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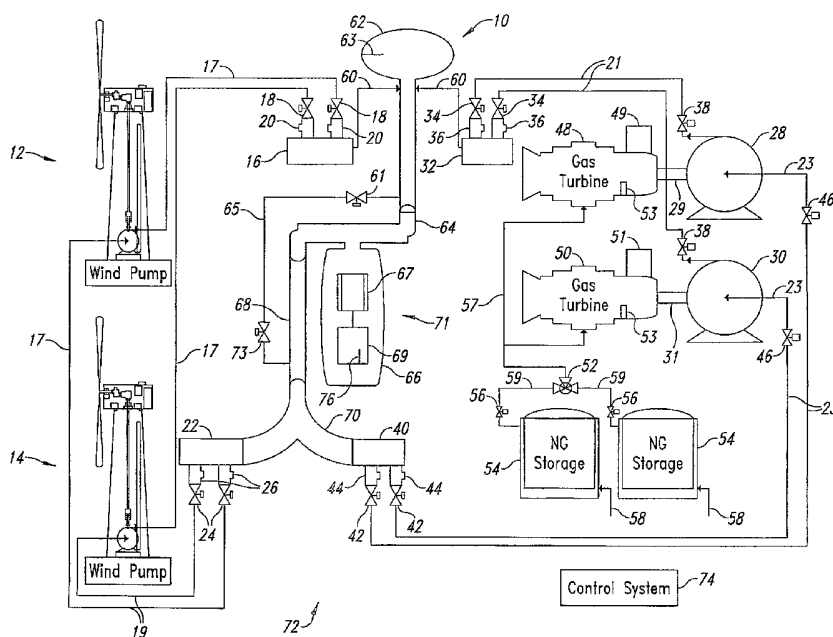
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GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,

[Continued on next page]

(54) Title: ELECTRIC POWER GENERATION SYSTEM



(57) Abstract: An electric generating system (10) configured to use the force of wind to drive at least one wind pump (12) that pumps fluid in a hydraulic system (21) for driving a hydroelectric generator (71). The wind pump (12) has a blade assembly (114) with blade boundary characteristic and pitch controls (306). The wind pump (12) includes an inductive power supply. A standby-pump (194) provides pressurized fluid in the hydraulic system (21) when the wind is insufficient to power the system (10). An efficient and adaptable control system is employed, enabling the generating system to reliably provide power to an electric grid.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/06423

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : B63H 11/00, 3/00; F01D 23/00, 7/00; F03D 9/00; H02P 9/04 US CL : 290/43, 44, 54, 55; 415/4.5; 416/1 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) U.S. : 290/43, 44, 54, 55; 415/4.5; 416/1 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 practicable, search terms used)																				
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X --- Y</td> <td>US 6,465,902 B1 (BEAUCHAMP ET AL) 15 October 2002 (15.10.2002), see abstract and figure 1</td> <td>57, 58, 60-63 ----- 1, 2, 13-15, 27, 30,31, 43-45, 67, 68 69, 70 -----</td> </tr> <tr> <td>X --- Y</td> <td>US 6,420,795 B1 (MIKHAIL ET AL) 16 July 2002, (16.07.2002), see figures 6A, 1</td> <td>3, 4, 7, 16-18, 20, 28, 29, 32, 33, 35, 37, 46- 48, 50, 56, 59, 64</td> </tr> <tr> <td>Y</td> <td>US 4,613,760 A (LAW) 23 September 1986 (23.09.1986), see abstract and figure 1</td> <td>1, 12, 13, 25, 27, 30, 40, 42, 43, 54,55 67</td> </tr> <tr> <td>Y</td> <td>US 6,133,716 A (SCHUTTEN) 17 October 2000 (17.10.2000), see figure 1</td> <td>1, 8, 10, 13, 23, 24, 26, 27, 30, 38, 39, 43</td> </tr> <tr> <td>Y</td> <td>US 4,498,017 A (PARKING) 05 February 1985 (05.02.1985), see figure 1</td> <td>9, 21, 22, 51, 52</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X --- Y	US 6,465,902 B1 (BEAUCHAMP ET AL) 15 October 2002 (15.10.2002), see abstract and figure 1	57, 58, 60-63 ----- 1, 2, 13-15, 27, 30,31, 43-45, 67, 68 69, 70 -----	X --- Y	US 6,420,795 B1 (MIKHAIL ET AL) 16 July 2002, (16.07.2002), see figures 6A, 1	3, 4, 7, 16-18, 20, 28, 29, 32, 33, 35, 37, 46- 48, 50, 56, 59, 64	Y	US 4,613,760 A (LAW) 23 September 1986 (23.09.1986), see abstract and figure 1	1, 12, 13, 25, 27, 30, 40, 42, 43, 54,55 67	Y	US 6,133,716 A (SCHUTTEN) 17 October 2000 (17.10.2000), see figure 1	1, 8, 10, 13, 23, 24, 26, 27, 30, 38, 39, 43	Y	US 4,498,017 A (PARKING) 05 February 1985 (05.02.1985), see figure 1	9, 21, 22, 51, 52
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<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.																				
<table border="0"> <tr> <td colspan="2"> * Special categories of cited documents: </td> <td> "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 </td> </tr> <tr> <td> "A" document defining the general state of the art which is not considered to be of particular relevance </td> <td> "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 </td> <td></td> </tr> <tr> <td> "E" earlier application or patent published on or after the international filing date </td> <td> "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 </td> <td></td> </tr> <tr> <td> "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) </td> <td> "&" document member of the same patent family </td> <td></td> </tr> <tr> <td> "O" document referring to an oral disclosure, use, exhibition or other means </td> <td></td> <td></td> </tr> <tr> <td> "P" document published prior to the international filing date but later than the priority date claimed </td> <td></td> <td></td> </tr> </table>			* Special categories of cited documents:		"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	"A" document defining the general state of the art which is not considered to be of particular relevance	"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		"E" earlier application or patent published on or after the international filing date	"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		"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)	"&" document member of the same patent family		"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		
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Julio C. Gonzalez Telephone No. 571-272-2024 DEBORAH A. THOMAS PARALEGAL SPECIALIST GROUP 1360 <i>DUT</i>																		

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/06423

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐

The additional search fees were accompanied by the applicant's protest.

☐

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/06423

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-56, drawn to an electric power system.

Group II, claim(s) 57-59; 69-70, drawn to power transformer.

Group III, claim(s) 60-68, drawn to method of controlling a blade assembly.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group II is directed to the structure of a blade of a wind turbine and Group I is directed to a hydraulic system.

The inventions listed as Groups I and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group III is directed to a method of controlling a wind blade, which is independent of a hydraulic system as disclosed in Group I.

The inventions listed as Groups II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group III is directed to a method of controlling a wind blade via wireless system and Group II is directed to the physical structure of a wind blade which could be controlled using sensors and wires and not necessarily the system disclosed in Group III.