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

GB/T 42737-2023

**Code for commissioning of electrochemical energy storage
station**

电化学储能电站调试规程

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Foreword

This document was issued on 28 December 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 July 2024.

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

1 Scope

GB/T 42737-2023 covers the commissioning of an electrochemical energy storage station - the items to be commissioned, the methods used, and the technical requirements a result has to meet before the station is handed over. Clause 4 fixes the sequence and the preparation: subsystem commissioning first and joint commissioning only once it is complete, with a commissioning outline, a commissioning scheme and an emergency plan drawn up beforehand. Clause 5 works through the subsystems one at a time, among them the energy storage system, the monitoring system and the power transformation equipment, while clause 6 exercises the station as a whole through start and stop, charge and discharge, on-grid and off-grid operation, and active and reactive power control. Appendices A and B give the forms for the commissioning record and the commissioning report. That order carries the reasoning: a storage station brings together cells, converters, protection and a monitoring layer from different suppliers, and the faults that each subsystem passes on its own surface only when they are asked to act together, at the moment the station changes mode with grid current flowing and with an operator on site. Used by station owners, construction contractors, commissioning and testing bodies, and grid operators accepting the plant.

This document specifies the commissioning items, methods and technical requirements for the joint commissioning of subsystems and the whole station of electrochemical energy storage station (abbreviated as the "energy storage station"), including energy storage system, monitoring system, power transformation and distribution system, relay protection and automatic safety devices, communication and dispatching automation systems, station power supply, etc.

This document is applicable to the commissioning of subsystems and joint commissioning of the whole station of newly built, rebuilt and expanded electrochemical energy storage stations with lithium-ion batteries, lead-acid (carbon) batteries, sodium-ion batteries, flow batteries, water electrolysis hydrogen production / fuel cells as energy storage carriers.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 156 Standard Voltages

GB/T 1980 Standard Frequencies

GB/T 7261 Basic Testing Method for Relaying Protection and Security Automatic Equipment

GB/T 14285 Technical Code for Relaying Protection and Security Automatic Equipment

GB/T 19774 Specification of Water Electrolyte System for Producing Hydrogen

GB/T 20297 Static Var Compensator Field Tests

GB/T 24554 Performance Test Methods for Fuel Cell System

GB/T 26862 Test Specification for Synchrophasor Measurement Unit for Power Systems

GB/T 27748.1 Stationary Fuel Cell Power Systems - Part 1.Safety

GB/T 27748.4 Stationary Fuel Cell Power Systems - Part 4.Performance Test Methods for Small Fuel Cell Power Systems

GB/T 29838 Fuel Cell Modules

GB/T 30137 Power Quality - Voltage Dips and Short Interruptions

GB/T 33602 General Service Protocol for Electric Power System

GB/T 34120 Technical Requirements for Power Conversion System of Electrochemical Energy

Storage System

GB/T 34131 Battery Management System for Electrical Energy Storage

GB/T 34133 Testing Code for Power Conversion System of Energy Storage System

GB/T 34583 Safety Technical Requirements for Hydrogen Storage Devices Used in Hydrogen

Fueling Station

GB/T 34872 Technical Requirements of Hydrogen Supply System for Proton Exchange Membrane Fuel Cells

3 Terms and Definitions

The terms and definitions defined in DL/T 2528 are applicable to this document.

4 General Requirements

4.1 The commissioning of the energy storage station includes subsystem commissioning and

joint commissioning. Joint commissioning is carried out after the subsystem commissioning is completed.

4.2 The commissioning outline, commissioning scheme and emergency plan shall be prepared

for the commissioning of the energy storage station.

4.3 Before the grid-involved commissioning of the energy storage station, an application shall

be submitted to the grid dispatching institution, and the commissioning may be implemented

upon receiving approval.

4.4 The commissioning safety of the energy storage station shall comply with the provisions of

GB/T 42288, and temporary fire-fighting facilities and emergency materials shall be equipped.

4.5 The commissioning personnel shall be familiar with the working principle and structure of

the equipment of the energy storage station, as well as the commissioning procedures, commissioning quality standards and safety work procedures, and can correctly use tools, instruments and apparatus, and safety protection equipment.

4.6 The tools, instruments and apparatus, and safety protection equipment used for the commissioning of the energy storage station shall be inspected and calibrated, and within the validity period.

4.7 Records shall be kept during the commissioning of the energy storage station, and a commissioning report shall be prepared after the commissioning is completed. The contents of

the commissioning records and commissioning report are respectively shown in Appendix A and Appendix B.

5 Subsystem Commissioning

5.1 General Requirements

5.1.1 The subsystem commissioning of the energy storage station shall include commissioning

items, such as the energy storage system, monitoring system, power transformation and distribution system, relay protection and automatic safety devices, communication and dispatching automation systems, and station power supply, etc.

5.1.2 The subsystem commissioning of the energy storage station shall meet the following conditions.

a) The equipment is installed, the wiring is correct and firm, the numbering and identification are clear and correct, and the specifications and models meet the design