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NB

**ENERGY INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

NB/T 10147-2019

**Code for engineering geological investigation for biomass
power generation projects**

生物质发电工程地质勘察规范

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Foreword

This document was issued on 4 June 2019 by the National Energy Administration of the PRC and takes effect on 1 October 2019.

It is a NB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 27.010, Chinese classification F13.

This code was formulated in accordance with the requirements of the Notice of the National Energy Administration on Issuing the Second Batch of the 2014 Energy Sector Industry Standard Formulation (Revision) Plan (Guo Neng Ke Ji [2015] No. 12). The drafting group carried out extensive investigation and research, conscientiously summarized engineering practice experience, and formulated this code on the basis of widely soliciting opinions.

The main technical contents of this code are: investigation for site selection, preliminary investigation, detailed investigation, special engineering geological investigation, analysis and assessment of engineering geology, preparation of the engineering geological investigation report, and inspection and monitoring.

This code is under the administration of the National Energy Administration. It is proposed and routinely managed by China Renewable Energy Engineering Institute, which is also responsible for the explanation of its specific technical contents. Any comments or suggestions arising during implementation should be sent to China Renewable Energy Engineering Institute (address: No. 2 Liupukang Beixiaojie, Xicheng District, Beijing, postcode 100120).

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Announcement of the National Energy Administration

National Energy Administration Announcement 2019 No. 4: the National Energy Administration approved 297 industry standards, including the Code for Electrical Design of Photovoltaic Power Projects, of which 105 are energy standards (NB), 168 are electric power standards (DL) and 24 are petrochemical standards (NB/SH), and hereby issues them. Attachment: catalogue of industry standards. National Energy Administration, 4 June 2019.

In the attached catalogue of industry standards, item No. 20 is NB/T 10147-2019, Code for Engineering Geological Investigation for Biomass Power Generation Projects, with no superseded standard listed, approval date 2019-06-04 and implementation date 2019-10-01.

Structure of the remaining parts

According to the official contents, the code continues with Chapter 5 Preliminary Investigation, Chapter 6 Detailed Investigation (general requirements, straw power generation project, garbage power generation project, biogas power generation project) and Chapter 7 Special Engineering Geological Investigation (general requirements, adverse geological actions and geological hazards, special rock and soil).

Chapter 8 covers Analysis and Assessment of Engineering Geology (general requirements, geotechnical parameters analysis, engineering geological assessment of site area buildings and structures); Chapter 9 covers Engineering Geological Investigation Report Preparation; Chapter 10 covers Inspection and Monitoring (general requirements, field inspection, field monitoring).

Appendix A: Division of Construction Seismic Site. Appendix B: Drawings and Attachments

of Engineering Geological Investigation Report.

Appendix C: Classification of Regionally Tectonic Stability. Appendix D: Classification of Site Stability and Construction Suitability. Appendix E: Testing Methods for Flow Velocity and Direction of Groundwater.

The code closes with the Explanation of Wording in This Code, the List of Quoted Standards and, as an addition, the Explanation of Provisions.

1 Scope

NB/T 10147-2019 governs the engineering geological investigation for biomass power generation projects in China - plants fired on straw and agricultural residue, plants burning municipal waste, and biogas plants. These are modest structures compared with a dam, but they combine heavy concentrated loads from boilers and turbines, tall stacks sensitive to differential settlement, large fuel storage yards, and in the case of waste plants deep bunkers and leachate structures that must not leak into the groundwater. The code sets the general provisions and defined terms, then the basic requirements on the scope of investigation at each design stage from site selection and feasibility through preliminary design to construction drawings, with the grading of the investigation by the complexity of the site and the importance of the structures. It covers site selection and the evaluation of site stability, the investigation of the main building with its turbine and boiler foundations, the chimney, the cooling tower, the fuel and ash yards, the waste bunker and leachate treatment, and the ancillary buildings and roads. For each it sets the exploration layout and depth, the in-situ and laboratory testing required, the assessment of bearing capacity, settlement and foundation options, and the corrosivity of soil and groundwater. The hydrogeological assessment, seismic evaluation and the content of the investigation report close the code.

1.0.1 This code is formulated with a view to unifying the tasks, contents and technical requirements of engineering geological investigation at each stage of biomass power generation projects, and to ensuring the quality of investigation work and of its results.

1.0.2 This code is applicable to the engineering geological investigation of straw power generation, garbage power generation and biogas power generation projects.

1.0.3 In addition to this code, the engineering geological investigation of biomass power generation projects shall also comply with the current relevant standards of the nation.

2 Terms

2.0.1 biomass power generation project: a project that generates electricity using as raw material biomass from agriculture and forestry, domestic garbage, organic waste and the like.