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APPLICABLE TO DC
EMERGENCY SUPPLIES
STANDARD**

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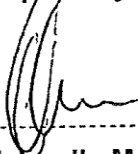
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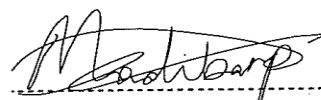
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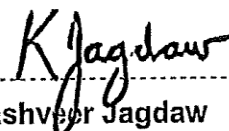
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1. Introduction

The purpose of this document is to provide a common understanding of Eskom's accepted definitions and explanations of certain electrical terms.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

See par 1.

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

2.2 Normative/Informative References

The following documents contain provisions that, through reference in the text, constitute requirements of this specification. At the time of publication, the editions indicated were valid. All standards and specifications are subject to revision, and parties to agreements based on this specification are encouraged to investigate the possibility of applying the most recent editions of the documents listed below. Information on currently valid national and international standards and specifications can be obtained from the Information Centre and Eskom Documentation Centre at Megawatt Park.

2.2.1 Normative

- [1] IEC 60896-11:2002, Stationary lead-acid batteries, Part 11: Vented types — General requirements and methods of tests – Edition 1
- [2] SANS 60896-11:2003, Stationary lead-acid batteries, Part 11: Vented types — General requirements and methods of tests – Edition 1
- [3] IEC 60050-551, International Electrotechnical Vocabulary, Power electronics.
<http://www.electropedia.org/iev/iev.nsf/index?openform&part=551>
- [4] IEEE 100-2000, The new IEEE Standard Dictionary of Electrical and Electronics Terms. Seventh Edition.

2.2.2 Informative

None

2.3 Definitions

2.3.1 General

The definitions of terms are listed alphabetically under two categories – Batteries and Power Electronics.

Definition of battery terms

Definition	Description
Absorbed electrolyte	Electrolyte in a VRLA cell that has been immobilized in absorbent separators
Absorbed electrolyte cell	A valve-regulated lead-acid (VRLA) cell whose electrolyte has been immobilized in absorbent separator (normally, glass or polymeric fiber).

Definition	Description
Acceptance test (storage battery)	A constant current capacity test made on a new battery to determine that it meets specifications or manufacturers' ratings.
Active material	The materials of the plates that react chemically to produce electric energy when the cell discharges and that are restored to their original composition, in the charged condition, by oxidation and reduction processes produced by the charging current.
Aging (static batteries, chargers and inverters)	The change with passage of time in physical, chemical, or electrical properties of components or equipment under design range operating conditions that may result in degradation of significant performance characteristics.
Aging factor	quantitative factor expressing the degradation in the ability of the battery, due to usage, to deliver electrical energy under specified operating conditions such as, but not limited to, operating ambient temperature, cycling, depth of discharge, and maintenance practices.
Alkaline storage battery	A storage battery in which the electrolyte consists of an alkaline solution, usually potassium hydroxide.
Alternating-current floating storage-battery system	A combination of alternating-current power supply, storage battery, and rectifying devices connected so as to charge the storage battery continuously and at the same time to furnish power for the operation of signal devices.
Ambient temperature	The temperature of the medium, usually air, surrounding the battery charger.
Ampere-hour capacity (storage battery)	The number of ampere-hours that can be delivered under specified conditions as to temperature, rate of discharge, and final voltage
Ampere-hour efficiency	The electrochemical efficiency expressed as the ratio of ampere-hours output to the ampere-hours input required for the recharge.
Anode	An electrode through which current enters any conductor of the non-metallic class. Specifically, an electrolytic anode is an electrode at which negative ions are discharged, or positive ions are formed, or at which other oxidizing reactions occur.
Autoboost	Autoboost is a higher voltage setting for fast recharge and to maintain a constant concentration of the electrolyte within the battery or cell.
Average voltage	The average cell voltage of a battery is the average voltage value during the period of charge or discharge.
Battery (primary or secondary)	Two or more cells electrically connected for producing electric energy.
Battery cabinet	A structure used to support and enclose a group of cells.
Battery Charger	As defined in IEEE Std 602-1996, static equipment that is capable of restoring and maintaining the charge in a storage battery.
Battery duty cycle	The loads a battery is expected to supply for specified time periods.
Battery rack (lead storage batteries)	A structure used to support a group of cells.
Battery voltage	Voltage that is provided within specified limits by the low voltage power supply (or, in its absence, the control voltage on-board battery).
Battery-current regulation (generator)	That type of automatic regulation in which the generator regulator controls only the current used for battery charging purposes
Boost charge	A partial charge, usually at a high rate for a short period.

Definition	Description
Cable connector	A cable connector is a length of insulated cable terminating at each end in a casting or lug, and is used to electrically connect one cell to another.
Capacitor voltage	Generally, the total number of ampere-hours that can be withdrawn from a fully charged battery at a specific discharge rate and electrolyte temperature, and to a specific cut off voltage.
Capacity (of a battery)	The quantity of electricity or electric charge, which a fully charged battery can deliver under specified conditions (measured in ampere-hours (Ah)).
Capacity test (battery)	A discharge of a battery at a constant current or a constant power to a specified voltage.
Case (storage battery) (storage cell)	A multiple compartment container for the elements and electrolyte of two or more storage cells. Specifically, wood cases are containers for cells in individual jars.
Cell connector	An electric conductor used for carrying current between adjacent storage cells.
Charge (storage battery)	The conversion of electric energy into chemical energy within the cell or battery.
Charge acceptance	The ability of a battery to accept charge under specified conditions.
Charge factor	The factor by which the quantity of electricity delivered during discharge is multiplied to determine the minimum quantity required by the battery to recover its fully charged state.
Charged and dry	A charged and dry battery is a battery that has been assembled with charged and dried plates, and dried separators, without electrolyte.
Charged and wet	A charged and wet battery is a battery that has been filled with electrolyte and is fully charged.
Charging rate	The current expressed in amperes at which a battery is charged.
Circulation of electrolyte	A constant flow of electrolyte through a cell to facilitate the maintenance of uniform conditions of electrolysis.
Closed-circuit voltage (batteries)	The voltage at its terminals when a specified current is flowing.
Commissioning (of a battery)	Final checking of installation and operation of a battery on site.
Constant current charge	A charge in which the current is maintained at a constant value.
Constant voltage charge	A charge in which the voltage at the terminals of the battery is held at a constant value
Continuity test	A test on a cell/unit or battery to determine the integrity of its conduction path.
Continuous test (batteries)	A service test in which the battery is subjected to an uninterrupted discharge until the cutoff voltage is reached.
Couple (storage cell)	An element of a storage cell consisting of two plates, one positive and one negative
Covered plate (storage cell)	A plate bearing a layer of oxide between perforated sheets.
Critical period	That portion of the duty cycle that is the most severe, or the specified time period of the battery duty cycle.

Definition	Description
Critical temperature (of a cell or battery)	The temperature at which an abrupt change of characteristic occurs.
Current limit	The maximum output of the battery charger delivered to a discharged battery and load, usually stated as a percentage of output rating and with nominal input voltage supplied to the charger.
Cut-off voltage (batteries)	The prescribed voltage at which the discharge is considered complete.
Cycle (of a battery)	A battery discharge followed by a complete recharge. A deep (or full) cycle is described as the removal and replacement of 80% or more of the cell's design capacity.
Cycle life	The number of cycles (discharges and recharges), under specified conditions, that a battery can undergo before failing to meet its specified end-of-life capacity.
Cycle of operation	The discharge and subsequent recharge of the cell or battery to restore the initial conditions.
Cycling	The repeated charge/discharge cycle of a storage battery. Some batteries are rated by their ability to withstand repeated, deep discharge cycles.
Days of battery reserve	The number of days a fully-charged battery can satisfy the load with no contribution from the PV array or auxiliary power source.
Delayed test	A service test of a battery made after a specified period of time, which is usually made for comparison with an initial test to determine shelf depreciation.
Depth of discharge (DOD)	The ampere-hours removed from a fully-charged battery, expressed as a percentage of its rated capacity at the applicable discharge rate.
Discharge (of a battery)	The conversion of the chemical energy of the battery into electric energy
Discharge rate	The rate, in amperes, at which current is delivered by a battery.
Dry Cell	A cell in which the electrolyte is immobilized.
Efficiency (of a battery)	The efficiency of a battery is the ratio of the output of the battery to the input required to restore the initial state of charge under specified conditions of temperature, current rate and final voltage.
Electrolyte	An electrolyte is a conducting medium in which the flow of electric current takes place by the migration of ions.
Electrolyte reserve	volume of electrolyte between minimum and maximum level indication
Electrolyte: lead-acid	The electrolyte in a lead-acid battery is an aqueous solution of sulphuric acid diluted with distilled water.
Electrolyte: nickel-cadmium battery	The electrolyte in a nickel-cadmium battery consists of potassium and lithium hydrated diluted with distilled water.
End-of-charge voltage (of a cell or battery)	The voltage of a cell or battery during charging at a specified constant current when a cell or battery has become completely charged.
Endurance	ability of a cell or battery to function and withstand operations under specified conditions for a minimum period of time or repeated application thereof
Energy capacity	The energy, usually expressed in watthours (Wh), that a fully charged battery can deliver under specified conditions.

Definition	Description
Equalising charge	A prolonged charge, at a rate higher than the normal float voltage, to correct any inequalities of voltage and specific gravity that may have developed between the cells during service.
Equalizing voltage	The voltage, higher than float, applied to a battery to correct inequalities among battery cells (voltage or specific gravity) that may develop in service
Faure plate(pasted plate)	A plate consisting of electroconductive material, which usually consists of lead antimony alloy covered with oxides or salts of lead that is subsequently transformed into active material.
Final voltage	The final voltage or cut-off voltage is the prescribed voltage at which the discharge is considered complete. Final or cut-off voltage varies with battery type, rate of discharge, temperature and kind of service, and is usually chosen to utilise the useful capacity of the battery generally, by common usage, the term final voltage applies to storage batteries, while cut-off voltage applies to primary cells.
Finishing rate	The rate of charge expressed in amperes to which the charging current for some types of lead batteries is reduced near the end of charge to prevent excessive gassing and temperature rise
Float charge	A constant potential normally applied to a battery to maintain it in a charged condition.
Float voltage	The voltage maintained across the battery by the charger in order to keep the battery at its best operational condition with minimum water loss. Float voltage is expressed in volts/cell.
Floating battery	A storage battery that is kept in operating condition by a continuous charge at a low rate.
Freshening charge	The charge given to a storage battery following non-use or storage.
Fuel battery	An energy-conversion device consisting of more than one fuel cell connected in series, parallel, or both.
Fuel cell	An electrochemical cell that can continuously change the chemical energy of a fuel and oxidant to electric energy by an isothermal process involving an essentially invariant electrode-electrolyte system.
Fully charged state (of a cell or battery)	A state where all the available active material has been reconverted to its fully charged state.
Gassing	The formation of gas produced by electrolysis of the electrolyte.
Initial charge	A commissioning charge given to a new battery to bring it to the fully charged state.
Initial temperature (of a cell or battery)	The temperature of a cell or battery at the beginning of a discharge or charge.
Initial voltage	The initial voltage is the closed circuit voltage at the beginning of a discharge, measured after the current has been flowing for sufficient time for the rate of voltage change to become practically constant.
Internal resistance	The resistance to the flow of an electric current within a cell or battery
IR drop	The drop equal to the product of the current passing through the cell and the resistance of the cell.

Definition	Description
Jar	The container for the element and electrolyte of a lead-acid storage cell and unattached by the electrolyte.
Lead storage battery	A storage battery the electrodes of which are made of lead and the electrolyte consists of a solution of sulfuric acid.
Mechanical strength	Stationary cells or batteries shall be designed to withstand mechanical stresses during normal transportation and handling. Resistance to earthquakes, if required, shall be particularly specified.
Negative plate	The negative plate consists of the grid and active material to which current flows from the external circuit to the positive terminal of the battery or cell during discharge.
Negative terminal (of a battery)	The terminal toward which positive electric charge flows in the external circuit from the positive terminal. Note: The flow of electrons in the external circuit is to the positive terminal and from the negative terminal
Nickel-cadmium battery	An alkaline storage battery in which the positive active material is nickel oxide and the negative contains cadmium.
Nominal battery voltage	The voltage computed on the basis of 2.0 volts per cell for the lead-acid type and 1.2 volts per cell for the alkali type.
Nominal capacity (of a cell or battery)	A suitable approximate quantity of electricity used to identify the capacity of a cell or battery.
Nominal gravity of electrolyte	Nominal gravity is the specific gravity of an electrolyte selected for the determination of the rated capacity of a fully charged, correctly levelled battery.
Open-Circuit dc voltage	The dc voltage on an ungrounded conductive object relative to ground, as a result of deposition of charge.
Open-Circuit voltage (batteries)	The voltage at its terminals when no appreciable current is flowing.
Overcharge (of a cell or battery)	Continued charging after the full charge of a cell or battery.
Oxidation (electrochemical cells and corrosion)	Loss of electrons by a constituent of a chemical reaction.
Oxygen recombination	The process by which oxygen is generated at the positive plates and ultimately recombined with hydrogen ions at the negative plates and converted back to water. In this process, hydrogen gas formation and evolution are suppressed.
Parallel Connection	The arrangement of cells in battery made by connecting all positive terminals together and all negative terminals together, the voltage of the group being only that of one cell and the current drain through the battery being divided among the several cells
Performance test	A constant current or constant power capacity test, made on a battery after it has been in service, to detect any change in the capacity.
Pilot cell	A selected cell whose condition is assumed to indicate the condition of the entire battery
Pocket-type plate	A plate of an alkaline storage battery consisting of an assembly of perforated oblong metal pockets containing active material

Definition	Description
Polarity	The polarity of a battery is an electrical condition determining the direction in which current tends to flow on discharge. By common usage the discharge current is said to flow from the positive electrode through the external circuit.
Polarization	The change in voltage at the terminals of the cell or battery when a specified current is flowing, and is equal to the difference between the actual and the equilibrium (constant open-circuit condition) potentials of the plates, exclusive of the IR drop
Portable battery	A portable battery is a battery designed and constructed for easy transportation.
Positive pasted plate (FAURÉ)	A pasted plate consists of lead antimony grid filler with active lead oxide paste.
Positive Planté plate	A plate of very large effective surface area, usually of lead, the active material of which is formed by electrochemical oxidation of the lead in thin layers.
Positive plate	The grid and active material from which current flows to the external circuit when the battery is discharging.
Positive terminal (batteries)	The terminal from which the positive electric charge flows through the external circuit to the negative terminal when the cell discharges.
Positive tubular plate	A positive plate which is composed of an assembly of porous tubes which hold the active material.
Purification of electrolyte	The treatment of a suitable volume of the electrolyte by which the dissolved impurities are removed in order to keep their content in the electrolyte within desired limits.
Rated capacity (of a cell or battery)	The quantity of electricity declared by the manufacturer, which a cell of a battery can deliver under specified conditions of temperature, discharge rate and final voltage, after a full charge.
Rated voltage	Rated voltage is the voltage to which operating and performance characteristics of apparatus and equipment are referred.
Regeneration of electrolyte	The treatment of a depleted electrolyte to make it again fit for use in an electrolyte cell
Reversal (storage battery)	A change in normal polarity of the cell or battery.
Ripple current	Ripple current is the AC component generated by the battery charging circuit due to the switching of the semiconductor devices.
Sealed (cell or battery)	A sealed cell or battery is one that has no provision for the addition of water or electrolyte or for external measurement of electrolyte specific gravity.
Self-discharge	The process by which the available capacity of a battery is reduced by internal chemical reactions (local action).
Self-discharge rate	The amount of capacity reduction occurring per unit of time in a battery as the result of self-discharge
Separator (storage cell)	A spacer employed to prevent metallic contact between plates of opposite polarity within the cell.
Series connection	The arrangement of cells in a battery made by connecting the positive terminal of each successive cell to the negative terminal of the next adjacent cell so that their voltages are additive

Definition	Description
Service capacity (cell or battery)	The electric output (expressed in ampere-hours, watthours, or similar units) on a service test before its working voltage falls to a specified cutoff voltage
Service life (storage cell or battery)	The period of useful service under specified conditions, usually expressed as the period elapsed before the ampere-hour capacity has fallen to a specified percentage of the rated capacity.
Service life capacity	Minimum battery capacity needed to meet design requirements, including temperature correction but excluding margin.
Shelf corrosion (dry cell)	The consumption of the negative electrode as a result of local action
Shelf depreciation	The depreciation in service capacity of a primary cell as measured by a shelf test
Shelf test	A storage test designed to measure retention of service ability under specified conditions of temperature and cutoff voltage
Short-circuit current (of a battery charger)	The current magnitude at the output terminals, when the terminals are short circuited and with nominal input voltage supplied to the charger.
Specific gravity of electrolyte	The specific gravity of an electrolyte is the ration of the mass of a given volume of the electrolyte to the mass of an equal volume of water at 20°C.
State of charge (soc)	Refers to the percent of rated capacity remaining in the battery at a given time. If a 100 Ah battery has been discharged by 40 Ah, its state of charge is 60%.
State-of-charge factor	Actual capacity of a battery expressed as a percentage of a fully-charged capacity. Note: This is based on experience, application (cycling /float service), and charging parameters.
Stationary Battery	A storage battery designed for service in a permanent location
Storage battery	A battery comprised of one or more rechargeable cells of the lead-acid, nickel-cadmium, or other rechargeable electrochemical types.
Storage cell	A galvanic cell for the generation of electric energy in which the cell, after being discharged, may be restored to a fully charged condition by an electric current flowing in a direction opposite to the flow of current when the cell discharges
Temperature coefficient of capacity	The change in delivered capacity (ampere-hour or watt hour capacity) per degree Celsius relative to the capacity of the cell or battery at a specified temperature.
Terminal connection	Connections made between rows of cells or at the positive and negative terminals of the battery, which may include terminal plates, cables with lugs, and connectors.
Terminals	The parts to which the external circuit is connected.
Thermal runaway	A condition that is caused by a battery charging current that produces more internal heat than the battery can dissipate. This condition ultimately causes cell venting and premature failure.
Time rate (storage cell)	The current in amperes at which a storage battery will be discharged in a specified time, under specified conditions of temperature and final voltage
Tray	Support or container for one or more storage cells
Trickle charge	A continuous charge at a low rate approximately equal to the internal losses and suitable to maintain the battery in a fully charged condition.

Definition	Description
Tube-type plate	A plate of an alkaline storage battery consisting of an assembly of metal tubes filled with active material
Valve-regulated battery	A battery in which the venting of the products of electrolysis is controlled by a reclosing pressure-sensitive valve.
Valve-regulated lead-acid(VRLA) cell	A lead-acid cell that is sealed with the exception of a valve that opens to the atmosphere when the internal gas pressure in the cell exceeds atmospheric pressure by a pre-selected amount.
Vented (cell) (battery)	A battery in which the products of electrolysis and evaporation are allowed to escape to the atmosphere as they are generated. These cells are commonly referred to as "flooded".
Volt efficiency (storage battery)	The ratio of the average voltage during the discharge to the average voltage during the recharge. See also: charge; electrochemistry.
Watt-hour capacity	The number of watthours that can be delivered under specified conditions as to temperature, rate of discharge, and final voltage.
Watt-hour efficiency	The energy efficiency expressed as the ratio of the watthours output to the watthours of the recharge.
Wet cell	A cell whose electrolyte is in liquid form

Definition of power electronic terms

Definition	Description
DC conversion factor	For DC conversion, the ratio of the DC power value on the load side to that on the source side
AC Filter	A filter on the AC side of a converter, which is designed to reduce the circulation of harmonic currents in the associated system.
AC/DC Converter	An electronic converter for rectification or inversion or both.
Active current	The component of the alternating current (ac) that is in phase with the voltage.
Alarm condition	A pre-defined change in the condition of equipment or the failure of equipment to respond correctly. Indication may be audible or visual or both.
Alarm relay	A monitoring relay whose function is to operate on audible or visual signal to announce the occurrence of an operation or a condition needing personal attention, and usually provided with a signalling cancellation device.
Arm (valve)	A part of the circuit of an electronic power converter or switch bounded by any two AC or DC terminals and including one or more simultaneously conducting electronic valve devices connected together and other components if any.
Battery charger	A battery charger is equipment, which is capable of: Providing a charging power to a storage battery in the various modes defined. Providing a charging power to a storage battery in the various modes defined, while simultaneously supplying power to the connected load.
Benchmark	A standard against which measurements or comparisons can be made. A procedure, problem or test that can be used to compare systems or components to each other or to a standard as in (A).
Buffer amplifier	An amplifier in which reaction of output-load-impedance variation on the input circuit is reduced to a minimum for isolation purposes.

Definition	Description
Bypass device (series capacitor)	A device such as a switch or circuit breaker used in parallel with a series capacitor and its protective device to shunt line current or for some specified time, or continuously. This device may also have the capability of inserting the capacitor into a circuit and carrying a specified level of current.
Bypass/isolation switch	A manually operated device used in conjunction with an automatic transfer switch to provide a means of directly connecting load conductors to a power source and of disconnecting the automatic transfer switch.
Changeover switch	A switching device for changing electric circuits from one combination to another.
Choke coil	An inductor used in a special application (in this case, between battery charger & battery) to improve the current in a circuit over a specified frequency range while allowing relatively free passage of the current at lower frequencies.
Chopper (capacitance devices)	A special form of pulsing relay having contacts arranged to rapidly interrupt, or alternatively reverse, the direct-current polarity input to any associated circuit.
Circuit breaker	A device designed to open and close a circuit by non-automatic means, and to open the circuit automatically on a predetermined overload of current, without injury to itself when properly applied within its rating.
Commutating voltage	The voltage which causes the current to commute
Commutation	In an electronic power converter the transfer of current from one conducting arm to the next to conduct in sequence, without interruption of the current, both arms conducting simultaneously during a finite time interval.
Constant voltage or constant current power supply	A stabilized power supply that operates as a constant voltage power supply or constant current power supply depending on load conditions
Continuous flow (of direct current)	A flow of direct current which is not periodically interrupted
Converter	A power electronic device which converts AC power to DC power.
Damped filter	A filter generally consisting of combinations of capacitors, reactors, and resistors which have been selected in such a way as to present a low impedance over a broad range of frequencies.
Damping	A dynamic property which indicates the ability of a structure to dissipate energy.
DC Filter	A filter on the DC side of a converter designed to reduce the ripple in the associated system.
DC form factor	The ratio of the rms value to the mean value averaged over a full period of a periodically varying quantity having a non-zero DC component
DC Offset	The difference between the symmetrical current wave and the actual current wave during a power system transient condition.
DC power	The product of the direct voltage and the direct current (mean values)
DC Ripple factor	The ratio of half the difference between the maximum and minimum value of a pulsating direct current to the mean value of this current. Note: With low values of the DC ripple factor this quantity is approximately equal to the ratio of the difference to the sum of the maximum and the minimum value.
Direct ac/dc converter	An electronic ac/dc converter without a DC or AC link

Definition	Description
Direct dc converter, dc chopper	A DC converter without an AC link
Duty cycle	The time interval occupied by a device on intermittent duty in starting, running, stopping and idling.
Electromagnetic compatibility	A measure of equipment tolerance to external electromagnetic fields.
Electronic device	A device the function of which is based on charge carriers moving through a semiconductor, a high vacuum or a gas discharge
Event	A discrete change of state (status) of a system or device.
Fault current	A current that flows from one conductor to ground or to another conductor owing to an abnormal connection between the two.
Firing	The establishment of current in the conducting direction in a latching valve device or an arm consisting of such devices.
Ground detector (earth detector)	An instrument or equipment used for indicating the presence of a ground (earth) on an ungrounded system.
Ground-return circuit	A circuit in which the earth is used to complete the circuit.
Harmonic content	Sum of the harmonic components of a periodic quantity
Harmonic factor (total)	The ratio of the rms value of the harmonic content of an alternating quantity
Harmonic frequency	Frequency which is an integer multiple greater than one of the fundamental frequency or of the reference fundamental frequency
Holding current	The minimum principle current required to maintain the thyristor in the ON-state after latching current has been reached and removal of gate signal.
Incipient failure	A failure that is about to occur.
Indirect ac/dc converter	An electronic ac/dc converter with a DC or AC link.
Inrush current	The maximum root-mean-square or average current value, determined for a specified interval, resulting from the excitation of the transformer with no connected load, and with essentially zero source impedance, and using the minimum primary turns tap available and its rated voltage.
Inverter	A machine, device, or system that changes direct-current power to alternating current power.
Ion migration (batteries)	A movement of ions in an electrolyte as a result of the application of an electric potential.
Isolated	Physically separated, electrically and mechanically, from all sources of electrical energy.
Isolated redundant ups configuration	Uses a combination of automatic transfer switches and a reserve system to serve as the bypass source for any of the active systems.
Maintenance bypass	Removal of the capability of a channel, component, or piece of equipment to perform a protective action due to a requirement for replacement, repair, test, or calibration. NB. A maintenance bypass is not the same as an operating bypass. A maintenance bypass may reduce the degree of redundancy of equipment, but it does not result in the loss of a safety function.

Definition	Description
Master/slave operation	A system of interconnection of two regulated power supplies in which one (the master) operates to control the other (the slave). NB: A specialised form of the master slave configuration is parallel operation to obtain increased current output for voltage regulation.
Mean time between failure	The time interval (hours) that may be expected between failures of and operating equipment.
Metaloxide surge arrester (mosa)	A surge arrester utilising valve elements fabricated from nonlinear resistance metal oxide materials.
Parallel operation	A mode of operation of stabilised power supplies in which all similar output terminals are connected together and arranged so that the total load is shared by all the supplies.
Parallel rectifier	A rectifier in which two or more similar rectifiers are connected in such a way that their direct currents add and their commutations coincide.
Parallel redundant ups configuration	Consists of 2 or more UPS modules with static inverter turn-off(s), a system control cabinet, and either individual module batteries or a common battery.
Percentage ripple voltage	Percentage ripple voltage is the ratio, in percent, of the peak - to - peak value of the unidirectional voltage to the average value of the unidirectional voltage.
Phase control	The process of varying the instant within the cycle at which current conduction in an electronic valve device or a valve arm begins
Pulse control	the process of varying the starting or termination instants or both of a repeated current conduction in a principal arm
Pulse width modulation (pwm)	Pulse control in which the pulse width or frequency or both are modulated within each fundamental period to produce a certain output waveform.
Rectification(Electronic) (power)	Electronic conversion from alternating current to direct current
Rectifier	An AC/DC converter for rectification.
Redundancy	Duplication of elements in a system or installation for all purposes of enhancing the reliability or continuity of operation of the system or installation.
Ripple	The alternating-current component from a direct-current power supply (or charger) arising from sources within the power supply (or charger).
Ripple voltage (on the dc side)	The alternating voltage component of the voltage on the DC side of a converter.
Self-commutation	A commutation where the commutating voltage is supplied by components within the converter or the electronic switch
Shunt	A device having appreciable resistance or impedance connected in parallel across other devices or apparatus, and diverting some (but not all) of the current from it.
Slave operation	A mode of operation of stabilized power supplies achieving coordinated control of interconnected stabilized supplies by setting the master supply alone
Snubber (circuit)	Subcircuit connected to one or more electronic valve devices in order to relieve it (them) of stress as for instance overvoltage transients, switching losses, high rate of rise of current or voltage, etc

Definition	Description
Soft start	At turn-on, a gradual increase in output at a pre-determined rate from zero or a set minimum to a desired maximum.
Stabilization	In the field of power electronics the reduction of the effect of changes of influence quantities on the output quantity.
Stabilized power supply	In the field of power electronics an equipment which takes electrical energy from a source and supplies it stabilized by means inside the equipment to one or more pairs of output terminals
Sub-harmonic component	Interharmonic component of harmonic order lower than one
Transfer factor (of a DC converter)	Ratio of the voltage on the load side and the voltage on the source side
Triggering	The control action to achieve firing of a latching valve device or an arm consisting of such devices.
Uninterruptible power supply (ups)	A system designed to automatically provide power, without delay or transients, during any period when the normal power supply is incapable of performing acceptably

2.3.2 Disclosure Classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

None

2.5 Roles and Responsibilities

Not applicable.

2.6 Process for monitoring

Not applicable.

2.7 Related/Supporting Documents

Not applicable.

3. Definitions of Terms applicable to dc emergency supplies

This main content of this document is definitions. See Definitions – par 2.3.

4. Authorisation

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5. Revisions

Date	Rev	Compiler	Remarks
Aug 2017	2	K Mchunu	First issue Draft document for Review created from GGS 0836
Dec 2013	1	H.J. van Staden	Final Document Authorised for Publication
Nov 2012	0.1	H.J. van Staden	Draft document for Review created from GGS 0836

6. Development team

The following people were involved in the development of this document:

- H.J. van Staden – Senior Consultant
- K. Mchunu – Senior Technologist

7. Acknowledgements

Not applicable.