	01-08-20		/	
ET				
To The Honorable Commissioner	of Pate 1026412	74	d original documents or copy thereof.	
1. Name of conveying party(ies):			of receiving party(ies):	
Jiuping Pan First Assignor	December 10, 2003 Date of Execution	Name: ABB INC.	ennial Campus, NCSU	
Reynaldo Nuqui Second Assignor	December 10, 2003 Date of Execution	1021	Main Campus Drive	
Le Tang	December 17, 2003	City: Raleigh	127	
Third Assignor	Date of Execution	State North Carolina	ZIP 27606	
Fourth Assignor	Date of Execution		t address attached? ☐ YES ☒ NO ance (check only one):	
Fifth Assignor	Date of Execution	New Assignment License Agreeme Change of Name	☐ Merger nt ☐ Security Agreement ☐ Other:	
/ ス・み3 -03 Sixth Assignor	Date of Execution			
Additional name(s) of conveying party(ies	s) attached? YES NO			
	1 () 0		10744743	
		date of execution of a	oplication to which assignment refers:	
Application Nos.:	Patent Nos.:		Date application was signed by the first named executing inventor	
			December 10, 2003	
			(Fill-in this date only if assignment is filed together with a new application)	
5. Name and address of party to whom correspondence concerning documents should be mailed:		6. Total number of a	applications and patents involved: 1	
Name: Vincent J. Roccia, Esq.		7. Total fee (37 CFR 3.41): \$40.00		
WOODCOCK WASHBURN LLP One Liberty Place - 46th Floor Philadelphia, Pennsylvania 19103-7301 215-568-3100		☑ Enclosed☐ Authorized to be charged to Deposit Account Number23-3050		
		8. Please charge any deficiency or credit any overpayment to Deposit Account Number 23-3050		
DO NOT USE THIS SPACE				
9. Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.				
Vincent J. Roccia/43,887		ignature	Date: December 23, 2003	
Total number of pages including cover sheet, assignment document and additional pages attached thereto: 5				
Mail documents to be recorded with required cover sheet information to:				
707/2004 LINELLER 00000050 10744743 FC:8021 Mail Stop Assignment Recordation Services Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450				

PATENT REEL: 014850 FRAME: 0077

PATENT Joint Inventors

DOCKET NO.: ABTT-0387/B020621

(Pending Application; Serial No. Unknown)

ASSIGNMENT

WHEREAS, we Jiuping Pan; Reynaldo Nuqui; Le Tang, hereinafter referred to as the assignors, residing respectively at 5401 Southern Cross Avenue, Raleigh, North Carolina 27606; 1231-D Patrick Circle, Cary, North Carolina 27511; 107 Summerglow Drive, Cary, North Carolina 27513 are the joint inventors of certain inventions or improvements for which we have made application for Letters Patent to the United States, identified as Case No. ABTT-0387/B020621, entitled VALUE-BASED TRANSMISSION ASSET MAINTENANCE MANAGEMENT OF ELECTRIC POWER NETWORKS; and

WHEREAS, ABB INC., hereinafter referred to as the assignee, of Centennial Campus - NCSU, 1021 Main Campus Drive, Raleigh, North Carolina 27606, a corporation of Delaware, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries:

NOW, THEREFORE, for and in consideration of our employment by said assignee, and other good and valuable consideration, the receipt of which is hereby acknowledged, we, the said assignors, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over to said assignee, the entire right, title and interest in and to said inventions or improvements and said application and any and all continuations, divisions and renewals of and substitutes for said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue or reissues or extension or extensions of said Letters Patent, and assign to and authorize said assignee, to file in our names applications for Letters Patent in all countries, the same to be held and enjoyed by said assignee, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Letters Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by us had this assignment, sale and transfer not been made.

AND we hereby covenant that we have full right to convey the entire interest herein assigned, and that we have not executed and will not execute any agreement in conflict herewith, and we further covenant and agree that we will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said inventions or improvements, said application and said Letters Patent to said assignee, its successors, assigns, nominees, or legal representatives, and each of us agrees to communicate to said assignee or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, to testify in any legal proceedings, to sign all lawful papers, to execute all disclaimers and divisional, continuing, reissue and foreign applications, to make all rightful oaths, and generally to do everything possible to aid said

PATENT REEL: 014850 FRAME: 0078 assignee, its successors, assigns, nominees and legal representatives to obtain and enforce for its or their own benefit proper patent protection for said inventions or improvements in any and all countries.

AND we hereby authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any country or countries foreign to the United States whose duty it is to issue patents on applications as aforesaid, to issue to said assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, including any and all Letters Patent of the United States which may be issued and granted on or as a result of the application aforesaid, in accordance with the terms of this assignment.

AND this Assignment may be executed in multiple counterparts, each of which shall be deemed to be an original of this Assignment. Additionally, we hereby authorize our attorneys to collect the signature pages of each executed counterpart and to attach those signature pages to a single copy of this instrument, which single copy and attached signature pages together shall constitute an original of this Assignment.

We further authorize and direct our attorneys to insert below* the serial number and filing date of said application now identified as Case No. ABTT-0387/B020621 as soon as the same shall have been made known to them by the United States Patent Office.

IN WITNESS WHEREOF, we have hereunto set our hands and seals.

12/10/2003 Date	Jimpr Per (L.S.)
Date	Jiuping Pan (2.8.)
1	
STATE OF North Carolina	
	: SS
COUNTY OF Wake	:
and to the	December, year of 2063,
On this 10 day of	December, year of 2063,
before me personally came the above nam	ed Jimping Pan
to me personally known and known to me to) be the same individual who executed the foregoing
assignment, and who acknowledged to me	that execution of the same was of that person's own
free will for the use and purposes therein s	et forth.
	γ

- 2 - MY COMMISSION EXPIRES MARCH 28, 2005.

12/10/03	Royalle Nigni (L.S.)
Date	Reynaldo Nuqui
STATE OF North Cavolir	na:
STATE OF North Cavolir COUNTY OF Wake	: SS :
	of <u>December</u> , year of 2003 amed <u>Reynaldo Nugui</u>
before me personally came the above na	amed Reynaldo Nugui
to me personally known and known to me	te to be the same individual who executed the foregoing me that execution of the same was of that person's own
free will for the use and purposes therein	in set forth.

MY COMMISSION EXPIRES MARCH 28, 2005.

RECORDED: 12/23/2003

Dec. 17,0003 Date Le	Le (L.S.)
Date Le '	Tang
STATE OF North Carolina COUNTY OF Wake	; . gg
COUNTY OF Wake	: SS :
	December, year of 2003, Le Tang the same individual who executed the foregoing
to me personally known and known to me to be assignment, and who acknowledged to me that free will for the use and purposes therein set for	execution of the same was of that person's own
<u>J</u>	Ane P Warren Notary Public
MY (COMMISSION EXPIRES MARCH 28, 2005.
*The above assignment , filed on	covers application Serial No, year of
The above insertion ma, year of	de by me this day of
of WOO I	DCOCK WASHBURN LLP
Name:	COOK WASHBURN LEI

PATENT REEL: 014850 FRAME: 0081

Registration No.