SVENSK STANDARD SS-EN IEC 61400-26-1

Fastställd	Utgåva	Sida	Ansvarig kommitté
2019-10-23	1	1 (1+100)	SEK TK 88

Vindkraftverk – Del 26-1: Tillgänglighet

Wind energy generation systems – Part 26-1: Availability for wind energy generation systems

Som svensk standard gäller europastandarden EN IEC 61400-26-1:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61400-26-1:2019.

Nationellt förord

Europastandarden EN IEC 61400-26-1:2019

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61400-26-1, First edition, 2019 - Wind energy generation systems - Part 26-1: Availability for wind energy generation systems**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 27.180.00

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61400-26-1

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ICS 27.180

Supersedes CLC/TS 61400-26-1:2017,
CLC/TS 61400-26-2:2017,
CLC/TS 61400-26-3:2017
and all of their amendments and corrigenda (if any)

English Version

Wind energy generation systems - Part 26-1: Availability for wind energy generation systems (IEC 61400-26-1:2019)

Systèmes de génération d'énergie éolienne - Partie 26-1: Disponibilité des systèmes de génération d'énergie éolienne
(IEC 61400-26-1:2019)

Windenergieanlagen - Teil 26-1: Verfügbarkeit von Windenergieanlagen
(IEC 61400-26-1:2019)

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 61400-26-1:2019 E

European foreword

The text of document 88/665/CDV, future edition 1 of IEC 61400-26-1, prepared by IEC/TC 88 "Wind energy generation systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61400-26-1:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-04-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-07-03

This document supersedes CLC/TS 61400-26-1:2017, CLC/TS 61400-26-2:2017 and CLC/TS 61400‑26‑3:2017 and all of their amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61400-26-1:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61400-25-2:2006	NOTE	Harmonized as EN 61400-25-2:2007 (not modified)
IEC 61400-25-3:2006	NOTE	Harmonized as EN 61400-25-3:2007 (not modified)
IEC 61400-25-4:2008	NOTE	Harmonized as EN 61400-25-4:2008 (not modified)

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.
NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.
NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60050-415	-	International Electrotechnical Vocabulary - Part 415: Wind turbine generator systems	-	-
IEC 61400-1	-	Wind energy generation systems - Part 1: Design requirements	EN IEC 61400-1	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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WIND ENERGY GENERATION SYSTEMS –

Part 26-1: Availability for wind energy generation systems

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61400-26-1 has been prepared by IEC technical committee 88: Wind energy generation systems.

This first edition cancels and replaces IEC TS 61400-26-1:2011, IEC TS 61400-26-2:2014 and IEC TS 61400-26-3:2016.

The text of this International Standard is based on the following documents:

CDV	Report on voting
88/665/CDV	88/705/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61400 series, under the general title *Wind energy generation systems*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

Mandatory information categories defined in this document are written in capital letters; optional information categories are written in bold letters.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The intention of this International Standard is to define a common basis for exchange of information on availability metrics between stakeholders in the wind power generation business such as owners, utilities, lenders, operators, manufacturers, maintenance providers, consultants, regulatory bodies, certification bodies and insurance companies. From this diverse group of stakeholders, a number of external and internal interfaces arise in the operation and delivery of power. Some of these are energy related and many are informational. Since the intention is for a common basis of informational exchange, many of these interfaces are illustrated in Figure 1, which identifies external and internal elements related to energy production and asset management and which also benefit from a defined set of terms. This is achieved by providing an information model specifying how time designations shall be split into information categories.

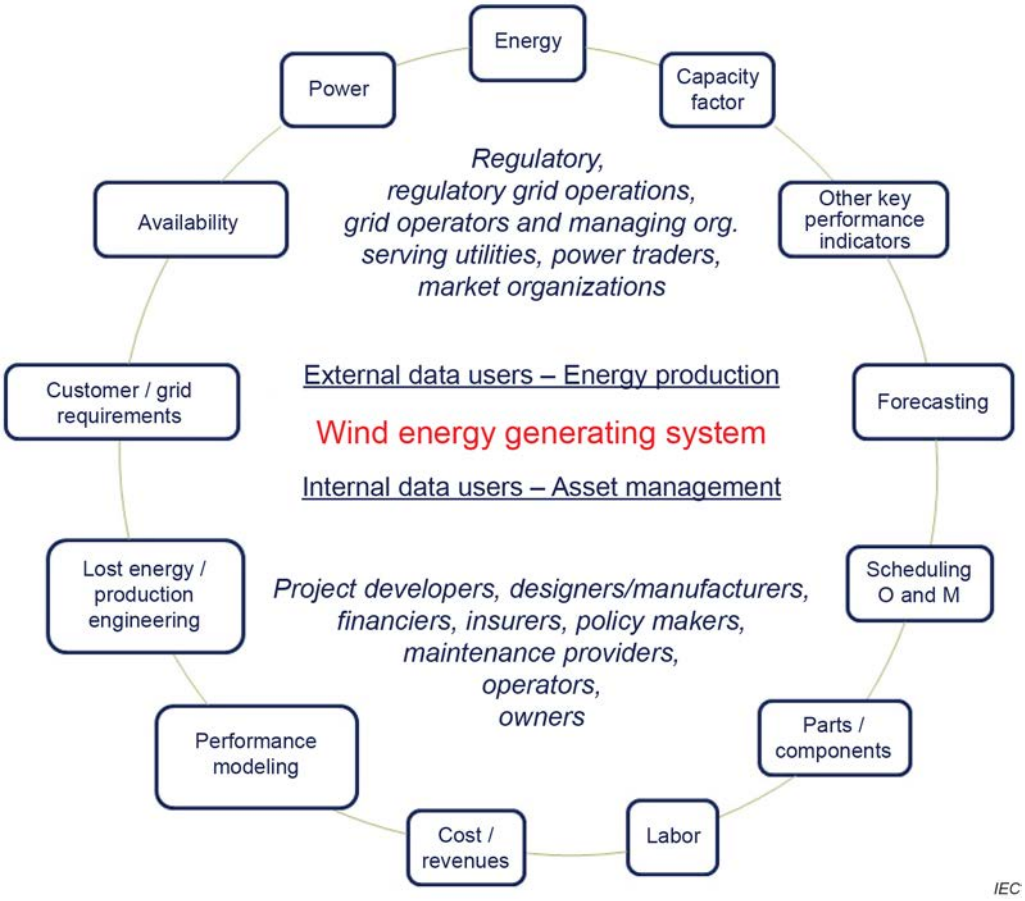

Figure 1 – Data stakeholders for a wind energy generation system

Throughout the document, reference is made to wind energy generation systems (WEGS); however, the document may be used for a single wind turbine (WTGS), as well as for any number of WTGSs combined with additional components to represent a complete wind power station (WPS). The designation WEGS used throughout the document thus shall be understood as the specifications being applicable to individual wind turbines as well as for wind power stations.

The information model specifies the terminology for reporting availability indicators. Availability indicators include time-based and production-based availability. A WEGS includes all equipment up to the point of interconnection[1], or in case of a single WTGS in a WPS, the interconnection point defined by the user. Availability indicators are based upon fractions of time and the amount a service is providing or capable of providing within the time fractions, taking internal and external aspects into account. Internal aspects will include the WEGS' components and their condition. External aspects are wind and other weather conditions, as well as grid and substation conditions.

1 Defined in IEC 60050-415:1999, Definition 415-04-01.

WIND ENERGY GENERATION SYSTEMS –

Part 26-1: Availability for wind energy generation systems

1 Scope

This part of IEC 61400 defines an information model from which time-based, and production-based availability indicators for services can be derived and reported.

The purpose is to provide standardised metrics that can be used to create and organise methods for availability calculation and reporting according to the user's needs.

The document provides information categories, which unambiguously describe how data is used to characterise and categorise the operation. The information model specifies category priority for discrimination between possible concurrent categories. Further, the model defines entry and exit criteria to allocate fractions of time and production values to the proper information category. A full overview of all information categories, exit and entry criteria is given in Annex A, see Figure A.1.

The document can be applied to any number of WTGSs, whether represented by an individual turbine, a fleet of wind turbines, a wind power station or a portfolio of wind power stations. A wind power station is typically made up of all WTGSs, functional services and balance of plant elements as seen from the point of common coupling.

Examples are provided in informative annexes which provide guidelines for calculation of availability indicators:

- examples of optional information categories, Annex B;
- examples of application of the information categories for determination of availability, Annex C;
- examples of application scenarios, Annex D;
- examples on methods for determination of potential production, Annex E;
- examples of how to expand the model to balance of plant elements, Annex F.

This document does not prescribe how availability indicators shall be calculated. The standard does not specify the method of information acquisition, how to estimate the production terms or to form the basis for power curve performance measurements – which is the objective of IEC 61400-12.

A degree of uncertainty is inherent in both the measurement of a power curve and the calculation of potential energy production. The stakeholders should agree upon acceptable uncertainty parameters.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-415, *International Electrotechnical Vocabulary – Part 415: Wind turbine generator systems*

IEC 61400-1, *Wind energy generation systems – Part 1: Design requirements*