

## GLOSSARY

## Section I

## Abbreviations

AEIC  
Association of Edison Illuminating Companies.

ANSI  
American National Standards Institute.

ICEA  
Insulated Cable Engineers Association.

IEEE  
Institute of Electrical and Electronic Engineers.

IES  
Illuminating Engineering Society.

NEC  
National Electrical Code (NFPA-70).

NEMA  
National Electrical Manufacturers Association.

NESC  
National Electrical Safety Code (ANSI C2).

Section II  
Terms

Angle of deviation (pole line)  
The angle by which a pole line deviates from a straight line.

Basic impulse insulation level (BIL)  
A reference impulse insulation strength expressed in terms of the crest value of withstand voltage of a standard full impulse voltage wave.

Coincident demand  
Any demand that occurs simultaneously with any other demand, also the sum of any set of coincident demands.

Collector  
The distributor and collector roadways servicing traffic between major and local roadways. These are roadways used mainly for traffic movements within residential, commercial, and industrial areas.

Commercial  
A business area of a municipality where ordinarily there are many pedestrians during night hours. This definition applies to densely developed business areas outside, as well as within, the central

part of a municipality. The area contains land use which attracts a relatively heavy volume of night-time vehicular and/or pedestrian traffic on a frequent basis.

Conventional energy system  
A conventional energy system supplies electric energy which is not generated by the user and over which the user normally has only local control. Conventional energy systems are provided and supplied by a utility unless that electric source has been clearly demonstrated to be inadequate or unreliable, or another energy source has been proven to be more economical.

Dead front (as applied to switches, circuit breakers, switchboards, and distribution panelboards)  
So designed, constructed, and installed that not current-carrying parts are normally exposed on the front.

Dead front (as applied to transformers)  
So constructed that there are not exposed live parts on the front of the assembly.

Demand  
The electrical load at the receiving terminals averaged over a specified interval of time. Demand is expressed in kilowatts, kilovolt-amperes, amperes, or other suitable units. The interval of time is generally 15 minutes, 30 minutes, or one hour.

Demand factor  
The ratio of the maximum demand of a system to the total connected load of the system.

Demand factor-(Max. demand)/(Total connected load)  
Discharge current  
The surge current that flows through an arrester when sparkover occurs.

Discharge voltage  
The voltage that appears across the terminals of an arrester during passage of discharge current.

Distribution transformer  
A transformer for transferring electrical energy from a primary distribution circuit to a secondary distribution circuit or consumer's service circuit. Distribution transformers are usually rated in the order of 5-500 kVA.

Distribution voltage

System voltage in the range of 5 kV to 34.5 kV. Distribution voltage (sometimes referred to as primary voltage) is normally transformed down to utilization voltage with distribution transformers.

Diversity factor

The ratio of the sum of the individual maximum demands of various subdivisions of the system to the maximum demand of the complete system. Diversity Factor-(Sum of Ind. Max. Demands)/(Max System Demand)

Equipment pole

A pole used to support equipment, such as transformers, in addition to supporting conductors.

Follow (power) current

The current from the connected power source that flows through an arrester during and following the passage of discharge current.

Guyed pole

Any pole strengthened with a guy wire.

High-fire-point liquid-insulated transformers

Same as less-flammable liquid-insulated transformers.

High-voltage

A class of nominal system voltages equal to or greater than 100,000 V.

Intermediate

Those areas of a municipality often characterized by moderately heavy nighttime pedestrian activity such as in blocks having libraries, community recreation centers, large apartment buildings, industrial buildings, or neighborhood retail stores.

Less-flammable liquid-insulated transformers

Fire point not less than 300 degrees C. Fire point is the lowest temperature at which a liquid will give off vapors sufficient for continuous combustion.

load factor

The ratio of the average load over a designated period of time to the peak load occurring in that period. Load factor is used by utilities to determine the excess capacity required to serve peak loads.

Loads factor-(Avg. Load)/(Peak Load)

Local

Roadways used primarily for direct access to residential, commercial, industrial, or other abutting property. They do not include roadways carrying through traffic. Long local roadways will generally

be divided into short sections by collector roadway systems.

Low-voltage

A class of nominal system voltage 1 kV or less.

Major

That part of the roadway system which serves as the principal network for through-traffic flow. The routes connect areas of principal traffic generation and important rural highways entering the city.

Maximum demand

The greatest of all demands that have occurred during a specified period of time.

Maximum system voltage

The highest root-mean-square phase-to-phase voltage that occurs on the system under normal operating conditions, and the highest root-mean-square phase-to-phase voltage for which equipment and other system components are designed for satisfactory continuous operation without derating of any kind. (When defining maximum system voltage, voltage transients and temporary over-voltages cause by abnormal system conditions, such as faults, load rejection, etc., are excluded. However, voltage transients and temporary over-voltages may affect equipment life and operating performance as well as conductor insulation and are considered in equipment application.)

Medium-voltage

A class of nominal system voltage above 1 kV to 99.9 kV.

Multi-grounded

A system grounding method where the neutral conductor is carried along with the phase conductors and grounded with at least four ground connections per mile. See the MESC.

NADIR

Lowest point.

Nominal system voltage

The root-mean-square phase-to-phase voltage by which the system is designated and to which certain operating characteristics of the system are related. (The nominal system voltage is near the voltage level at which the system normally operates. To allow for operating contingencies, systems generally operate at voltage levels about 5-10 percent below the maximum system voltage for which system components are designed.)

Nonflammable fluid-insulated transformers

No flash or fire point and not flammable in air. Flash point is the temperature at which a liquid

gives off sufficient vapor to form an ignitable mixture with the air.

Pad-mounted transformer

An outdoor transformer utilized as part of an underground distribution system, with enclosed compartment(s) for high voltage and low-voltage cables entering from below, and mounted on a foundation pad.

Pavement R1

Portland cement concrete road surface. Asphalt road surface with a minimum of 15 percent of the aggregates composed of artificial brightener. Mostly diffuse.

Pavement R2

Asphalt road surface with an aggregate composed of a minimum 60 percent gravel. Mixed (diffuse and specular).

Pavement R3

Asphalt road surface (regular and carpet seal) with dark aggregates (e.g., trap rock, blast furnace slag); rough texture after some months of use (typical highways). Slightly specular.

Pavement R4

Asphalt road surface with very smooth texture. Mostly specular.

Peak load

The maximum load consumed or produced by a unit or group of units in a stated period of time. It may be the maximum instantaneous load or the maximum average load over a designated period of time.

Power transformer

A transformer which transfers electrical energy in any part of the circuit between the generator and the distribution primary circuits.

Primary unit substation

A unit substation with secondary rated above 1000 V. For CEGS purposes, an articulated primary unit substation has both high voltage and low-voltage sections mechanically coupled to the transformer, while a standard primary unit substation has only the low-voltage section mechanically coupled to the transformer.

Primary voltage

Medium-voltage. Also, see distribution voltage.

Protective level

The maximum crest value of voltage that appears across an arrester's terminals under specified conditions of operation.

Reseal voltage

The voltage at which an arrester will stop conducting after discharge.

Residential

A residential development, or a mixture of residential and small commercial establishments, characterized by few pedestrians at night. This definition includes areas with single family homes, town houses, and/or small apartment buildings.

Secondary unit substation

A unit substation with secondary rated less than 1000V.

Secondary voltage

Low-voltage system. Also see utilization voltage.

Selective energy system

A selective energy system uses all the electric energy that the installation system can generate plus additional electric energy obtained from conventional sources. Selective energy systems may incorporate waste heat recovery systems.

Service voltage

The root-mean-square phase-to-phase or phase-to-neutral voltage at the point where the electrical system of the supplier and the user are connected.

Single-grounded

Ungrounded systems, which do not carry a neutral as such, and solidly grounded systems with neutrals that do not have at least four ground connections per mile are example of "single-grounded systems." See also ungrounded.

Station-type transformer

A transformer designed for installation in a station or substation.

Tangent pole

An in-line pole.

Total energy system

A total energy system supplies energy requirements for electricity, heating, air conditioning, and other uses from a single source making maximum use of available waste heat. Such a system is independent of other energy sources and is generated and controlled by the user.

Ungrounded

A common industry term for a wye-connected system with its common point connected to earth at the source through a high-independence, current-limiting connection. Ungrounded systems are one form of single-grounded systems.

Unit-substation transformer

A transformer which is mechanically and electrically connected to, and coordinated in design with, one or more switchgear or motor-control assemblies, or combinations thereof. See primary and secondary unit substations.

Utilization voltage

The root-mean square phase-to-phase or phase-to-

neutral voltage at the line terminals of utilization equipment. Utilization voltage is sometimes referred to as secondary voltage.

Voltage transformer (VT)

An instrument transformer which has its high voltage winding connected in parallel with the power source, which is to be measured. VT is a synonym for potential transformer (PT).