

## PATENT ASSIGNMENT

Electronic Version v1.1  
 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT										
NATURE OF CONVEYANCE:	ASSIGNMENT										
CONVEYING PARTY DATA											
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Hendrik Walde</td> <td>08/23/2013</td> </tr> <tr> <td>Joshua Brian Pankratz</td> <td>08/23/2013</td> </tr> <tr> <td>David Christie</td> <td>08/26/2013</td> </tr> <tr> <td>Brian D. Kowal</td> <td>08/23/2013</td> </tr> </tbody> </table>		Name	Execution Date	Hendrik Walde	08/23/2013	Joshua Brian Pankratz	08/23/2013	David Christie	08/26/2013	Brian D. Kowal	08/23/2013
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Hendrik Walde	08/23/2013										
Joshua Brian Pankratz	08/23/2013										
David Christie	08/26/2013										
Brian D. Kowal	08/23/2013										
RECEIVING PARTY DATA											
Name:	Advanced Energy Industries, Inc.										
Street Address:	1625 Sharp Point Drive										
City:	Fort Collins										
State/Country:	COLORADO										
Postal Code:	80525										
PROPERTY NUMBERS Total: 1											
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>14012847</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	14012847						
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Application Number:	14012847										
CORRESPONDENCE DATA											
Fax Number:	7205364910										
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>											
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Address Line 2:	Suite 200										
Address Line 4:	Boulder, COLORADO 80302										
ATTORNEY DOCKET NUMBER:	AE2012-024US_NP										
NAME OF SUBMITTER:	Sean R. O'Dowd										
Signature:	/Sean R. O'Dowd/										

PATENT

Date:

08/29/2013

Total Attachments: 2

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ASSIGNMENT OF PATENT APPLICATION

FOR GOOD AND VALUABLE CONSIDERATION,

We, the undersigned (each) have agreed and hereby agree to assign for good and valuable consideration, receipt of which is hereby expressly acknowledged, and do hereby sell, assign and transfer unto

Advanced Energy Industries, Inc.

a corporation organized under the laws of the state of Delaware as Assignee, and its successors, assigns and legal representatives, the entire right, title and interest, for all countries in and to certain inventions relating to

ARC MANAGEMENT WITH VOLTAGE REVERSAL AND IMPROVED RECOVERY

described in an application for Letters Patent of the United States, identified as Attorney Docket No. AE2012-024US, at Neugeboren O'Dowd PC, 1227 Spruce Street, Suite 200, Boulder, CO 80302 and filed on 08/28/2013, as Application Serial No. 14/012,847, and the invention(s) and improvement(s) set forth therein, and any and all continuations, continuations-in-part, divisionals, and renewals of and substitutes for said application for said Letters Patent, and all the rights and privileges under any and all Letters Patent that may be granted therefor in any country, and any reissues, or reexaminations, or extensions of said Letters Patent. We request that any and all Letters Patent for said inventions be issued to said Assignee, its successors, assigns and legal representatives, or to such nominees as it may designate.

We agree that, when requested, we will, without charge to said Assignee but at its expense, sign all papers, take all rightful oaths, and do all acts which may be necessary, desirable or convenient for securing and maintaining patents for said inventions in any and all countries and for vesting title thereto in said Assignee, its successors, assigns and legal representatives or nominees.

We authorize and empower the said Assignee, its successors, assigns and legal representatives or nominees, to invoke and claim for any application for patent or other form of protection for said inventions filed by it or them, the benefit of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it, and to invoke and claim such right of priority without further written or oral authorization from us.

We hereby consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any assignment, consent to file or like document which may be required in any country for any purpose and more particularly in proof of the right of the said Assignee or nominee to claim the aforesaid benefit of the right of priority provided by the International convention which may henceforth be substituted for it.

We hereby authorize Sean R. O'Dowd, attorney for Assignee, to insert the filing date and Serial number into the first paragraph of this assignment, after the application for Letters Patent has been filed, and the U.S. Patent Office has assigned such application a Serial Number.

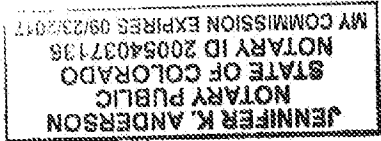
We covenant with said Assignee, its successors, assigns and legal representatives, that the rights and property herein conveyed are free and clear of any encumbrance, and that we have full right to convey the same as herein expressed.

IN WITNESS WHEREOF, we have hereunto signed our names on the day and year set forth below.

Hendrik Walde  
Inventor's Signature

8-23-2013  
DATE

Hendrik Walde  
Inventor's Printed Name



STATE OF \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ ) SS

On this 23 day of August, 2013, before me personally came the above named Hendrik Walde who is personally known by me or proved to me on the basis of satisfactory evidence to be the same individual who executed the foregoing assignment, and who acknowledged to me that he/she executed the same of his/her own free will for the use and purposes therein set forth.

Jennifer K Anderson  
NOTARY PUBLIC  
My Commission Expires: 9-23-2017

[Signature]  
Inventor's Signature

23 Aug 13  
DATE

Joshua Brian Pankratz  
Inventor's Printed Name

JENNIFER K. ANDERSON  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20054037136  
MY COMMISSION EXPIRES 09/23/2017

STATE OF \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ ) SS

On this 23 day of August, 2013, before me personally came the above named Joshua Brian Pankratz who is personally known by me or proved to me on the basis of satisfactory evidence to be the same individual who executed the foregoing assignment, and who acknowledged to me that he/she executed the same of his/her own free will for the use and purposes therein set forth.

Jennifer K Anderson  
NOTARY PUBLIC  
My Commission Expires: 9-23-2017

[Signature]  
Inventor's Signature

8/26/13  
DATE

David Christie  
Inventor's Printed Name

JENNIFER K. ANDERSON  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20054037136  
MY COMMISSION EXPIRES 09/23/2017

STATE OF \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ ) SS

On this 26th day of August, 2013, before me personally came the above named David Christie who is personally known by me or proved to me on the basis of satisfactory evidence to be the same individual who executed the foregoing assignment, and who acknowledged to me that he/she executed the same of his/her own free will for the use and purposes therein set forth.

Jennifer K Anderson  
NOTARY PUBLIC  
My Commission Expires: 9-23-2017

[Signature]  
Inventor's Signature

8/23/13  
DATE

Brian D. Kowal  
Inventor's Printed Name

JENNIFER K. ANDERSON  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20054037136  
MY COMMISSION EXPIRES 09/23/2017

STATE OF \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ ) SS

On this 23 day of August, 2013, before me personally came the above named Brian D. Kowal who is personally known by me or proved to me on the basis of satisfactory evidence to be the same individual who executed the foregoing assignment, and who acknowledged to me that he/she executed the same of his/her own free will for the use and purposes therein set forth.

Jennifer K Anderson  
NOTARY PUBLIC  
My Commission Expires: 9-23-2017