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NB/T 10905-2021

Fault classification and code of charging facilities for electric vehicles

电动汽车充电设施故障分类及代码

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Foreword

This document was issued on 22 December 2021 by the National Energy Administration of the PRC and takes effect on 22 March 2022.

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 29.200, Chinese classification K 81.

This document has been 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'.

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

This document was proposed by the China Electricity Council (CEC).

This document is under the jurisdiction of the Standardization Technical Committee for Electric Vehicle Charging Facilities of the Energy Industry (NEA/TC3).

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Comments or suggestions arising during the implementation of this document should be fed back to the Standardization Management Centre of the China Electricity Council (No. 1, Baiguang Road Ertiao, Beijing, 100761).

1 Scope

NB/T 10905-2021 establishes the fault classification and the fault codes for electric vehicle charging facilities in China. A charging network is only manageable if every unit reports its problems in the same language: without a common code set, the operator of ten thousand chargers from a dozen manufacturers cannot tell from the data whether a site is failing on connectors, on communication, on the grid supply or on the vehicles themselves. The standard defines the scope and the terms, then the principles of classification and the structure of the code itself - its segments, their meaning, the character set and the rules for extension. It then sets out the classification tree: faults of the charging unit and its power electronics, of the connector, cable and locking mechanism, of the metering and billing subsystem, of the control and monitoring system, of the communication links both to the vehicle and to the operator platform, of the power supply and distribution feeding the site, of the protection and safety devices, and of the auxiliary systems such as cooling and enclosure. Each class is broken down to individual named faults, and each is given its code, its severity and the information to be recorded when it is reported. The transmission of fault information to the monitoring platform closes the standard. Operators, manufacturers and platform developers use it so that fault data is comparable across the network.

This document specifies the fault classification and code of charging facilities for electric vehicles, including the fault classification of charging facilities, the division of fault levels, fault coding and the transmission of fault information.

This document is applicable to the design, operation, maintenance and repair of charging facilities for electric vehicles such as off-board chargers, AC charging spots, energy storage and charging spots, charging and discharging equipment, battery swap infrastructure and wireless charging equipment.

2 Normative references

The contents of the following documents constitute indispensable provisions of this document through the normative references made to them in the text. For dated references, only the edition corresponding to that date applies to this document; for undated references,

the latest edition (including all amendments) applies to this document.

GB/T 18487.1-2015, Electric vehicle conductive charging system - Part 1: General requirements.

GB/T 27930-2015, Communication protocols between off-board conductive charger and battery management system for electric vehicle.

GB/T 29317, Terminology of electric vehicle charging and battery swap infrastructure.

GB/T 34120-2017, Technical specification of power conversion system for electrochemical energy storage system.

GB/T 34657.1-2017, Interoperability test specification of electric vehicle conductive charging - Part 1: Supply equipment.

GB/T 38775.1-2020, Electric vehicle wireless power transfer - Part 1: General requirements.

GB/T 38775.3-2020, Electric vehicle wireless power transfer - Part 3: Special requirements.

NB/T 33001-2018, Technical specification of off-board conductive charger for electric vehicle.

NB/T 33002-2018, Technical specification of AC charging spot for electric vehicle.

NB/T 33008.1-2018, Inspection and test specification for electric vehicle charging equipment - Part 1: Off-board charger.

NB/T 33008.2-2018, Inspection and test specification for electric vehicle charging equipment - Part 2: AC charging spot.

T/CEC 102.1, Information exchange for electric vehicle charging and battery swap service - Part 1: General principles.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 29317 and T/CEC 102.1 as well as the following apply.

3.1 charging facilities. General designation of the relevant facilities that supply electric energy to electric vehicles by means of whole-vehicle charging, including charging stations and dispersal charging facilities.

3.2 charging station. A dedicated place providing charging service for electric vehicles, composed of several charging devices arranged in a centralized way and managed locally in a centralized way, together with the associated power supply equipment, monitoring equipment and auxiliary facilities.

3.3 dispersal charging facilities. Facilities built in combination with residential parking spaces of users, parking lots of work units, parking lots of public buildings, social public