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

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**General rules for energy measuring instrument equipping and
managing of energy user**

用能单位能源计量器具配备和管理通则

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1 Scope

China's mandatory general rules for equipping and managing the energy measuring instruments of energy users. The rule behind the rule is that consumption cannot be managed if it is not measured, and in a large plant most of it is not: the meter at the boundary tells the enterprise what it bought, and nothing at all about where it went. This standard closes that gap by requiring measurement at three levels - the entry to the enterprise, the entry to each major consuming unit, and the individual items of equipment above defined thresholds - for electricity, coal, oil, gas, heat and water. It also specifies the accuracy class required at each level, the coverage rate that must be achieved, and the management of the instruments themselves: their calibration, their records and their maintenance. It is the measurement basis on which the sectoral energy consumption norms are enforced.

This document specifies the basic requirements for the equipping and managing of energy measuring instruments in energy users. This document is applicable to energy users with independent accounting, such as enterprises, public institutions, government agencies, and social groups.

2 Normative references

This document has no normative references.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 energy measuring instrument A measuring device, whose measuring object is the primary energy, secondary energy and energy-carrying working medium, which is used alone or in combination with one or more auxiliary equipment.

3.2 sub-energy user An energy-accounting unit that is subordinate to the energy user.

3.3 equipping ratio of energy measuring instrument The percentage of the actual number of energy measuring instruments installed to the theoretical requirement.

4.1 Types and measurement range of energy

4.1.1 The types of energy shall comply with national statistical laws, regulations and relevant standards, including primary energy, secondary energy and energy-carrying working medium. NOTE. Energy-carrying working medium refers to a medium that can absorb or release energy due to changes in its own state parameters.

4.1.2 The range of energy measurement includes.

- a) Energy and energy-carrying working mediums input into energy users, sub- energy users and energy-consuming equipment;
- b) Energy and energy-carrying working mediums output from energy users, sub- energy users and energy-consuming equipment;
- c) Energy and energy-carrying working mediums used (consumed) by energy users, sub-energy users and energy-consuming equipment;
- d) Energy and energy-carrying working mediums produced by energy users, sub- energy users and energy-consuming equipment;
- e) Surplus energy that is recycled and utilized by energy users, sub-energy users and energy-consuming equipment.

4.2 Principles for equipping of energy measuring instruments

4.2.1 The requirements for energy classification measurement shall be met.

4.2.2 The requirements for energy users to implement energy classification and sub- item assessment and statistical accounting shall be met.

4.2.3 The effective measurement range of energy measuring instruments shall be able to cover the actual needs of energy measuring.

4.2.4 It shall meet the requirements of energy users to achieve refined energy management, and gradually upgrade and equip intelligent energy measuring instruments with automatic collection and remote transmission functions.

4.2.5 Key energy users shall be equipped with necessary portable energy detection instruments to meet the requirements of self-inspection.

4.3 Requirements for the equipping ratio of energy measuring instruments

4.3.1 The equipping ratio of energy measuring instruments is calculated according to formula (1). Where. R_p -- Equipping ratio of energy measuring instruments; N_s -- The actual number of energy measuring instruments installed; N_1 -- Theoretical requirement of energy measuring instruments; Theoretical requirement of energy measuring instruments refers to the number of measuring instruments required to measure the total value of energy input into and output from the energy user, as well as the number of measuring instruments required to measure the energy value of main sub-energy users and main energy-consuming equipment in accordance with the corresponding energy consumption (or power) limit value requirements.

4.3.2 The energy consumption (production energy or transport energy) of the main sub-energy users shall be greater than or equal to one or more corresponding energy consumption limit values in Table 1. Sub-energy users that do not reach the energy consumption (or power) limit values in Table 1 are allowed to be included in the energy measurement assessment according to relevant requirements. If there are indeed no conditions for achieving separate measurements, it is allowed to use the calculation (estimation) method to achieve energy accounting, and the accounting method and relevant original data shall be recorded.

4.3.3 The energy consumption (or power) of a single main energy-consuming equipment shall be greater than or equal to one or more corresponding energy consumption (or power) limit values in Table 2. For energy-consuming equipment that does not reach the energy consumption (or power) limit values in Table 2, energy-consuming equipment with large usage and cumulative energy consumption, or key equipment in energy-consuming units, may be included in the energy measurement assessment according to relevant requirements. If there are indeed no conditions for achieving separate measurements, it is allowed to use the

5 Management requirements for energy measuring instruments

5.1 Energy measuring system Energy users shall establish, maintain and use documented procedures to standardize the responsibilities of energy measuring personnel, the management of energy measuring instruments, and the collection, processing, aggregation and retention of energy measuring data.

5.2 Energy measuring personnel Energy users shall be equipped with professional personnel, who receive regular professional knowledge training on energy measuring and be responsible for the management of energy measuring instruments.

5.3 Energy measuring instruments

5.3.1 Energy users shall have a complete list of energy measuring instruments. The list

shall list the name, measurement object, model and specification, accuracy level/maximum permissible error, measurement range, manufacturer, factory number, energy user management number, installation and use location, and status (qualified, approved for use, discontinued, etc.) of the energy measuring instruments. Main sub- energy users and main energy-consuming equipment shall have independent sub-lists of energy measuring instruments.

5.3.2 Energy users shall establish energy metering instrument files, including.

- a) Instructions for use of measuring instruments;
- b) Factory certificate of measuring instrument;
- c) Relevant verification (calibration) certificates or test reports of the measuring instrument for the last two consecutive cycles;
- d) Measuring instrument maintenance records;
- e) Other relevant information on measuring instruments.

5.3.3 Energy measuring instruments of energy users shall be regularly verified (calibrated) in accordance with relevant regulations, and the verification (calibration) results shall be confirmed.

5.3.4 Energy users that compare or evaluate their energy measuring instruments by themselves shall have valid and controlled documents (including procedure documents and work instructions) as the basis and execute in accordance with controlled documents.

5.3.5 Any energy measuring instrument that fails to meet the requirements after verification (calibration), comparison, or evaluation, or has exceeded its period, shall be stopped from use and a deactivation mark shall be affixed.