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**Evaluation requirements for energy-saving and
carbon-reduction technologies in the cement industry**

水泥行业节能降碳技术评价要求

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the China Building Materials Federation. This document was drafted by: Beijing Guojianlianxin Certification Center Co., Ltd., China Building Materials Federation, and Henan Zhongyuan Expressway Co., Ltd. Limited Liability Company, Guizhou Provincial Building Materials Product Quality Inspection and Testing Institute, Sinoma Construction Co., Ltd., Harbin Institute of Technology, Henan Transportation Vocational College Institute, Building Materials Industry Quality Certification Management Center. The main drafters of this document are. Li Jinmei, Yang Zhongzhou, Luo Ning, Wang Bin¹⁾, Zhu Zhe, Liu Qiang, Li Hejun, Wang Yong, Zhang Qu, Luo Huipeng, and Zhou Yuwei. Liu Ning, Zhang Sicaï, Guo Li, Gu Yan, Tang Xing, Jing Yunlei, Zhai Ming, Wang Bin⁽²⁾. 1) Wang Bin, Beijing Guojianlianxin Certification Center Co., Ltd. 2) Wang Bin, China National Building Materials Construction Co., Ltd. Evaluation Requirements for Energy-Saving and Carbon-Reducing Technologies in the Cement Industry

1. Scope This document specifies the general requirements, evaluation requirements, evaluation process, calculation of evaluation indicators, and scoring for energy-saving and carbon-reducing technologies in the cement industry. method. This document applies to the implementation of energy-saving and carbon-reduction technology evaluation in the cement industry.

4 General Requirements

4.1 The evaluation requirements shall comply with the provisions of GB/T 40064.

4.2 Complete records should include the standards and specifications on which the data is based, the data sources, the calculation methods, and the evaluation process, so as to facilitate the review and verification of the results.

4.3 The organizations and personnel conducting the evaluation should possess relevant professional capabilities and experience, and be familiar with energy-saving and carbon-reduction technologies, laws, and regulations in the relevant fields. In accordance with standards and specifications, the organization should be equipped with at least one professional technical person in charge.

5.1 Basic Requirements

5.1.1 The evaluated party shall establish and effectively operate a quality management system and environmental protection system in accordance with GB/T 19001, GB/T 24001 and GB/T 45001. Environmental management system and occupational health and safety management system.

5.1.2 Energy-saving and carbon-reducing technologies should comply with relevant laws, regulations, and policies; products manufactured using energy-saving and carbon-reducing technologies should meet relevant national standards. Requirements of national and industry standards.

5.1.3 The ownership of intellectual property rights for energy-saving and carbon-reducing technologies should be clear and undisputed.

5.2 Evaluation Indicator Requirements The evaluation indicators consist of primary and secondary indicators. Primary indicators include energy saving and carbon reduction capabilities, technological reliability, technological advancement, and economic efficiency. Indicators for benefits and potential for widespread adoption. Table 1 shows the evaluation indicators for energy-saving and carbon-reducing technologies in the cement industry.

6 Evaluation Process

6.1 General Procedure The evaluation process for energy-saving and carbon-reducing technologies includes developing an evaluation plan, conducting technical evaluations, and generating an evaluation report.

6.2 Evaluation of the work plan

6.2.1 The evaluated party shall provide comprehensive supporting materials in accordance with the evaluation requirements to ensure that the relevant application information complies with the evaluation criteria. Sexuality, authenticity, and accuracy. The information includes, but is not limited to, the following.

a) Basic information of the evaluated party, including name, address, corporate credit, asset

size, and compliance with relevant laws, regulations, and standards;

b) Technology name, technology category, etc.;

c) Principles and characteristics, including core technologies, key processes, and main technical indicators;

d) Intellectual property certificates, relevant patents, achievement appraisals, testing and inspection reports, and comparisons with similar advanced technologies and cases both domestically and internationally. Compare relevant data and information;

e) Application status of the technology, including application areas and scope, current status of application and industrialization, and energy-saving and carbon-reduction effects (including calculation methods and...). (Based on), technology promotion status and obstacles, etc.;

f) Application case studies, including energy consumption data, operational data, monitoring data, economic data and their calculation processes, and customer information. Evaluations, etc., may include test or evaluation reports provided by qualified third-party professional organizations;

g) Other necessary documents and materials.

6.2.2 Based on the characteristics of the energy-saving and carbon-reducing technologies being evaluated, develop a corresponding evaluation plan. The evaluation plan should include.

a) Background and evaluation objectives. To determine whether the technology used meets the requirements for energy conservation and carbon reduction;

b) Evaluation object. Technologies with energy-saving and carbon-reducing effects;

c) Evaluation methods and indicators. Quantitative evaluation indicators should prioritize existing national, industry, or international standards, and provide calculation methods. Alternatively, the testing methods can be used as a basis, and qualitative indicators can be categorized and quantified based on expert experience;

d) Evaluation organization and implementation. Establish an evaluation team and develop an evaluation timeline;

e) Other relevant requirements.

7 Evaluation Indicator Calculation and Scoring Method

7.1 Calculation Method of Evaluation Indicators Technology maturity level is based on the materials provided in Appendix A; current adoption rate and market usage rate in the next 5 years are based on explanatory materials and technology. Evaluation reports, etc.; other secondary indicators are calculated according to the corresponding standards, and the

calculation methods for evaluation indicators are shown in Table 2.

7.2 Evaluation Score Calculation

7.2.1 The total score calculated using the step-by-step weighted calculation technique is calculated according to formula (1), and the score of each indicator is rounded to two decimal places.

7.2.2 The MIJ score for a single positive quantitative item is calculated according to formula (2). If the actual value is lower than the limit value, the MIJ score is 0.

7.2.3 The MIJ score for single-item reverse quantitative analysis is calculated according to formula (3). If the actual value is higher than the limit value, the MIJ score is 0.

7.2.4 When a certain requirement is not applicable to the application evaluation technique, the total score is normalized, and the normalization coefficient λ is calculated according to formula (4). calculate.