

Introduction of IEC 61400-26 Activity

Availability for wind turbines and wind power plants

PT26 Seminar for JWPA. 27 October 2009

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Renewable Energy Experts worldwide



International Electrotechnical Commission (IEC)



Worldwide organisation for standardisation Levels of IEC Publications: International Standards > Technical Specifications > Technical Reports Publicly Available Specifications ➤ Guides **□** For Wind Turbine Generator Systems (WTGS): TC88 / IEC 61400 Series





IEC 61400 Series for WTGS



□ IEC 61400-1 Ed.2 Safety requirements □ IEC 61400-1 ED.3 Design requirements □ IEC 61400-3 Offshore wind turbines design □ IEC 61400-11 Noise measurement □ IEC 61400-12 Power performance testing □ IEC 61400-21 Power quality requirements □ IEC 61400-25 Communications for monitoring and control of wind power plants





Object of IEC 61400-26



- Technical Specifications of Availability for Wind Turbines and Wind Turbine Plants
- Generic operational states of WTGS and wind power plants while considering internal and external conditions
- Terminology and generic terms
- Algorithms for reporting performance indicators based on fraction of time and production

Project Team 26 (PT26) was thus formed.





History of PT26 Activity



Jun 2007 New work item proposal **D** 12 Oct 2007 Acceptance by voting, Appointment of Convenor and Members **D** 20 Nov 2007 Kick-off meeting at Gamesa, Madrid 2nd meeting at Gamesa, Madrid **1**9 – 20 Feb 2008 □ 5 - 6 May 2008 3rd meeting at Danish Standards, Charlottenlund **9** - 10 Sep 2008 4th meeting at Vestas, Randers □ 3 - 5 Dec 2008 5th Meeting at Hanover Inn, NH, USA 11 - 13 Mar 2009 6th meeting at Mercure, Lançon de Provence 7th meeting at REpower, Hamburg **1** 24 – 26 Jun 2009 8th meeting at JEMA. Tokyo **2**8 - 30 Oct 2009 9th meeting at Statkraft, Oslo (TBC) □ Jan - Feb 2010





Members of PT26



Convenor: Javier Corcuera, Gamesa, Spain **D** Secretary: Knud Johansen, Q-Technology, Denmark □ Members: 37 experts registered (as of June 2009) Geographical Representation Spain:12, Germany:6, Denmark:5, USA:5, Japan:3, UK:2, Sweden:1, Norway:1, Belgium:1, Austria:1 Professional Representation Wind Turbine Manufacturers: 18, Consultants: 11, Wind Farm Developers/Owners: 6, **Control System Manufacturer: 1**





Ambition and Limitation



Ambition: The new Technical Specifications are to be universally used to define contractual issues on WTGS availability.

Limitation: Commercial terms of availability guarantee are negotiated and agreed between the concerned contract parties. These particular IEC Publications are thus aimed to be Technical Specification rather than International Standards.





Advantages and Constraints



Advantages:

- Existing IEC Standards serve as useful templates and references.
- There are many other useful standards (eg, IEEE, ISO) and previous works (eg, Danish work) to refer.

Constraints:

- No deviations from the existing IEC Standards are allowed.
- The development work shall be coordinated with related IEC Standards (eg, IEC 61400-12-1/-2/-3 Power performance testing), which are out of scope of PT26.





Approach:



Separating the project in 3 parts

□IEC 61400-26-1:

Terms for time based availability of a WTGS

- □IEC 61400-26-2:
 - Terms for production based availability of a WTGS
- **D**IEC 61400-26-3:

Terms for time and production based availability of a wind power plant





Scope for IEC 61400-26-1: Main Text



Define generic states of a WTGS considering availability and other performance indicator
Define how a generic state can be detected, categorised and related to other states
Define state transitions and state priority in order to discriminate between concurrent states

We aim to offer an information table with simplified categories which allows you to sort out time bins easily.





Scope for IEC 61400-26-1: Informative Annex



 Examples of algorithms for reporting availability and performance indicator
Concept of "actors" accountable for a state transition (i.e. contract parties who are responsible for particular financial burdens)

These are commercial matters thus we need to separate them out from the main text of the Technical Specification.







This Technical Specification has to be simple, otherwise nobody wants to use it!

We believe that algorithms for availability and performance indicator are the most interesting matters for the concerned parties. We wish to offer something very useful despite our position of outsider. If what we offer had been found useful and adopted universally in the wind energy industry for many years, it would eventually becomes an International Standard!





Current Time Table



Submission of the first Common Draft of IEC 61400-26-1 to IEC by 30 November 2009



