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

GB/T 40064-2024

Guidelines for assessment of energy saving technologies

节能技术评价导则

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1 Scope

GB/T 40064-2024 gives the guidelines for assessing energy saving technologies. Chinese energy policy runs substantially through catalogues of recommended technologies and through the incentives attached to them, and getting onto such a catalogue turns on a claimed saving that is usually calculated by the vendor against a baseline of the vendor's choosing. A common assessment method is what makes those claims comparable. The standard sets the general requirements, the content of the assessment - the technical maturity, the applicability, the energy saving effect and the economic and environmental benefit - the assessment methods, the assessment procedure, and the requirements on the assessment itself and on those carrying it out. It takes effect on 1 June 2025.

This document specifies the general requirements, assessment content, assessment methods, assessment procedure and assessment requirements for the assessment of energy saving technologies. This document applies to the implementation of the assessment of energy saving technologies.

2 Normative references

This document has no normative references.

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1 energy savings Amount of energy consumption or energy consumption reduction under the condition of meeting the same needs or achieving the same purpose. [Source: GB/T 13234-2018, 3.1]

3.2 carbon emission reduction The calculated reduction in carbon emissions generated by an organization, project, or product over a certain period of time compared with the emissions in the baseline scenario.

4 General requirements

The assessment of energy saving technologies shall comply with the following requirements.

- a) the assessment activities shall be fair, rigorous, scientific and objective, truly reflect the level of technology achievements, and put forward assessment conclusions that are in line with reality;
- b) comprehensively consider the assessment objectives, data availability, time, cost, etc. to select the assessment method;
- c) according to the different categories and maturity of energy saving technologies, build corresponding assessment indicator systems, set differentiated indicator weights, and establish qualitative and quantitative assessment systems, which can set comparable benchmarks for assessment indicators to ensure the scientificity, accuracy and practicality of the assessment conclusions;
- d) completely record the standards and specifications, data sources, measurement methods, and assessment processes, to facilitate the review and verification of the results;
- e) the institutions and personnel conducting assessment shall have relevant professional capabilities and experience, and be familiar with the energy saving technologies, laws and regulations, standards and specifications in related fields.

5 Assessment content

The assessment content of energy saving technologies may include but is not limited to.

- a) compliance. compliance with laws and regulations, industrial policy requirements, clear intellectual property rights, etc.;
- b) technology advancement. technical principle innovation level, application innovation level, advanced degree among similar comparable technologies, digitalization and intelligence level, etc.;
- c) technology maturity. application scope, degree and scale, technical reliability, etc.;
- d) energy saving and carbon-reduction capability. energy savings, energy saving rate, carbon emission reduction, carbon emission reduction rate, etc. that may be generated by technology application under typical conditions;
- e) economic benefits. economic benefits, investment payback period, unit energy saving

investment cost, etc.;

f) promotion potential. current technology promotion ratio, market penetration rate in a certain period of time in the future, etc.

6 Assessment methods

The following applicable methods can be used for the assessment of energy saving technologies.

a) standard comparison method, which assesses by comparing with relevant energy saving laws and regulations, industrial policies, standards and specifications;

b) analogy analysis method, which compares with and analyzes the leading technical indicators of similar comparable technology application cases;

c) empirical assessment method, which assesses by methods such as laboratory test, on-site comparison test, online monitoring, mathematical statistics analysis; Example

1.To assess the energy saving technologies of an equipment product, test the core energy efficiency and energy consumption indicators of the equipment product after the application of energy saving technologies. Example

2.To assess the energy saving technologies of an industry, select the typical items, and test and compare data such as energy efficiency, energy consumption and carbon emission before and after the application of energy saving technologies, to assess the application effect of technologies.

d) user survey method, which is applicable to energy saving technologies that have been put into use in the market; it adopts a sampling survey method to investigate users of energy saving technologies on the application status and effects of the technologies;

e) expert judgment method, which uses expert experience, knowledge and skills for assessment.

7 Assessment procedure

The procedure for assessment of energy saving technologies includes accepting assessment applications and materials, conducting compliance reviews, determining categories of energy saving technologies, formulating assessment work plans, determining assessment indicator systems, conducting technology assessments (including necessary investigations or tests), and forming assessment conclusions and reports. See Figure 1 for assessment process for energy saving technologies. effects (including measurement methods and basis), technology promotion and obstacles, etc.;

f) application case, including energy consumption data, operation data, test and monitoring data, economic data and its calculation process, customer evaluation, etc., which may

include test or assessment reports provided by qualified third- party professional institutions;

g) other necessary documents and materials.

8.1.2 The assessment institution conducts compliance review of the application materials.

8.2 Determine category of energy saving technologies The assessment institution may refer to the recommended guidance catalog of energy saving processes, technologies, equipment, products, etc. in relevant industries, and classify energy saving technologies by considering fields, application objects and links, technology maturity, and technology characteristics, so as to formulate a targeted assessment indicator system and conduct comparisons between similar technologies. Example. When assessing energy saving technologies for a high-energy-consuming industry, energy saving technologies are divided into energy-using product energy efficiency improvement technologies, system energy efficiency improvement technologies, energy integration optimization technologies, energy substitution technologies, process optimization technologies, and intelligent control technologies according to application objects and links.

8.3 Determine assessment indicators

8.3.1 Basic requirements It shall meet the requirements of national policies, laws and regulations, and give priority to quantitative indicators that can be tested and verified.

8.3.2 Basis for determining assessment indicators Quantitative assessment indicators shall provide the basis for calculation or test methods, and give priority to existing national standards or international standards. Qualitative indicators shall refer to expert experience for graded quantitative analysis. The basis for determining assessment indicators includes but is not limited to.

a) requirements in laws, regulations, and departmental regulations;

b) requirements in government planning and industrial policies;