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

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General methods for energy savings pre -assessment

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1 Scope

This standard specifies the pre-assessment calculation methods, technical requirements and reports of energy conservation before the implementation of energy conservation measures.

This standard is applicable to the country/city, energy user and project level before the implementation of energy-saving measures to evaluate the energy savings of energy-saving measures Calculation.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 13234 Calculation Method of Energy Conservation Unit Energy Consumption

GB/T 28750 General Rules for Energy Saving Measurement and Verification Technology

GB/T 32045 Implementation Guide for Energy Saving Measurement and Verification

ISO 17742 Energy efficiency and energy saving calculations for countries, regions and

cities (Energy efficiency and savings calculation for countries, regions and cities)

3 Terms and definitions

The following terms and definitions defined in GB/T 13234 and GB/T 28750 apply to this document.

3.1 Energy conservation measures energy conservation measures Methods or actions adopted to improve energy efficiency, reduce energy consumption or improve energy use.

Note. Rewrite GB/T 13234-2018, definition 3.3.

3.2 Pre-assessment period Evaluate and calculate the corresponding time period before saving energy.

3.3 Energy consumption in pre-assessment period During the previous evaluation period, evaluate the calculated energy consumption.

3.4 Condition in pre-assessment period Calculate the selected conditions for energy savings in the pre-assessment period.

4.1 Basic formula for energy saving

4.1.1 The basic formula (1) or basic formula (2) should be used when calculating the energy savings during the pre-assessment period.

$$ESp = E_b - E_p \quad (1)$$

Where.

ESp --- Energy saving in the previous assessment period;

E_b --- baseline energy consumption, see 4.1.2, 4.1.3 and 4.1.4 for the determination method;

E_p --- Energy consumption during the previous evaluation period, see 4.1.3 and 4.1.4 for the determination method.

$$ESp = E_b \times \epsilon_{np} \quad (2)$$

Where.

ϵ_{np} --- predicted energy saving rate, %, see 4.1.5 for the determination method.

When the accuracy of the calculation result is required to be high, formula (1) should be used for calculation. Examples of calculation methods used in different situations See Appendix A. See Appendix B for an example of pre-assessment calculation of energy saving measures.

4.1.2 The following methods can be used to determine the baseline energy consumption.

a) Taking the actual energy consumption of the existing energy measures before the implementation of the energy saving measures as the baseline energy consumption, which is usually applicable to the renovation project;

Example 1. Plan to replace a new high-efficiency and energy-saving refrigerator, and determine the baseline energy consumption by measuring the energy consumption of the old refrigerator.

b) Take the energy consumption that may be generated without implementing energy-saving measures as the baseline energy consumption, which is usually applicable to new projects;

Example 2. To implement a promotion plan for energy-efficient refrigerators, you can measure the new refrigerators that a family originally planned to buy under the assumption that the promotion plan is not implemented Energy consumption.

Example 3. It is planned to adopt energy-saving measures in a new building. When the relevant data before the implementation of the energy-saving measures cannot be obtained, the specific data of the new building (such as construction When building the amount of objects, the number of households, etc.), the baseline energy consumption can be calculated according to the minimum energy consumption requirements of this type of new building specified by the current building standards.

c) Take the energy consumption of the relevant reference situation before the implementation of the energy-saving measures as the baseline energy consumption;

Example 4. A region plans to replace a new high-efficiency and energy-saving refrigerator, and the benchmark energy consumption adopts the average energy consumption of existing refrigerators in the target region.

d) Take the energy consumption of the relevant reference situation without implementing energy-saving measures as the baseline energy consumption.

Example 5. To replace a new refrigerator with high efficiency and energy saving, the benchmark energy consumption adopts the minimum energy efficiency standard required by laws and regulations, or the average energy efficiency level in the market.

4.1.3 When formula (1) is used to calculate energy savings, both the baseline energy consumption and the energy consumption during the pre-assessment period can be determined by modeling methods. Can refer to Standards such as GB/T 28750 and GB/T 13234 analyze the relevant variables of baseline energy consumption and energy consumption in the pre-assessment period, based on statistical models or Physical relationship, establish the corresponding benchmark energy consumption and energy

consumption model functions in the previous evaluation period. The established model should have good correlation. at this time, Formula (1) can be transformed into formula (3).

$$ESp=f(x_1,x_2,,x_i,,x_n)-g(x_1,x_2,,x_i,,x_n) \quad (3)$$

Where.

f) ---Model function of benchmark energy consumption, refer to 4.1.2 to use actual operating energy consumption data to construct build. When data related to actual operating energy consumption cannot be obtained, existing experience or related data can also be used.

According to the establishment of a reasonable estimation model;

g() ---The model function of energy consumption in the previous evaluation period, which can use the relevant data of the implemented comparable energy-saving measures, Empirical data or other relevant data, etc. for construction;

$x_1,x_2,,x_i,,x_n$ ---related variables affecting energy consumption, see 4.2 for the determination method.

4.1.4 When the data is incomplete and it is difficult to establish a relevant model, the benchmark energy consumption and the energy consumption in the previous evaluation period in formula (1) can also be empirical methods Estimate, or use a combination of modeling methods and empirical methods to calculate.

4.1.5 When formula (2) is used, the predicted energy saving rate should be based on relevant data, empirical data or other relevant data of comparable energy saving measures that have been implemented Make reasonable predictions according to the statistics.

4.2 Determine relevant variables to calculate energy savings

4.2.1 The data of related variables should be selected under representative normal operating conditions. It is not advisable to use unconventional operating conditions (such as Data related to energy consumption during the renovation. Otherwise, the operating conditions should be recorded in detail, and the rationality of the data should be analyzed.

4.2.2 When using formula (3) to calculate energy savings, according to the calculation purpose and data availability, the following methods can be used to determine the relevant variables data.

a) Use data on variables related to the base period. At this time, the data of the relevant variables in the base period should be substituted into formula (3) to calculate the baseline energy consumption, the previous Energy consumption and energy savings during the evaluation period.

b) Use the data of the relevant variables during the previous evaluation period. At this time, the data of the relevant variables in the previous evaluation period should be substituted