fair Market Value or Price:[67]

This means equitable current value of land.

### Fall Arrest System:

The assemblage of equipment, such as a line-worker's body belt, aerial belt, or full body harness in conjunction with a connecting means, with or without an energy absorbing device, and an anchorage to limit the forces a worker can experience during a fall.

### Fall Prevention System:

A system, which may include a positioning device system, intended to prevent a worker from falling from an elevation.

### Fall Protection Program:

A program intended to protect workers from injury due to falls from elevations.

**Fall Protection System (hardware):**

Consists of either a fall prevention system or a fall arrest system.

**Farad:**

A unit of measure for capacitance. One farad is equal to one coulomb per volt.

**Fault:**

An event occurring on an electric system such as a short circuit, a broken wire, or an intermittent connection.

**Fault Level:**

This means prospective current that would flow into a short circuit at a stated point on the System and which may be expressed in kA or, if referred to a particular Voltage, in MVA.

**Federal Electric Utility:**

A utility that is either owned or financed by the Federal Government.

**Feeder:**[68]

This means a low voltage or medium voltage line of a distribution network being capable of supplying or absorbing at least 30 kVA of electricity in compliance with the Distribution Code.

**Feed-In-Tariff:**

This means a policy mechanism designed to accelerate investment in renewable energy technologies by offering incentives to renewable energy producers.

**Feed-in-Tariff Scheme:**

This means a policy that guarantees gid access to renewable energy producers and sets the feed-in-tariffs.

**Feedstock:**

This is a material that can be used to produce biofuel.

### Ferro-Resonance (Non-linear Resonance):

A type of resonance in electric circuits which occurs when a circuit containing a nonlinear inductance is fed from a source that has series capacitance, and the circuit is subjected to a disturbance such as opening of a switch. It can cause overvoltages and over-currents in an electrical power system and can pose a risk to transmission and distribution equipment and to operational personnel.

### Final Bids:

A final round of detailed proposals submitted by Shortlisted Bidders.

### Financial Leverage:

This means the fundamental analysis ratio of a company's level of long-term debt compared to its equity capital.

### Firm:

An association, company, corporation, estate, individual, joint venture, partnership, sole proprietorship, or any other entity, however organized, including: (a) charitable or educational institutions; (b) the Federal Government, including corporations, departments, federal agencies, and other instrumentalities; and (c) state and local governments.

### Firm Demand:

That portion of the Demand that a power supplier is obligated to provide except when system reliability is threatened or during emergency conditions.

### Firm Power:

Power or power-producing capacity, intended to always be available during the period covered by a guaranteed commitment to deliver, even under adverse conditions.

### Firmware:

This means the embedded software programmes and/or data structures that control electronic Devices.

### Fixed Assets:

Tangible property used in the operations of an entity, but not expected to be consumed or converted into cash in the ordinary course of events. With a lifespan exceeding one year, not intended for resale to customers, and subject to depreciation (except for land), they are usually referred to as property, plant, and equipment.

### Fixed Cost (expense):

An expenditure or expense that does not vary with volume level of activity.

### Fixed Operating Costs:

Costs other than those associated with capital investment that do not vary with the operation, such as maintenance and payroll.

### Flowgate:

A portion of the Transmission system through which the Interchange Distribution Calculator calculates the power flow from Interchange Transactions.

### Fluorescent Lamp:

A glass enclosure in which light is produced when electricity is passed through mercury vapor inside the enclosure. The electricity creates a radiation discharge that strikes a coating on the inside surface of the enclosure, causing the coating to glow. Note: Traditional fluorescent lamps are usually straight or circular white glass tubes used in fixtures specially designed for them. A newer type of fluorescent lamp, the compact fluorescent lamp, takes up much less room, comes in many differentlyshaped configurations, and is designed to be used in some fixtures originally intended to house in candescent lamps.

### Fluorescent Light Bulbs:

These are usually long, narrow, white tubes made of glass coated on the inside with fluorescent material, which is connected to a fixture at both ends of the light bulb; some are circular tubes. The light bulb produces light by passing electricity through mercury vapor, which causes the fluorescent coating to glow or fluoresce.

### Fluorescent Lighting other than compact fluorescent bulbs:

In fluorescent lamps, energy is converted to light by using an electric charge to "excite" gaseous atoms within a fluorescent tube. Common types are "cool white," "warm white," etc. Special energy efficient fluorescent lights have been developed that produce the same amount of light while consuming less energy.

### Force Majeure:[69]

In relation to a party, means any event or circumstance, or combination of events or circumstances,

(a) that is beyond reasonable control of the party.

(b) that adversely affects the performance by the party of its obligations under this Agreement; and

(c) the adverse effects of which could not have been foreseen, prevented, overcome, remedied or mitigated in whole or in part by the party through the exercise of diligence and reasonable care and includes, but is not limited to, acts of war (whether declared or undeclared), invasion, armed conflict or act of a foreign enemy, blockade, embargo, revolution, riot, insurrection, civil disobedience or disturbances, vandalism or acts of terrorism; strikes, lockouts, restrictive work practices or other labour disturbances; unlawful arrests or restraints by governments or governmental, administrative or regulatory agencies or authorities; orders, regulations or restrictions imposed by governments or governmental, administrative or regulatory agencies or authorities unless such order, regulation or restriction is imposed as a result of a violation by the party of a permit, license or other authorization or of any applicable law; and acts of God including lightning, earthquake, fire, flood, landslide, unusually heavy or prolonged rain or accumulation of snow or ice or lack of water arising from weather or environmental problems; provided however, for greater certainty,

I. the lack, insufficiency or nonavailability of funds shall not constitute a Force Majeure Event,
II. an act of the System Operator or the Market Operator effected in accordance with these Rules shall not constitute a Force Majeure in respect of a Participant,
III. an act of a Participant effected in accordance with these Rules shall not constitute Force Majeure in respect of the System Operator or the Market Operator; and
IV. the Transmission Service Provider, or the System Operator or the Market Operator shall not, for the purposes of this definition, be considered a governmental, administrative, or regulatory agency or authority.

**Forced Outage:**

The shutdown of a generating unit, transmission line, or other facility for emergency reasons or a condition in which the generating equipment is unavailable for load due to unanticipated breakdown.

**Fossil Fuel:**

An energy source formed in the Earth's crust from decayed organic material. The common fossil fuels are petroleum, coal, and natural gas.

**Fossil Fuel Electric Generation:**

Electric generation in which the prime mover is an internal combustion engine or a turbine rotated by high-pressure steam produced in a boiler or by a hot exhaust gas produced from the burning of fossil fuels.

**Fossil Fuel Plant:**

A plant using coal, petroleum, or gas as its source of energy.

**Fossil Fuel steam-electric power plant:**

An electricity generation plant in which the prime mover is a turbine rotated by high pressure steam produced in a boiler by heat from burning fossil fuels.

**Free Prior Informed Consent:**[70]

Consent that is willingly given by the owner or occupier of land prior to the commencement of works for a power project, and after full disclosure of all the facts related to the use of the land for the power project.

**Frequency:**

The number of cycles per second. Measured in Hertz. If a current completes one cycle per second, then the frequency is 1 Hz – 60 cycles per second equals 60 Hz.

**Frequency Deviation**:

A change in Interconnection frequency.

**Frequency Error:**

The difference between the actual and scheduled frequency.

**Frequency Response: (Equipment):**

The ability of a system or elements of the system to react or respond to a change in system frequency. (System) The sum of the change in demand, plus the change in generation, divided by the change in frequency, expressed in megawatts per 0.1 Hertz (MW/0.1 Hz).

**Fugitive Emissions:**

Unintended leaks of gas from the processing, transmission, and/or transportation of fossil fuels.

**Full Forced Outage:**

The net capability of main generating units that are unavailable for load for emergency reasons.

### Full Power Day:

The equivalent of 24 hours of full power operation by a reactor. The number of full power days in a specific cycle is the product of the reactor's capacity factor and the length of the cycle.

### Full Power Operation:

Operation of a unit at 100 percent of its design capacity. Full-power operation precedes commercial operation.

### Fuse:

A circuit interrupting device consisting of a strip of wire that melts and breaks an electric circuit if the current exceeds a safe level. To restore service, the fuse must be replaced using a similar fuse with the same size and rating after correcting the cause of failure.

**Galvanic:**

This means a process where electricity is chemically produced.

**Gas:**

A non-solid, non-liquid combustible energy source that includes natural gas, cokeoven gas, blast-furnace gas, and refinery gas.

**Gasification:**

A method for converting coal, petroleum, biomass, wastes, or other carboncontaining materials into a gas that can be burned to generate power or processed into chemicals and fuels.

**Gas Plant Operator:**

Any firm, including a natural gas processing plant owner, that operates a gas plant and keeps the gas plant records.

**Gas Turbine Plant:**

A plant in which the prime mover is a gas turbine. A gas turbine consists typically of an axial-flow air compressor and one or more combustion chambers where liquid or gaseous fuel is burned, and the hot gases are passed to the turbine and where the hot gases expand drive the generator and are then used to run the compressor.

**Gazetted Notices:**[71]

This means any notices issued by stakeholders in the power sector, in an official gazette for regulating the electricity industry.

**GDP**:

Gross Domestic Product.

**Gearing:**

This means the same as Financial Leverage.

**GenCos (Electricity):**

Electricity Generation Companies.

**General Regulatory Authority (AGER):**[72]

This is the body that regulates the operations of electricity activities in São Tome and Principe.

**General Supply:**

This means the supply of electricity to consumers in general and includes, unless otherwise specially agreed with an urban authority, the supply of electricity to public lamps, traffic signals, traffic bollards or other traffic signs or apparatus maintained and controlled by such authority but does not include the supply of electricity to a consumer or consumers under special agreement.

**Generation:**

The process of generating electric power from any primary source of energy.

**Generation Capacity:**

The capability of a Generating Unit or a Power Station to produce electrical Energy being measured in units of power, being in these Rules MW.

**Generation Company:**

An entity that owns or operates generating plants. The generation company may own the generation plants or interact with the short-term market on behalf of plant owners.

**Generating Facility:**

An existing or planned location or site at which electricity is or will be produced.

**Generation Licence:**

This means a licence granted by competent authority to a licensee to connect specified generation facilities either to the transmission grid at a grid receiving point or to a distribution receiving point.

**Generation Licensee:**

This means a person who is granted a generation licence.

**Generating Station:**

A station that consists of electric generators and auxiliary equipment for converting mechanical, chemical, or nuclear energy into electric energy.

**Generation Station:**

This means a facility with one or more Generation Units.

**Generation Substation:**

This means a substation in the Transmission Network or the Distribution Network, as corresponds, where Generators are connected.

**Generating Unit:**

This means any equipment that produces Energy, including the mechanical prime mover (e.g., turbine or engine) in the case of conventional hydro or thermal plant or any equivalent principal means of converting another form of Energy to electricity, in the case of unconventional generating units such as wind and solar Energy.

**Generator:**

A Generation Company, or an Independent Power Producer (IPP), or a Participant who is licensed to generate electricity including self-generation authorised by the relevant authority.

**Generator-to-Load Distribution Factor:**

The algebraic sum of a Generator Shift Factor and a Load Shift Factor to determine the total impact of an Interchange Transaction on an identified transmission facility or Flowgate.

### Generator Group or Generation Group:

This means a group of one or more similar generating units within a power plant, together with the associated plant and apparatus, whose Energy output is separately identifiable and separately metered in the Connection Point. A power plant will be considered a Generating Group unless it has separate meters for each generating unit.

### Generator Nameplate Capacity (installed):

The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer. Installed generator nameplate capacity is commonly expressed in megawatts (MW) and is usually indicated on a nameplate physically attached to the generator.

### Generator of electricity:

This means the person that generates electricity from renewable energy sources and supplies it to the public.

### Generator Shift Factor:

A factor to be applied to a generator's expected change in output to determine the amount of flow contribution that change in output will impose on an identified transmission facility or Flowgate.

### Generator Unit or Generation Unit:

This means any equipment that produces Energy, including the mechanical prime mover (e.g., turbine or engine) in the case of conventional hydro or thermal plant or the equivalent principle means of converting another form of energy to electricity, in the case of unconventional generating units such as wind and solar energy. In the case of a multi-generating unit combined cycle block, a generating unit is an alternator plus its associated prime mover within the combined cycle block.

### Geothermal Energy:

Hot water or steam extracted from geothermal reservoirs in the earth's crust. Water or steam extracted from geothermal reservoirs can be used for geothermal heat pumps, water heating, or electricity generation.

**Geothermal Plant:**

A plant in which the prime mover is a steam turbine. The turbine is driven either by steam produced from hot water or by natural steam that derives its energy from heat found in rock

**Giga:**

One billion

**Gigawatt (GW):**

One billion watts or one thousand megawatts.

**Gigawatt-electric (GWe):**

One billion watts of electric capacity.

**Gigawatt hour (GWh):**

One billion watthours.

**Global Warming:**

An increase in the near surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is today most often used to refer to the warming some scientists predict will occur because of increased anthropogenic emissions of greenhouse gases.

**Good Utility Practice:**

This means any of the international practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period and under similar conditions as existent in any territory, or any of the practices, methods and acts in which, in the exercise of reasonable judgement in light of the faith known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practice, Reliability, safety and expedition; however for the sake of clarity, it is not intended that the item Good Utility Practice be limited to optimum practice, method or act to the exclusion of all others, but rather than intention is to refer to acceptable practices, methods or acts internationally

**GPS:**

Global Positioning System.

**Greenhouse Effect:**

The result of water vapor, carbon dioxide, and other atmospheric gases trapping radiant (infrared) energy, thereby keeping the earth's surface warmer than it would otherwise be. Greenhouse gases within the lower levels of the atmosphere trap this radiation, which would otherwise escape into space, and subsequent re-radiation of some of this energy back to the Earth maintains higher surface temperatures than would occur if the gases were absent.

**Greenhouse Gases:**

Those gases, such as water vapor, carbon dioxide, nitrous oxide, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride, that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface

**Green Pricing:**

In the case of renewable electricity, green pricing represents a market solution to the various problems associated with regulatory valuation of the nonmarket benefits of renewables. Green pricing programs allow electricity customers to express their willingness to pay for renewable energy development through direct payments on their monthly utility bills

**Grid:**

The interconnected network for delivering electricity from supplier to customers.

**Grid Code:**

The instructions, rules, procedures, guidelines, etc. for the operation and planning of an interconnected power system and accounting requirements relating to the power system.

**Grid Connection:**

This means the physical linkage between an energy system and the utility grid.

**Grid Delivery Points:**

This means the physical points at which the transmission licensee's facilities are connected to the distribution licensee's facilities and to the facilities of any direct consumer and, for purposes of exporting electricity, inter-connections with foreign electric systems.

**Grid Interactive Renewable Electricity:**

This means a system which has the capacity to feed electricity from renewable energy source into the utility grid.

**Grid Receiving Point:**

This means a physical point at which the transmission licensee receives electricity on the transmission grid, including, for purposes of importing electricity, interconnections with foreign electric systems.

**Gross Generation:**

The total amount of electric energy produced by generating units and measured at the generating terminal in kilowatt-hours (kWh) or megawatt hours (MWh).

**Ground:**

The reference point in an electrical circuit from which voltages are measured, a common return path for electric current, or a direct physical connection to the Earth.

**Grounded System:**

A system of conductors in which at least one conductor or point is intentionally grounded, either solidly or through a non-interrupting current-limiting device.

## Ground Fault Circuit Interrupters (GFCI):

A device intended for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period when a current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.

### Hand Hole:

An access opening, provided in equipment or in a below-the-surface enclosure in connection with underground lines, into which personnel reach but do not enter, for the purpose of installing, operating, or maintaining equipment or cable or both.

### Harness:

A component with a design of straps that is fastened about the worker in a manner to contain the torso and distribute the fall arrest forces over at least the upper thighs, pelvis, chest, and shoulders with means for attaching it to other components and subsystems.

### Head End System (HES):

This means a system which provides means to access Electricity Smart Metering Systems (as the case may be) by the sending of Commands and receiving of Responses and alerts across the Wide Area Network Interface.

### Heating Equipment:

Any equipment designed and/or specifically used for heating ambient air in an enclosed space. Common types of heating equipment include: central warm air furnace, heat pump, plug-in or built-in room heater, boiler for steam or hot water heating system, heating stove, and fireplace.

### Heat Content:

The amount of heat energy available to be released by the transformation or use of a specified physical unit of an energy form (e.g., a ton of coal, a barrel of oil, a kilowatthour of electricity, a cubic foot of natural gas, or a pound of steam). The amount of heat energy is commonly expressed in British thermal units (Btu). Note: Heat content of combustible energy forms can be expressed in terms of either gross heat content (higher or upper heating value) or net heat content (lower heating value), depending on if the available heat energy includes or excludes the energy used to vaporize water (contained in the original energy form or created during the combustion process).

**Heat Pump:**

Heating and/or cooling equipment that, during the heating season, draws heat into a building from outside and, during the cooling season, ejects heat from the building to the outside. Heat pumps are vapor-compression refrigeration systems whose indoor/outdoor coils are used reversibly as condensers or evaporators, depending on the need for heating or cooling.

**Heat Rate:**

A measure of generating station thermal efficiency commonly stated as Btu per kilowatt-hour. Note: Heat rates can be expressed as either gross or net heat rates, depending on whether the electricity output is gross or net generation. Heat rates are typically expressed as net heat rates.

**Heating Value**:

A measure of the energy content of the physical unit of any combustible fuel.

**Hedging:**

The buying and selling of futures contracts to protect energy traders from unexpected or adverse price fluctuations.

**Hedging Contracts:**

Contracts which establish future prices and quantities of electricity independent of the short-term market. Derivatives may be used for this purpose.

**Henry:**

A unit of measure for inductance. If the rate of change of current in a circuit is one ampere per second and the resulting electromotive force is one volt, then the inductance of the circuit is one henry.

**Hertz:**

A unit of measure for frequency. Replacing the earlier term of cycle per second (cps).

### High-intensity discharge (HID) lamp:

A lamp that produces light by passing electricity through gas, which causes the gas to glow. Examples of HID lamps are mercury vapor lamps, metal halide lamps, and high-pressure sodium lamps. HID lamps have extremely long life and emit far more lumens per fixture than do fluorescent lights.

### High Voltage (HV):

This means a voltage, used for the supply of electricity, whose lower limit of nominal root-mean-square value is greater than 33 kV.

### High Voltage Equipment:

This means High Voltage electrical circuits (above 1 kV) forming part of a System, on which Safety from the System may be required or on which Safety Precautions may be applied to allow work to be carried out on a circuit.

### Holding Company:

A company that confines its activities to owning stock in and supervising management of other companies.

### Host Balancing Authority:

A Balancing Authority that confirms and implements Interchange Transactions for a Purchasing Selling Entity that operates generation or serves customers directly within the Balancing Authority's metered boundaries.

### Hot Line:

This means a direct voice line between two locations which are 100 % of the time available and not subject to any switching via the communication switch network

### Hours under load:

The hours the boiler is operating to drive the generator producing electricity.

### Household Energy Expenditures:

The total amount of funds spent for energy consumed in, or delivered to, a housing unit during a given period.

**Households:**

A person or group of persons who co-reside in, or occupy, a dwelling.

**HP:**

High Pressure

**HVAC:**

An abbreviation for the heating, ventilation, and air-conditioning system; the system or systems that condition air in a building.

**Hybrid Transmission Line:**

A double-circuit line that has one alternating current and one direct circuit. The AC circuit usually serves local loads along the line.

**Hydro:**

This means a water based energy system which produces electricity.

**Hydrocarbon:**

An organic chemical compound of hydrogen and carbon in the gaseous, liquid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (methane, a constituent of natural gas) to the very heavy and very complex.

**Hydroelectric Power:**

The use of flowing water to produce electrical energy.

**Hydroelectric Power Station:**

An installation on a stream or river which uses waterpower to generate electricity.

**Hydrogen:**

The lightest of all gases, occurring chiefly in combination with oxygen in water; exists also in acids, bases, alcohols, petroleum, and other hydrocarbons.

**HV Network:**

This means the parts of the distribution system operating at a nominal voltage of 33 and 11 Kv.

**Hz:**

Hertz (Frequency).

**IEA:**

International Energy Agency

**IEC:**

International Electrotechnical Commission

**IHD:**

In-Home Display.

**Impedance:**

The measure of the opposition that a circuit presents to a current when a voltage is applied. Impedance extends the concept of resistance to AC circuits, and possesses both magnitude and phase, unlike resistance, which has only magnitude.

**Implied Heat Rate:**

A calculation of the day-ahead electric price divided by the day-ahead natural gas price. Implied heat rate is also known as the 'break-even natural gas market heat rate,' because only a natural gas generator with an operating heat rate (measure of unit efficiency) below the implied heat rate value can make money by burning natural gas to generate power.

**Import:**

This means the flow of electricity into a premise.

**Importation:**

The act of buying electricity from a public or private body in a foreign country for sale on the national territory.

**Inadvertent Power Exchange:**

An unintended power exchange among utilities that is either not previously agreed upon or in an amount different from the amount agreed upon.

### Incandescent Lamp:

A glass enclosure in which light is produced when a tungsten filament is electrically heated so that it glows. Much of the energy is converted into heat; therefore, this class of lamp is a relatively inefficient source of light.

### Independent Electricity Distribution Network (IEDN):

A distribution network not directly connected to a transmission system operated by the system operator.

### Independent Electricity Distribution Network Operator (IEDNO):

A licensed IEDN operator.

### Independent Energy Producer:[73]

The Operator holding an Authorization or a Production Concession, exercising exclusively this activity of Production, and delivering the energy produced, either to a Transport Concessionaire, or to a Distribution Licensee / Concessionaire.

### Independent Power Producer:

A corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities for the generation of electricity for use primarily by the public, and that is not an electric utility.

### Independent System Operator (ISO):

An independent, regulated entity established to coordinate regional transmission in a non-discriminatory manner and ensure the safety and reliability of the electric system

### Independent Transmission Network:

This means a transmission network other than the transmission network operated by the transmission licensee.

### Indicative Bids:

A first round of bids to rank Qualified Bidders according to the best initial proposals submitted as preliminary Indications of their Final Bids.

**Inductance:**

The property of a conductor by which a change in current flowing through it induces (creates) a voltage (electromotive force) in both the conductor itself (selfinductance) and in any nearby conductors (mutual inductance). Measured in henry (H).

**Inductor:**

A coil of wire wrapped around an iron core. The inductance is directly proportional to the number of turns in the coil.

**Industrial Sector:**

An energy-consuming sector that consists of all facilities and equipment used for producing, processing, or assembling goods.

**Inoperable Capacity:**

Generating capacity that is totally or partially out of service at the time of system peak load, either for scheduled outages or for reasons such as environmental restrictions; extensive modifications or repair; or capacity specified as being in a mothballed state.

**In Service:**

Lines and equipment are considered in service when connected to the system and intended to be capable of delivering energy or communication signals, regardless of whether electric loads or signalling apparatus are presently being served from such facilities.

**Installation:**

This refers to all the electrical equipment used to generate, transmit or distribute electricity: It could comprise a building or land used for electricity supply lines; or equipment which enables electricity to be supplied to users at the point of delivery.

**Installed power of a power plant:**

The sum of the nominal powers Production units installed in the plant.

**Instantaneous Peak Demand:**

The maximum demand at the instant of greatest load.

**Instituto Regulador dos Serviços de Electricidade e de Água (IRSEA):**[74]

This is the Regulatory Institute for Electricity and Water Services for Angola.

**Insulated:**

Separated from other conducting surfaces by a dielectric (including air space) offering a high resistance to the passage of current.

**Insulation:**

Any material or substance that provides a high resistance to the flow of heat from one surface to another.

**Insulation Shielding:**

An envelope that encloses the insulation of a cable and provides an equipotential surface in contact with the cable insulation.

**Insulator:**

Any material where electric current does not flow freely. Insulative materials, such as glass, rubber, air, and many plastics have a relatively high resistance. Insulators protect equipment and life from electric shock.

**Integrated Demand:**

The summation of the continuously varying instantaneous demand averaged over a specified interval of time. The information is usually determined by examining a demand meter.

**Integrated Gasification-Combined Cycle Technology:**

Coal, water, and oxygen are fed to gasifier, which produces syngas. This medium-Btu gas is cleaned (particulates and sulphur compounds removed) and is fed to a gas turbine. The hot exhaust of the gas turbine and heat recovered from the gasification process are routed through a heat-recovery routed through a heat-recovery generator to produce steam, which drives a steam turbine to produce electricity

**Integrity:**

This means the state of a system where it is performing its intended functions without being degraded or impaired by changes or disruptions.

**Interchange (electric):**[75]

Energy transfers that cross Balancing Authority boundaries.

**Interchange Authority (electric):**[76]

The responsible entity that authorizes implementation of valid and balanced Interchange Schedules between Balancing Authority Areas and ensures communication of Interchange information for reliability assessment purposes.

**Interchange Energy:** [77]

Kilowatt-hours delivered to or received by one electric utility or pooling system from another. Settlement may be payment, returned in kind later, or accumulated as energy balances until the end of the stated period.

**Interchange Transaction (electric):**[78]

An agreement to transfer energy from a seller to a buyer that crosses one or more Balancing Authority Area boundaries.

**Interconnected Minigrids:**[79]

This means a Mini-Grid which is connected to a Distribution Licensee's network.

**Interconnected System:**

The set of transmission and distribution systems linked up by one or several interconnectors.

**Interconnection:**

A geographic area in which the operation of Bulk Power System components is synchronized such that the failure of one or more of such components may adversely affect the ability of the operators of other components within the system to maintain Reliable Operation of the Facilities within their control. Two or more electric systems having a common transmission line that permits a flow of energy between them. The

physical connection of the electric power transmission facilities allows for the sale or exchange of energy.

**Interconnection Point:**[80]

The limit of ownership between a Distributor and a Captive Consumer and / or between a Carrier or Distributor and a Producer or Large Consumer.

**Interconnection Reliability Operating Limit:**

A System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the Bulk Electric System.

**Interconnections:**

Equipment used to link up electricity networks.

**Interconnection Service:**

This means the safe reliable connection of one person's electrical or natural gas facilities to another person's electrical or natural gas facilities with due consideration for the facilities necessary to accommodate the connection, the co-ordinated operation of the connected systems, and the economic impact of the connection on the connected systems.

**Interconnection Station:**

The location of all interconnection equipment or installations.

**Interconnector:**

Facilities used solely for conveying Energy directly to or from a substation or converter station.

**Intermediate Load (electric system):**

The range from base load to a point between base load and peak. This point may be the midpoint, a percent of the peak load, or the load over a specified period.

### Intermittent Electric Generator or Intermittent Resource:

An electric generating plant with output controlled by the natural variability of the energy resource rather than dispatched based on system requirements. Intermittent output usually results from the direct, non-stored conversion of naturally occurring energy fluxes such as solar energy, wind energy, or the energy of free-flowing rivers (that is, run-of-river hydroelectricity).

### Internal Collector Storage (ICS):

A solar thermal collector in which incident solar radiation is absorbed by the storage medium.

### Internal Combustion Plant:

A plant in which the prime mover is an internal combustion engine. An internal combustion engine has one or more cylinders in which the process of combustion takes place, converting energy released from the rapid burning of a fuel-air mixture into mechanical energy. Diesel or gas-fired engines are the principal types used in electric plants. The plant is usually operated during periods of high demand for electricity.

### Interruptible Gas:

Gas sold to customers with a provision that permits curtailment or cessation of service at the discretion of the distributing company under certain circumstances, as specified in the service contract.

### Interruptible Load:

This Demand-Side Management category represents the consumer load that, in accordance with contractual arrangements, can be interrupted at the time of annual peak load by the action of the consumer at the direct request of the system operator. This type of control usually involves large-volume commercial and industrial consumers. Interruptible Load does not include Direct Load Control.

### Interruptible Load or Interruptible Demand (electric):[81]

Demand that the end-use customer makes available to its Load-Serving Entity via contract or agreement for curtailment.

**Interruptible or Curtailable Rate:**

A special electricity or natural gas arrangement under which, in return for lower rates, the customer must either reduce energy demand on short notice or allow the electric or natural gas utility to temporarily cut off the energy supply for the utility to maintain service for higher priority users. This interruption or reduction in demand typically occurs during periods of high demand for the energy (summer for electricity and winter for natural gas).

**Interruptible Power:**

Power and usually the associated energy made available by one utility to another. This transaction is subject to curtailment or cessation of delivery by the supplier in accordance with a prior agreement with the other party or under specified conditions.

**Inter-Utility:**

This means any transfer of allowances from one utility operating company's account to a different utility operating company's account, provided the operating companies are not controlled by the same parent company

**Intervener:**[82]

This means an interested individual(s), or group(s) who have been granted permission by relevant authority to participate in a tariff review process upon application to such authority.

**Inverter:**

An apparatus that converts direct current into alternating current.

**Investment Plan:**

A document detailing the investments to be made in the network by an investor including timelines and all other information as approved by relevant authority.

**Investor:**

Any person carrying out an investment in a network.

**In writing:**

This means typewriting, printing, lithography, electronic mail, facsimile, and other modes of reproducing words in a legible and non-transitory form.

**Isobutane (C4H10):**

A branch-chain saturated (paraffinic) hydrocarbon extracted from both natural gas and refinery gas streams, which is gaseous at standard temperature and pressure. It is a colourless gas that boils at a temperature of 11 degrees Fahrenheit.

**Isobutylene (C4H8):**

A branch-chain olefinic hydrocarbon recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Isobutylene is used in the production of gasoline and various petrochemical products.

**Isohexane (C6H14):**

A saturated branch-chain hydrocarbon. It is a colourless liquid that boils at a temperature of 156.2 degrees Fahrenheit.

**Isomerization:**

A refining process that alters the fundamental arrangement of atoms in the molecule without adding or removing anything from the original material. Used to convert normal butane into isobutane (C4), an alkylation process feedstock, and normal pentane and hexane into isopentane (C5) and isohexane (C6), high-octane gasoline components.

**Isolation:**[83]

This means the disconnection of Equipment from the remainder of the network in which the Equipment is situated by either of the following – an Isolating Device maintained in an isolating position. The isolating position must either be maintained by immobilizing the Locking and Isolating Device in the isolating position and affixing a Caution Notice to it. Where the Isolating Device is Locked with a Safety Key, the Safety Key must be secured in a Key Safe. Key Safe must be retained in a safe custody; or maintained and/or secured by such other method which must be in accordance with the Local Safety Instructions of DisCo or that of the User, as the case may be; or an

adequate physical separation which must be in accordance with, and maintained by, the method set out in the Local Safety Instructions of DisCo or that of the User as the case may be, and, if it is a part of that method, a Caution Notice must be placed at the point of separation.

**Isolated Centre:**

All Production units and Distribution networks not interconnected to a Transport network, providing local service, commonly called also "mini-grid".

**Isolated IEDN:**

This means an independent electricity distribution networks in the urban or rural area that is not connected to an existing distribution network.

**Isolated Minigrids:**

This means a Mini-Grid which is not connected to any Distribution Licensee's network.

**Isolated Off-Grid Rural IEDN:**

An IEDN in a rural area which is not connected to a distribution network that is connected to the transmission system operated by the system operation Licensee.

**Isolated Off-Grid Urban IEDN:**

An IEDN in an urban area which is not connected to a distribution network that is connected to the transmission system operated by the system operation Licensee.

**Jack:**

A receptacle into which a plug is inserted to make an electrical connection.

**Jacket:**

A protective covering over the insulation, core, or sheath of a cable.

**Joint Control:**

Automatic Generation Control of jointly owned units by two or more Balancing Authorities.

**Joint use:**

Simultaneous use by two or more kinds of utilities.

**Joint-use Facility:**

A multiple-purpose hydroelectric plant. An example is a dam that stores water for both flood control and power production.

**Joule:**

A unit of electrical energy equal to the work done when a current of one ampere is passed through a resistance of one ohm for one second.

**Joule's Law:**

The rate of heat production by a steady current in any part of an electrical circuit that is proportional to the resistance and to the square of the current, or the internal energy of an ideal gas depends only on its temperature.

**Junction:**

A region of transition between semiconductor layers, such as a p/n junction, which goes from a region that has a high concentration of acceptors (p-type) to one that has a high concentration of donors (n-type).

### Jurisdictional Utilities:

Utilities regulated by public laws.

**Kilovolt-Ampere (kVa):**

A unit of apparent power, equal to 1,000 volt-amperes; the mathematical product of the volts and amperes in an electrical circuit.

**Kilowatt-electric (kWe):**

One thousand watts of electric capacity.

**Kilowatt-hour (kWh):**

A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000watts) of power expended for 1 hour.

**Kilowatt-hour Meter:**

A device used to measure electrical energy use.

**Kilowatt (kW):**

Equal to 1000 watts.

**Kinetic Energy:**

Energy available because of motion that varies directly in proportion to an object's mass and the square of its velocity.

**kV:**

means kilovolt

**kVa:**

kilovolt-ampere

## Kyoto Protocol:

The result of negotiations at the third Conference of the Parties (COP-3) in Kyoto, Japan, in December of1997. The Kyoto Protocol sets binding greenhouse gas emissions targets for countries that sign and ratify the agreement. The gases covered under the Protocol include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons (HFCs), per fluorocarbons (PFCs) and sulphur hexafluoride.

### L'Autorité de Réglementation du Secteur de l'Electricité (ARSE):[84]

This is the electricity regulatory authority for Togo.

### L'Autorité de Régulation de l'Électricité (ARE):[85]

This is the electricity regulatory authority for the Republic of Benin.

### L'Autorité de Régulation du Sous-secteur de l'Electricité (ASSR):[86]

This is the Electricity Subsector Regulatory Authority for Burkina Faso.

### Lamp:

A term generally used to describe artificial light. The term is often used when referring to a "bulb" or "tube."

### Land:

This means land, tenements, hereditaments and appurtenances, or any estate or interest therein.

### Landfill Gas:

Gas that is generated by decomposition of organic material at landfill disposal sites. The average composition of landfill gas is approximately 50 percent methane and 50 percent carbon dioxide and water vapor by volume. The methane percentage, however, can vary from 40 to 60 percent, depending on several factors including waste composition (e.g., carbohydrate and cellulose content). The methane in landfill gas may be vented, flared, combusted to generate electricity or useful thermal energy on-site, or injected into a pipeline for combustion off-site.

### Large Connection:

A connection where the Connection Capacity is greater than 4 MVA or connections with generation facilities greater than 300 kW.

**Large Consumer:**

These are end users who consume more than a threshold number of kilowatt hours as defined by regulations.

**Large Scale Adverse Social and Environmental Impact:**[83]

This means any power project that affects more than twenty households.

**Lead Acid Battery:**

An electrochemical battery that uses lead and lead oxide for electrodes and sulfuric acid for the electrolyte.

**Lease and Plant Fuel:**

Natural gas used in well, field, and lease operations (such as gas used in drilling operations, heaters, dehydrators, and field compressors) and as fuel in natural gas processing plants.

**Lease Operations:**

Any well, lease, or field operations related to the exploration for or production of natural gas prior to delivery for processing or transportation out of the field.

**Leasehold Reserves:**

Natural gas liquid reserves corresponding to the leasehold production defined above.

**Least Cost:**

Necessary and realistic amount of financial cost incurred during an activity in the electricity sector.

**Lesotho Electricity and Water Authority (LEWA):**[84]

This is the multi-sectoral authority for electricity and water authority for Lesotho.

**Letter of Credit:**

An unconditional and irrevocable standby letter of credit, demand guarantee, charge, or bond, in such form as competent authorities may reasonably approve, issued for the account of a Participant in the electricity market, allowing for partial drawings and

providing for payment forthwith on demand, by any clearing bank; or by such other financial institution as may be approved by such authority.

**Levelized Cost:**

The present value of the total cost of building and operating a generating plant over its economic life, converted to equal annual payments. Costs are levelized in real dollars (i.e., adjusted to remove the impact of inflation).

**LHV**:

Lower Heating Value.

**Liberia Electricity Regulatory Commission:**[85]

This is the electricity regulatory authority for Liberia.

**Licence:**

A contract or administrative title granted by a competent authority to a qualified operator who has been selected as an independent operator selling extra high, high voltage and medium voltage electricity as well as import and export activities totally or partially intended for distributors or bulk users.

**Licence Fee:**

This means the fee charged by competent authority on a person licensed.

**Licence Terms and Conditions:**

This means the terms and conditions to which licences issued by stakeholders in the power sector are subject, including terms and conditions prescribing the use of a tariff methodology.

**Licensee:**

Any person who holds a licence.

**Licensed Activity:**

An activity licensed for operation in accordance with the provisions of primary legislation governing the power sector.

### Licensed Distribution Operator:

This means a person authorised to carry on the distribution of electricity.

### Licensed Operator:

This means the holder of a licence.

### Licensed Production Operator:

The holder of a generation licence.

### Licensed Transmission Operator:

The holder of a licence to carry on the transmission of electricity.

### Licensing Authority:

This means a body or authority with power under an enactment to grant licence or rights to a public utility.

### Lifeline Tariff:

This means a tariff set by competent authorities with prices that incorporate cross subsidies by other customers, and which may be enjoyed by such group of consumers as may be designated by such authorities.

### Light Bulbs:

A term generally used to describe a man-made source of light. The term is often used when referring to a "bulb" or "tube".

### Lighting Equipment:

These are light bulbs used to light the building's interior, such as incandescent light bulbs, fluorescent light bulbs, compact fluorescent light bulbs, and high-intensity discharge (HID) lights.

### Liquefied Natural Gas (LNG):

Natural gas (primarily methane) that has been liquefied by reducing its temperature to -260 degrees Fahrenheit at atmospheric pressure.

### Liquefied Petroleum Gases (LPG):

A group of hydrocarbon gases, primarily propane, normal butane, and isobutane, derived from crude oil refining or natural gas processing. These gases may be marketed individually or mixed. They can be liquefied through pressurization (without requiring cryogenic refrigeration) for convenience of transportation or storage. Excludes ethane and olefins.

### Liquefied Refinery Gases (LRG):

Hydrocarbon gas liquids produced in refineries from processing of crude oil and unfinished oils. They are retained in the liquid state through pressurization and/or refrigeration. The reported categories include ethane, propane, normal butane, isobutane, and refinery olefins (ethylene, propylene, butylene, and isobutylene).

### Liquid Fuels:

All petroleum including crude oil and products of petroleum refining, natural gas liquids, biofuels, and liquids derived from other hydrocarbon sources (including coal to liquids and gas to liquids). Not included are liquefied natural gas (LNG) and liquid hydrogen.

### Load:

This means the amount of electric power delivered or required at any specified point or points on a System.

### Load Control Program:

A program in which the utility company offers a lower rate in return for having permission to turn off the air conditioner or water heater for short periods of time by remote control. This control allows the utility to reduce peak demand.

### Load Curve:

The relationship of power supplied to the time of occurrence. Illustrates the varying magnitude of the load during the period covered.

### Load-serving Entity (electric):[87]

Secures energy and transmission service (and related Interconnect Operations Services) to serve the electrical demand and energy requirements of its end-use customers.

### Load Facility:

A Distribution Company or a customer which is connected to the Transmission System

### Load Factor:

The ratio of the actual electrical Energy produced by a Generating Unit or Power Park Module to the possible maximum electrical Energy that could be produced by that Generating Unit or Power Park Module in any defined period.

### Load Leveling:

Any load control technique that dampens the cyclical daily load flows and increases baseload generation. Peak load pricing and time-of-day charges are two techniques that electric utilities use to reduce peak load and to maximize efficient generation of electricity.

### Load Management Technique:

Utility demand management practices directed at reducing the maximum kilowatt demand on an electric system and/or modifying the coincident peak demand of one or more classes of service to better meet the utility system capability for a given hour, day, week, season, or year.

### Load Participants:

The Distributors, Eligible Customers, Trading licensees that are Participants to the extent that they have individual meters registered to them that take Energy from the Transmission System on a net basis over the month (for the avoidance of doubt this includes the Special Trader in terms of Interconnectors) and Generators to the extent that take Energy from the Transmission System at an individual Power Station on a net basis over the month.

### Load Rejection:

The condition in which there is a sudden load loss in the system which causes the generating equipment to be over-frequency. A load rejection test confirms that the system can withstand a sudden loss of load and return to normal operating conditions using its governor. Load banks are normally used for these tests as part of the commissioning process for electrical power systems.

### Load Shedding:

Intentional action by a utility that results in the reduction of more than 100 megawatts (MW) of firm customer load for reasons of maintaining the continuity of service of the reporting entity's bulk electric power supply system. The routine use of load control equipment that reduces firm customer load is not considered to be a reportable action.

### Load Shedding Severity Index:

The annual expected duration of Load curtailment and is measured in minutes.

### Load Switch:

This means a component that can close or open (including on receipt of a Command to that effect) to enable or disable the flow of electricity.

### Local Authority:

Representative of a regional or local authority.

### Local Content:

This means the added value brought to the economy from energy related activities through systematic development of national capacity and capabilities and investment in developing and procuring locally available work force, services, and supplies, for the sharing of accruing benefits.

### Locational Marginal Price:

A locational marginal price (LMP) is the price for electricity that reflects the incremental cost to increase electricity generation to satisfy electricity demand at a specific location—node, load zone, reliability region, or hub. This price accounts for the dispatched set of generators and the limitations of the transmission system. LMPs may have multiple components, such as charges for energy, congestion, transmission system losses, and carbon charges. Both day-ahead and real-time LMPs exist. Real-time LMPs can be set for hourly or sub-hourly blocks. Regional transmission organizations and independent system operators use LMPs to help establish price signals to meet electricity demand.

### Local Meter Manufacturer/Assembler (LMMA):[88]

This means a person certified by the Commission for the local production/manufacture and assembly of electric energy meters or metering systems in Nigeria

### Long-Term Debt:

Debt securities or borrowing shaving a maturity of more than one year.

### Long-Term Purchase:

A purchase contract under which at least one delivery of material is scheduled to occur during the second calendar year after the contract-signing year. Deliveries also can occur during the contract-signing year, during the first calendar year thereafter, or during any subsequent calendar year.

### Loop Flow:

The movement of electric power from generator to load by dividing along multiple parallel paths; it especially refers to power flow along an unintended path that loops away from the most direct geographic path or contract path.

### Low Voltage (LV):

A Voltage, used for the supply of electricity, whose upper limit of nominal root-meansquare value is 1Kv.

### Lubricants:

Substances used to reduce friction between bearing surfaces or incorporated into other materials used as processing aids in the manufacture of other products or used as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Lubricants include all grades of lubricating oils, from spindle oil to cylinder oil to those used in greases.

### Lumen:

An empirical measure of the quantity of light. It is based upon the spectral sensitivity of the photosensors in the human eye under high (daytime) light levels. Photometrically it is the luminous flux emitted with a solid angle (1 steradian) by a point source having a uniform luminous intensity of 1 candela.

### Lumens/Watt (lpw):

A measure of the efficacy (efficiency) of lamps. It indicates the amount of light (lumens) emitted by the lamp for each unit of electrical power (Watts) used.

**Main heating Equipment:**

Equipment primarily used for heating ambient air in the housing unit.

**Main Meter**:

means a meter other than the Check Meter that is capable of and is used to measure the flow of active or reactive energy at a Connection Point.

**Main Metering**:

means the metering process to determine metering data utilizing the Main Metering System.

**Main Metering System**: [89]

means the Commercial Metering System which will be used by the Market Operator as a prime reference for the measurement of the active or reactive energy interchanged at a Connection Point in Market Settlement process.

**Mains**:

A system of pipes for transporting gas within a distributing gas utility's retail service area to points of connection with consumer service pipes

**Malawi Energy Regulatory Authority (MERA):** [90]

This is the energy regulatory authority that regulates the electricity sector in Malawi.

**Major Project**: [91]

means projects, whose budget exceed the threshold set by the NERC upon the advice of the Forum and is related to the operations of a licensed power plant, transmission grid, system operations, control centres or facilities, distribution network, or any other such projects in the power sector the NERC deems as a major project. This term is specific to the Nigerian electricity sector.

**Major Review:** [92]

means the tariff review required by the MYTO every five (5) years in Nigeria.

**Marginal Cost**:

The change in cost associated with a unit change in quantity supplied or produced.

**Market Operator or MO:** [93]

The company or entity licensed to carry on system operation under the Act, in so far as such company or entity is engaged in the administration of the Wholesale Electricity Market, including making, publishing, amending, administering and or enforcing these Rules and settlement of payments among Participants pursuant to its Licence.

**Market Participant**: Any party involved as a buyer or seller of energy in the energy market.

**Market Power:**

A given party's ability to manipulate some or all aspects of a market's behaviour. Market power can consist of ability to control price, demand, supply and/or delivery, and can be exerted through ownership of a critical level of any portion of the supply chain or through the ability to purchase or consume a critical level of supply.

**Market-based Pricing:**

Prices of electric power or other forms of energy determined in an open market system of supply and demand under which prices are set solely by agreement as to what buyers will pay and sellers will accept. Such prices could recover less or more than full costs, depending upon what the buyers and sellers see as their relevant opportunities and risks.

**Market Rules**: [94]

means the Market Rules for the Electricity Sectors of respective SSA countries

**Market Settlement**:

means the process of calculating charges, due from Participants who are required to make payment, and to be paid to Participants who are due to receive payments, pursuant to the Market Rules.

**Maximum Demand:**

The greatest of all demands of the load that has occurred within a specified period.

**Maximum Demand Indicator**:

an instrument for measuring the maximum amount of electrical energy required by a specific consumer during a given period.

**Maximum Dependable Capacity, Net:**

The gross electrical output measured at the output terminals of the turbine generator(s) during the most restrictive seasonal conditions, less the station service load.

**Maximum Generator Nameplate Capacity:**

The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer.

**Maximum Hourly Load**:

This is determined by the interval in which the 60-minute integrated demand is the greatest.

**Mcf:**

One thousand cubic feet.

**Medium Connection**: [95]

means a connection where the Connection Capacity is greater than 50 KVA and up to and including 4 MVA where no generation facility greater than 50 kW exists for an LV connection and no generation facility greater than 300 kW exists for an MV connection in Nigeria.

**Medium Voltage (MV):**

means a voltage, used for the supply of electricity, whose nominal root-meanssquare value ranges between 1kV and 33 kV

**Megawatt (MW):**

One million watts.

**Megawatt Hour (MWh):**

One million watt-hours.

**Mercury Vapor Lamp:**

A high-intensity discharge lamp that uses mercury as the primary light-producing element. Includes clear, phosphor coated, and self-ballasted lamps.

**Merger:**

A combining of companies or corporations into one, often by issuing stock of the controlling corporation to replace the greater part of that of the other.

**Metal Halide Lamp:**

A high-intensity discharge lamp type that uses mercury and several halide additives as light-producing elements. These lights have the best Colour Rendition Index (CRI) of the high-intensity discharge lamps. They can be used for commercial interior lighting or for stadium lights.

**Meter**:

means a device that measures and registers the integral active Energy or Reactive Energy over a metering interval and may include a data recorder but shall be deemed to exclude instrument transformers.

**Meter Asset Provider (MAP):** [96]

This means a person that is granted a permit by regulatory authorities in the power sector to provide metering services with roles that may include meter financing, procurement, supply, installation, maintenance, and replacement.

**Metering Code Review Panel**: [97]

has the meaning indicated in Section 3 of the Metering Code of Nigeria.

**Metering Equipment**:

means metering accessories like current transformers, voltage transformers, metering protection equipment including alarms and LV electrical circuitry, associated with a Meter, but shall be deemed to exclude the Meter itself.

**Metering Installation**:

in the DMC, means a Meter or Meters and their associated Metering Equipment, if exists, which is located at a definite Customer's location.

**Metering Market Procedures**: [98]

has the meaning assigned to the term in the Market Rules that is relative to Nigeria.

**Metered Peak Demand:**

The presence of a device to measure the maximum rate of electricity consumption per unit of time. This device allows electric utility companies to bill their customers for maximum consumption, as well as for total consumption.

**Meter Procurement Agreement (MPA):** [99]

This means an agreement between a Distribution Licensee and LMMA for the supply of meters, metering accessories, and meter installation.

**Metering Service Agreement (MSA):** [100]

This means an agreement between a Distribution Licensee and MAP for the provision of metering services.

**Metering Service Charge (MSC):** [101]

This means periodic payments made by an electricity customer to cover the cost of metering services.

**Metering Services Provider (MSP):** [102]

means an accredited metering company, entity or specialist which is conversant with the requirements of the Metering Code and having the technical and infrastructural capability, may be procured for the design, supply, installation, inspection, technical audit, or maintenance of metering systems.

**Metering System**:

means a Meter and the associated current transformers, voltage transformers, metering protection equipment including alarms, LV electrical circuitry, associated data collectors, data transmitters related to the measurement and recording and transmitting to the Data Collection System the active energy and/or reactive energy.

**Meter Test Station:**

means a certified test laboratory which has the technical and infrastructure capability to perform accuracy tests for Meters and Metering Equipment.

**Meter Type**:

means a specific and unique model of Meter of a specific manufacturer, identified by a definite trademark and type. Manufacturer's variants of a specific Meter model or trademark, or different options of a model as voltage or current ratings, storage capacity, etc., shall be considered, for purposes of this MC as different Meter Types.

**Methane (CH4):**

A colourless, flammable, odourless hydrocarbon gas which is the major component of natural gas. It is also an important source of hydrogen in various industrial processes. Methane is a greenhouse gas.

**Methanogens:**

Bacteria that synthesize methane, requiring completely anaerobic conditions for growth.

**Methanol (CH3OH):**

A light, volatile alcohol eligible for gasoline blending.

**Methanol Blend:**

Mixtures containing 85 percent or more (or such other percentage, but not less than 70 percent) by volume of methanol with gasoline. Pure methanol is considered an "other alternative fuel."

**Methanotrophs:**

Bacteria that use methane as food and oxidize it into carbon dioxide.

**Methyl Chloroform (trichloroethane):**

An industrial chemical (CH3CCl3) used as a solvent, aerosol propellant, and pesticide and for metal degreasing.

**Methylene Chloride:**

A colourless liquid, nonexplosive and practically non-flammable. Used as a refrigerant in centrifugal compressors, a solvent for organic materials, and a component in non-flammable paint removers.

**Micro-generation Meter:**

This means an electric energy measuring instrument used to measure energy from micro-generation which is designed to communicate with the SMS via the SMS's HAN Interface.

**Mineral:**

Any of the various naturally occurring in organic substances, such as metals, salt, sand, stone, sulphur, and water, usually obtained from the earth.

**Mineral Lease:**

An agreement wherein a mineral interest owner (lessor) conveys to another party (lessee) the rights to explore for, develop, and produce specified minerals. The lessee acquires a working interest and the lessor retains a non-operating interest in the property, referred to as the royalty interest, each in proportions agreed upon.

**Mineral Rights:**

The ownership of the minerals beneath the earth's surface with the right to remove them. Mineral rights may be conveyed separately from surface rights.

**Miniature Circuit Breaker (MCB):**

means an automatically operated electrical switch to protect an electrical circuit from damage caused by overload or short circuit.

**Mining:**

An energy-consuming subsector of the industrial sector that consists of all facilities and equipment used to extract energy and mineral resources.

**Mining Operation:**

One mine and/or tipple at a single physical location.

**Minor Fault:**

This means any electrical fault before the service entrance of a customer including Customer fuse that can be repaired within two hours of notification to the Distribution Company.

**Minor Review:** [103]

means a minor adjustment to the tariff made once every six (6) months in the Nigerian Electricity Industry to reflect the variation in generation capacity, gas price, inflation, and the exchange rate.

**MM:**

Million ($10_6$).

**MMbbl/d:**

One million ($10_6$) barrels of oil per day.

**MMBtu:**

One million ($10_6$) British thermal units.

**MMcf:**

One million ($10_6$) cubic feet.

**MMgal/d:**

One million ($10_6$) gallons per day.

**MMmt:**

One million ($10_6$) metric tons.

**MMst:**

One million ($10_6$) short tons.

**Modified Single Buyer:** [104]

This is a power market model which builds incrementally on the Single Buyer model. Under this model, transmission electricity consumers and Independent Power Producers are allowed to transact with each other directly for electricity supply.

**Modules:**

Photovoltaic cells or an assembly of cells into panels (modules) intended for and shipped for final consumption or to another organization for resale. When exported, incomplete modules and unencapsulated cells are also included. Modules used for space applications are not included.

**Moisture Content:**

The water content of a substance (a solid fuel) as measured under specified conditions being the "dry basis," which equals the weight of the wet sample minus the weight of a (bone) dry sample divided by the weight of the dry sample times 100 (to get percent); "wet basis," which is equal to the weight of the wet sample minus the weight of the dry sample divided by the weight of the wet sample times 100.

**Mole:**

The quantity of a compound or element that has a weight in grams numerically equal to its molecular weight. Also referred to as "gram molecule" or "gram molecular weight."

**Montreal Protocol:**

The Montreal Protocol on Substances that Deplete the Ozone Layer (1987). An international agreement, signed by most of the industrialized nations, to substantially reduce the use of chlorofluorocarbons (CFCs). Signed in January 1989, the original document called for a 50-percent reduction in CFC use by 1992 relative to 1986 levels. The subsequent London Agreement called for a complete elimination of CFC use by 2000. The Copenhagen Agreement, which called for a complete phase out by January 1, 1996, was implemented by the U.S. Environmental Protection Agency.

**Monopoly:**

When only one supplier, provider or seller is available for a given commodity in a given market, that individual or entity is referred to as a monopoly and has monopoly control over that market.

**Month:**

This means a period of 30 calendar days.

**MTBE (methyl tertiary butyl ether) (CH3)3COCH3:**

An ether intended for gasoline blending.

**Mutual Induction:**

Occurs when changing current in one coil induces voltage in a second coil.

**MW:**

Megawatt (1,000,000 watts), the unit for Active Power.

**MWh:**

Megawatt hour.

**MYTO:** [105]

The multi-year tariff order issued by the Commission as a framework for determining the industry pricing structure for Distribution, Transmission and Generation, as amended from time to time.

### N2O:

Nitrous Oxide

### Name Plate:

A metal tag attached to a machine or appliance that contains information such as brand name, serial number, voltage, power ratings under specified conditions, and other manufacturer supplied data.

### National Energy Regulator of South Africa (NERSA):[106]

This is the energy regulatory authority for South Africa.

### National Mass Metering Programme (NMMP):[107]

This means the policy initiative of the Federal Government of Nigeria that was launched in 2021 to rapidly bridge the metering gap in NESI.

### National Water and Electric Company (NAWEC): [108]

This is the energy regulatory authority for the Gambia.

### Natural Gas

A mixture of several combustible gases, which is found with most petroleum (oil) and tar deposits and some coal seams. Natural gas consists primarily of methane, but it can also include varying proportions of propane, butane, ethane, and other combustible gases.

### Natural Gasoline:

A commodity product commonly traded in NGL markets that comprises liquid hydrocarbons (mostly pentanes and hexanes) and generally remains liquid at ambient temperatures and atmospheric pressure. Natural gasoline is equivalent to pentanes plus.

### Natural Gas Liquids (NGL):

A group of hydrocarbons including ethane, propane, normal butane, isobutane, and natural gasoline. Generally, include natural gas plant liquids and all liquefied refinery gases except olefins.

### Natural Gas Liquids Production:

The volume of natural gas liquids removed from natural gas in lease separators, field facilities, gas processing plants, or cycling plants during the report year.

### Natural Gas Plant Liquids (NGPL):

Those hydrocarbons in natural gas that are separated as liquids at natural gas processing, fractionating, and cycling plants. Products obtained include ethane, liquefied petroleum gases (propane, normal butane, and isobutane), and natural gasoline. Component products may be fractionated or mixed. Lease condensate and plant condensate are excluded.

### Natural Gas Processing Plant:

Facilities designed to recover natural gas liquids from a stream of natural gas that may or may not have passed through lease separators and/or field separation facilities. These facilities control the quality of the natural gas to be marketed. Cycling plants are classified as gas processing plants.

### Natural Monopoly:

A market that may appear to be competitive but includes one competitor who can produce a better product or offer a lower price than all other competitors combined.

### Net Electricity Consumption:

Consumption of electricity computed as generation, plus imports, minus exports, minus transmission, and distribution losses.

### Net Energy for Load:

Net generation of main generating units that are system-owned or system-operated, plus energy receipts minus energy deliveries.

### Net Generation:

The amount of gross generation less the electrical energy consumed at the generating station(s) for station service or auxiliaries.

### Net Income:

Operating income plus other income and extraordinary income less operating expenses, taxes, interest charges, other deductions, and extraordinary deductions

### Net Operable Capacity:

Total owned capacity less in operable capacity.

### Network:

A cross-connected, multiple-access web of transmission and distribution lines, usually used in urban areas, which provides power to large numbers of customers and includes sufficient interconnection points to allow rapid rerouting of energy when demand or emergency conditions require it. It can also mean a regional or municipal distribution infrastructure; grid is more commonly applied to high-voltage transmission systems that feed these distribution systems.

### Network Integration Transmission Service:

Service that allows an electric transmission customer to integrate, plan, economically dispatch and regulate its network reserves in a manner comparable to that in which the Transmission Owner serves Native Load customers.

**Network Load:**

The designated load of a Transmission Customer.

**Nigerian Content**:

refers to the quantum of composite value added to or created in the Nigerian economy by a systematic development of capacity and capabilities through the deliberate utilization of Nigerian human and material resources and services in the NESI.

**Nigerian Electricity Regulatory Commission (NERC):** [109]

This is the electricity regulatory authority for Nigeria.

**Nitrogen Dioxide:**

A compound of nitrogen and oxygen formed by the oxidation of nitric oxide (NO) which is produced by the combustion of solid fuels.

**Nitrogen Oxides (NOx):**

Compounds of nitrogen and oxygen produced by the burning of fossil fuels.

**Nitrous Oxide (N2O):**

A colourless gas, naturally occurring in the atmosphere. Nitrous oxide has a 100-year Global Warming Potential of 310.

**No Objection:**[110]

This means an authorization issued by the Commission to qualified applicants for the purpose of participating in a Distribution Licensee's procurement process for the provision of meters and metering services.

**Nomination:** [111]

Either Day-ahead Nomination or Standing Nomination, as modified in accordance with the Nigerian Market Rules.

**Non-Biomass Waste:**

Material of non-biological origin that is a by-product or a discarded product. "Nonbiomass waste" includes municipal solid waste from non-biogenic sources, such as plastics, and tire-derived fuels.

**Non-Combustion use:**

Fossil fuels (coal, natural gas, and petroleum products) that are not burned to release energy and instead used directly as construction materials, chemical feedstocks, lubricants, solvents, waxes, and other products. "Non-combustion use" is sometimes used synonymously with "Nonfuel use (of energy)."

**Non-Consequential Load Loss:**

Non-Interruptible Load loss that does not include: (1) Consequential Load Loss, (2) the response of voltage sensitive Load, or (3) Load that is disconnected from the System by end-user equipment.

**Non-Firm Transmission Service:**

Transmission service that is reserved on an as-available basis and is subject to curtailment or interruption.

**Nonfuel Components**:

Components that are not associated with a particular fuel. These include, but are not limited to, control spiders, burnable poison rod assemblies, control rod elements, thimble plugs, fission chambers, primary and secondary neutron sources, and BWR (boiling water reactor) channels.

**Nonfuel use (of energy):**

Use of energy as feedstock or raw material input.

### Nonfungible Product:

A gasoline blend or blend stock that cannot be shipped via existing petroleum product distribution systems because of incompatibility problems. Gasoline/ethanol blends, for example, are contaminated by water that is typically present in petroleum product distribution systems.

### Non-hydrocarbon Gases:

Typical nonhydrocarbon gases that may be present in reservoir natural gas, such as carbon dioxide, helium, hydrogen sulphide, and nitrogen.

### Non-Renewable Fuels:

Fuels that cannot be easily made or "renewed," such as oil, natural gas, and coal.

### Non-spinning Reserve:

The generating capacity not currently running but capable of being connected to the bus and load within a specified time.

### Nuclear Electric Power (nuclear power):

Electricity generated using the thermal energy released from the fission of nuclear fuel in a reactor.

### Nuclear Fuel:

Fissionable materials that have been enriched to such a composition that, when placed in a nuclear reactor, will support a self-sustaining fission chain reaction, producing heat in a controlled manner for process use.

### Nuclear Reactor:

An apparatus in which a nuclear fission chain reaction can be initiated, controlled, and sustained at a specific rate. A reactor includes fuel (fissionable material), moderating material to control the rate of fission, a heavy-walled pressure vessel to house reactor components, shielding to protect personnel, a system to conduct heat

away from the reactor, and instrumentation for monitoring and controlling the reactor's systems.

**O&M:**

Operation and maintenance

**Occupier:** [112]

Includes – (a) in the case of land registered as freehold or leasehold under the provision of the Registration of Title Act, as amended, whether in relation to its application to the former Federal Capital Territory of Nigeria or otherwise, the person for the time being recorded in the register as being the owner; (b) in relation to land or other property of a community, the chief or head of that community; and (c) the holder of a right of occupancy and a person or community lawfully using or occupying land in accordance with customary law.

**Off-Grid:**

An act of distributing electric power out of the main/public grid. It is also the act of operating independently of an organized electrical power grid.

**Off-Peak**:

Period of relatively low system demand. These periods often occur in daily, weekly, and seasonal patterns; these off-peak periods differ for each individual electric utility.

**Off Peak Gas:**

Gas that is to be delivered and taken on demand when demand is not at its peak.

**Off-taker:**

means a Distribution Network Operator or a Directly Connected Customer

**Ohm:**

(Ω) A unit of measure of resistance. One ohm is equivalent to the resistance in a circuit transmitting a current of one ampere when subjected to a potential difference of one volt.

**Ohm's Law:**

The mathematical equation that explains the relationship between current, voltage, and resistance (V=IR).

**Ohmmeter:**

An instrument for measuring the resistance in ohms of an electrical circuit.

**Oil:**

A mixture of hydrocarbons usually existing in the liquid state in natural underground pools or reservoirs. Gas is often found in association with oil.

**Oil Reservoir:**

An underground pool of liquid consisting of hydrocarbons, sulphur, oxygen, and nitrogen trapped within a geological formation and protected from evaporation by the overlying mineral strata.

**Oil Shale:**

A sedimentary rock containing kerogen, a solid organic material.

**Oil Well:**

A well completed to produce crude oil from at least one oil zone or reservoir.

**On-Peak:**

Periods of relatively high system demand. These periods often occur in daily, weekly, and seasonal patterns; these on-peak periods differ for each individual electric utility.

**Open Access:**

When an energy customer can use one party's transmission systems to receive energy from another party, that customer is said to have open access to the transmission system. In addition, Open access prevents a utility that owns or controls a region's transmission and distribution systems from also controlling the energy supply. It differs from direct access in that direct access refers to acquisition of actual energy, whereas open access refers only to access to transmission systems used to transport it.

### Open Book Tariff Setting: [113]

means tariff setting carried out for a new generation licensee who has opted for an approved tariff different from the tariff set by the Nigerian Electricity Regulatory Commission in line with section 4 of the tariff methodology in force at the time.

### Open Circuit:

An open or open circuit occurs when a circuit is broken, such as by a broken wire or open switch, interrupting the flow of current through the circuit. It is analogous to a closed valve in a water system.

### Operable Generators/Units:

Electric generators or generating units that are available to provide power to the grid or generating units that have been providing power to the grid but are temporarily shut down. This includes units in standby status, units out of service for an indefinite period, and new units that have their construction complete and are ready to provide test generation. A nuclear unit is operable once it receives its Full Power Operating License.

### Operating Capacity:

The component of operable capacity that is in operation at the beginning of the period.

### Operating Day:

A normal business day. Days when a company conducts business due to emergencies or other unexpected events are not included.

### Operating Expenses:

Segment expenses related both to revenue from sales to unaffiliated customers and revenue from intersegment sales or transfers, excluding loss on disposition of property, plant, and equipment; interest expenses and financial charges; foreign currency translation effects; minority interest; and income taxes.

### Operating Income:

Operating revenues less operating expenses. Excludes items of other revenue and expense, such as equity in earnings of unconsolidated affiliates, dividends, interest income and expense, income taxes, extraordinary items, and cumulative effects of accounting changes.

### Operating Reserve:

The combination of Spinning Reserve, Slow Reserve and Quick Reserve required to meet the reliability requirements of the Power System.

### Operating Revenues:

Segment revenues both from sales to unaffiliated customers (i.e., revenue from customers outside the enterprise as reported in the company's consolidated income statement) and from intersegment sales or transfers, if any, of product and services similar to those sold to unaffiliated customers, excluding equity in earnings of unconsolidated affiliates; dividend and interest income; gain on disposition of property, plant, and equipment; and foreign currency translation effects.

### Operating Voltage:

The voltage level by which an electrical system is designated and to which certain operating characteristics of the system are related; also, the effective (root-meansquare) potential difference between any two conductors or between a conductor and the ground. The actual voltage of the circuit may vary somewhat above or below this value.

### Optional Delivery Commitment:

A provision to allow the conditional purchase or sale of a specific quantity of material in addition to the firm quantity in the contract.

### Original Equipment Manufacturer (OEM):

A company that provides the original design and materials for manufacture and engages in the assembly of vehicles. The OEM is directly responsible for manufacturing, marketing, and providing warranties for the finished product.

## Outage:

Any interruption of current flow in a transmission or distribution system. It can occur in transmission systems without affecting end-use customers. Energy grids are designed to allow energy to be routed around areas affected by outages to ensure uninterrupted service to end-use customers.

## Owners Equity:

Interest of the owners in the assets of the business represented by capital contributions and retained earnings.

**Panel:** [114]

This means individually or collectively as the context may require, the Stakeholder Advisory Panel, or Dispute Resolution Panel, or any other panel constituted by the Nigerian Electricity Regulatory Commission, and it is peculiar to Nigeria.

**Paraffinic Hydrocarbons:**

Saturated hydrocarbon compounds with the general formula CnH2n+2 containing only single bonds. Sometimes referred to as alkanes or natural gas liquids.

**Parallel Circuit:**

This is a circuit in which there are multiple paths for electricity to flow; each load connected in a separate path receives the full circuit voltage, and the total circuit current is equal to the sum of the individual branch currents.

**Parent:**

A firm that directly or indirectly controls another entity.

**Parent Company**:

An affiliated company that exercises ultimate control over a business entity, either directly or indirectly, through one or more intermediaries

**Participant or Market Participant**: [115]

has the meaning assigned to the term in the Market Rules of Nigeria.

**Payment-based Debt Recovery:**

This means a means of recovering debt based on a percentage of a payment.

**Peaking Capacity:**

Capacity of generating equipment normally reserved for operation during the hours of highest daily, weekly, or seasonal loads.

**Peak Demand:**

The maximum load during a specified period.

**Peaking Generation:**

Electric generating equipment normally operated to serve loads only during annual peak loads or during system emergencies.

**Peak Kilowatt:**

One thousand peak watts

**Peak Load:**

The maximum power requirement of a system at a given time, or the amount of power required to supply customers at times when need is greatest. They can refer either to the load at a given moment (e.g., a specific time of day) or to averaged load over a given period (e.g., a specific day or hour of the day).

**Peak Megawatt:**

One million peak watts.

**Peak Watt:**

A manufacturer's unit indicating the amount of power a photovoltaic cell or module will produce at standard test conditions (normally 1,000 watts per square meter and 25 degrees Celsius).

**Person:**

This includes any individual, partnership, firm, company, corporation (statutory or otherwise), joint venture, trust, association, organization, or other entity, in each case whether or not having separate legal personality.

### Personal Data:

This means any information comprising Personal Data as such term is defined in the relevant laws of countries.

### Petrochemicals:

Organic and in organic compounds and mixtures that include but are not limited to organic chemicals, cyclic intermediates, plastics, and resins, synthetic fibers, elastomers, organic dyes, organic pigments, detergents, surface active agents, carbon black, and ammonia.

### Petroleum:

A broadly defined class of liquid hydrocarbon mixtures. Included are crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids. Note: Volumes of finished petroleum products include non-hydrocarbon compounds, such as additives and detergents, after they have been blended into the products.

### Petroleum Products:

Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

### Petroleum Refinery:

An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

### Photovoltaic and solar thermal energy (as used at electric utilities):

Energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted at electric utilities into electricity by means of solar (photovoltaic) cells or concentrating (focusing) collectors.

### Photovoltaic Cell (PVC):

An electronic device consisting of layers of semiconductor materials fabricated to form a junction (adjacent layers of materials with different electronic characteristics) and electrical contacts and being capable of converting incident light directly into electricity (direct current).

### Photovoltaic Module:

An integrated assembly of interconnected photovoltaic cells designed to deliver a selected level of working voltage and current at its output terminals, packaged for protection against environmental degradation, and suited for incorporation in photovoltaic power systems.

### Piezo Electricity:

Electric polarization in a substance (especially certain crystals) resulting from the application of mechanical stress (pressure).

### Plant:

A term commonly used either as a synonym for an industrial establishment or a generating facility or to refer to a particular process within an establishment.

### Plant use:

The electric energy used in the operation of a plant. Included is the energy required for pumping at pump-storage plants.

### Plant-use Electricity:

The electric energy used in the operation of a plant. This energy total is subtracted from the gross energy production of the plant.

### Point of Delivery:

A location that the Transmission Service Provider specifies on its transmission system where an Interchange Transaction leaves, or a Load-Serving Entity receives its energy.

**Point of Receipt**:

A location that the Transmission Service Provider specifies on its transmission system where an Interchange Transaction enters, or a generator delivers its output.

**Point of Sale:**

means a device for the remote purchase of electricity units to credit to a consumer meter.

**Point to Point Transmission Service**:

The reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery

**Polarity:**

A collective term applied to the positive (+) and negative (-) ends of a magnet or electrical mechanism such as a coil or battery.

**Potential Peak reduction**:

The potential annual peak load reduction (measured in kilowatts) that can be deployed from Direct Load Control, Interruptible Load, Other Load Management, and Other DSM Program activities. (Please note that Energy Efficiency and Load Building are not included in Potential Peak Reduction.) It represents the load that can be reduced either by the direct control of the utility system operator or by the consumer in response to a utility request to curtail load. It reflects the installed load reduction capability, as opposed to the Actual Peak Reduction achieved by participants, during the time of annual system peak load.

**Power:**

The rate at which electrical energy is transferred by an electric circuit, it is measured in Watts and often expressed in kilowatts (kW) or megawatts (mW). Also known as "real" or "active" power.

### Power (electrical):

An electric measurement unit of power called a voltampere is equal to the product of 1 volt and 1 ampere. This is equivalent to 1 watt for a direct current system, and a unit of apparent power is separated into real and reactive power. Real power is the workproducing part of apparent power that measures the rate of supply of energy and is denoted as kilowatts (kW). Reactive power is the portion of apparent power that does no work and is referred to as kilovars; this type of power must be supplied to most types of magnetic equipment, such as motors, and is supplied by generator or by electrostatic equipment. Voltamperes are usually divided by 1,000 and called kilovolt amperes (kVA). Energy is denoted by the product of real power and the length of time utilized; this product is expressed as kilowatt-hours.

### Power Exchange:

An entity providing a competitive spot market for electric power through day- and/or hour-ahead auction of generation and demand bids.

### Power Factor:

The ratio of the actual electrical power dissipated by an AC circuit to the product of the rms. values of current and voltage. The difference between the two is caused by reactance in the circuit and represents power that does no useful work.

### Power Grid:

An interconnected network of electric power transmission lines.

### Power Loss:

The difference between electricity input and output because of an energy transfer between two points.

### Power Park Module:

A collection of Power Park Units joined together by a System and connected to the Transmission System or Distribution System via a single Connection Point

### Power Plant:

Most commonly, a generating station or energy production facility.

**Power Pool**:

Consists of two or more utilities that combine their resources to better meet their individual needs. These resources can include generating facilities, transmission system access, emergency response capability and even accounting and billing databases. This pooling of resources allows utilities to keep costs low and ensure higher reliability through 'strength in numbers'. Pooling is an accepted, desirable, and often mandatory efficiency strategy in regulated energy markets, but in deregulated markets it is usually a voluntary activity. Examples are the West African Power Pool (WAPP), Southern African Power Pool (SAPP), Central African Power Pool (CAPP) and the Eastern African Power Pool (EAPP).

**Power Production Plant:**

All the land and land rights, structures and improvements, boiler or reactor vessel equipment, engines and engine-driven generator, turbo generator units, accessory electric equipment, and miscellaneous power plant equipment are grouped together for each individual facility.

**Power Purchase Agreement (PPA):**

PPA refers to a contract entered by an independent power producer and an electric utility. The power purchase agreement specifies the terms and conditions under which electric power will be generated and purchased. Power purchase agreements require the independent power producer to supply power at a specified price for the life of the agreement. While power purchase agreements vary, their common elements include: specification of the size and operating parameters of the generation facility; milestones in-service dates, and contract terms; price mechanisms; service and performance obligations; dispatchability options; and conditions of termination or default.

**Power Transfer Distribution Factor**:

In the pre-contingency configuration of a system under study, a measure of the responsiveness or change in electrical loadings on transmission system Facilities due to a change in electric power transfer from one area to another, expressed in percent (up to 100%) of the change in power transfer.

**Power Transformer**:

means the transformers which interconnect the Transmission Network with the Distribution Networks, or the Transmission Network with the equipment or apparatus of an Eligible Customer.

**PPI:**

Producer Price Index

**Prepaid Meter**:

means a Meter that requires the Customer to pay its consumption in advance to allow a connection to the network.

**Prepayment Mode:**

This means a mode of operation of a SMS whereby payment is generally made in advance of Consumption.

**Price:**

This means the amount of money in Currency Units charged for electricity consumed.

**Primary Energy:**

Energy in the form that it is first accounted for in a statistical energy balance before any transformation to secondary or tertiary forms of energy. For example, coal can be converted to synthetic gas, which can be converted to electricity; in this example, coal is primary energy, synthetic gas is secondary energy, and electricity is tertiary energy.

**Primary Fuels**:

Fuels that can be used continuously. They can sustain the boiler sufficiently to produce electricity.

**Process Fuel:**

All energy consumed in the acquisition, processing, and transportation of energy. Quantifiable process fuel includes three categories natural gas lease and plant operations, natural gas pipeline operations, and oil refinery operations.

### Processing Plant:

A surface installation designed to separate and recover natural gas liquids from a stream of produced natural gas through the processes of condensation, absorption, adsorption, refrigeration, or other methods and to control the quality of natural gas marketed and/or returned to oil or gas reservoirs for pressure maintenance, repressuring, or cycling.

### Project Affected Person or PAP: [116]

Any person who suffers loss of or damage to an asset or loss of access to productive resources, because of the carrying out of any power projects.

### Protective Relay:

A relay device designed to trip a circuit breaker when a fault is detected.

### Public Utilities Regulatory Commission: [117]

This is the energy regulatory authority for Ghana.

**Qualified Bidder:**

A bidder which a Buyer determines (following evaluation of Expressions of Interest) is eligible to receive a Request for Proposal.

**Qualified Independent Appraiser:** [118]

Any person who has the necessary qualification to estimate the quality and value of the property, who is not affiliated with either of the parties and must be a member of the Estate Surveyors and Valuers Registration Board of Nigeria and registered by the NERC.

**Quick Reserve:** [119]

The reserve used for balancing the System within one Dispatch Period. It is comprised of Primary, Secondary, Tertiary and Emergency Reserve. Primary Reserve and Secondary Reserve is activated automatically for controlling the Frequency of the System. Tertiary Reserve and Emergency Reserve are manually activated by the System Operator and are used for substituting Primary and Secondary Reserve and for balancing the System in the time frame of several minutes (Formerly known as Spinning Reserve) under the Nigerian Grid Code.

**R&D:**

Research and Development.

**RAPs:**

Resettlement Action Plans.

**Radiation:**

The transfer of heat through matter or space by means of electromagnetic waves.

**Rates:**

The authorized charges per unit or level of consumption for a specified period for any of the classes of utility services provided to a customer.

**Ratemaking Authority:**

A utility commission's legal authority to fix, modify, approve, or disapprove rates as determined by the powers given the commission by a State or Federal legislature.

**Rate Base:**

The value of property upon which a utility is permitted to earn a specified rate of return as established by a regulatory authority. The rate base generally represents the value of property used by the utility in providing service and may be calculated by any one or a combination of the following accounting methods: fair value, prudent investment, reproduction cost, or original cost. Depending on which method is used, the rate base includes cash, working capital, materials and supplies, deductions for accumulated provisions for depreciation, contributions in aid of construction, customer advances for construction, accumulated deferred income taxes, and accumulated deferred investment tax credits.

**Rate Base (electric):**

The value of property, upon which, a utility is permitted to earn a specified rate of return as established by a regulatory authority.

**Rate Case:**

A proceeding, usually before a regulatory commission, involving the rates to be charged for a public utility service

**Rate Features:**

Special rate schedules or tariffs offered to customers by electric and/or natural gas utilities.

**Rate of Return:**

The ratio of net operating income earned by a utility is calculated as a percentage of its rate base.

**Rate of Return on Rate Base**:

The ratio of net operating income earned by a utility, calculated as a percentage of its rate base.

**Rate Schedule (electric):**

The rates, charges, and provisions under which service is supplied to the designated class of customers.

**Reactive Energy:**

This means the integral with respect to time of Reactive Power in units of voltamperes reactive-hours (Varh) or standard multiples thereof (for example, kVarh, MVarh).

**Reactive Power:**

The portion of electricity that establishes and sustains the electric and magnetic fields of alternating-current equipment. Reactive power must be supplied to most types of magnetic equipment, such as motors and transformers. Reactive power is provided by generators, synchronous condensers, or electrostatic equipment such as capacitors and directly influences electric system voltage. It is a derived value equal to the vector difference between the apparent power and the real power. It is usually expressed as kilovolt-amperes reactive (KVAR) or megavolt-ampere reactive (MVAR).

**Reactive Power Control**:

means a method of controlling the Reactive Power exchange from a Generator's site at the Connection Point, to a specified Reactive Power value (e.g. MVAr value).

**Receiving Officer:** [120]

means the staff of the NERC authorized to receive and acknowledge receipt of Application for Tariff Review, and perform other responsibilities assigned to him by the Commission pursuant to these Regulations

**Rectifier:**

An electrical device that converts an alternating current into a direct one by allowing a current to flow through it in one direction only.

**Regional Trading:**

This means buying or electricity from, or selling electricity to, other systems or a regional electricity market or pool through Interconnectors.

**Regulating Reserve:**

An amount of reserve responsive to Automatic Generation Control, which is sufficient to provide normal regulating margin.

**Regulatory Agency/Authority**:

a public institution in charge of regulating electricity.

**Regulatory Commission for Electricity Sector (CRSE):** [121]

This is the energy regulatory authority for Senegal.

**Regulatory Agency for Drinking Water and Energy Sectors (AREEN):**[122]

This is the energy regulatory authority for Burundi.

**Relay:**

An electrical coil switch that uses a small current to control a much larger current.

### Reliability Adjustment Arranged Interchange:

A request to modify a Confirmed Interchange or Implemented Interchange for reliability purposes.

### Reliability (electric system):

A measure of the ability of the system to continue operation while some lines or generators are out of service. Reliability deals with the performance of the system under stress.

### Reliability Must-run Agreement: [123]

An agreement between the Generator and the System Operator for providing Reliability Must-run Service during specified Dispatch Period from designated Reliability Must-run Units of the Generator.

### Reluctance:

The resistance that a magnetic circuit offers to lines of force in a magnetic field.

### Renewable Energy Power Systems or REPS:

means a power system that generates power using energy sources that replenishes such as solar energy, biomass, small hydro, and wind power etc.

### Renewable Energy Resources:

Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.

### Renewable Fuels (other):

Fuels and fuel blending components, except biomass-based diesel fuel, renewable diesel fuel, and fuel ethanol, produced from renewable biomass. Note: This category "other" pertains to the petroleum supply data system.

### Repowering:

For power plants that use combustible fuel, repowering refers to refurbishing a plant by replacing the power-generating technology with a new prime mover and energy source (for example, switching from coal to natural gas). As a result of this replacement, the plant's efficiency usually improves, its emissions decline, or its generation capacity increases. The repowering process usually uses existing facility infrastructure (for example, roads, buildings, interconnection equipment, and fuel and ash storage and handling).

### Request for Proposal:

A request for proposal for the construction of new generating capacity.

### Restrictive Trade Practice:

This in respect of electricity means a trade practice which tends to impose on customers unjustified costs or restrictions in service and shall include delay beyond the period agreed to by or prescribed for a Distribution Licensee in providing electricity services.

### Resistance:

The opposition to the passage of an electric current. Electrical resistance can be compared to the friction experienced by water when flowing through a pipe.
Measured in ohms.

### Resistor:

A device usually made of wire or carbon which presents a resistance to current flow.

### Retail:

Sales covering electrical energy supplied for residential, commercial, and industrial end-use purposes. Other small classes, such as agriculture and street lighting, are also included in this category.

### Retail Tariffs:

means the final tariff to be paid by consumers. It includes the generation, transmission, distribution, and all other associated cost.

**Revenue - (electricity):**

The total amount of money received by an entity from sales of its products and/or services; gains from the sales or exchanges of assets, interest, and dividends earned on investments; and other increases in the owner's equity, except those arising from capital adjustments.

**Revenue Requirement**:

The total revenue that the utility is authorized an opportunity to recover, which includes operating expenses and a reasonable return on rate base.

**RFP:**

Request for Proposal

**RFQ:**

Request for Quotation

**Right-of-Way:**

The land and legal right to use and service the land along which a transmission line is located. Transmission line right-of-way is usually acquired in widths that vary with the kilovolt (kV) size of the line.

**Right-of-Way (electric):**

A corridor of land on which electric lines may be located. The Transmission Owner may own the land in fee, own an easement, or have certain franchise, prescription, or license rights to construct and maintain lines.

**RMS:**

This means Root Mean Square.

**Routine Test**: [124]

means a series of tests and checks performed by an authorised Meter Test Station to determine that a new Meter or Metering Equipment complies with the provisions of this MC. Routine Tests shall be performed to each individual Meter or Metering Equipment or by sampling of a group of Meters or Metering Equipment, as prescribed by NERC directives which will include sampling techniques and Routine Tests to be

performed. Routine Tests shall be performed to each individual Meter or Metering Equipment or by sampling of a group of Meters or Metering Equipment, as prescribed by NERC directives which will include sampling techniques and Routine Tests to be performed

### Rotor:

The rotating part of an electrical machine such as a generator, motor, or alternator**.**

### Royalty:

A contractual arrangement providing a mineral interest that gives the owner a right to a fractional share of production or proceeds there from, that does not contain rights and obligations of operating a mineral property, and that is normally free and clear of exploration, developmental and operating costs, except production taxes.

### Rules Working Group:[125]

The group organised by the Market Operator pursuant to Rule 44.4 of the Nigerian Market Rules, to assess and review the interpretation and implementation of the Market Rules and its procedures.

### Running and Quick-Start Capability:

The net capability of generating units that carry load or have quick-start capability. In general, quick-start capability refers to generating units that can be available for load within a 30-minute period.

### Rwanda Utilities Regulatory Authority (RURA):[126]

This is the energy regulatory authority for Rwanda.

**Scheduled Outage:**

The shutdown of a generating unit, transmission line, or other facility for inspection or maintenance, in accordance with an advance schedule.

**Security Credentials:**

This means data used to identify and authenticate an individual or system.

**Self-Induction:**

Voltage which occurs in a coil when there is a change of current.

**Seller/Supplier:**

An entity (individual, company, or organization) able to deliver electrical energy to a customer. Sellers do not necessarily produce energy, and don't necessarily sell to end-use customers.

**Semiconductor:**

A solid substance that has a conductivity between that of an insulator and that of most metals, either due to the addition of an impurity or because of temperature effects. Devices made of semiconductors, notably silicon, are essential components of most electronic circuits.

**Series Circuit:**

A circuit in which there is only one path for electricity to flow. All the current in the circuit must flow through all the loads.

**Series-Parallel Circuit:**

A circuit in which some of the circuit components are connected in series and others are connected in parallel.

**Series Resistance:**

Parasitic resistance to current flow in a cell due to mechanisms such as resistance from the bulk of the semiconductor material, metallic contacts, and interconnections.

**Service:**

The conductors and equipment used to deliver energy from the electrical supply system to the system being served.

**Service Level Agreements (SLA):** [127]

This means an agreement between a Distribution Licensee and Meter Asset Provider on the minimum levels of service to be provided to customers by Meter Asset Providers

**Settlement:** [128]

The process of calculating charges, due from Participants who are required to make payment, and to be paid to Participants who are due to receive payments, pursuant to the Market Rules of Nigeria.

**Settlement Software:**[129]

The suite of computer programmes used by the Market Operator to calculate the Settlement amounts pursuant to the Market Rules in Nigeria.

**Settlement Statement:**[130]

The document prepared by the Market Operator stating the Charges to be settled, or the payment to be, by each Participant because of the trading and activities on the Market Operator Administered Market, and the Energy bought and sold in Bilateral Contacts by Participants in Nigeria.

**Seychelles Energy Commission (SEC):** [131]

This is the energy regulatory agency for Seychelles.

**Short Circuit:**

When one part of an electric circuit comes in contact with another part of the same circuit, diverting the flow of current from its desired path.

**Short Circuit Current:**

The current flowing freely through an external circuit that has no load or resistance; the maximum current possible.

**Short List:**

A limited number of Qualified Bidders who are selected by a Buyer to submit Final Bids based on their ranking in Indicative Bid Submissions.

**Shutdown:**

A situation when all Generation has ceased in all or substantial part of the Transmission System and there is no Energy supply from another Control Area or other parts of the Transmission System leading to cessation of flow of Energy through the whole or substantial part of the Transmission System.

**Single-Circuit Line:**

A transmission line with one electric circuit. For three-phase supply, a single circuit requires at least three conductors, one per phase.

**Slow Reserve:**

This means available capacity ready for Synchronization to the Transmission System within an agreed contracted timescale (e.g., 4 hours). The purpose of Slow Reserve is to replace any Generating Units on Unplanned Outages or to meet forecast Demand.

**Smart Meter**:

means a meter that can carry out self-diagnostics and can support through a separate two-way communication a set of functionalities which include remote readings, auto connection and disconnection, prepayment, post payment, tariff changes, fraud and error detection, consumer information exchange, and auxiliary debits or credits.

**Smart Metering**:

means a metering system consisting of smart meters, home area networks, two-way communications systems, a set of functionalities and metering data management system. Also known as Advanced Metering Infrastructure (AMI).

**SMS:**

This means Electricity Smart Metering System in Nigeria.

**Société Comorienne d'eau et Electricité (MA-MWE)**:[132]

The Comorian Water and Electricity Company. This is the multi-sectoral entity that regulates the electricity and water sectors of Comoros.

**Sociedad de Electricidad de Guinea Ecuatorial (SEGESA):**[133]

This is the electricity regulatory authority for Equatorial Guinea

**Sociéte Nationale d' Electricite (SNEL):** [134]

This is the electricity regulatory agency for the Democratic Republic of Congo.

**Société Nationale d'Electicité du Tchad (SNE):** [135]

This is the electricity regulatory agency for the Republic of Chad.

**Solar Cooling:**

The use of solar thermal energy or solar electricity to power a cooling appliance. There are five basic types of solar cooling technologies absorption cooling, which can use solar thermal energy to vaporize the refrigerant; desiccant cooling, which can use solar thermal energy to regenerate (dry) the desiccant; vapor compression cooling, which can use solar thermal energy to operate a Rankine-cycle heat engine; and evaporative coolers ("swamp" coolers), and heat-pumps and air conditioners that can be powered by solar photovoltaic systems.

**Solar Declination:**

The apparent angle of the sun north or south of the earth's equatorial plane. The earth's rotation on its axis causes a daily change in the declination.

**Solar Energy:**

The radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.

**Solar Power Tower:**

A solar energy conversion system that uses a large field of independently adjustable mirrors(heliostats) to focus solar rays on a near single point atop a fixed tower (receiver). The concentrated energy may be used to directly heat the working fluid of a Rankine cycle engine or to heat an intermediary thermal storage medium (such as a molten salt).

**Solar Radiation:**

A general term for the visible and near visible (ultraviolet and near-infrared) electromagnetic radiation that is emitted by the sun. It has a spectral, or wavelength, distribution that corresponds to different energy levels; short wavelength radiation has a higher energy than long-wavelength radiation.

**Solar Thermal Collector:**

A device designed to receive solar radiation and convert it to thermal energy. Normally, a solar thermal collector includes a frame, glazing, and an absorber, together with appropriate insulation. The heat collected by the solar collector may be used immediately or stored for later use. Solar collectors are used for space heating; domestic hot water heating; and heating swimming pools, hot tubs, or spas.

**Solar Thermal Panels**:

A system that actively concentrates thermal energy from the sun by means of solar collector panels. The panels typically consist of fat, sun-oriented boxes with transparent covers, containing water tubes of air baffles under a blackened heat absorbent panel. The energy is usually used for space heating, for water heating, and for heating swimming pools.

**Solid State Circuit:**

Electronic (integrated) circuits which utilize semiconductor devices such as transistors, diodes, and silicon-controlled rectifiers.

**Special Trader:** [136]

The trading Licensee holding a bulk purchase and resale Licence or temporary Licence, authorised to purchase Generation and Ancillary Services from successor Generation Companies and Independent Power Producers, for resale to Distributors and Eligible Customers pursuant to Part II of the Electric Power Sector Reform Act, 2005 Nigeria.

**Spinning Reserve:**

Unloaded generation that is synchronized and ready to serve additional demand.

**SPV:**

Special Purpose Vehicle.

**Stability**:

The property of a system or element by virtue of which its output will ultimately attain a steady state. The amount of power that can be transferred from one machine to another following a disturbance. The stability of a power system is its ability to develop restoring forces equal to or greater than the disturbing forces to maintain a state of equilibrium.

**Stability (electric):**

The ability of an electric system to maintain a state of equilibrium during normal and abnormal conditions or disturbances.

**Stakeholder:**

An individual, commercial entity, government body or other party with a real interest, or stake, in a given activity or occurrence. Both a stakeholder in a utility and a customer of that utility can be considered stakeholders in that utility's activities because they can both be affected by the utility's actions and policies; or a party with a financial interest, specifically ownership or part-ownership of the utility referred to; but a non-financial interest can also be thought of as a stake.

**Standard Connection Agreement**:

means a connection agreement approved by the Nigerian Electricity Regulatory Commission (NERC) and published by the Distribution Licensee.

**Standard Fluorescent:**

A light bulb made of a glass tube coated on the inside with fluorescent material, which produces light by passing electricity through mercury vapor causing the fluorescent coating to glow or fluoresce.

**Stand-alone Generator:**

A power source/generator that operates independently of or is not connected to an electric transmission and distribution network; used to meet a load(s) physically close to the generator.

**Standby Electricity Generation:**

Involves use of generators during times of high demand on utilities to avoid extra "peak-demand" charges.

**Standby Facility:**

A facility that supports a utility system and is generally running under no-load. It is available to replace or supplement a facility normally in service.

**Static Meter**:

means the same as Electronic Meter.

**Station (electric):**

A plant containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or nuclear energy into electric energy.

**Station Auxiliary Transformer**:

means the transformer at a Generation Substation which feeds exclusively the auxiliary equipment of a Generation Unit or a Generation Group.

**Station use**:

Energy that is used to operate an electric generating plant. It includes energy consumed for plant lighting, power, and auxiliary facilities, regardless of whether the energy is produced at the plant or comes from another source.

**Steam:**

Water in vapor form; used as the working fluid in steam turbines and heating systems.

**Steam Electric Power Plant (conventional):**

A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced in a boiler where fossil fuels are burned.

**Steam Turbine:**

A device that converts high-pressure steam, produced in a boiler, into mechanical energy that can then be used to produce electricity by forcing blades in a cylinder to rotate and turn a generator shaft.

**Step-Up Transformer**:

means the transformer that connects the stator windings of a Generation Unit with the Transmission or Distribution Network, as corresponds.

**Storage Capacity:**

The amount of gas that can be stored to cover peak demand.

**Storage Hydroelectric Plant:**

A hydroelectric plant with reservoir storage capacity for power use.

**Stranded Costs:**

Costs incurred by a utility which may not be recoverable under market-based retail competition. Examples include undepreciated generating facilities, deferred costs, and long-term contract costs.

**Substation:**

Facility equipment that switches, changes, or regulates electric voltage.

**Sub-Transmission:**

A set of transmission lines of voltages between transmission voltages and distribution voltages. Generally, lines in the voltage range of 69 kV to 138 kV.

**Successor Distribution Company**: [137]

means a successor company that is granted a Distribution License under section 67 (1) of the Nigerian Electric Power Sector Reform Act, 2005.

**Sulfur Dioxide (SO2):**

A toxic, irritating, colourless gas soluble in water, alcohol, and ether. Used as a chemical intermediate, in paper pulping and ore refining, and as a solvent.

**Supervisory Control and Data Acquisition (SCADA):**

means a system of remote control and telemetry used to monitor and control the Power System. In other words, it is a computer system used to monitor and control some or all aspects of energy production, transmission and/or distribution.

**Supply:**

This means the supply of electricity to Premises and "Supplied" shall be construed accordingly.

**Surge:**

A transient variation of current, voltage, or power flow in an electric circuit or across an electric system.

**Suspension Notice:**

This is the notification issued by the Market Operator to inform a Participant that it is not fulfilling all the eligibility requirements for participation the Wholesale Electricity Market and notifying it that if this situation remains unremedied, the Participant will lose its rights to participate in the Wholesale Electricity Market of Nigeria.

**Suspension Order:** [138]

An order issued by the Market Operator pursuant to Rule 45.3 of the Market Rules of Nigeria.

**Sustained Outage:**

The deenergized condition of a transmission line resulting from a fault or disturbance following an unsuccessful automatic reclosing sequence and/or unsuccessful manual reclosing procedure.

**Synchronism:**

This is the state in which two time-varying phenomena, time-scales, or signals are identical.

**System:**

A combination of generation, transmission, and distribution components.

**System Interconnection:**

A physical connection between two electric systems that permits the transfer of electric energy in either direction.

**System Marginal Price:**

The Price Offer of the Marginal Generating Unit dispatched to meet the Demand in the Ex-post Unconstrained Generation Schedule.

**System Operating Limit:**

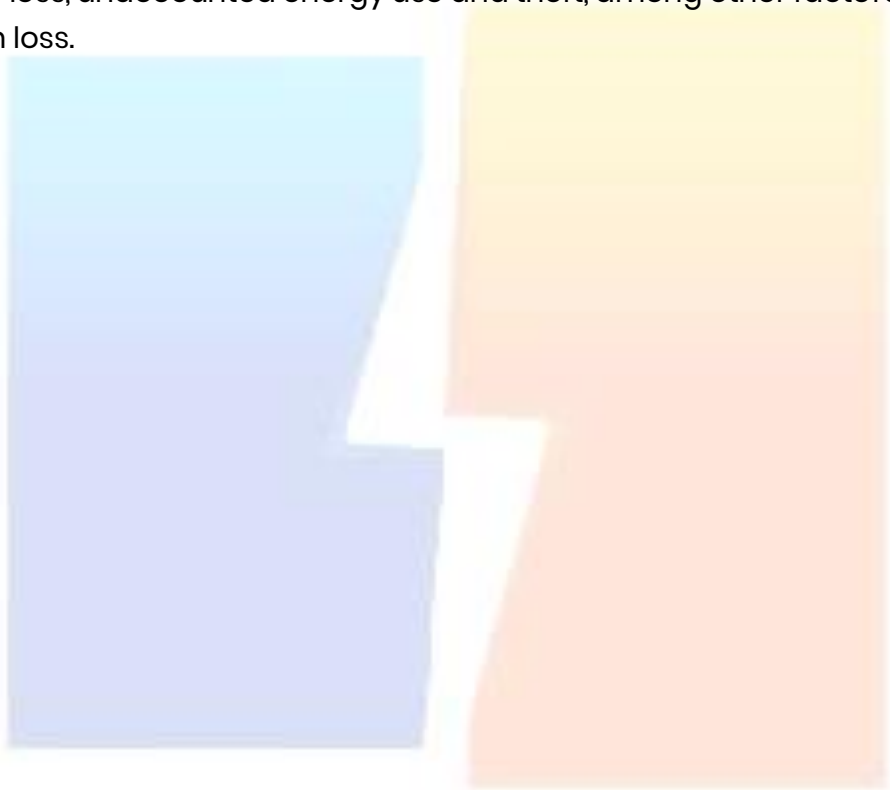
The value (such as MW, Mvar, amperes, frequency, or volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria.

**System Operator**:

An individual at a Control Centre of a Balancing Authority, Transmission Operator, or Reliability Coordinator, who operates or directs the operation of the Bulk Electric System (BES) in Real-time.

**System Loss:**

The total of all energy lost or wasted on a system due to line loss and other forms of energy loss, unaccounted energy use and theft, among other factors, is referred to as system loss.



**T&D:**

Transmission and distribution

**Take-or-Pay:**

The obligation to pay for a specified amount of gas whether this amount is taken or not. Depending on the contract terms, under-takes or over-takes may be taken as make-up or carry forward into the next contract period. When it is credited into another contract period, this is called make-up gas.

**Tariff:**

This means the structure of Prices and other charges relating to electricity supply. It is a published volume of rate schedules and general terms and conditions for the supply of electricity.

**Tariff Register:**

This means storage for recording Consumption for the purposes of Time-of-use Pricing

**Tariff Review:** [139]

means the application for a review of the current tariff of a licensee outside the scheduled Minor and Major Reviews under the MYTO of Nigeria.

**TCN:**

The Transmission Company of Nigeria.

**Technical Codes:** [140]

This means Grid Code, Distribution Code, Metering Code, Health & Safety Code and other codes approved by the Commission for the technical regulation of the electricity supply industry in Nigeria.

### Telemetering (electric):

The process by which measurable electrical quantities from substations and generating stations are instantaneously transmitted to the control center, and, by which, operating commands from the control center are transmitted to the substations and generating stations.

### Temperature Coefficient (of a solar photovoltaic cell):

The amount that the voltage, current, and/or power output of a solar cell changes due to a change in the cell temperature.

### Tender Auditor: [141]

A professional firm or consortium of reputable firms appointed by Nigerian Electricity Regulatory Commission to audit the conduct and results of a bulk procurement process.

### Tender Audit Report:

A report prepared by the Tender Auditor on the conduct and results of a bulk power procurement process.

### Thermal Efficiency:

A measure of the efficiency of converting a fuel to energy and useful work; useful work and energy output divided by higher heating value of input fuel times 100 (for percent).

### Thermal Energy Storage:

The storage of heat energy during utility off-peak times at night, for use during the next day without incurring daytime peak electric rates.

### Thermal Limit:

The maximum amount of power a transmission line can carry without suffering heatrelated deterioration of line equipment, particularly conductors.

### Thermal Rating (electric):

The maximum amount of electrical current that a transmission line or electrical facility can conduct over a specified period before it sustains permanent damage by overheating or before it sags to the point that it violates public safety requirements.

### Thermal Resistance (R-Value):

This designates the resistance of a material to heat conduction. The greater the Rvalue the larger the number.

### Thermal Storage:

Storage of heat or heat sinks (coldness) for later heating or cooling.

### Thermostat:

A device that adjusts the amount of heating and cooling produced and/or distributed by automatically responding to the temperature in the environment.

### Three-Phase Power:

Power generated and transmitted from generator to load on three conductors.

### Time-of-Day Lock-out or Limit:

A special electric rate feature under which electricity usage is prohibited or restricted to a reduced level at fixed times of the day in return for a reduction in the price per kilowatt hour.

### Time-of-Day Pricing:

A special electric rate feature under which the price per kilowatt-hour depends on the time of day.

### Time-of-Day Rate:

The rate charged by an electric utility for service to various classes of customers. The rate reflects the different costs of providing the service at different times of the day.

### Time-of-Use Pricing:

This means a pricing scheme with one or more Time-of-Use Bands.

### Time-of-Use Tariff:

This means a Tariff for Time-of-Use Pricing.

### TOU:

This means Time-of-Use.

### Trader: [142]

means a holder of a Trading License, issued according to Article 68 of the Nigerian Electric Power Sector Reform Act, 2005.

### Transistor:

A semiconductor device with three connections, capable of amplification in addition to rectification.

### Transmission (electric):

An interconnected group of lines and associated equipment for the movement or transfer of electric energy between points of supply and points at which it is transformed for delivery to customers or is delivered to other electric systems.

### Transmission (electric) (verb):

The movement or transfer of electric energy over an interconnected group of lines and associated equipment between points of supply and points at which it is transformed for delivery to consumers or is delivered to other electric systems. Transmission is considered to end when the energy is transformed for distribution to the consumer.

### Transmission and Distribution Loss:

Electric energy lost due to the transmission and distribution of electricity. Much of the loss is thermal in nature.

### Transmission Circuit:

A conductor used to transport electricity from generating stations to load.

### Transmission Company of Nigeria: [143]

The licensee that is the owner, operator, and manager of the Transmission Grid System in Nigeria.

### Transmission Constraint (electric):

A limitation on one or more transmission elements that may be reached during normal or contingency system operations.

### Transmission Line:

A set of conductors, insulators, supporting structures, and associated equipment used to move large quantities of power at high voltage, usually over long distances between a generating or receiving point and major substations or delivery points.

### Transmission Operator (electric):

The entity responsible for the reliability of its localized transmission system, and that operates or directs the operations of the transmission facilities.

### Transmission Service Provider (TSP):[144]

means a holder of a Transmission License, issued according to Article 65 of the Nigerian Electric Power Sector Reform Act, 2005.

### Transmission System or Transmission Network:

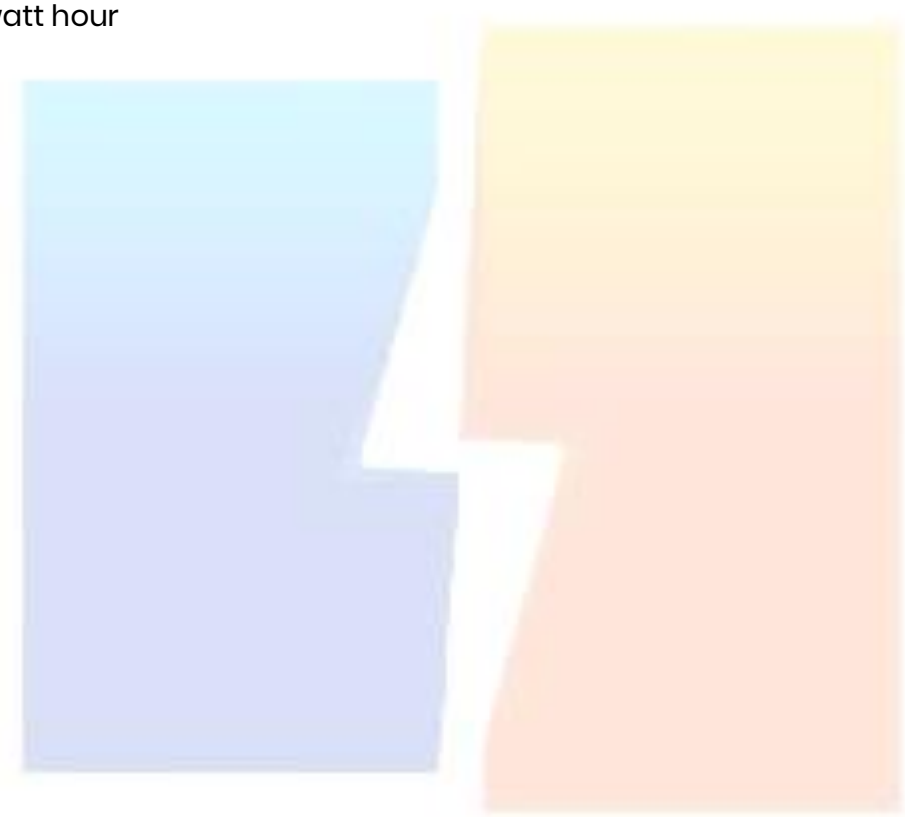
The System or network of electric lines comprising wholly or mainly high Voltage lines and electric Plant and which is used for Transmission of Energy from a Power Station to a substation, from one Power Station to another, from one substation to another or to or from any Interconnector or to final consumers and includes any structures and Equipment for that purpose.

**True Power:**

Measured in Watts. The power manifested in tangible form such as electromagnetic radiation, acoustic waves, or mechanical phenomena. In a direct current (DC) circuit, or in an alternating current (AC) circuit whose impedance is a pure resistance, the voltage and current are in phase.

**TWh**:

Terawatt hour



### Unauthorized Physical Access:

This means unauthorized access to the internal components of any Device within a Short Message Service (SMS) through the physical outer casing.

### Unbundling:

The separation of component parts of a previously unified product or service usually provided by a single party into distinct products or services each provided by different parties. In the energy industry, functional unbundling of services is often accompanied by the insistence on a structural unbundling of a vertically integrated utility that formerly provided the services. A vertically integrated utility is often required to choose one component service in which it will specialize, and restructure or divest itself of all parts of its business related to services in which it will not participate. The unbundling of a utility's divisions handling these component services is referred to as structural unbundling.

### Undervoltage Load Shedding Program:

An automatic load shedding program, consisting of distributed relays and controls, used to mitigate undervoltage conditions impacting the Bulk Electric System (BES), leading to voltage instability, voltage collapse, or Cascading. Centrally controlled undervoltage-based load shedding is not included.

### Unfair Business Practice: [145]

This means a business practice which a Licensee practices for the purpose of promoting the sale, use or supply of electricity, or any unfair method or unfair or deceptive practice of making any statement, whether orally or in writing or by visible representation which falsely represents that the services are of a particular standard and quality made by him.

**Uninstructed Generation:** [146]

This means generation that is at least 5% more than the SO instructed Generation or at least 5% less than the SO instructed Generation in accordance with Rules 27.5.4 and 27.5.5 of the Nigerian Market Rules, provided that the assigned Spinning Reserve shall be considered in the determination of this variation.

**Unscheduled Outage Service:**

Power received by a system from another system to replace power from a generating unit forced out of service.

**Useful Thermal Output:**

The thermal energy made available in a combined-heat-and-power system for use in any industrial or commercial process, heating, or cooling application, or delivered to other end users, i.e., total thermal energy made available for processes and applications other than electrical generation.

**User Interface:**

This means an interface for providing local human interaction with a Short Message Service (SMS) or In Home Display (IHD) which supports input, visual and audible output.

**Users**: [147]

This means a person or party using Transmission System as agreed and permitted by the Transmission Service Provider (TSP) and Nigerian Bulk Electricity Trader (NBET).

**UTC:**

This means Coordinated Universal Time.

**Utility:**

Any private company, publicly-owned organisation or other regulated entity that provides an essential service in a given area directly to end-use customers, and that has exclusive rights to provide that service or acts as a natural monopoly in the region it serves. Gas, water, and electric companies all qualify as utilities.

**Utility Distribution Companies:**

The entities that will continue to provide regulated services for the distribution of electricity to customers and serve customers who do not choose direct access. Regardless of where a consumer chooses to purchase power, the customer's current utility, also known as the utility distribution company, will deliver the power to the consumer.

**Utility Generation:**

Generation by electric systems engaged in selling electric energy to the public.

**Urgent Metering Services**: [148]

means urgent unplanned work by a Distributor on a Metering System because of actual or potential equipment failure, actual or suspected tampering or suspected theft.

### Variable Resistor:

A resistor that can be adjusted to different ranges of value.

### Vending Platform: [149]

This means the system comprising software and hardware required to sell electricity to customers based on a prepayment platform.

### Vertical Integration:

The combination within a firm or business enterprise of one or more stages of production or distribution. In the electric industry, it refers to the historical arrangement whereby a utility owns its own generating plants, transmission system, and distribution lines to provide all aspects of electric service.

### Vesting Contracts: [150]

The contracts established to govern the trading arrangements between the Special Trader and Successor Distributors at the commencement of the Transitional Stage of the Nigerian electricity industry.

### Volt-Ampere (VA):

A unit of measure of apparent power. It is the product of the rms voltage and the rms current.

### Volt (V):

A unit measure of voltage. One volt is equal to the difference of potential that would drive one ampere of current against one-ohm resistance.

### Voltage:

The difference in electrical potential between any two conductors or between a conductor and ground. It is a measure of the electric energy per electron that electrons can acquire and/or give up as they move between the two conductors.

### Voltage Reduction:

Any intentional reduction of system voltage by 3 percent or greater for reasons of maintaining the continuity of service of the bulk electric power supply system.

### Voltmeter:

An instrument for measuring the force in volts of an electrical current. This is the difference of potential (voltage) between different points in an electrical circuit.

Voltmeters have a high internal resistance are connected across (parallel to) the points where voltage is to be measured.

### Voluntary Acquisition of Land:

This includes, without limitation, purchase, lease, license, acceptance of gift, dedication, or bequest, or any other lawful means of conveyance of any estate or interest in land.

### VT:

Is an acronym for voltage transformer

### Waste Materials:

Otherwise discarded combustible materials that, when burned, produce energy for such purposes as space heating and electric power generation. The size of the waste may be reduced by shredders, grinders, or hammermills. Non-combustible materials, if any, may be removed. The waste may be dried and then burned, either alone or in combination with fossil fuels.

### WAT:

West African Time Watt-hour

### (Wh):

A unit of electrical energy equivalent to a power consumption of one watt for one hour.

### Watt (W):

A unit of electrical power. One watt is equivalent to one joule per second, corresponding to the power in an electric circuit in which the potential difference is one volt and the current one ampere.

### Wattmeter:

The wattmeter is an instrument for measuring the electric power (or the supply rate of electrical energy) in watts of any given circuit.

### Waveform:

A graphical representation of electrical cycles which shows the amount of variation in amplitude over some period.

### Website:

The site established by the electricity regulatory authority of respective SSA countries.

**Wh**:

Watthour

**Wheeling:**

The delivery and more specifically refers to delivery of energy across transmission systems. In some contexts, it is used synonymously with transmission, although this use is somewhat misleading since energy can be wheeled through distribution systems as well. Wheeling across transmission systems is generally referred to as wholesale wheeling, since wholesale transactions are nearly always limited to sales made on the transmission grid. Any movement of energy between parts of the system, or within the same part of the system, that involves a change of ownership for the energy. Wholesale wheeling is the sale and delivery of energy among buyers and sellers in the wholesale market, usually to parties who take delivery of the energy on the transmission system. When a utility or energy distribution company delivers, or wheels, energy from the transmission system to an end-use customer, it is referred to as retail wheeling. When a customer who also generates energy produces energy at one site, transports it across someone else's facilities and consumes it at another site, it is referred to as self-service wheeling.

**Wheeling Charge**:

An amount charged by one electrical system to transmit the energy of, and for, another system or systems.

**Wheeling Service:**

The movement of electricity from one system to another over transmission facilities of interconnecting systems. Wheeling service contracts can be established between two or more systems.

**Wholesale:**

The sale of any commodity to a party who intends to resell that commodity to other parties is referred to as a wholesale transaction.

**Wholesale Competition:**

A system whereby a distributor of power would have the option to buy its power from a variety of power producers, and the power producers would be able to compete to sell their power to a variety of distribution companies**.**

**Wholesale Electric Power Market:**

The purchase and sale of electricity from generators to resellers (retailers), along with the ancillary services needed to maintain reliability and power quality at the transmission level.

**Wholesale Power Market:**

The purchase and sale of electricity from generators to resellers (who sell to retail customers), along with the ancillary services needed to maintain reliability and power quality at the transmission level.

**Wholesale Transmission Services:**

The transmission of electric energy sold, or to be sold, in the wholesale electric power market.

**Wholesale Wheeling**:

An arrangement in which electricity is transmitted from a generator to a utility through the transmission facilities of an intervening system.

**Wide Area Protection:**

This is a protection type used to save the system from partial or total blackout or brownout in operational situations when no equipment is faulty or operated outside its limitations. The situation could appear after the clearance of a very severe disturbance in a stressed operation situation or after an extreme load growth. Since it is a protection system, it will operate in such operational situation when the power systems will breakdown if no protective actions were taken.

### Zero:

A standard reference position from which rotor angles are measured in synchros and other rotating devices.

### Zimbabwe Energy Regulatory Authority (ZERA):[151]

This is the energy regulatory authority for Zimbabwe.

### Zonal Transmission Loss Factor or TLFG: [152]

A fraction and representing loss of Energy in its delivery over the Transmission System as determined by the System Operator on a daily basis.

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[1] NERC (Acquisition of Land and Access Rights For Electricity Projects) Regulations, 2012
[2] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[3] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[4] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[5] Gabon Electricity Law N° 024/2016. Available at http://extwprlegs1.fao.org/docs/pdf/Gab179770.pdf
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[8] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[9] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[10] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[11] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[12] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[13] This is peculiar to the Nigerian Electricity Supply Industry (NESI)
[14] This is peculiar across Sub-saharan Africa
[15] Mauritania Electricity Law 2001-19. Available at https://www.petrole.gov.mr/IMG/pdf/codeelectricite.pdf
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