PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------|----------------|
| LONGJI LI | 11/12/2018 |
| QINGFENG WEN | 11/12/2018 |
| YONGFU WANG | 11/12/2018 |
| XIAOGUANG WANG | 11/12/2018 |
| YUYAN MAN | 11/12/2018 |
| XIAOGUANG XI | 11/12/2018 |
| CHI ZHANG | 11/12/2018 |
| WEI FAN | 11/12/2018 |

RECEIVING PARTY DATA

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| State/Country: | CHINA |
| Postal Code: | 300010 |
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| Internal Address: | HEBEI DISTRICT |
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| State/Country: | CHINA |
| Postal Code: | 300010 |
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| Postal Code: | 100031 |

PROPERTY NUMBERS Total: 1

PATENT REEL: 047513 FRAME: 0716

505189841

| Property Type | Number |
|---------------------|----------|
| Application Number: | 16301512 |

CORRESPONDENCE DATA

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using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

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| ATTORNEY DOCKET NUMBER: | 37399-00148 |
|-------------------------|------------------|
| NAME OF SUBMITTER: | DAVID B. CUPAR |
| SIGNATURE: | /David B. Cupar/ |
| DATE SIGNED: | 11/14/2018 |

Total Attachments: 4

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PATENT REEL: 047513 FRAME: 0717

Title: "METHOD AND DEVICE FOR DETERMINING TYPES OF ICE-AND-SNOW COVER"

> Attorney Docket No.: 37399-00148 BOIP Ref. No.: EX180954PPE-US

ASSIGNMENT OF PATENT

WHEREAS, we, LI, Longji, WEN, Qingfeng, WANG, Yongfu, WANG,

Xinoguang, MAN, Yuyan, XI, Xiaoguang, ZHANG, Chi, FAN, Wei, having an address

at No.8 Haitaihuake Si Road, Xiqing District Tianjin 300384. China, hereinafter referred to

as "Assignor," have invented, a new and useful invention entitled, METHOD AND

DEVICE FOR DETERMINING TYPES OF ICE-AND-SNOW COVER, for which a

U.S. Utility Patent Application is filed herewith, and any subsequent applications filed in

connection with the above invention (the "Patent"); and

WHEREAS, Electric Power Science & Research Institute of State Grid Tianjin

Electric Power Company, having its principal place of business at No. 39 Wujing Road,

Hebei District, Tianjin 300010, China, State Grid Tianjin Electric Power Company,

having its principal place of business at No. 39 Wujing Road, Hebei District, Tianjin 300010,

China, STATE GRID CORPORATION OF CHINA, having its principal place of

business at No. 86, West Chang, An Street, Xicheng District, Beijing 100031, China,

hereinafter referred to as "Assignee," are desirous of acquiring the entire right, title and

interest in and to the Patent.

[4328536]

NOW, THEREFORE, for good and valuable consideration, the receipt and

sufficiency of which are hereby acknowledged, I, the Assignor, by these presents, do sell,

assign and transfer unto Assignee, its successors and assigns, the full and exclusive right to

the Patent and all letters patent of foreign countries which may be or have been issued on the

invention disclosed in the Patent, all utilities, divisions, reissues, reexaminations, and

continuations thereof, and all inventions disclosed therein, together with all claims for

damages by reason of past or future infringement, with the right to sue for and collect the

Page 1 of 4

PATENT REEL: 047513 FRAME: 0718

Title: "METHOD AND DEVICE FOR DETERMINING TYPES OF ICE-AND-SNOW COVER"

Attorney Docket No.: 37399-00148

BOIP Ref. No.: EX180954PPE-US

same for the use and benefit of Assignee and its successors and assigns.

Assignor warrants that he is the exclusive owner of the entire legal and equitable interest in the Patent and the invention disclosed therein, free and clear of all liens and encumbrances; and that he has full power, authority, and capacity to make this Assignment. to Assignee. Assignor covenants and agrees, for himself and for his successors and assigns that, at Assignee's request, Assignor will cause to be executed and delivered any applications, affidavits, assignments, and other instruments as may be deemed necessary or desirable by Assignee to secure for or vest in Assignee, its successors or assigns, all right, title, and interest in and to any application, patent, or other right or property covered by this Assignment, including the right to apply for and obtain patents in foreign countries under the provisions of the International Convention; and Assignor hereby requests and authorizes: the United States Commissioner of Patents and Trademarks to issue any and all United States patents granted on the Patent to Assignee as owner of the entire right, title, and interest in and to the same, and authorizes appropriately empowered officials of foreign countries to issue any letters patent granted on the Patent to Assignee as owner of the entire right, title, and interest in and to the same.

REEL: 047513 FRAME: 0719

Title: "METHOD AND DEVICE FOR DETERMINING TYPES OF ICE-AND-SNOW COVER" Attorney Docket No.: 37399-00148 BOIP Ref. No.: EX180954PPE-US Attorney Docket No.: 37399-00148

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PATENT REEL: 047513 FRAME: 0720

Title: "METHOD AND DEVICE FOR DETERMINING TYPES OF ICE-AND-SNOW COVER" Attorney Docket No.: 37399-00148

BOIP Ref. No.: EX180954PPE-US

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PATENT REEL: 047513 FRAME: 0721

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