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

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Replacing GB/T 31517-2015

Fixed offshore wind turbines - Design requirements

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules for Standardization Documents" drafting.

This document is part 1 of GB/T 31517. GB/T 31517 has issued the following parts.

---GB/T 31517.1 Design requirements for fixed offshore wind turbines.

This document replaces GB/T 31517-2015 "Design Requirements for Offshore Wind Turbines". Compared with GB/T 31517-2015, except

Apart from structural adjustments and editorial changes, the main technical changes are as follows.

a) The "external conditions" was changed, and the "external conditions assessment of offshore wind turbine site" was merged into "external conditions" to form "external conditions".

Component Definition and Evaluation", as wind turbine support structures for offshore projects are often site-specific (see Chapter 6,

Chapter 6 and Chapter 12 of the 2015 edition);

b) The table of design loads has been changed to simplify the representation of waves, which is also applicable to extreme sea conditions, and the guidelines for load calculation are also

The corresponding revisions have been made (see 7.4, 7.4 of the 2015 edition);

c) The basis for writing the load safety factor has been changed, and the load safety factor

is directly in accordance with IEC 61400-1.2019 (see 7.5.1,.2015 edition 7.5, 7.6);

d) Some rules of the control system have been changed, and the control system is consistent with IEC 61400-1.2019 (see Chapter 8,.2015 edition Chapter 8).

This document is equivalent to IEC 61400-3-1.2019 "Wind energy generation system - Part 3-1.Design of fixed offshore wind turbines

Require".

The following minimal editorial changes have been made to this document.

--- In order to coordinate with the existing standards, change the name of the standard to "Design Requirements for Stationary Offshore Wind Turbines";

--- Since IEC 61400-3-1 is in the preparation stage, the IEC 61400-1 cited in the normative documents in Chapter 2 is at the peak in.2018

Final International Standard Draft (FDIS) stage. When IEC 61400-3-1 was released in April.2019, IEC 61400-1 was

Published in February.2019, therefore 61400-1.2018 in this document is corrected to IEC 61400-1.2019.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

This document describes the minimum design requirements for offshore wind turbines, but it is not a complete design specification or installation instruction manual.

In the design, manufacture, assembly, assembly, commissioning, operation and maintenance of offshore wind turbines, different contracting parties may be responsible for different

Same job, but make sure to meet the requirements of this document. The division of responsibilities between these contracting parties is outside the scope of this document.

This document is the first part of GB/T 31517, and GB/T 31517 is intended to be composed of two parts.

---GB/T 31517.1 Design requirements for fixed offshore wind turbines. Specifies the exterior of offshore wind turbine sites

Additional requirements for condition assessment, and basic design requirements to ensure

the engineering integrity of stationary offshore wind turbines. its purpose

The purpose is to provide an appropriate level of protection against various hazards to the wind turbine during the expected life of the wind turbine.

cause damage.

---GB/T 31517.2 Design requirements for floating offshore wind turbines. Floating Offshore Wind Turbine

(FOWT) Additional requirements for the assessment of external conditions of the site, and basic design requirements to ensure the integrity of the FOWT project. That

The purpose is to provide an appropriate level of protection against various risks to wind turbines during the expected life of the wind turbine

group damage.

Design requirements for fixed offshore wind turbines

1 Scope

This document specifies additional requirements for the assessment of the external conditions of offshore wind turbine sites and to ensure that fixed offshore wind turbines

Fundamental design requirements for group engineering integrity. Its purpose is to provide an appropriate level of protection during the expected life of the wind turbine against

Prevent various hazards from causing damage to the wind turbine.

This document focuses on the engineering integrity of each structural component of an offshore wind turbine, but also addresses subsystems such as control and protection mechanisms, internal electrical systems, and mechanical systems.

An offshore wind turbine is a fixed offshore wind turbine if its supporting structure bears hydrodynamic loads and is fixed to the seabed.

on wind turbines. The design requirements in this document do not ensure the engineering integrity of floating offshore wind turbines. floating sea

Refer to IEC 61400-3-2 for wind turbine design requirements. Offshore wind turbines mentioned in this document refer to fixed offshore wind power

unit.

This document should be used together with the applicable IEC and ISO standards mentioned in Chapter 2. In particular, note that this document complies fully with the

Requirements of IEC 61400-1. The safety level of offshore wind turbines designed by this document should not be lower than IEC 61400-1. in some

Chapter, in order to clearly describe the requirements of the provisions, copy the content of IEC 61400-1.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

ISO 2533.1975 Standard atmosphere (Standardatmosphere)

Note. GB/T 23511-2021 General requirements for marine structures in the oil and gas industry (ISO.19900.2019, IDT)

ISO.19901-1.2015 Specific requirements for offshore structures for the oil and gas industry Part 1.Marine meteorological design and operating conditions

ISO.19901-4 Specific requirements for offshore structures for the oil and gas industry - Part 4.Elements of geotechnical and foundation design requirements)

Note. GB/T 18451.1-2012 Design requirements for wind turbines (IEC 61400-1.2005, IDT)