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

GB/T 32127-2024

**Directives for monitoring and evaluation of power demand
response**

电力需求响应监测与评价导则

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting: This document replaces GB/T 32127-2015 "Guidelines for Demand Response Effect Monitoring and Comprehensive Benefit Evaluation" and GB/T 32127-2015 Compared with the previous version, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) Modified the demand response resources (see 3:2, 3:2 of the:2015 version), events (see 3:3, 3:3 of the:2015 version), and price-based demand Request for response (see 3:4,:2015 version of 3:4), time-of-use electricity price (see 3:5,:2015 version of 3:4:1), peak electricity price (see 3:6,:2015 3:4:3 of the:2015 edition), incentive-based demand response (see 3:7, 3:5 of the:2015 edition), interruptible loads (see 3:8, 3:5:2), user baseline load (see 3:10, 3:7 of the:2015 edition), emission reduction benefits (see 3:11, 3:12 of the:2015 edition), avoidable Free capacity (see 3:12, 3:13 of the:2015 edition), avoidable operating costs (grid companies) (see 3:15, 3:16 of the:2015 edition), Avoided electricity cost (power generation enterprise) (see 3:17, 3:18 of the:2015 edition) and other terms and definitions;
- b) Deleted real-time electricity prices (see 3:4:2 of the:2015 version), direct load control (see 3:5:1 of the:2015 version), and emergency demand response (see 3:5:4 of the:2015 edition), capacity/ancillary service plan (see 3:5:5 of the:2015 edition), actual user load (see 3:6 of the:2015 edition), user response load (see 3:8 of the:2015 edition), direct benefits (see 3:9 of the:2015 edition), and aggregate benefits (see 3:10 of the:2015 version), ancillary benefits (see 3:11 of the:2015 version), etc:
- c) The general requirements have been changed (see Chapter 4, Chapter 4 of the:2015 edition);

- d) The requirements for absolute indicators have been changed (see 5:1, 5:1:2 of the:2015 edition);
- e) Changed the indicator classification in the relative indicators (see 5:2:1, 5:1:3:1 of the:2015 version), the performance indicators of the subscription (see 5:2:2, 5:1:3:2 of the:2015 edition) and peak load performance index requirements (see 5:2:3, 5:1:3:3 of the:2015 edition);
- f) Added the requirements for valley load performance indicators in relative indicators (see 5:2:4);
- g) The technical principles of user baseline load have been changed to include fairness and rationality (see 6:1:1, 5:2:1 of the:2015 edition), precision and simplicity (see 6:1:2, 5:2:1 of the:2015 edition) and typical requirements for data (see 6:1:3, 5:2:1 of the:2015 edition);
- h) The requirement to minimize the risk of demand response in the user baseline load calculation principle has been deleted (see 5:2:4 of the:2015 version);
- i) Changed the requirements for data selection when the event occurs on a working day in the calculation method (see 6:2:2:1, :2015 edition): 5:3:2:1);
- j) The comprehensive benefit evaluation of demand response has been deleted (see Chapter 6 of the:2015 edition);
- k) Added benefit classification (see Chapter 7), benefit quantification and cost estimation (see Chapter 8);
- l) Changed the description outlined in the benefit classification (see 7:1, 6:1:1 of the:2015 edition);
- m) Changes have been made to the classification of benefits by the way benefits are obtained (see 7:2, 6:1:2, 6:1:3, 6:1:4, 6:1:5 of the:2015 edition), Requirements for classification of subject types (see 7:3, 6:1:6, 6:1:7, 6:1:8, 6:1:9 of the:2015 edition);

1 Scope

GB/T 32127-2024 sets out how demand response on the Chinese power system is monitored and evaluated. Demand response is paid for on the basis of load that did not occur, which makes it the only power system resource whose delivery cannot be measured directly: everything turns on the counterfactual baseline of what the customer would have consumed, and a baseline method that can be gamed turns the whole programme into a transfer payment. The standard sets the general requirements, the monitoring indicators, the calculation of the customer baseline load, the classification of the benefits, and the quantification of those benefits together with the estimation of the costs, with an informative annex working an example through. It replaces GB/T 32127-2015 and took effect on 1 December 2024.

This document specifies the overall requirements, monitoring indicators, user baseline load calculation, benefit classification and benefit evaluation of power demand response monitoring and evaluation: Benefit evaluation: This document is applicable to the analysis and evaluation of power demand response projects by power demand response implementation agencies, and the actual effects of the projects: Analyze and evaluate the comprehensive benefits of project implementation and provide reference for comprehensive resource planning:

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 2900:

58 Electrical terminology - Planning and management of power systems for generation, transmission and distribution GB/T 2900:

84 Electrical terminology - Electricity price GB/T 2900:

87 Electrical terminology - Electricity market

3 Terms and definitions

The terms and definitions defined in GB/T 2900:58, GB/T 2900:84, GB/T 2900:87 and the following apply to this document: 3:

1 Demand response demand response; DR A participation mechanism in which electricity users respond to price signals or incentives issued by implementing agencies and change their electricity consumption patterns: Behavior: 3:

2 Demand-side equipment or systems involved in electricity demand response: 3:

3 Event The entire process is initiated by the implementing agency and participated in by demand response users, from the beginning of user response to the end of response:

Note: Events are triggered based on different indicators or conditions, such as power supply and demand, power system load level, supply resource availability, market prices, etc: 3:4 A type of demand response project in which users adjust their electricity demand according to changes in terminal electricity prices to reasonably control electricity costs: Should act:

Note: Demand response based on electricity prices includes time-of-use electricity prices, peak electricity prices, etc: 3:

5 Time-of-use price; TOU An electricity pricing mechanism that divides a cycle into several time periods based on the changes in power generation and consumption in the power

system: Different electricity prices are set for different time periods:

Note: Time-of-use electricity prices include peak and valley prices, seasonal prices, and peak and low prices:

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