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Replacing GB/Z 35482-2017, GB/Z 35483-2017, GB/T 38174-2019

Wind energy generation systems - Availability

风能发电系统 可利用率

(English Translation)

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Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative References	
3 Terms, Definitions and Abbreviations	
3.1 Terms and Definitions	
3.2 Abbreviations	
4 Information Model	
4.1 Basic Model	
4.2 Information Category	
4.3 Information Category Priority	
4.4 Power Generation Services	
4.5 Power Generation Service Layer	
4.6 Power Generation Service Modeling	
4.7 Determination of Wind Farm Information Categories	
4.8 Application of Component Models in Wind Power Generation Systems	
5 Information Category	
5.1 Available Information	
5.2 Running	
5.3 Power generation services	
5.4 No power generation service	
5.5 Non-operation	
5.6 Force Majeure	
5.7 Unavailable Information	
Appendix A (Informative) Overview of Entry and Exit Conditions for Wind Power Generation Systems	
Appendix B (Informative) Optional Information Categories for Wind Power Generation System Information Models - Illustrative Explanations and Examples	
B.1 General Rule	
B.2 Abnormal Operation - Optional Category	
B.3 Beyond Environmental Conditions - Optional Category	
B.4 Planned Improvements - Optional Category	
B.5 Forced Shutdown - Optional Category	

B.6 Suspend Operations - Optional Category

B.7 Considerations when conflicts arise in the allocation of power generation service losses

Appendix C (Informative) Example 28 of Availability Indicators

C.1 Overview

C.2 Time availability

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.

This document replaces GB/Z 35482-2017 "Time Availability of Wind Turbine Generator Sets" and GB/Z 35483-2017 "Wind Turbine Generator Sets".

The document is based on the "Availability of Wind Power Generation" and GB/T 38174-2019 "Availability of Wind Power Generation Systems in Wind Farms".

GB/T 38174-2019 is the primary standard, integrating the content of GB/Z 35482-2017 and GB/Z 35483-2017. It is consistent with GB/T 38174-2019, aside from structural adjustments and editorial changes, the main technical changes are as follows.

a) The terms "actual output", "limited potential output", "physical potential output", "potential output", "service", "service loss", and "wind" have been changed.

The names and definitions of "power plant", "design function", and "wind farm operator" are as follows (see 3.1, 2019 edition of 3.1);

b) The terms "design specifications," "external conditions," "modification," and "site conditions" and their definitions have been added (see 3.1);

c) Added abbreviations related to the subcategories of "planned improvement," "forced shutdown," and "work suspension" (see 3.2);

d) The term "transmission system operator" has been removed (see 3.1.11 in the 2019 edition);

e) Added definitions and requirements for basic models, information categories, power generation service layers, and power generation service modeling (see 4.1, 4.2, 4.5, and 4.6);

f) The names of "On Service" and "No Service" have been changed (see 5.3, 5.4, and 5.3 and 5.4 in the 2019 version).

This document is equivalent to IEC 61400-26-1:2019 "Wind power generation systems - Part 26-1.Availability of wind power generation systems".

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

---To align with existing standards, the standard's name has been changed to "Availability of Wind Power Generation Systems";

---In Table C.1, "Operational Availability (C.2)" should be changed to "Operational Availability (C.2.2)" and "Technical Availability (C.3)" should be changed to...

"Technology availability (C.2.3)".

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 by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Wind Power (SAC/TC50).

Introduction

This document aims to provide a framework for stakeholders in the wind power industry (such as owners, power companies, creditors, operators, manufacturers, maintenance providers, consultants, etc.).

This facilitates communication among consulting agencies, regulatory bodies, certification bodies, and insurance companies to provide a unified basis for availability metrics information. In power generation and...

In the field of power transmission, the aforementioned stakeholders have formed a large number of internal and external interfaces related to energy and information during the operation and transmission of electricity.

Figure 1 illustrates the internal and external factors related to power generation and asset management, and introduces a series of related terms. This document constructs...

Information models provide a method for assigning specific time periods to different information categories.

Figure 1.Data Relevant Parties of Wind Power Generation System

Although the entire document revolves around wind power generation systems (WEGS), it can be applied to single wind turbine generators as well.

(WTGS) can also be used for a complete wind farm (WPS) consisting of any number of wind turbine generators and related components. Therefore, throughout the text...

The term "wind power generation system" is understood as a general term applicable to

both wind turbine generators and wind farms.

The information model defined the terminology needed for statistical availability metrics. Availability metrics include time availability and power generation availability.

Rate. A wind power generation system includes all equipment up to the grid connection point (for a single turbine in a wind farm, the grid connection point is user-defined). Available the rate of return is related to the service time and the actual and potential power generation service within that time period, while also considering the influence of internal and external factors. Internal Factors include the components and condition of the wind power generation system, external factors include wind conditions and other weather conditions, and the power grid and substation.

state.

Availability of wind power generation systems

1 Scope

This document specifies an information model that can calculate and statistically analyze the availability of power generation service time and the availability of power generation.

This document provides standard measurement methods that enable users to create and organize the calculation and evaluation process of availability according to their needs.

This document provides different information categories and clearly describes how to use data to represent and classify operational status. Information Model it specifies category priorities to distinguish possible concurrency categories. Furthermore, the model defines admission and exit conditions to differentiate between time and other concurrency types.

Electricity generation is allocated to the appropriate information category. For a complete description of all information categories, admission criteria, and exit criteria, see Appendix A.

Table A.1.

This document applies to single wind turbine generators, groups of wind turbine generators, wind farms, and wind farm clusters. Wind farms are typically connected to the grid.

It is a collection of all wind turbine generators, power generation services, and wind farm supporting facilities.

The appendix provides examples to guide the calculation of availability metrics.

---See Appendix B for examples of selected information categories;

---See Appendix C for an example of how application information categories determine availability;