

# PATENT ASSIGNMENT

Electronic Version v1.1

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SUBMISSION TYPE:	NEW ASSIGNMENT										
NATURE OF CONVEYANCE:	ASSIGNMENT										
<b>CONVEYING PARTY DATA</b>											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Name</th> <th style="width: 30%;">Execution Date</th> </tr> </thead> <tbody> <tr> <td>Guohai Liu</td> <td>02/17/2011</td> </tr> <tr> <td>Pannalal Vimalchand</td> <td>02/17/2011</td> </tr> <tr> <td>Wan Wang Peng</td> <td>02/17/2011</td> </tr> </tbody> </table>		Name	Execution Date	Guohai Liu	02/17/2011	Pannalal Vimalchand	02/17/2011	Wan Wang Peng	02/17/2011		
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<b>RECEIVING PARTY DATA</b>											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Name:</td> <td>Southern Company Services, Inc.</td> </tr> <tr> <td>Street Address:</td> <td>241 Ralph McGill Blvd.</td> </tr> <tr> <td>City:</td> <td>Atlanta</td> </tr> <tr> <td>State/Country:</td> <td>GEORGIA</td> </tr> <tr> <td>Postal Code:</td> <td>30308</td> </tr> </table>		Name:	Southern Company Services, Inc.	Street Address:	241 Ralph McGill Blvd.	City:	Atlanta	State/Country:	GEORGIA	Postal Code:	30308
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<b>CORRESPONDENCE DATA</b>											
<p>Fax Number: (770)951-0933</p> <p><i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i></p> <p>Phone: 7709339500</p> <p>Email: anne.antonoff@tkhr.com</p> <p>Correspondent Name: Thomas,Kayden,Horstemeyer &amp; Risley, LLP</p> <p>Address Line 1: 600 Galleria Parkway</p> <p>Address Line 2: Suite 1500</p> <p>Address Line 4: Atlanta, GEORGIA 30339</p>											
ATTORNEY DOCKET NUMBER:	141905-1070										
NAME OF SUBMITTER:	Arvind R. Reddy										
<p>Total Attachments: 4</p> <p>source=01311383#page1.tif</p>											

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**PATENT**  
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**ASSIGNMENT  
OF UTILITY PATENT APPLICATION**

WHEREAS, the following parties:

<u>Name</u>	<u>Address</u>
Guohai Liu	1248 Eagle Park Road, Birmingham, AL 35242
Pannalal Vimalchand	689 Highland Lakes Cove, Birmingham, AL 35242
Wan Wang Peng	944 Talon Way, Birmingham, AL 35242

hereinafter referred to as ASSIGNORS, have invented certain new and useful improvements ("invention(s)") as described and set forth in the below-identified utility application for United States Letters Patent entitled:

**AN APPARATUS, COMPONENTS AND OPERATING METHODS FOR CIRCULATING  
FLUIDIZED BED TRANSPORT GASIFIERS AND REACTORS**

which was:

- ☐ executed on even date herewith,
- ☒ filed with the United States Patent and Trademark Office (USPTO) on December 16, 2010 and assigned Serial No. 12/969,997 and
- ☒ further described in U.S. Provisional application, filed with the USPTO on December 21, 2009, and assigned Serial No. 61/288,533.

WHEREAS, Southern Company Services, Inc., having a place of business at 241 Ralph McGill Blvd, Atlanta, GA 30308, hereinafter referred to as ASSIGNEE, is desirous of acquiring ASSIGNORS' interest in and to said invention(s), said utility application, said provisional application, and any U.S. and foreign patents which are related to the same.

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by ASSIGNORS, ASSIGNORS have sold, assigned and transferred and do hereby sell, assign and transfer unto ASSIGNEE, and ASSIGNEE'S successors and assign, (a) the entire right, title and interest, for the United States of America, in and to said invention(s), said utility application, and said Provisional application and all the rights and privileges in any application and under any and all patents that may be granted in the U.S. for said inventions, including all corresponding provisional, continuation, continuation-in-part, divisional, reissue, and reexamination applications; and (b) the entire right, title and interest in and to said invention(s), said utility application, and said provisional application for all countries foreign to the U.S., including all rights of priority arising from them, and all the rights and privileges under any and all forms of protection, including patents, that may be granted in said countries foreign to the U.S. for them.

ASSIGNORS authorize ASSIGNEE to make application for such protection in its own name and maintain such protection in any and all countries foreign to the U.S., and to invoke and claim for any application for patent or other form of protection for said Inventions, without further authorization from ASSIGNORS, any and all benefits, including the right of priority provided by any and all treaties, conventions, or agreements.

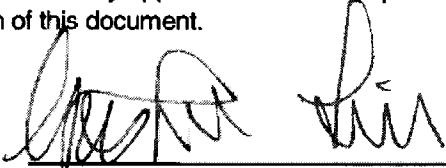
ASSIGNORS hereby consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of ASSIGNEE to apply for patent or other form of protection for said Inventions, said utility application, or said provisional application and to claim the aforesaid benefit of the right of priority.

ASSIGNORS request that any and all patents for said inventions be issued to ASSIGNEE in the U.S. and to ASSIGNEE in all countries foreign to the U.S., or to such nominee as ASSIGNEE may designate.

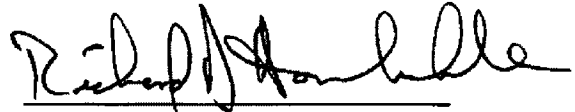
ASSIGNORS covenant and agree that, when requested, ASSIGNORS shall, without charge to ASSIGNEE but at ASSIGNEE'S expense, sign all papers, take all rightful oaths, and do all acts which may be necessary, desirable, or convenient in connection with the patent applications, patents, or other forms of protection of said invention(s), and for the defense and protection thereof if challenged in the court of law.

ASSIGNORS authorize ASSIGNEE or its agents to insert, on ASSIGNORS' behalf, the filing date and/or serial number above pertaining to the utility application and/or the provisional application, if not known as of the date of execution of this document.

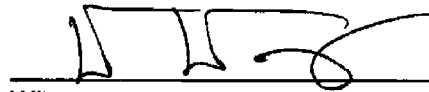
Date: 2/17/2011

  
Guohai Liu

Date: 2-17-2011

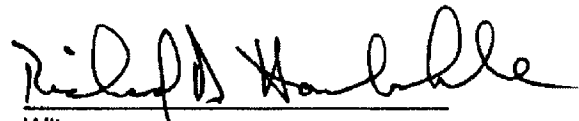
  
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Date: 2-17-2011


  
Witness

  
Pannalal Vimalchand

Date: 2/17/11

  
Witness

Date: 2-17-2011

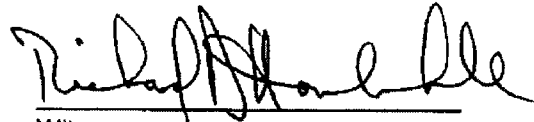
  
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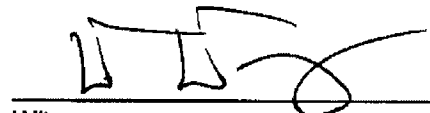
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