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**Terminology for reactive power compensation installation and
harmonic control installation**

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Foreword

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It is a NB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 29.240.01, Chinese classification K 40.

This document is drafted in accordance with the rules given in GB/T 1.1-2020 Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents and GB/T 20001.1-2001 Rules for drafting standards - Part 1: Terminology.

Attention is drawn to the possibility that some elements of this document may be the subject of patent rights. The issuing body of this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by the China Electrical Equipment Industry Association.

This document is under the jurisdiction of and interpreted by the Energy Industry Standardization Technical Committee for Reactive Power Compensation and Harmonic Control Installations (NEA/TC 9).

Drafting organizations of this document include State Grid Zhejiang Electric Power Co., Ltd. Shaoxing Power Supply Company, Xi'an High Voltage Apparatus Research Institute Co., Ltd., China Electric Power Research Institute Wuhan Branch and numerous other power utilities, research institutes and capacitor and reactor manufacturers.

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1 Scope

NB/T 10818-2021 establishes the terminology of reactive power compensation and harmonic control equipment in China. As the grid takes on more wind and solar generation, more power electronics and more non-linear industrial load, the devices that support voltage and clean up distortion - capacitor banks, reactors, static var compensators, static synchronous compensators and active and passive filters - have multiplied, and so have the words used to describe them. A shared vocabulary is what allows a specification, a test report and a tender to mean the same thing. The standard gives its scope and states that it has no normative references, then sets out the terms in groups. The general terms cover reactive power, power factor, voltage fluctuation and flicker, harmonics and interharmonics, and the indices used to quantify them. The equipment terms follow: shunt and series capacitor banks and their components, shunt and series reactors, thyristor-controlled and thyristor-switched devices, static var compensators in their configurations, static synchronous compensators and their converters, magnetically controlled reactors, and passive, active and hybrid harmonic filters. Further groups define ratings and performance characteristics, control and protection functions, links and interfaces between subsystems, and test terms. Each term is given with its definition, and annexes provide Chinese and English indexes. It is used by manufacturers, grid operators, designers and test laboratories.

This document specifies the terms and definitions related to reactive power compensation installations and harmonic control installations used in power systems.

This document is applicable to the formulation of standards related to reactive power compensation and harmonic control installations, and to citation in technical documents, professional handbooks, textbooks, books and periodicals.

2 Normative references

There are no normative references in this document.

3.1 General terms for equipment

3.1.1 reactive power compensation installation - Installation connected to the power system and used to compensate the reactive power of the system and improve the distribution of reactive power flow.

3.1.2 harmonic control installation - Installation connected to the power system and used to reduce the harm caused by harmonics to the power supply system and to improve power quality.

3.1.3 series connection - Connection of two or more two-terminal networks forming a single path. A series resonant circuit is an example of series connection; the current in all series-connected two-terminal networks is the same current.

3.1.4 parallel connection - Connection of two or more two-terminal networks to common terminals. A parallel resonant circuit is an example of parallel connection; the voltage applied to all parallel-connected two-terminal networks is the same voltage.

3.1.5 star connection - Connection in which all phase elements of a polyphase element have one common node. A Y connection is the star connection of a three-phase element.

3.1.6 delta connection - Polygon connection of the phase elements of a three-phase element.

3.1.7 single-phase equipment - Equipment connected between one line conductor and the neutral conductor.

3.1.8 inter-phase equipment - Equipment connected between two line conductors.

3.1.9 three-phase equipment - Equipment connected to a three-phase power supply.

3.1.10 balanced three-phase equipment - Equipment connected to a three-phase power supply whose three line currents or phase currents are designed to be equal in amplitude, with a phase difference of $1/3$ of the fundamental period between any two of them.

3.1.11 unbalanced three-phase equipment - Equipment connected to a three-phase power supply whose three line currents or phase currents are designed to be unequal in amplitude, or with a phase difference other than $1/3$ of the fundamental period between any two of them.

3.1.12 point of common coupling (PCC) - The point in a power system at which more than one user is connected.

3.1.13 critical load - Electrical equipment whose failure to operate normally would endanger

human health or safety and/or cause major economic losses and social impact.

3.1.14 linear load - Electrical equipment in which the voltage and the current are in a linear relationship.

3.1.15 nonlinear load - Electrical equipment in which the voltage and the current are not in a linear relationship.

3.1.16 impact load - Load that periodically or non-periodically draws rapidly varying power from the power grid during production (or operation).

3.1.17 sensitive load; voltage sensitive load - Load whose requirements for voltage quality exceed the range specified by power quality standards.

3.1.18 fluctuating load - Load that periodically or non-periodically draws varying power from the supply network during production (or operation), for example electric arc furnaces for steelmaking, rolling mills and electric arc welders.

3.1.19 harmonic source - Electrical equipment that injects harmonic currents into the public power grid or produces harmonic voltages in the public power grid.

3.2 General terms for parameters

3.2.1 nominal system voltage - Given voltage value used to designate or identify the voltage class of a system, to which certain operating characteristics of the system are referred.

3.2.2 highest voltage of a system - The highest value of short-term or long-term system voltage under normal operating conditions, excluding transient and temporary overvoltages.

3.2.3 lowest voltage of a system - The lowest value of the voltage at which the system operates continuously for more than 1 min under normal operating conditions, excluding transient, temporary and short-time undervoltages.

3.2.4 rated voltage (of equipment) - Voltage value, usually determined by the manufacturer, used to specify the operating conditions of a component, device or equipment; it is generally expressed as an r.m.s. value.

3.2.5 active current - For a two-terminal element or two-terminal circuit supplied by a periodic voltage, the current component proportional to the voltage, the proportionality factor being equal to the active power divided by the square of the r.m.s. value of the voltage. Under sinusoidal voltage, the active current is the component of the current having the same frequency as the voltage and in phase with it.

3.2.6 non-active current - Difference between the current of a two-terminal element or two-terminal circuit supplied by a periodic voltage and the active current. The non-active current is orthogonal to the voltage, i.e. the integral of their product over one period is zero.

3.2.7 reactive current - Non-active current under sinusoidal conditions. It is the current