

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference MSP1711364WI	FOR FURTHER ACTION		See item 4 below
International application No. PCT/CN2018/085481	International filing date (<i>day/month/year</i>) 03 May 2018 (03.05.2018)	Priority date (<i>day/month/year</i>) 25 December 2017 (25.12.2017)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant BEIJING GOLDWIND SCIENCE & CREATION WINDPOWER EQUIPMENT CO., LTD.			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 30 June 2020 (30.06.2020)
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From the INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference MSP1711364WI		Date of mailing (day/month/year) 11 September 2018
International application No. PCT/CN2018/085481		International filing date (day/month/year) 03 May 2018
International Patent Classification (IPC) or both national classification and IPC G06Q 10/04(2012.01)i		Priority date (day/month/year) 25 December 2017
Applicant BEIJING GOLDWIND SCIENCE & CREATION WINDPOWER EQUIPMENT CO., LTD.		

FOR FURTHER ACTION
See paragraph 2 below

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/	Date of completion of this opinion	Authorized officer
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/CN2018/085481

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed.
 - a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a)).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:
 - [2] The examination opinion is provided on the basis of pages 1-5 of the drawing amended pages filed on 28 June 2018.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement			
1. Statement	Novelty (N)	Claims	1-8 <hr/> None <hr/>	YES <hr/> NO <hr/>
	Inventive step (IS)	Claims	None <hr/> 1-8 <hr/>	YES <hr/> NO <hr/>
	Industrial applicability (IA)	Claims	1-8 <hr/> None <hr/>	YES <hr/> NO <hr/>
2. Citations and explanations :				
[1] (1) The following reference documents are cited:				
[2] D1: CN 105375472 A, 02 March 2016 (02.03.2016)				
[3] D2: CN 105760669 A, 13 July 2016 (13.07.2016)				
[4] (2) D1 is the prior art closest to claims 1, 4, 7 and 8.				
[5] D1 discloses a smart distribution network low-carbon benefit evaluation method (description, paragraphs [0008] and [0106]), comprising: performing relevant carbon emission theoretical calculations to obtain low-carbon index calculation results; and a low-carbon benefit evaluation module receiving the low-carbon index calculation results, and respectively performing a low-carbon benefit evaluation calculation according to power grid information, before and after low-carbon planning, of a smart distribution network to be evaluated, so as to obtain calculation results of low-carbon indexes of the smart distribution network before and after the planning (equivalent to with regard to multiple combination schemes, calculating a numerical value of each combination scheme on the basis of parameters), and comparing numerical values of the evaluation calculation results to obtain the optimal running scheme of the smart distribution network to be evaluated (equivalent to comparing the calculation result of each combination scheme, and determining, based on the comparison result, the optimal combination scheme in the multiple combination schemes).				
[6] The differences between claims 1 and 4 and D1 lie in: an IGBT combination scheme of a wind power converter being evaluated, wherein the total power generation capacity of the IGBT combination scheme within a pre-determined time period is calculated based on the output power, corresponding to a wind velocity, of a wind-driven generator, wind frequency time for indicating the duration of each wind velocity within a pre-determined time period, and a conversion efficiency corresponding to the wind velocity, so as to perform subsequent comparison and determination operations. Therefore, claims 1 and 4 and claims 2, 3, 5, 6, 7 and 8 are novel (PCT Article 33(2)). The problem to be solved by claims 1 and 4 is how to use the above-mentioned evaluation method. D2 discloses a method for evaluating a fault rate of a wind power converter power module, and discloses (description, paragraphs [0005] - [0097]): a wind power converter power module comprising an IGBT, wherein a wind velocity, output power obtained by means of calculation according to the wind velocity and parameters of a wind turbine generator (equivalent to being based on output power, corresponding to a wind velocity, of a wind-driven generator), and equivalent durations (equivalent to wind frequency time) at different wind velocities are parameters for evaluation. It can be seen that D2 discloses the above-mentioned relevant technical features of evaluating the IGBT of the wind power converter, and applying the solution of D1 to evaluating an IGBT combination scheme of a wind power converter would have been readily conceivable. A wind power converter is a core component for wind power generation, and determining the optimal scheme of the wind power converter according to the greatest total power generation capacity is common general knowledge. Calculating the total power generation capacity on the basis of the parameters for evaluation disclosed in D2 and a conversion efficiency corresponding to a wind velocity is a common wind power generation calculation means. The combination of D1, D2 and the above-mentioned common general knowledge would have been obvious. Claims 1 and 4 do not involve an inventive step (PCT Article 33(3)).				

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability;
citations and explanations supporting such statement

- [7] The additional features of claims 2, 3, 5 and 6 are common means for calculating available designated data by using mathematical knowledge, and therefore, claims 2, 3, 5 and 6 do not involve an inventive step (PCT Article 33(3)).
- [8] A computer-readable storage medium storing a program, a computer comprising a readable medium where a computer program is stored, and the program comprising codes for executing a method are common general knowledge. Therefore, claims 7 and 8 do not involve an inventive step (PCT Article 33(3)).
- [9] (3) The technical solutions of claims 1-8 can be made or used in industry, and said claims are industrially applicable and comply with PCT Article 33(4).