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

GB/T 47411-2026

Evaluation of district energy systems

区域能源系统评价

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Foreword

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10 National Standards of the People's Republic of China Regional Energy System

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01 State Administration for Market Regulation The State Administration for Standardization issued a statement.

1.Scope This document specifies the overall requirements for regional energy system evaluation, including safety and reliability, high efficiency and low carbon emissions, intelligent regulation, flexibility, and operation management. Evaluation methods and requirements for economic benefits, improvement and innovation. This document applies to the evaluation of newly built, expanded, and renovated regional energy systems during the design and operation phases.

1 Scope

GB/T 47411-2026 is the Chinese national standard covering how a district heating, cooling or combined energy system is evaluated - the energy efficiency across the whole chain from source to building, the emissions, the renewable share, the reliability and the cost to the users. First edition, 17,000 words, in force since 1 November 2026. It was issued on 30 April 2026 and takes effect on 1 November 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

4.1.2 The regional energy system evaluation should include both design and operational evaluations based on the project construction schedule. The design evaluation should be conducted within the framework of the regional energy system evaluation. The overall construction drawing design should be completed and approved before the operational evaluation is conducted; the evaluation should be conducted one year after the regional energy system has been completed and accepted and has been in normal use, and after the system has been in operation for a period of time. It is carried out when the rate is greater than 30%.

4.1 General Provisions

4.1.1 The regional energy system should be structured with different subsystems according to project requirements, and the evaluation should have clear physical boundaries. Regional energy system demonstration... The intention is shown in Figure 1. Index number explanation. Physical connections for energy transmission and distribution; Information flow. Figure

4.2 Evaluation and Grading

4.2.1 The evaluation index system for regional energy systems shall comply with the following provisions.

- a) It should consist of six categories of indicators. safety and reliability, high efficiency and low carbon emissions, intelligent control, flexibility, operation and management, and economic benefits. The evaluation criteria should include control items and scoring items; the evaluation indicator system should include bonus points for improvement and innovation.
- b) The evaluation result of the control item should be either "meeting the standard" or "not meeting the standard," and the evaluation result of the scoring item and bonus item should be a score.
- c) The evaluation process does not include assessment of operational management indicators;
- d) During the operational evaluation, an operational management evaluation should be conducted based on the design evaluation.

4.2.2 The evaluation score for the regional energy system shall comply with the provisions of Table 1.

4.2.3 The total score for the regional energy system design evaluation shall be calculated according to formula (1), and the total score for the operation evaluation shall be calculated according to formula (2). calculate.

4.2.4 When a regional energy system has clauses that are not included in the evaluation, the total evaluation score should be calculated by dividing the actual score of the included clause by the applicable energy system score. The total score of the source system is then multiplied by 100 points.

4.2.5 Regional energy system evaluation is divided into three levels. one-star, two-star, and three-star, and shall be determined according to the following provisions.

- a) Regional energy systems at three levels-one-star, two-star, and three-star-must comply with all control requirements outlined in this document;
- b) For the regional energy system at three levels (one-star, two-star, and three-star), the score for each of the six categories of indicators should not be less than [amount missing]. Its evaluation score is 30% of the total score of the evaluation items; otherwise, it will be downgraded by one level from the original evaluation level.
- c) When the total score reaches 60, 70 and 85 points respectively, it is judged as one-star, two-star and three-star respectively.

5.1 Control Items

5.1.1 Energy stations should be located far from geologically hazardous areas such as

landslides and debris flows. Areas prone to flooding should have reliable flood control infrastructure. Avoid threats from hazardous chemicals and flammable and explosive sources.

5.1.2 The area should have external supporting supply facilities such as power, water, and gas to meet the needs of production and daily life.

5.1.3 The area should have convenient transportation conditions to facilitate equipment transport and hoisting; the layout of the energy station should meet the needs of transporting large equipment and pipelines. Space requirements for transmission channels, installation, maintenance, and replacement.

5.1.4 The power supply within the area shall comply with the relevant provisions of GB 55024 to ensure the safety of electrical loads. Primary electrical loads shall be supplied by two... Powered by a single power source.

5.1.5 The electrical connection scheme, grid connection point selection, and protection configuration of the energy station shall comply with the regulations of the power sector and ensure the safety and stability of the regional power grid. Its operation does not pose a threat.

5.1.6 The fire compartmentation, internal materials used, and fire-fighting measures of the energy station shall meet the requirements of fire safety.

5.1.7 Energy stations shall take measures for sound insulation, sound absorption and vibration isolation.

5.1.8 Energy stations should develop emergency response plans and emergency support measures, and emergency equipment should be in place.

5.1.9 Energy stations shall be equipped with leak detection and alarm devices according to the type and characteristics of fuels and refrigerants, and these devices shall be interlocked with the emergency ventilation system.

5.1.10 The regional energy system should be coordinated with the region's overall plan, regulatory detailed plan, municipal infrastructure design plan, etc.

5.1.11 Feasibility studies should be conducted for regional energy systems, and implementation is only permitted after demonstration and review.

5.2 Resource Conditions

5.2.1 Conduct suitability analysis and resource assessment of the region and surrounding resources, and utilize at least one renewable energy source or surplus energy. 10 points.

5.2.2 Based on local energy conditions, service scale, purpose and function, construction progress, and usage characteristics, conduct technical analysis of various energy solutions. Economic comparison, 10 points.