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

GB/T 42600-2023

**Wind energy generation systems - Tower and foundation design
requirements of wind turbines**

风能发电系统 风力发电机组塔架和基础设计要求

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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 equivalent to IEC 61400-6:2020 "Wind energy generation system Part 6: Tower and foundation design requirements": The following minimal editorial changes have been made to this document:

--- In order to coordinate with existing standards, the name of the standard was changed to "Wind Power Generation System Wind Turbine Tower and Foundation Design Requirements":

---Incorporated the content of the COR1:2020 errata, and the outer margins of the terms involved are marked with vertical double lines () marked: Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents: This document is proposed by China Machinery Industry Federation: This document is under the jurisdiction of the National Wind Power Standardization Technical Committee (SAC/TC50): This document was drafted by: China Shipbuilding Industry Corporation Haizhuang Wind Power Co., Ltd., Beijing Jianheng Certification Center Co., Ltd., Xinjiang Gold Wind Technology Co., Ltd., Chongqing University, Guangdong Haizhuang Offshore Wind Power Research Center Co., Ltd., China Huaneng Group Clean Energy Technology Research Institute Research Institute Co., Ltd., China Three Gorges Group Co., Ltd., Three Gorges Group Jiangsu Energy Investment Co., Ltd., Chongqing Haizhuang Wind Power Project Technology Co., Ltd., Shanghai Taisheng Wind Energy Equipment Co., Ltd., Guangdong Yudean Zhanjiang Wind Power Co., Ltd., Shanghai Survey and Design Research Institute Co., Ltd., China Three Gorges New Energy (Group) Co., Ltd., Chongqing Jiaotong University, Mingyang Smart Energy Group

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1 Scope

GB/T 42600-2023 sets the design requirements for wind turbine towers and foundations. The tower is the largest and heaviest thing in a wind farm and the part most often bought separately from the machine on top of it, which is where the difficulty lies: the loads come from the turbine manufacturer's simulation, and the tower designer has to receive them in a form that can be used and interpreted correctly, or the structure is designed against the wrong spectrum. Fatigue governs, not ultimate strength, and the welds and bolted flanges are where it shows. The standard sets the design criteria including the materials, the loads and the load data and interface reporting requirements, the general structural design requirements and the delivery documents, then the steel tower with its ultimate strength analysis including openings, its stability and its fatigue, and the corresponding requirements for concrete towers and for the foundations. It took effect on 23 May 2023.

This document establishes the structural integrity requirements and basic principles for assessing the support structures of onshore wind turbines, including foundations: fan The scope includes general or site-specific geotechnical evaluation of the soil, flanges and connection systems to wind turbine nacelle components (including The strength calculation of bearing connection) shall be designed and recorded according to this document or IEC 61400-1: The scope also includes all possible influences during the whole life cycle Links that affect structural integrity, such as assembly and maintenance: The evaluation load data is obtained according to IEC 61400-1 or IEC 61400-2, and takes into account the implied reliability level and local safety of the load coefficient:

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: 1: Design requirements)

GB/T 18451:1-2022 Design requirements for wind turbines (IEC 61400-1:2019, IDT) IEC 61400-

2 Wind turbines Part 2: Small wind turbines (Windturbines-Part 2:Smalwind turbines)

GB/T 17646-2017 Small wind turbines (IEC 61400-2:2013, IDT)

GB/T 5223-2014 Steel wire for prestressed concrete (ISO 6934-2:1991, NEQ)

GB/T 5223-3-2017 Steel bars for prestressed concrete (ISO 6934-3:1991, NEQ)

GB/T 5224-2014 Steel strands for prestressed concrete (ISO 6934-4:1991, NEQ)

GB/T 20065-2016 Threaded reinforcement for prestressed concrete (ISO 6934-5:1991, NEQ)

GB/T 1499:1-2017 Steel for reinforced concrete Part 1: Hot-rolled plain round steel bar (ISO 6935-1:2007, NEQ)

GB/T 1499:2-2018 Steel for reinforced concrete Part 2: Hot-rolled ribbed steel bars (ISO 6935-2:2015, NEQ)

GB/T 1499:3-2010 Steel for reinforced concrete - Part 3: Welded reinforcement mesh (ISO 6935-3:1992, NEQ)

ISO 9016:2012 Destructive tests on welds of metallic materials Impact test specimen position, notch direction and inspection (Destructive amination)

ISO 12944 (all parts) Corrosion protection of steel structures by paint and varnish protective paint systems (Paintsandvarni- ISO 22965-

1 Concrete Part 1: Guidelines for specifying methods and specification developers (Concrete-Part 1: Methods of ISO 22965-