

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
20 March 2008 (20.03.2008)

PCT

(10) International Publication Number  
WO 2008/031434 A3

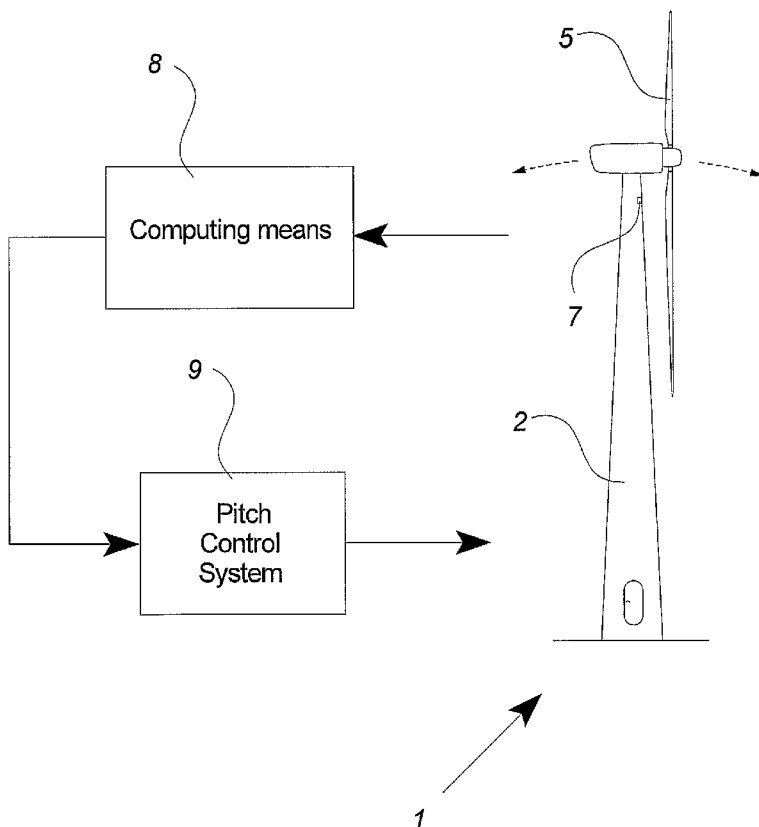
- (51) International Patent Classification:  
F03D 7/02 (2006.01)
- (21) International Application Number:  
PCT/DK2007/000405
- (22) International Filing Date:  
12 September 2007 (12.09.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
PA 2006 01184 14 September 2006 (14.09.2006) DK
- (71) Applicant (for all designated States except US): VESTAS  
WIND SYSTEMS A/S [DK/DK]; Alsvej 21, DK-8900  
Randers (DK).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): NYBORG, Anders  
[DK/DK]; Hans Broges Gade 8, 2. tv, DK-8000 Aarhus  
C (DK).
- (74) Agent: PATENTGRUPPEN A/S; Arosgaarden, Aaboule-  
varden 31, DK-8000 Aarhus C (DK).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: METHOD FOR CONTROLLING A WIND TURBINE CONNECTED TO THE UTILITY GRID, WIND TURBINE AND WIND PARK



(57) Abstract: The invention relates to a method for controlling a wind turbine connected to the utility grid comprising steps of detecting a fault of the utility grid, and controlling one or more rotor blades in a fault mode wherein said one or more rotor blades are pitched in order to stabilize the rotor speed within an over speed range. The invention also relates to a wind turbine and a wind park comprising at least two wind turbines.

WO 2008/031434 A3



**Declaration under Rule 4.17:**

— *of inventorship (Rule 4.17(iv))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

**Published:**

— *with international search report*

**(88) Date of publication of the international search report:**

2 May 2008

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/DK2007/000405

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. F03D7/02

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols):  
F03D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/145188 A1 (JANSSEN WILHELM [DE] ET AL) 29 July 2004 (2004-07-29) page 1, paragraph 15-17 page 2, paragraphs 21,29 page 3, paragraphs 35-38,42,43	1-18
A	WO 01/66940 A (FORSKNINGSCT RISOE [DK]; HANSEN LARS HENRIK [DK]) 13 September 2001 (2001-09-13) abstract page 3, lines 5-28 page 4, line 13 - page 5, line 3 page 5, lines 27,28 page 6, lines 15-30 page 7, lines 25-30 page 9, line 5 - page 10, line 2  ----- -/--	1-18

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

3 March 2008

Date of mailing of the international search report

07/03/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Souris, Christophe

## INTERNATIONAL SEARCH REPORT

International application No

PCT/DK2007/000405

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01/33075 A (VESTAS WIND SYS AS [DK]; REBSDORF ANDERS VARMIN G [DK]) 10 May 2001 (2001-05-10) abstract the whole document -----	1-18
A	US 6 265 785 B1 (COUSINEAU KEVIN LEWIS [US] ET AL) 24 July 2001 (2001-07-24) column 1, lines 6-36 column 2, lines 4-20 column 3, lines 10-41 column 4, lines 22-31 column 5, line 50 - column 6, line 14 -----	1-18
A	US 2006/001268 A1 (MOROZ EMILIAN M [US] MOROZ EMILIAN MIECZYSLAW [US]). 5 January 2006 (2006-01-05) page 1, paragraph 8 page 3, paragraphs 25, 26, 28 -----	1-18

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/DK2007/000405
---

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004145188	A1	29-07-2004	AU 2004208135 A1 12-08-2004 BR 0406712 A 20-12-2005 CA 2514264 A1 12-08-2004 CN 1754042 A 29-03-2006 EP 1590567 A1 02-11-2005 WO 2004067958 A1 12-08-2004
WO 0166940	A	13-09-2001	AU 779007 B2 23-12-2004 AU 3920401 A 17-09-2001 CA 2401211 A1 13-09-2001 CN 1426510 A 25-06-2003 EP 1266138 A1 18-12-2002 US 2003185665 A1 02-10-2003
WO 0133075	A	10-05-2001	AT 275240 T 15-09-2004 AU 768212 B2 04-12-2003 AU 1031200 A 14-05-2001 DE 69919910 D1 07-10-2004 DE 69919910 T2 08-09-2005 EP 1230479 A1 14-08-2002 US 6619918 B1 16-09-2003
US 6265785	B1	24-07-2001	NONE
US 2006001268	A1	05-01-2006	NONE