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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 44117-2024

**Code of practice for model parameters testing of
electrochemical energy storage station**

电化学储能电站模型参数测试规程

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Foreword

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1 Scope

GB/T 44117-2024 is the Chinese code of practice for testing the model parameters of an electrochemical energy storage station. It exists because grid operators plan and study a system with simulation models, and a storage station connected without a validated model is a large, fast, unknown element in those studies; as Chinese storage capacity has grown to gigawatt scale, providing verified parameters has become a connection requirement. The standard sets the model structure for which parameters are required, covering the battery, the power conversion system and its control, the plant controller and the protection, then the test conditions and the instrumentation, and the test procedures for each parameter group: the steady-state characteristics, the active and reactive power response and its ramp rates and time constants, the voltage and frequency control response, the fault ride-through behaviour, the charge and discharge characteristics and efficiency, and the protection settings, followed by the parameter extraction, the validation of the model against the measurements and the report. It takes effect on 1 December 2024.

This document specifies the model parameter test conditions, electromagnetic Transient simulation model testing and verification, electromechanical transient simulation model parameter testing and verification, medium- and long-term dynamic simulation model parameter testing and verification, etc: skills requirement: This document applies to the model parameters of new, rebuilt and expanded energy storage power stations connected to the grid at voltage levels of 10(6)kV and above: test:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document:

GB/T 36547 Technical regulations for the connection of electrochemical energy storage systems to the power grid

GB/T 36548 Test specification for electrochemical energy storage system access to the power grid

GB/T 42716 Guidelines for modeling of electrochemical energy storage power plants DL/T 2528 Basic terms for power energy storage

3 Terms and definitions

The terms and definitions defined in GB/T 42716, DL/T 2528 and the following apply to this document: 3:

1 Interface for input/output signals and parameter settings of electromagnetic transient packaging models suitable for different simulation software:

Note: The simulation software can be ADPSS, HYPERSIM, MATLAB, RT-LAB, PSCAD, and PSMODEL: 3:

2 Short circuit ratio The ratio of the short-circuit capacity of a single energy storage converter AC port to the rated power of the energy storage converter: [Source: GB 38755-2019, 2:5, modified]

4 General requirements

1 The energy storage power station model parameter test model should meet the requirements of GB/T 42716: 4:

2 For the energy storage system consisting of energy storage batteries and converters of the same specifications and models and the same topology structure in the energy storage power station, at least one The model parameters of the system are tested: 4:

3 The parameters of the electromagnetic transient simulation model and electromechanical transient simulation model of the energy storage system should be based on the hybrid simulation test data or field test data: The electromagnetic transient simulation model, electromechanical transient simulation model and medium- and long-term dynamic simulation model of the energy storage power station should be verified by on-site Verification and calibration of the entire station test data: