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NB

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

NB/T 31029-2019

Replacing NB/T 31029-2012

**Code for Wind Energy Resource Measurement and Marine
Hydrographic Observation of Offshore Wind Power Projects**

海上风电场工程风能资源测量及海洋水文观测规范

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Table of Contents

1 General Provisions	1
2 Terms	2
3 Wind Energy Resource Measurement	3
3.1 General Requirements	3
3.2 Measurement of Wind Energy Resources of Wind Power Project	3
3.3 Measurement of Short-Term Wind Speed and Wind Direction	8
4 Marine Hydrographic Observation	10
4.1 General Requirements	10
4.2 Bathymetric Survey	13
4.3 Water Level Observation	14
4.4 Ocean Current Observation	15
4.5 Wave Observation	18
4.6 Sediment Observation	19
4.7 Water Temperature Observation	22
4.8 Salinity Observation	23
4.9 Sea Ice Observation	24
Appendix A Record for Wind Energy Resource Measurement of Wind Power Project	29
Appendix B Record for Short-Term Wind Speed and Wind Direction Measurement	31
Appendix C Record for Marine Hydrographic Observation	33
Appendix D Defining Wave Scale and Sea Ice Features	41
Explanation of Wording in This Code	45
List of Quoted Standards	46
Addition: Explanation of Provisions	47

Foreword

This document was issued on 4 November 2019 by the National Energy Administration of the PRC and takes effect on 1 May 2020.

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 27.180, Chinese classification P61.

It replaces NB/T 31029-2012, which is superseded.

According to the requirements of the 'Notice of the General Department of the National Energy Administration on Issuing the 2017 Energy Sector Standard Development (Revision) Plan and the English Version Translation and Publication Plan' (Guonengzongtong Keji [2017] No. 52), the code drafting group revised this code after extensive investigation and research, careful summarization of practical experience and wide solicitation of opinions.

The main technical contents of this code are: wind energy resource measurement and marine hydrographic observation.

Revision: the title of the code was changed from 'Code for Wind Energy Resource Measurement and Marine Hydrographic Observation of Offshore Wind Farms' to 'Code for Wind Energy Resource Measurement and Marine Hydrographic Observation of Offshore Wind Power Projects'.

Revision: the terms 'offshore wind power project', 'nearshore wind power project', 'intertidal wind power project' and 'deep-sea wind power project' were modified.

Revision: the terms 'shallow-sea wind power project' and 'farshore wind power project' were added, and other terms already in common use were deleted.

Revision: the arrangement of some chapters and sections was improved; the section 'Long-term wind energy resource measurement' was renamed 'Measurement of wind energy resources of wind power project', the section 'Short-term wind speed and wind direction measurement' was renamed 'Measurement of short-term wind speed and wind direction', the section 'Sea wave observation' was renamed 'Wave observation', and the sections 'Seabed sediment sampling' and 'Sediment concentration observation' were merged into a single section 'Sediment observation'.

Revision: the requirements for the representativeness of the met mast and for the measurement heights in the section 'Measurement of wind energy resources of wind power project' were modified.

Revision: requirements for radar and ultrasonic anemometer equipment were added to the section 'Measurement of wind energy resources of wind power project'.

Revision: the requirement for the daily extreme wind speed was deleted from the section 'Measurement of short-term wind speed and wind direction'.

Revision: the requirement that the long-term observation of each marine hydrographic element be carried out synchronously with the wind energy resource measurement of the wind power project was added.

Revision: the requirements for the number of observation stations and the observation frequency of some marine hydrographic elements were modified.

Revision: requirements for long-term ocean current observation were added to the section

'Ocean current observation', and ocean current stations were divided into two types: long-term ocean current stations and full-tide hydrographic stations.

Revision: requirements for data processing and office analysis of each marine hydrographic observation element were added.

Revision: the names and contents of some appendices were improved, and the explanation of provisions was added.

This code is under the administration of the National Energy Administration and is proposed and routinely managed by China Renewable Energy Engineering Institute; the specific technical contents are interpreted by the wind farm planning and design sub-committee of the energy industry wind power standardization technical committee. 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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1 Scope

NB/T 31029-2019 governs wind energy resource measurement and marine hydrographic observation for offshore wind power projects, replacing the 2012 edition. An offshore wind farm is designed and financed on two sets of site data: the wind resource that determines energy yield, and the marine environment that determines foundation loads and the windows for installation and maintenance. Both must be measured at sea, over at least a full year, to a standard a lender's engineer will accept. The code sets the general provisions and defined terms, then the requirements for wind measurement: the siting and number of met masts and the use of floating and fixed lidar, measurement heights and instruments for wind speed, direction, temperature, humidity and pressure, their calibration and installation, sampling and recording intervals, and the data recovery required. Marine hydrographic observation follows: tide and water level, currents through the water column, waves, suspended sediment, water temperature and salinity, sea ice where it occurs, and bathymetry, each with station layout, instruments, observation period and accuracy. Data processing, quality control and validation of records, correlation with long-term reference

data, and the content of the measurement and observation report close the code. It applies to offshore wind projects in China.

1.0.1 This code is formulated with a view to standardizing the contents, methods and technical requirements of wind energy resource measurement and marine hydrographic observation for offshore wind power projects, and ensuring the quality of the basic wind energy resource and marine hydrographic data of offshore wind power projects.

1.0.2 This code is applicable to wind energy resource measurement and marine hydrographic observation work for offshore wind power projects.

1.0.3 In addition to this code, wind energy resource measurement and marine hydrographic observation for offshore wind power projects shall also comply with the current relevant national standards.

2 Terms

2.0.1 Offshore wind power project: wind power projects developed and built in sea areas below the multi-year mean spring tide high water line along the coast are collectively referred to as offshore wind power projects. According to the distance from shore or the water depth of the site, offshore wind power projects can be divided into nearshore and farshore wind power projects, or into intertidal, shallow-sea and deep-sea wind power projects.

2.0.2 Nearshore wind power project: a wind power project whose site is not more than 65 km from the nearest point of the coastline where the submarine cable route lands.

2.0.3 Farshore wind power project: a wind power project whose site is more than 65 km from the nearest point of the coastline where the submarine cable route lands.

2.0.4 Intertidal wind power project: a wind power project located within the range from below the multi-year mean spring tide high water line along the coast down to the water depth of the theoretical lowest tide level.

2.0.5 Shallow-sea wind power project: a wind power project whose site water depth is 0 m to 50 m below the theoretical lowest tide level.

2.0.6 Deep-sea wind power project: a wind power project whose site water depth is more than 50 m below the theoretical lowest tide level.

3.1 Wind Energy Resource Measurement - General Requirements

3.1.1 The location of wind energy resource measurement for offshore wind power projects shall be representative, the observation duration shall not be less than 2 years, and the observed elements shall mainly include wind speed, wind direction, air temperature, air pressure and relative humidity. The transmission of wind energy resource measurement