



December 19, 2014

Craig E. Richardson
Christopher C. Horner, Esquire
Free Market Environmental Law Clinic
722 12th Street, NW, Suite 400
Washington, DC 20005

Re: Freedom of Information Act (FOIA) Request
HQ-2015-00265-F

Dear Messrs. Richardson and Horner:

This is in response to your FOIA request sent to this office by the Department of Energy's (DOE) Office of Information Resources. You asked for "a copy of any cooperative research and development agreement (CRADA) between the Department of Energy (DOE) or any of its offices and the Mississippi Power Company (MPC), and/or MPC's holding company, the Southern Company, concerning the Kemper County Energy Facility (KCEF), located in Kemper County, Mississippi (Kemper)." In addition, you asked for any revisions or additions to said agreement.

For clarification, the agreement with Southern Company regarding the Kemper facility is a financial assistance agreement, not a CRADA. Enclosed are copies of the original agreement and all modifications to date. Certain information has been removed pursuant to exemptions (b)(4) and (b)(6) of FOIA.

Exemption (b)(4)

Exemption 4 of the FOIA, 5 U.S.C. § 552(b)(4), 10 C.F.R. § 1004.10(b)(4), protects "trade secrets and commercial or financial information obtained from a person and is privileged or confidential." Information required to be submitted by a person is "confidential" for purposes of exemption 4 if disclosure is likely to either: (1) impair the government's ability to obtain necessary information in the future; or (2) cause substantial harm to the competitive position of the person from whom the information was obtained.

The information withheld under exemption 4 is sensitive commercial information whose disclosure would be likely to cause substantial harm to the competitive position of Southern Company. The redacted information is maintained in confidence by Southern Company and is not available through public sources. Disclosure of this information would be likely cause substantial competitive harm to Southern Company by providing its competitors, suppliers, and other parties with visibility into Southern Company's costs and revenues, its past and present financial health, its business strategies, and its relationships with its partners, vendors, and employees. Discretionary release of information protected by exemption 4 is not permitted.

Exemption (b)(6)

Exemption 6 of the FOIA, 5 U.S.C. § 552(b)(6), 10 C.F.R. § 1004.10(b)(6), protects personnel and medical files and similar files, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy. The names of key personnel have been removed to protect their privacy.

Appeal Rights

As the FOIA Authorizing/Denying Official for NETL, I am responsible for making the above determinations with regard to your request.

DOE's regulations provide that a denial of records, in whole or in part, may be appealed to DOE's Office of Hearings and Appeals by writing to the Director of the Office of Hearings and Appeals, HG-1, Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585, within 30 days of receipt of this letter. Both the envelope and letter must be clearly marked "Freedom of Information Appeal." Additional requirements of an appeal are set forth in 10 CFR § 1004.8(b). Judicial review is available if the appeal results in a determination adverse to you in the district in which you reside or have a principal place of business; in the district where the records are situated; or in the District of Columbia.

Sincerely,



R. Paul Detwiler
Chief Counsel
Authorizing/Denying Official

Enclosures

NOTICE OF FINANCIAL ASSISTANCE AWARD

Under the authority of Public Law 95-91 DOE Organization Act and PL 102-486 Energy Policy Act 1992

1. PROJECT TITLE "Demonstration of a Coal-based Transport Gasifier"		2. INSTRUMENT TYPE <input type="checkbox"/> GRANT <input checked="" type="checkbox"/> COOPERATIVE AGREEMENT	
3. RECIPIENT (Name, address, zip code) Southern Company Services, Inc. 600 North 18 th Street P.O. Box 2641 Birmingham, AL 35291		4. INSTRUMENT NO. DE-FC26-06NT42391	5. AMENDMENT NO. A004
		6. BUDGET PERIOD FROM:11/17/08 THRU:5/1/18	7. PROJECT PERIOD FROM:2/1/06THRU:5/1/18
8. RECIPIENT PROJECT DIRECTOR (Name, phone and E-mail) [REDACTED]		10. TYPE OF AWARD <input type="checkbox"/> NEW <input checked="" type="checkbox"/> CONTINUATION <input type="checkbox"/> RENEWAL <input type="checkbox"/> REVISION <input type="checkbox"/> INCREMENTAL FUNDING	
9. RECIPIENT BUSINESS OFFICER (Name, phone and E-mail) [REDACTED]			
11. DOE PROJECT OFFICER (Name, address, phone and E-mail) National Energy Technology Laboratory ATTN: Diane R. Madden, M/S 922-342C 626 Cochran's Mill Road, P. O. Box 10940 Pittsburgh, PA 15236-0940 (412) 386-5931 Diane.Madden@netl.doe.gov		12. DOE AWARD ADMINISTRATOR (Name, address, phone and E-mail) National Energy Technology Laboratory ATTN: Brittley K. Robbins, M/S 921-107 626 Cochran's Mill Road, P. O. Box 10940 Pittsburgh, PA 15236-0940 (412) 386-5430 Brittley.Robbins@netl.doe.gov	
13. RECIPIENT TYPE <input type="checkbox"/> STATE GOVT <input type="checkbox"/> INDIAN TRIBAL GOVT <input type="checkbox"/> HOSPITAL <input checked="" type="checkbox"/> FOR PROFIT ORGANIZATION <input type="checkbox"/> INDIVIDUAL <input type="checkbox"/> LOCAL GOVT <input type="checkbox"/> INSTITUTION OF HIGHER EDUCATION <input type="checkbox"/> OTHER NONPROFIT ORGANIZATION <input checked="" type="checkbox"/> CORPORATION <input type="checkbox"/> PARTNERSHIP <input type="checkbox"/> SOLE PROPRIETOR <input type="checkbox"/> OTHER (Specify _____)			
14. ACCOUNTING AND APPROPRIATIONS DATA:		15. EMPLOYER I.D. NUMBER a. TIN: 63-0274273 b. DUNS: 137519547	
16. BUDGET AND FUNDING INFORMATION			
a. CURRENT BUDGET PERIOD INFORMATION		b. CUMULATIVE DOE OBLIGATIONS	
(1) DOE Funds Obligated This Action \$ 0		(1) This Budget Period \$ 0 [Total of lines a.(1) and a.(3)]	
(2) DOE Funds Authorized for Carry Over \$ 50,000		(2) Prior Budget Periods \$ 243,386,111	
(3) DOE Funds Previously Obligated in this Budget Period \$ 0		(3) Project Period to Date \$ 243,386,111 [Total of lines b.(1) and b.(2)]	
(4) DOE Share of Total Approved Budget \$ 270,215,984			
(5) Recipient Share of Total Approved Budget \$1,302,455,322			
(6) Total Approved Budget \$1,572,671,306			
17. TOTAL ESTIMATED COST OF PROJECT, INCLUDING DOE FUNDS TO FFRDC: \$ 1,622,905,779 (DOE: \$293,750,000 Recipient: \$1,329,155,779) (This is the current estimated cost of the project. It is not a promise to award nor an authorization to expend funds in this amount.)			
18. AWARD AGREEMENT TERMS AND CONDITIONS This award/agreement consists of this form plus the following: a. Special terms and conditions. b. Applicable program regulations (specify) _____ (Date) _____ c. DOE Assistance Regulations, 10 CFR Part 600at http://ecfr.gpoaccess.gov and if the award is for research and to a university or non-profit, the Research Terms & Conditions and the DOE Agency Specific Requirements at http://www.nsf.gov/bfa/dias/policy/rtrc/index.jsp d. DOE and Southern Company Services (SCS) agree that SCS's application dated June 10, 2004, as amended by continuation application dated January 2007 and site relocation applications dated 2/14/2008 and 3/14/2008, has been approved by DOE and is incorporated into the cooperative agreement. e. National Policy Assurances to Be Incorporated as Award Terms in effect on date of award at http://management.energy.gov/business_doe/1374.htm .			
19. REMARKS See continuation pages.			
20. EVIDENCE OF RECIPIENT ACCEPTANCE [REDACTED] (Signature of Authorized Recipient Official) _____ (Date) _____ [REDACTED] (Name) _____ [REDACTED] (Title) _____		21. AWARDED BY [Signature] _____ 12/5/08 (Signature) _____ (Date) _____ Richard D. Rogus (Name) _____ Contracting Officer (Title) _____	

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The purpose of this amendment is to acknowledge a relocation of the Project site from Orlando, Florida to Kemper County, Mississippi and to make certain changes associated with that relocation, including the addition of CO₂ capture and compression. On and after the date of Amendment A004, the Cooperative Agreement is as follows:

SECTION II - SPECIAL TERMS AND CONDITIONS

2.1 Prevailing Regulations (SEPT 2004)

As indicated on the face page, Block 18c, this award is subject to the DOE Assistance Regulations of Title 10, Code of Federal Regulations, Part 600. This set of regulations may be found in most major libraries or on the World Wide Web at: <http://ecfr.gpoaccess.gov>.

2.2 Order of Precedence (AUG 2001)

In the event of any inconsistency among the provisions of this agreement, the inconsistency shall be resolved by giving precedence as follows: (a) applicable public laws; (b) 10 CFR Part 600; (c) the special terms and conditions; and (d) other documents, exhibits and attachments.

2.3 Definitions (MAR 2002)

"Cooperative Agreement" means this agreement between the United States Department of Energy (DOE) and the Recipient, DOE Instrument number DE-FC26-06NT42391, and any subsequent amendments.

"Recipient" or "Participant" means Southern Company Services, Inc. and its successors and assigns.

"Repayment Agreement" means the agreement made by Southern Company Services, Inc.; Kellogg Brown & Root, Inc; and DOE in DOE Cooperative Agreement Number DE-FC26-06NT42391 on January 30, 2006, as amended and restated on May 2, 2007 and again on December 5, 2008, to repay the DOE share of costs paid under this Cooperative Agreement. The Repayment Agreement is agreement number DE-FR26-06NT42392.

"United States" means the United States of America and its 50 States, the District of Columbia, the Commonwealth of Puerto Rico, and any possession or trust territory of the United States.

2.4 Substantial Involvement Between DOE and the Recipient (MAR 2002)

(a) Recipient Role

The Recipient shall be responsible for all aspects of Project performance as set forth in the Statement of Project Objectives. All services, personnel, facilities, equipment, materials, and supplies shall be furnished by the Recipient, unless otherwise specified under this Cooperative Agreement. The Recipient Project Director shall serve as its authorized representative for the technical elements of all work to be performed under this Cooperative Agreement. The Recipient Business Officer shall serve as its authorized representative for administrative elements dealing with the Cooperative Agreement.

(b) DOE Role

DOE shall monitor the Recipient's progress in performing the Project and shall have a substantial role in Project decision making.

The DOE Contracting Officer is the only Government Representative authorized to accept the reports and other deliverables the Recipient is required to provide under this Cooperative Agreement. The DOE Project Officer (same as Contracting Officer's Representative) shall have the authority to comment on those technical reports, plans, and other technical information the Recipient is required to submit to DOE for review and comment.

The DOE Project Officer shall have the authority to issue written technical advice which suggests redirecting the Project work (e.g., by changing the emphasis among different tasks), or pursuing specific lines of inquiry likely to assist in accomplishing the Statement of Project Objectives. The DOE Project Officer is not authorized to issue, and the Recipient must not follow, any technical advice which constitutes work which is not within the scope of the Statement of Project Objectives; which in any manner causes an increase or decrease in the total estimated cost or in the time required for performance of the Project; which has the effect of changing any of the terms or conditions of the Cooperative Agreement; or which interferes with the Recipient's right to perform the Project in accordance with the terms and conditions of this Cooperative Agreement.

(c) No Government Obligation to Third Parties

In connection with the performance of the Project, the Government shall have no obligation or responsibility to any contractor, subcontractor or other person who is not a party to this Cooperative Agreement. The foregoing limitation shall apply notwithstanding the Contracting Officer's prior approval of or consent to any contract awarded by the Recipient. The Recipient shall be responsible, without recourse to DOE, except for amounts DOE is otherwise obligated to pay pursuant to the provisions of this Cooperative Agreement for the resolution and satisfaction of all pre-award protests, contract administration issues, and contract disputes arising out of contracts awarded by the Recipient for acquisitions related to the Project.

2.5 Budget Periods and Estimated Project Costs

(a) Budget Periods

The project period of this Cooperative Agreement is divided into Project budget periods for funding purposes.

Phases

The Project is divided into major categories of work (e.g., project definition, design, construction, demonstration, etc.) called phases for project management planning and control. Additionally, sub-phases have been established to distinguish between work completed at the Orlando site and work proposed for the Kemper County site. The phases and sub-phases are aligned to specific budget periods and correspond to specific tasks in the Statement of Project Objectives. The delineation of phases is identified in the next section under Total Estimated Project Costs.

(b) Total Estimated Project Costs

DOE and the Recipient shall share in allowable direct and indirect project costs, on an invoice by invoice basis, in the percentages up to the amounts shown below:

TOTAL ESTIMATED PROJECT COST: \$1,622,905,779

Budget Period 1 - - Phase I – Project Definition

DOE Share	\$ 9,285,033	50%
Recipient Share	<u>\$ 9,285,033</u>	50%
	\$18,570,066	

Budget Period 2a - - Phase II.a – Detailed Design (Orlando, FL) and Phase III.a Construction (Orlando, FL)

DOE Share	\$14,248,983	45.0%
Recipient Share	<u>\$17,415,424</u>	55.0%
	\$31,664,407	

Budget Period 2b -- Phase II.b -- Detailed Design (Kemper County, MS); Phase III.b -- Construction (Kemper County, MS) (subject to Article 2.38, Conditions on Award); and Phase IV -- Demonstration -- (subject to Article 2.38, Conditions on Award and Article 2.39, Withholding of Funds)

DOE Share	\$ 270,215,984	17.2%
Recipient Share	<u>\$1,302,455,322</u>	82.8%
	\$1,572,671,306	

Total Project

DOE Share	\$ 293,750,000	18.1%
Recipient Share	<u>\$1,329,155,779</u>	81.9%
	\$1,622,905,779	

(c) **Budget Revisions**

The Recipient may re-budget funds within a total approved budget, subject to the prior approval requirements of 10 CFR § 600.315.

(d) **Additional Funds**

The Recipient shall immediately notify the Contracting Officer in writing whenever it becomes apparent that the costs of completing that portion of the Project to be performed during a Budget Period exceeds the Total Approved Budget. Such written notice shall, at a minimum, set forth (1) a detailed explanation of the magnitude and factors causing the cost overrun and (2) the Recipient's proposed plan to fund the increased cost.

2.6 RESERVED

2.7 Cost Overruns

The estimated DOE cost-share set forth in Section 2.5 (b) is the maximum amount permitted by law. The Government shall not share in any additional cost overruns. Therefore, Southern Company Services, Inc. shall be responsible for all further cost overruns that may occur in order to complete the Project in accordance with the Statement of Project Objectives contained in the Cooperative Agreement.

2.8 Allowable Pre-award Costs (MAR 1999)

The Recipient is entitled to reimbursement by DOE of its share of pre-award costs in the amount not to exceed \$7,200,670, per the pre-award cost authorization letter to Recipient from DOE dated December 20, 2004. These costs are limited to work associated with performance of work detailed in Recipient's letter of December 16, 2004, incurred during the period starting on January 3, 2005 through the effective start date of this award (Block 7, DOE F 4600.1).

2.9 Cost Sharing (MAR 2002)

In order to be recognized as allowable cost sharing, a cost must be otherwise allowable in accordance with the applicable Federal cost principles and DOE Regulations (10 CFR § 600.313) governing cost sharing. Cost sharing may be in various forms or combinations, including, but not limited to, cash outlays and in-kind contributions. All allowable Project costs, whether in-cash or in-kind, shall be shared by DOE when such costs are incurred by applying the share ratios set forth in the Cooperative Agreement.

Provided below is a non-exclusive list of costs that are unallowable as Project costs and cost sharing:

- Costs incurred in negotiating a Cooperative Agreement with DOE are not allowable as direct charges to the Project.
- Allowable costs under past, present, or future Federal Government contracts, grants or Cooperative Agreements may not be charged against this Cooperative Agreement. Likewise, the Recipient may not charge costs allowable under this Project, including any portion of its cost share to the Federal Government under any other contracts, grants, or Cooperative Agreements.
- Only the operating costs directly associated with the proposed work effort (i.e., incremental costs distinct from the daily operational costs) may be recognized as allowable costs for cost-sharing purposes if adequately supported and properly documented.
- DOE will not share in the acquisition costs of any fuel other than coal, under this Clean Coal Power Initiative, unless prior written approval is obtained from the DOE Contracting Officer. The cost of natural gas for flare operation and gasifier start-up and commissioning is, however, an allowable cost and includes natural gas for initial and subsequent startups. The DOE share of natural gas cost for Budget Period 2b shall not exceed \$7,468,046.
- Previously expended research or development costs are unallowable.
- DOE shall not accept valuation for property sold, transferred, exchanged, or manipulated in any way to acquire a new basis for depreciation purposes or to establish a fair use value in circumstances that would amount to a transaction for the purpose of the Cooperative Agreement.
- Interest on borrowings (however represented) and other financial costs such as bond discounts, cost of financing and refinancing capital (net worth plus long-term liabilities), are unallowable Project costs. This includes interest on funds borrowed for construction.
- DOE will not share in both the direct cost and depreciation on the same item. Depreciation is not allowable for cost sharing on any item charged to the Project as a direct cost. For example, DOE will cost share the direct cost on equipment or facilities purchased or constructed for the Project; but, will not also cost share the depreciation.
- The value of patents and data contributed to the Project is unallowable.
- Facilities capital cost of money shall be an unallowable cost on all real property or equipment acquired by or on behalf of the Recipient in connection with the performance of the Project.
- Forgone fees, forgone profits, or forgone revenues as well as replacement power costs are not allowable costs.
- Fee or profit paid to any member of the proposing team having a substantial and direct interest in the commercialization of the demonstration technology is unallowable. Competitive subcontracts, where a proposing team member is selected for award of a subcontract, placed with the prior written consent of the Contracting Officer and subcontracts for routine supplies and services are not covered by this prohibition.
- Business losses are unallowable.

NOTE: See Federal Acquisition Regulations (FAR) 31.2 for the complete Cost Principles and Procedures applicable to Commercial Organizations.

2.10 Payment Procedures *Reimbursement Through the Automated Standard Application for Payments (ASAP) System (OCT 2004)

- (a) **Method of Payment.** Payment will be made by reimbursement through the Department of Treasury's ASAP system.
- (b) **Requesting Reimbursement.** Requests for reimbursements must be made through the ASAP system. Your requests for reimbursement should coincide with your normal billing pattern, but not more frequently than every two weeks. Each request must be limited to the amount of disbursements made for the federal share of direct project costs and the proportionate share of allowable indirect costs incurred during that billing period.
- (c) **Adjusting payment requests for available cash.** You must disburse any funds that are available from repayments to and interest earned on a revolving fund, program income, rebates, refunds, contract settlements, audit recoveries, credits, discounts, and interest earned on any of those funds before requesting additional cash payments from DOE.
- (d) **Payments.** All payments are made by electronic funds transfer to the bank account identified on the ASAP Bank Information Form that you filed with the U.S. Department of Treasury.
- (e) **Invoice documentation shall include the following information:**
 - (1) Name and address of recipient/vendor.
 - (2) Invoice date.
 - (3) Award number.
 - (4) **Project Billing Cost Report:** Detailed breakdown on the monthly expenses showing Travel and Living Expenses, Direct Materials, Outside Services, Direct Labor, Overheads/Fringe Benefits less cost shares. This is shown for the current period and cumulative.
 - (5) **DOE Allowable Overhead Calculations:** Showing the labor, allowable and unallowable overheads.
 - (6) Name (where practicable), title, phone number and complete mailing address of responsible official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).
 - (7) Name (where practicable), title, phone number and complete mailing address of the person to be notified in the event of a defective invoice.
 - (8) **Total charges for the month by Work Order Sub:** Total charges, labor dollars, labor hours, overheads, employee expenses, outside services, resource usage, and other expenses.
 - (9) **Current month SCS billing that summarizes expenses on the Project.**

2.11 Continuation Application and Funding

- (a) **Continuation Application.** A continuation application is a non-competitive application for an additional budget period within a previously approved Project period. At least 90 days before the end of each budget period, you must submit to the DOE Project Officer identified in Block 11 and the DOE Award Administrator identified in Block 12 of the Notice of Financial Assistance Award your continuation application, which includes the following information:
 - 1. A report on your progress towards meeting the objectives of the Project, including any significant findings, conclusions, or developments, and an estimate of any unobligated balances remaining at the end of the budget period. If the remaining unobligated balance is estimated to exceed 20 percent of the funds available for the budget period, explain why the excess funds have not been obligated and how they will be used in the next budget period.
 - 2. A detailed budget and supporting justification for the upcoming budget period if additional funds are requested, a reduction of funds is anticipated, or a budget for the upcoming budget period was not approved at the time of award.
 - 3. A description of your plans for the conduct of the Project during the upcoming budget period, if there are changes from the DOE approved application.

- (b) Continuation Funding. Continuation funding is contingent on (1) availability of funds; (2) satisfactory progress towards meeting the Statement of Project Objectives; (3) submittal of required reports; and (4) compliance with the terms and conditions of the award.
- (c) The continuation application shall be submitted on the DOE Form 424A. Technical and budgetary information supporting the continuation application shall be provided in accordance with 10 CFR 600.26. Forms for submission of continuation applications can be found at <http://www.netl.doe.gov/business/index.html>."

2.12 Property Management and Disposition

Equipment procured under this award to the Recipient will be installed at the premises of Mississippi Power Company (Teaming Member, subcontractor and host site to the Project) (hereinafter referred to as the "hosting entity"). Such hosting entity is the owner of the facility at which the Project is to be performed and will take title to the procured equipment. Such title vesting in the hosting entity will not void DOE's ability to share financial benefit from any property disposition.

Title to all real property, equipment and supplies (excluding Government-furnished property) acquired by or on behalf of the hosting entity in connection with performance of the Project shall vest upon acquisition and completion of the Project in the above referenced hosting entity. The hosting entity shall make such property available for use in the Project. During the period of the Cooperative Agreement, the hosting entity may, with the DOE Contracting Officer's prior approval, encumber its title to or dispose of such property. Should said property be sold during the Project period, DOE shall share in the sale proceeds at DOE's overall project cost-share ratio. After completion of the demonstration period the hosting entity retains unconditional title and has no further obligation to DOE with respect to the property. The Contracting Officer grants consent for the purchase of equipment, fuels, materials, and services consistent with Recipient's application.

The cost of disposal of the Demonstration Facility is an allowable cost only if proposed and included in the cost estimate for Demonstration/Operations.

The use, management, and disposition of all government-furnished property shall be governed by 10 CFR §§ 600.320 thru 600.324.

2.13 Real Property - None (JAN 1999)

No land is anticipated to be procured under this award.

2.14 Federally Owned Property (Government-Furnished) - None (JAN 1999)

It is not anticipated that any Government-furnished property will be provided under this award.

2.15 Key Personnel

Personnel considered to be essential and key to the work being performed hereunder are specified below:

NAME	TITLE	TELEPHONE	COMPANY
[REDACTED]	[REDACTED]	[REDACTED]	KBR
			SCS
			SCS
			SCS
			MPC

The personnel specified in this clause are considered to be essential to the Project. Before removing or replacing any key personnel, the Recipient shall notify the Contracting Officer reasonably in advance and shall submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on the project. No key personnel may be substituted without the Contracting Officer's approval. Such approval shall be obtained in advance of the substitution, except that the Contracting Officer may ratify a substitution which, because of exigent circumstances, was made before the Recipient could request and/or obtain the Contracting Officer's approval.

2.16 Project Site and Access

The Project shall be performed principally at the Mississippi Power Company site in Kemper County, MS. At the request of the DOE Contracting Officer or the COR, the Recipient shall provide Government officials and interested members of the public as determined by DOE with access to the Project site(s) to observe project operations at reasonable times, with reasonable limitations on the number of people during each visit, and subject to compliance with applicable site safety and security requirements.

2.17 Paperwork Reduction – Cooperative Agreements (SEPT 2002)

The award is subject to the requirements of the Paperwork Reduction Act of 1980 as implemented by the Office of Management and Budget rules, "Controlling Paperwork Burdens on the Public," published at 5 CFR 1320.

The Recipient shall submit any proposed sponsored information collection to the person identified on the DOE F 4600.1 (Award Face Page, Block 12). The proposal shall be submitted at least 120 days prior to the intended date of information collection. DOE will seek the requisite approval from the Office of Management and Budget (OMB) and will promptly notify the Recipient of the disposition of the request.

2.18 Public Access to Information (APR 2000)

The Freedom of Information Act, as amended, and the DOE implementing regulations (10 CFR 1004) require DOE to release certain documents and records regarding awards to any person who provides a written request. The intended use of the information will not be a criterion for release.

2.19 Compliance with Buy American Act (OCT 2004)

In accepting this award, the Recipient agrees to comply with sections 2 through 4 of the Act of March 3, 1933 (41 U.S.C. 10a-10c, popularly known as the "Buy American Act"). The Recipient should review the provisions of the Act to ensure that expenditures made under this award are in accordance with it.

2.20 Notice Regarding the Purchase of American-Made Equipment and Products – Sense of Congress (OCT 2004)

It is the sense of the Congress that, to the greatest extent practicable, all equipment and products purchased with funds made available under this award should be American-made.

2.21 Lobbying Restrictions (OCT 2004)

By accepting funds under this award, Recipient agrees that none of the funds obligated on the award shall be made available for any activity or the publication or distribution of literature that in any way tends to promote public support or opposition to any legislative proposal on which Congressional action is not complete. This restriction is in addition to those prescribed elsewhere in statute and regulation.

2.22 Notice Regarding Unallowable Costs and Lobbying Activities (NOV 1998)

Recipients of financial assistance are cautioned to carefully review the allowable cost and other provisions applicable to expenditures under their particular award instruments. If financial assistance funds are spent for purposes or in amounts inconsistent with the allowable cost or any other provisions governing expenditures in an

award instrument, the government may pursue a number of remedies against the Recipient, including in appropriate circumstances, recovery of such funds, termination of the award, suspension or debarment of the Recipient from future awards, and criminal prosecution for false statements.

Particular care should be taken by the Recipient to comply with the provisions prohibiting the expenditure of funds for lobbying and related activities. Financial assistance awards may be used to describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not to encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

2.23 Reporting (NOV 1998)

Failure to comply with the reporting requirements contained in this award will be considered a material noncompliance with the terms of the award. Noncompliance may result in a withholding of future payments, suspension or termination of the current award, and withholding of future awards. A willful failure to perform, a history of failure to perform, or of unsatisfactory performance of this and/or other financial assistance awards, may also result in a debarment action to preclude future awards by Federal agencies.

2.24 Recipient Press Releases (APR 1998)

The DOE policy and procedure on planned press releases requires that all Recipient press releases be reviewed and approved by DOE prior to issuance. Therefore, the Recipient shall, at least ten (10) days prior to the planned issue date, submit a draft copy to the Contracting Officer of any planned press releases related to work performed under this award. The Contracting Officer will then obtain necessary reviews and clearances and provide the Recipient with the results of such reviews prior to the planned issue date.

2.25 Publication of Results/Acknowledgment Statement (MAR 2004)

Publications, as well as reports prepared under this award shall contain the following acknowledgment statement:

"This () was prepared with the support of the U.S. Department of Energy, under Award Number DE-FC26-06NT42391. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the DOE".

2.26 National Environmental Policy Act (NEPA) Requirements

You are restricted from taking any action using Federal funds that would have an adverse effect on the environment or limit the choice of reasonable alternatives prior to DOE providing either a NEPA clearance or a final NEPA decision regarding this Project. DOE shall not share in any Project cost for the Kemper County, MS Project unless and until DOE issues a Record of Decision approving the Project. This restriction does not preclude the Recipient from completing activities associated with Phase IIb of Budget Period 2b at the Recipient's expense – reference the Statement of Project Objectives. Parties agree that all Phase IIb costs shall be absorbed by the Recipient. Allowable Phase IIb costs of Budget Period 2b incurred by the Recipient for the Kemper County, MS Project prior to the issuance of a Record of Decision (ROD) are not subject to reimbursement by DOE until after the issuance of an ROD approving the Project.

Prior to the completion and issuance of the ROD, DOE agrees to discuss with the Recipient any proposed conditions and requirements that may be included in the ROD if DOE approves the proposed action. While DOE intends to avoid surprise or undue hardship for the Recipient, DOE retains sole discretion on whether to include in the ROD any conditions and requirements. If DOE approves in the ROD the proposed action subject to specific conditions, limitations, mitigation requirements, and/or monitoring requirements, the Recipient agrees to:

a) abide by the conditions, limitations, mitigation requirements, and/or monitoring requirements specified in the ROD;

b) negotiate changes to the project schedule, costs, and/or scope as necessary to effect the requirements or conditions in the ROD;

c) allow DOE's authorized representatives the right to visit the site and facilities at reasonable times and upon reasonable notice to verify compliance with any conditions and requirements in the ROD; and

d) submit data or otherwise meet specified reporting requirements that may be in the ROD.

If the Recipient finds the conditions and requirements to be unacceptable, the Recipient reserves the right to withdraw from the Project upon written notice to DOE, as prescribed under 10 CFR § 600.351(a)(3).

2.27 Environmental, Safety & Health (OCT 2003)

The recipient must comply with applicable Federal, State, and local environmental, safety and health laws and regulations for work performed under this award.

2.28 Hazardous Wastes Manifests and Labels (MAR 2003)

The Recipient shall not identify, on wastes manifests or container labels or otherwise, DOE or NETL as the owner or generator of hazardous wastes without written permission, signed by either the NETL Director or both the NETL Contracting Officer and the NETL ES&H Division Director, unless expressly and specifically permitted by the award.

2.29 Permits and Licenses

Within sixty (60) days of the award date (identified in Block 21 on the face page) of amendment A004 to this Cooperative Agreement, the Recipient shall submit to the DOE Project Officer a list of ES&H approvals that, in the Recipient's opinion, shall be required to complete the work under this award. The list shall include the topic of the approval being sought, the approving authority, and the expected submittal/approval schedule. The DOE Project Officer shall be notified as specific items are added or removed from the list and processed through their approval cycles.

The Recipient agrees to include this clause in first-tier subcontracts and agrees to enforce the terms of this clause.

2.30 Insurance

(a) Within 120 days of the award date (identified in Block 21 on the face page) of amendment A004 to this Cooperative Agreement, the Recipient must submit to DOE an updated risk management plan for this Project. The insurance requirements on the part of the Recipient for this Project shall be as set forth in its submitted plan. Such plan must be approved by a letter from the DOE Contracting Officer. The Recipient shall provide evidence that DOE has been named as an additional insured on the appropriate policies.

(b) Indemnity

The Recipient shall indemnify the Government and its officers, agents, or employees for any and all liability, including litigation expenses and attorneys' fees, arising from suits, actions, or claims of any character for death, bodily injury, or loss of or damage to property or to the environment, resulting from the fault or negligence of the Recipient in performing the Project under this Cooperative Agreement.

2.31 Limitation of DOE Liability (MAR 2002)

Awards under this part are subject to the requirement that the maximum DOE obligation to the recipient is the amount shown in the Notice of Financial Assistance Award as the amount of DOE funds obligated. DOE shall

not be obligated to make any additional, supplemental, continuation, renewal or other awards for the same or any other purpose.

2.32 Termination (MAR 2002)

The Cooperative Agreement may be terminated in accordance with 10 CFR 600.351.

2.33 Records Retention, Access, and Disclosure (MAR 2002)

(a) Period of Retention

The Recipient shall retain all financial and performance records, supporting documents, statistical records, and other records of the Recipient which are required to be retained by the terms of this Cooperative Agreement, and any other records the Recipient reasonably considers to be pertinent to this Cooperative Agreement. The period of required retention shall be from the date each such record is created or received by the Recipient until three years after one of the following dates, whichever is latest: the expiration date of this Cooperative Agreement; the date the Recipient's final expenditure report is submitted to DOE; or if this Cooperative Agreement is terminated in its entirety, the effective date of the termination. If any claim, litigation, negotiation, investigation, audit, or other action involving the records starts before the expiration of the three-year retention period, the Recipient shall retain the records until such action is completed and all related issues are resolved, or until the end of the three-year retention period, whichever is later.

(b) Authorized Copies

Copies made by microfilm, photocopying, or similar methods may be substituted for original records. Records originally created by computer may be retained on an electronic medium, provided such medium is "read only" or is protected in such a manner that the electronic record can be authenticated as an original record.

(c) Access to Records

Subject to any legitimate claims of Attorney/Client Privilege as determined by a court of competent jurisdiction, DOE and the Comptroller General of the United States, or any of their authorized representatives, shall have the right of access to any books, documents, papers, or other records (including those on electronic media) which are pertinent to this Cooperative Agreement. The purpose of such access is limited to the making of audits, examinations, excerpts, and transcripts. The right of access described in this paragraph shall last as long as the Recipient retains records which are pertinent to this Cooperative Agreement.

(d) Restrictions on Public Disclosure

The Federal Freedom of Information Act 5 USC Section 552 does not apply to records the Recipient is required to retain by the terms of this Cooperative Agreement to the extent that the records are not also in the possession of the Government. Unless otherwise required by law or a court of competent jurisdiction, the Recipient shall not be required to disclose such records to the public.

2.34 Severability (MAR 2002)

If a court of competent jurisdiction or the DOE Financial Assistance Appeals Board determines that any part of this Cooperative Agreement is invalid, void, unenforceable, or inconsistent with any applicable Federal statute or regulation, such part shall be deemed to have been amended or deleted to conform to such determination.

2.35 Performance of Work in the United States (AUG 2003)

The Recipient agrees that at least 75% of the direct labor cost for the project (including subcontractor labor) will

be incurred in the United States unless the Recipient can demonstrate to the satisfaction of the DOE that the United States economic interest will be better served through a greater percentage of work performed outside the United States.

2.36 RESERVED

2.37 Annual Indirect Cost Proposal and Reconciliation (OCT 2004)

- (a) In accordance with the applicable cost principles, Recipient must submit an annual indirect cost proposal, reconciled to Recipient's financial statements, within six months after the close of each fiscal year, unless Recipient has negotiated a predetermined or fixed Indirect rate(s), or fixed amount for indirect or facilities and administration (F&A) costs.
- (b) Recipient should submit its annual indirect cost proposal directly to the cognizant agency for negotiating and approving indirect costs. If DOE is the cognizant agency, send your proposal to the Cognizant Department of Energy Office (CDO). If Recipient does not have a cognizant agency or if Recipient does not know the DOE CDO, contact the DOE Award Administrator identified in Block 12 of the Notice of Financial Assistance Award.

2.38 Conditions on Award

The Recipient is not authorized to proceed into Phase IV of Budget Period 2b without prior DOE approval.

(a) Estimated Cost of Award

The estimated cost of the award is based on the Recipient's revised budget application dated February 2008 and reflects estimated costs available at that time. The Recipient agrees that all costs expended in Phase IIb of Budget Period 2b will be absorbed by Recipient. DOE agrees to share costs in Phase IIIb of Budget Period 2b upon Recipient's submission and DOE's approval of an updated detailed cost breakdown for Phase IIIb. DOE's agreement to share costs in Phase IV of Budget Period 2b is subject to the conditions of this Article and to DOE receiving a detailed breakdown of the expected project costs for Phase IV at least 90 days before the scheduled end of Phase IIIb. DOE will review each detailed cost breakdown and will provide SCS with any comments on such detailed cost breakdown within ninety (90) days of receipt thereof. In the event that DOE disputes the allowability of particular cost items in the detailed cost breakdown, SCS and DOE will conduct discussions to resolve any such issues. If issues on particular cost items cannot be resolved, SCS will have the option of proceeding with the Project without seeking DOE funding for any such particular cost items.

2.39 Withholding of Funds

(A) The parties agree that \$25,000,000 (twenty-five million dollars) of the DOE-obligated funds will be deferred for payment during Phase IV of Budget Period 2b (the Demonstration Phase) in the manner set forth in items (A)(1), (A)(2) and (A)(3) below.

(1) During Phase IV of the Project, Recipient will submit invoices to DOE in the normal course of business as provided under the cooperative agreement, and DOE will reimburse Recipient for allowable costs in the manner provided under the cooperative agreement.

(2) Each year during Phase IV of the Project, DOE will have the right to withhold up to \$1,500,000 (one million five hundred thousand dollars) if Recipient fails to submit to DOE all of the required reports for that year as defined by the cooperative agreement.

(3) Once DOE has paid to Recipient \$283,750,000 (two-hundred-eighty-three million seven-hundred-fifty thousand dollars) in DOE funds, DOE will disburse the remaining funds for allowable costs earned and invoiced by Recipient as follows:

- (a) \$5,000,000 upon Recipient's submission of complete final deliverables, including the Patent Certification and the Final Scientific/Technical Report.

(b) \$5,000,000 upon DOE's acceptance of Recipient's Final Scientific/Technical Report. DOE shall have 60 days after receipt of the Final Scientific/Technical Report (or any revised versions) to provide Recipient with comments and/or concurrence. Upon receipt of DOE's comments, the Recipient shall have 60 days to revise the Final Scientific/Technical Report and resubmit it to DOE (if necessary). Should DOE not provide comments within the 60 days period, the Final Scientific/Technical Report shall be deemed to be accepted and the remaining funds will be disbursed.

SECTION III -INTELLECTUAL PROPERTY PROVISIONS

3.1 Intellectual Property Provisions (JAN 2004)

The patent and technical data clauses included in this section apply to this award. As used in these applicable clauses, the term "Patent Counsel" refers to the following point of contact:

Intellectual Property Law Division
U.S. Department of Energy
Chicago Operations Office
9800 South Cass Avenue
Argonne, IL 60439

In reading these provisions, any reference to "contractor" shall mean "recipient", and any reference to "contract" or "subcontract" shall mean "award" or "sub-award".

The Recipient shall include intellectual property clauses in any sub-award in accordance with requirements of the clauses in this section and of 10 CFR Parts 600.136 or 600.325 as appropriate.

3.2 Confidential Business Information (JAN 2004)

Information represented to the Department as being confidential business information, and which does not include "Technical Data" as that term is defined in the "Rights in Data" clause in this agreement, shall be submitted as an attachment to the required reports and will be withheld from disclosure outside the U.S. Government to the extent permitted by law. Such attachment and each page therein shall be stamped with the following legend and no other:

CONFIDENTIAL BUSINESS INFORMATION

The Recipient considers the material furnished herein to contain confidential business information which is to be withheld from disclosure outside the U.S. Government to the extent permitted by law.

3.3 52.227-1 Authorization and Consent (JUL 1995) - Alternate I (APR 1984)

- (a) The Government authorizes and consents to all use and manufacture of any invention described in and covered by a United States patent in the performance of this contract or any subcontract at any tier.
- (b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold); however, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.

3.4 52.227-2 Notice and Assistance Regarding Patent and Copyright Infringement (AUG 1996)

- (a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.
- (b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government.

- (c) The Contractor agrees to include, and require inclusion of, this clause in all subcontracts at any tier for supplies or services (including construction and architect-engineer subcontracts and those for material, supplies, models, samples, or design or testing services) expected to exceed the simplified acquisition threshold at FAR 2.101.

3.5 52.227-3 Patent Indemnity (APR 1984)

- (a) The Contractor shall indemnify the Government and its officers, agents, and employees against liability, including costs, for infringement of any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secrecy Order under 35 U.S.C. 181) arising out of the manufacture or delivery of supplies, the performance of services, or the construction, alteration, modification, or repair of real property (hereinafter referred to as "construction work") under this contract, or out of the use or disposal by or for the account of the Government of such supplies or construction work.
- (b) This indemnity shall not apply unless the Contractor shall have been informed as soon as practicable by the Government of the suit or action alleging such infringement and shall have been given such opportunity as is afforded by applicable laws, rules, or regulations to participate in its defense. Further, this indemnity shall not apply to -
 - (1) An infringement resulting from compliance with specific written instructions of the Contracting Officer directing a change in the supplies to be delivered or in the materials or equipment to be used, or directing a manner of performance of the contract not normally used by the Contractor;
 - (2) An infringement resulting from addition to or change in supplies or components furnished or construction work performed that was made subsequent to delivery or performance; or
 - (3) A claimed infringement that is unreasonably settled without the consent of the Contractor, unless required by final decree of a court of competent jurisdiction.

3.6 952.227-9 Refund of Royalties (FEB 1995)

- (a) The contract price includes certain amounts for royalties payable by the Contractor or subcontractors or both, which amounts have been reported to the Contracting Officer.
- (b) The term "royalties" as used in this clause refers to any costs or charges in the nature of royalties, license fees, patent or license amortization costs, or the like, for the use of or for rights in patents and patent applications in connection with performing this contract or any subcontract hereunder. The term also includes any costs or charges associated with the access to, use of, or other right pertaining to data that is represented to be proprietary and is related to the performance of this contract or the copying of such data or data that is copyrighted.
- (c) The Contractor shall furnish to the Contracting Officer, before final payment under this contract, a statement of royalties paid or required to be paid in connection with performing this contract and subcontracts hereunder together with the reasons.
- (d) The Contractor will be compensated for royalties reported under paragraph (c) of this clause, only to the extent that such royalties were included in the contract price and are determined by the Contracting Officer to be properly chargeable to the Government and allocable to the contract. To the extent that any royalties that are included in the contract price are not, in fact, paid by the Contractor or are determined by the Contracting Officer not to be properly chargeable to the government and allocable to the contract, the contract price shall be reduced. Repayment or credit to the Government shall be made as the Contracting Officer directs. The approval by DOE of any individual payments or royalties shall not prevent the Government from contesting at any time the enforceability, validity, scope of, or title to, any patent or the proprietary nature of data pursuant to which a royalty or other payment is to be or has been made.
- (e) If, at any time within 3 years after final payment under this contract, the Contractor for any reason is relieved

in whole or in part from the payment of the royalties included in the final contract price as adjusted pursuant to paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer of that fact and shall reimburse the Government in a corresponding amount.

- (f) The substance of this clause, including this paragraph (f), shall be included in any subcontract in which the amount of royalties reported during negotiation of the subcontract exceeds \$250.

3.7 Patent Rights (Large Business Firms) - No Waiver (OCT 2003)

(a) Definitions

DOE patent waiver regulations, as used in this clause, means the Department of Energy patent waiver regulations in effect on the date of award. See 10 CFR Part 784.

Invention, as used in this clause, means any invention or discovery which is or may be patentable or otherwise protectable under title 35 of the United States Code or any novel variety of plant that is or may be protectable under the Plant Variety Protection Act (7 U.S.C. 2321, et seq.).

Patent Counsel, as used in this clause, means the Department of Energy Patent Counsel assisting the awarding activity.

Subject invention, as used in this clause, means any invention of the Recipient conceived or first actually reduced to practice in the course of or under this agreement.

(b) Allocations of Principal Rights

- (1) Assignment to the Government. The Recipient agrees to assign to the Government the entire right, title, and interest throughout the world in and to each subject invention, except to the extent that rights are retained by the Recipient under subparagraph (b)(2) and paragraph (d) of this clause.
- (2) Greater rights determinations. The Recipient, or an employee-inventor after consultation with the Recipient, may request greater rights than the nonexclusive license in the foreign patent rights provided in paragraph (d) of this clause on identified inventions in accordance with the DOE patent waiver regulation. Each determination of greater rights under this agreement shall be subject to paragraph (c) of this clause, unless otherwise provided in the greater rights determination, and to the reservations and conditions deemed to be appropriate by the Secretary of Energy or designee.

(c) Minimum Rights Acquired by the Government

With respect to each subject invention to which the Department of Energy grants the Recipient principal or exclusive rights, the Recipient agrees to grant to the Government: A nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced each subject invention throughout the world by or on behalf of the Government of the United States (including any Government agency); "march-in rights" as set forth in 37 CFR 401.14(a)(J); preference for U.S. industry as set forth in 37 CFR 401.14(a)(I); periodic reports upon request, no more frequently than annually, on the utilization or intent of utilization of a subject invention in a manner consistent with 35 U.S.C. 202(c)(5); and such Government rights in any instrument transferring rights in a subject invention.

(d) Minimum Rights to the Recipient

- (1) The Recipient is hereby granted a revocable, nonexclusive, royalty-free license in each patent application filed in any country on a subject invention and any resulting patent in which the Government obtains title, unless the Recipient fails to disclose the subject invention within the times specified in subparagraph (e)(2) of this clause. The Recipient's license extends to its domestic subsidiaries and affiliates, if any, within the corporate structure of which the Recipient is a part and includes the right to grant sublicenses of the same scope to the extent the Recipient was legally

obligated to do so at the time the agreement was awarded. The license is transferable only with the approval of DOE except when transferred to the successor of that part of the Recipient's business to which the invention pertains.

- (2) The Recipient may request the right to acquire patent rights to a subject invention in any foreign country where the Government has elected not to secure such rights, subject to the minimum rights acquired by the Government similar to paragraph (c) of this clause. Such request must be made in writing to the Patent Counsel as part of the disclosure required by subparagraph (e)(2) of this clause, with a copy to the DOE Contracting Officer. DOE approval, if given, will be based on a determination that this would best serve the national interest.

(e) Invention Identification, Disclosures, and Reports

- (1) The Recipient shall establish and maintain active and effective procedures to assure that subject inventions are promptly identified and disclosed to Recipient personnel responsible for patent matters within 6 months of conception and/or first actual reduction to practice, whichever occurs first in the performance of work under this agreement. These procedures shall include the maintenance of laboratory notebooks or equivalent records and other records as are reasonably necessary to document the conception and/or the first actual reduction to practice of subject inventions, and records that show that the procedures for identifying and disclosing the inventions are followed. Upon request, the Recipient shall furnish the Contracting Officer a description of such procedures for evaluation and for determination as to their effectiveness.
- (2) The Recipient shall disclose each subject invention to the DOE Patent Counsel with a copy to the Contracting Officer within 2 months after the inventor discloses it in writing to Recipient personnel responsible for patent matters or, if earlier, within 6 months after the Recipient becomes aware that a subject invention has been made, but in any event before any on sale, public use, or publication of such invention known to the Recipient. The disclosure to DOE shall be in the form of a written report and shall identify the agreement under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding, to the extent known at the time of the disclosure, of the nature, purpose, operation, and physical, chemical, biological, or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale, or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to DOE, the Recipient shall promptly notify Patent Counsel of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the Recipient. The report should also include any request for a greater rights determination in accordance with subparagraph (b)(2) of this clause. When an invention is disclosed to DOE under this paragraph, it shall be deemed to have been made in the manner specified in Sections (a)(1) and (a)(2) of 42 U.S.C. 5908, unless the Recipient contends in writing at the time the invention is disclosed that it was not so made.
- (3) The Recipient shall furnish the Contracting Officer a final report, within 3 months after completion of the work listing all subject inventions or containing a statement that there were no such inventions, and listing all sub-awards/contracts at any tier containing a patent rights clause or containing a statement that there were no such sub-awards/contracts.
- (4) The Recipient agrees to require, by written agreement, its employees, other than clerical and non-technical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the Recipient each subject invention made under sub-award/contract in order that the Recipient can comply with the disclosure provisions of paragraph (c) of this clause, and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by subparagraph (e)(2) of this clause.

- (5) The Recipient agrees, subject to FAR 27.302(j), that the Government may duplicate and disclose subject invention disclosures and all other reports and papers furnished or required to be furnished pursuant to this clause.

(f) Examination of Records Relating to Inventions

- (1) The Contracting Officer or any authorized representative shall, until 3 years after final payment under this agreement, have the right to examine any books (including laboratory notebooks), records, and documents of the Recipient relating to the conception or first actual reduction to practice of inventions in the same field of technology as the work under this agreement to determine whether –
 - (i) Any such inventions are subject inventions;
 - (ii) The Recipient has established and maintains the procedures required by subparagraphs (e)(1) and (4) of this clause;
 - (iii) The Recipient and its inventors have complied with the procedures.
- (2) If the Contracting Officer learns of an unreported Recipient invention which the Contracting Officer believes may be a subject invention, the Recipient may be required to disclose the invention to DOE for a determination of ownership rights.
- (3) Any examination of records under this paragraph will be subject to appropriate conditions to protect the confidentiality of the information involved.

(g) Sub-Award/Contract

- (1) The recipient shall include the clause PATENT RIGHTS (SMALL BUSINESS FIRMS AND NONPROFIT ORGANIZATIONS) (suitably modified to identify the parties) in all sub-awards/contracts, regardless of tier, for experimental, developmental, demonstration, or research work to be performed by a small business firm or domestic nonprofit organization, except where the work of the sub-award/contract is subject to an Exceptional Circumstances Determination by DOE. In all other sub-awards/contracts, regardless of tier, for experimental, developmental, demonstration, or research work, the Recipient shall include this clause (suitably modified to identify the parties), or an alternate clause as directed by the contracting officer. The Recipient shall not, as part of the consideration for awarding the sub-award/contract, obtain rights in the sub-recipient's/contractor's subject inventions.
- (2) In the event of a refusal by a prospective sub-recipient/contractor to accept such a clause the Recipient:
 - (i) Shall promptly submit a written notice to the Contracting Officer setting forth the sub-recipient/contractor's reasons for such refusal and other pertinent information that may expedite disposition of the matter; and
 - (ii) Shall not proceed with such sub-award/contract without the written authorization of the Contracting Officer.
- (3) In the case of sub-awards/contracts at any tier, DOE, the sub-recipient/contractor, and Recipient agree that the mutual obligations of the parties created by this clause constitute a contract between the sub-recipient/contractor and DOE with respect to those matters covered by this clause.
- (4) The Recipient shall promptly notify the Contracting Officer in writing upon the award of any sub-award/contract at any tier containing a patent rights clause by identifying the sub-recipient/contractor, the applicable patent rights clause, the work to be performed under the sub-award/contract, and the dates of award and estimated completion. Upon request of the Contracting Officer, the Recipient shall furnish a copy of such sub-award/contract, and, no more frequently than

annually, a listing of the sub-awards/contracts that have been awarded.

- (5) The Recipient shall identify all subject inventions of a sub-recipient/contractor of which it acquires knowledge in the performance of this agreement and shall notify the Patent Counsel, with a copy to the contracting officer, promptly upon identification of the inventions.

(h) Atomic Energy

- (1) No claim for pecuniary award of compensation under the provisions of the Atomic Energy Act of 1954, as amended, shall be asserted with respect to any invention or discovery made or conceived in the course of or under this agreement.

- (2) Except as otherwise authorized in writing by the Contracting Officer, the Recipient will obtain patent agreements to effectuate the provisions of subparagraph (h)(1) of this clause from all persons who perform any part of the work under this agreement, except non-technical personnel, such as clerical employees and manual laborers.

(i) Publication

It is recognized that during the course of the work under this agreement, the Recipient or its employees may from time to time desire to release or publish information regarding scientific or technical developments conceived or first actually reduced to practice in the course of or under this agreement. In order that public disclosure of such information will not adversely affect the patent interests of DOE or the Recipient, patent approval for release of publication shall be secured from Patent Counsel prior to any such release or publication.

(j) Forfeiture of Rights in Unreported Subject Invention

- (1) The Recipient shall forfeit and assign to the Government, at the request of the Secretary of Energy or designee, all rights in any subject invention which the Recipient fails to report to Patent Counsel within six months after the time the Recipient:

- (i) Files or causes to be filed a United States or foreign patent application thereon; or

- (ii) Submits the final report required by subparagraph (e)(3) of this clause, whichever is later.

- (2) However, the Recipient shall not forfeit rights in a subject invention if, within the time specified in subparagraph (e)(2) of this clause, the Recipient:

- (i) Prepares a written decision based upon a review of the record that the invention was neither conceived nor first actually reduced to practice in the course of or under the agreement and delivers the decision to Patent Counsel, with a copy to the Contracting Officer, or

- (ii) Contending that the invention is not a subject invention, the Recipient nevertheless discloses the invention and all facts pertinent to this contention to the Patent Counsel, with a copy of the Contracting Officer; or

- (iii) Establishes that the failure to disclose did not result from the Recipient's fault or negligence.

- (3) Pending written assignment of the patent application and patents on a subject invention determined by the Secretary of Energy or designee to be forfeited (such determination to be a final decision under the Disputes clause of this agreement), the Recipient shall be deemed to hold the invention and the patent applications and patents pertaining thereto in trust for the Government. The forfeiture provision of this paragraph (j) shall be in addition to and shall not supersede other rights and remedies which the Government may have with respect to subject inventions.

3.8 Rights in Data – Programs Covered Under Special Data Statutes (OCT 2003)

(a) Definitions

Computer Data Bases, as used in this clause, means a collection of data in a form capable of, and for the purpose of, being stored in, processed, and operated on by a computer. The term does not include computer software.

Computer software, as used in this clause, means (i) computer programs which are data comprising a series of instructions, rules, routines, or statements, regardless of the media in which recorded, that allow or cause a computer to perform a specific operation or series of operations and (ii) data comprising source code listings, design details, algorithms, processes, flow charts, formulae and related material that would enable the computer program to be produced, created or compiled. The term does not include computer data bases.

Data, as used in this clause, means recorded information, regardless of form or the media on which it may be recorded. The term includes technical data and computer software. The term does not include information incidental to administration, such as financial, administrative, cost or pricing or management information.

Form, fit, and function data, as used in this clause, means data relating to items, components, or processes that are sufficient to enable physical and functional interchangeability as well as data identifying source, size, configuration, mating and attachment characteristics, functional characteristics, and performance requirements except that for computer software it means data identifying source, functional characteristics, and performance requirements but specifically excludes the source code, algorithm, process, formulae, and flow charts of the software.

Limited rights data, as used in this clause, means data (other than computer software) developed at private expense that embody trade secrets or are commercial or financial and confidential or privileged.

Restricted computer software, as used in this clause, means computer software developed at private expense and that is a trade secret; is commercial or financial and confidential or privileged; or is published copyrighted computer software; including modifications of such computer software.

Protected data, as used in this clause, means technical data or commercial or financial data first produced in the performance of the award which, if it had been obtained from and first produced by a non-federal party, would be a trade secret or commercial or financial information that is privileged or confidential under the meaning of 5 U.S.C. 552(b)(4) and which data is marked as being protected data by a party to the award.

Protected rights, as used in this clause, mean the rights in protected data set forth in the Protected Rights Notice of paragraph (g) of this clause.

Technical data, as used in this clause, means that data which are of a scientific or technical nature. Technical data does not include computer software, but does include manuals and instructional materials and technical data formatted as a computer data base.

Unlimited rights, as used in this clause, means the right of the Government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose whatsoever, and to have or permit others to do so.

(b) Allocation of Rights

- (1) Except as provided in paragraph (c) of this clause regarding copyright, the Government shall have unlimited rights in –

- (i) Data specifically identified in this agreement as data to be delivered without restriction;
 - (ii) Form, fit, and function data delivered under this agreement;
 - (iii) Data delivered under this agreement (except for restricted computer software) that constitute manuals or instructional and training material for installation, operation, or routine maintenance and repair of items, components, or processes delivered or furnished for use under this agreement; and
 - (iv) All other data delivered under this agreement unless provided otherwise for protected data in accordance with paragraph (g) of this clause or for limited rights data or restricted computer software in accordance with paragraph (h) of this clause.
- (2) The Recipient shall have the right to –
- (i) Protect rights in protected data delivered under this agreement in the manner and to the extent provided in paragraph (g) of this clause;
 - (ii) Withhold from delivery those data which are limited rights data or restricted computer software to the extent provided in paragraph (h) of this clause;
 - (iii) Substantiate use of, add, or correct protected rights or copyrights notices and to take other appropriate action, in accordance with paragraph (e) of this clause; and
 - (iv) Establish claim to copyright subsisting in data first produced in the performance of this agreement to the extent provided in subparagraph (c)(1) of this clause.

(c) Copyright

- (1) Data first produced in the performance of this agreement. Except as otherwise specifically provided in this agreement, the Recipient may establish, without the prior approval of the Contracting Officer, claim to copyright subsisting in any data first produced in the performance of this agreement. If claim to copyright is made, the Recipient shall affix the applicable copyright notice of 17 U.S.C. 401 or 402 and acknowledgment of Government sponsorship (including agreement number) to the data when such data are delivered to the Government, as well as when the data are published or deposited for registration as a published work in the U.S. Copyright Office. For such copyrighted data, including computer software, the Recipient grants to the Government, and others acting on its behalf, a paid-up nonexclusive, irrevocable, worldwide license to reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, by or on behalf of the Government, for all such data.
- (2) Data not first produced in the performance of this agreement. The Recipient shall not, without prior written permission of the Contracting Officer, incorporate in data delivered under this agreement any data that are not first produced in the performance of this agreement and that contain the copyright notice of 17 U.S.C. 401 or 402, unless the Recipient identifies such data and grants to the Government, or acquires on its behalf, a license of the same scope as set forth in subparagraph (c)(1) of this clause; provided, however, that if such data are computer software, the Government shall acquire a copyright license as set forth in subparagraph (h)(3) of this clause if included in this agreement or as otherwise may be provided in a collateral agreement incorporated or made a part of this agreement.
- (3) Removal of copyright notices. The Government agrees not to remove any copyright notices placed on data pursuant to this paragraph (c), and to include such notices on all reproductions of the data.

(d) Release, Publication and Use of Data

- (1) The Recipient shall have the right to use, release to others, reproduce, distribute, or publish any data first produced or specifically used by the Recipient in the performance of this contract, except to the extent such data may be subject to the Federal export control or national security laws or regulations, or unless otherwise provided in this paragraph of this clause or expressly set forth in this contract.
- (2) The Recipient agrees that to the extent it receives or is given access to data necessary for the performance of this agreement which contain restrictive markings, the Recipient shall treat the data in accordance with such markings unless otherwise specifically authorized in writing by the Contracting Officer.

(e) Unauthorized Marking of Data

- (1) Notwithstanding any other provisions of this agreement concerning inspection or acceptance, if any data delivered under this agreement are marked with the notices specified in subparagraph (h)(2) or (h)(3) of this clause and use of such is not authorized by this clause, or if such data bears any other restrictive or limiting markings not authorized by this agreement, the Contracting Officer may at any time either return the data to the Recipient or cancel or ignore the markings. However, the following procedures shall apply prior to canceling or ignoring the markings.
 - (i) The Contracting Officer shall make written inquiry to the Recipient affording the Recipient 30 days from receipt of the inquiry to provide written justification to substantiate the propriety of the markings;
 - (ii) If the Recipient fails to respond or fails to provide written justification to substantiate the propriety of the markings within the 30-day period (or a longer time not exceeding 90 days approved in writing by the Contracting Officer for good cause shown), the Government shall have the right to cancel or ignore the markings at any time after said period and the data will no longer be made subject to any disclosure prohibitions.
 - (iii) If the Recipient provides written justification to substantiate the propriety of the markings within the period set in subdivision (e)(1)(i) of this clause, the Contracting Officer shall consider such written justification and determine whether or not the markings are to be cancelled or ignored. If the Contracting Officer determines that the markings are authorized, the Recipient shall be so notified in writing. If the Contracting Officer determines, with concurrence of the head of the contracting activity, that the markings are not authorized, the Contracting Officer shall furnish the Recipient a written determination, which determination shall become the final agency decision regarding the appropriateness of the markings unless the Recipient files suit in a court of competent jurisdiction within 90 days of receipt of the Contracting Officer's decision. The Government shall continue to abide by the markings under this subdivision (e)(1)(iii) until final resolution of the matter either by the Contracting Officer's determination become final (in which instance the Government shall thereafter have the right to cancel or ignore the markings at any time and the data will no longer be made subject to any disclosure prohibitions), or by final disposition of the matter by court decision if suit is filed.
- (2) The time limits in the procedures set forth in subparagraph (e)(1) of this clause may be modified in accordance with agency regulations implementing the Freedom of Information Act (5 U.S.C. 552) if necessary to respond to a request thereunder.

(f) Omitted or Incorrect Markings

- (1) Data delivered to the Government without either the limited rights or restricted rights notice as

authorized by paragraph (g) of this clause, or the copyright notice required by paragraph (c) of this clause, shall be deemed to have been furnished with unlimited rights, and the Government assumes no liability for the disclosure, use, or reproduction of such data. However, to the extent the data has not been disclosed without restriction outside the Government, the Recipient may request, within 6 months (or a longer time approved by the Contracting Officer for good cause shown) after delivery of such data, permission to have notices placed on qualifying data at the Recipient's expense, and the Contracting Officer may agree to do so if the Recipient –

- (i) Identifies the data to which the omitted notice is to be applied;
- (ii) Demonstrates that the omission of the notice was inadvertent;
- (iii) Establishes that the use of the proposed notice is authorized; and
- (iv) Acknowledges that the Government has no liability with respect to the disclosure, use, or reproduction of any such data made prior to the addition of the notice or resulting from the omission of the notice.

(2) The Contracting Officer may also:

- (i) Permit correction at the Recipient's expense of incorrect notices if the Recipient identifies the data on which correction of the notice is to be made, and demonstrates that the correct notice is authorized; or
- (ii) Correct any incorrect notices.

(g) Rights to Protected Data

- (1) The Recipient may, with the concurrence of DOE, claim and mark as protected data, any data first produced in the performance of this award that would have been treated as a trade secret if developed at private expense. Any such claimed "protected data" will be clearly marked with the following Protected Rights Notice, and will be treated in accordance with such Notice, subject to the provisions of paragraphs (e) and (f) of this clause.

PROTECTED RIGHTS NOTICE

These protected data were produced under Agreement Number DE-FC26-06NT42391 with the U.S. Department of Energy and may not be published, disseminated, or disclosed to others outside the Government until five years after the completion of the Demonstration Phase, unless express written authorization is obtained from the recipient. Upon expiration of the period of protection set forth in this Notice, the Government shall have unlimited rights in this data. This Notice shall be marked on any reproduction of this data, in whole or in part.

(End of notice).

- (2) Any such marked Protected Data may be disclosed under obligations of confidentiality for the following purposes:
 - (i) For evaluation purposes under the restriction that the "Protected Data" be retained in confidence and not be further disclosed;
 - (ii) To subcontractors or other team members performing work under the Government's Clean Coal Power Initiative program of which this award is a part, for information or use in connection with the work performed under their activity, and under the restriction that the Protected Data be retained in confidence and not be further disclosed.; or

- (iii) As otherwise allowed in this agreement, use by the Government or others on its behalf to the extent necessary to enable the Government to complete the Statement of Project Objectives (Attachment A) of this agreement.
- (3) The obligations of confidentiality and restrictions on publication and dissemination shall end for any Protected Data:
- (i) At the end of the protected period;
 - (ii) If the data becomes publicly known or available from other sources without a breach of the obligation of confidentiality with respect to the Protected Data;
 - (iii) If the same data is independently developed by someone who did not have access to the Protected Data and such data is made available without obligations of confidentiality; or
 - (iv) If the Recipient disseminates or authorizes another to disseminate such data without obligations of confidentiality.
- (4) However, the Recipient agrees that the following types of data are not considered to be protected and shall be provided to the Government when required by this award without any claim that the data are Protected Data. The parties agree that notwithstanding the following lists of types of data, nothing precludes the Government from seeking delivery of additional data in accordance with this award, or from making publicly available additional non-protected data, nor does the following list constitute any admission by the Government that technical data not on the list is Protected Data.

UNLIMITED RIGHTS DATA

[REDACTED]

Design

[REDACTED]

(5) The Government's sole obligation with respect to any protected data shall be as set forth in this paragraph.

(h) Protection of Limited Rights Data

(1) When data other than that listed in subparagraphs (b)(1)(i), (ii), and (iii) of this clause are specified to be delivered under this agreement and such data qualify as either limited rights data or restricted computer software, the Recipient, if the Recipient desires to continue protection of such data, shall withhold such data and not furnish them to the Government under this agreement. As a condition to this withholding the Recipient shall identify the data being withheld and furnish form, fit, and function data in lieu thereof.

(2) Notwithstanding subparagraph (h)(1) of this clause, the agreement may identify and specify the delivery of limited rights data, or the Contracting Officer may require by written request the delivery of limited rights data that has been withheld or would otherwise be withholdable. If delivery of such data is so required, the Recipient may affix the following "Limited Rights Notice" to the data and the Government will thereafter treat the data, in accordance with such Notice:

LIMITED RIGHTS NOTICE

- (a) These data are submitted with limited rights under Government Agreement Number DE-FC26-06NT42391. These data may be reproduced and used by the Government with the express limitation that they will not, without written permission of the Recipient, be used for purposes of manufacture nor disclosed outside the Government; except that the Government may disclose these data outside the Government for the following purposes, if any, provided that the Government makes such disclosure subject to prohibition against further use and disclosure:

- (1) Use (except for manufacture) by Federal support services contractors within the scope of their contracts;
- (2) This "limited rights data" may be disclosed for evaluation purposes under the restriction that the "limited rights data" be retained in confidence and not be further disclosed;
- (3) This "limited rights data" may be disclosed to other contractors participating in the Government's program of which this Recipient is a part for information or use (except for manufacture) in connection with the work performed under their awards and under the restriction that the "limited rights data" be retained in confidence and not be further disclosed;
- (4) This "limited rights data" may be used by the Government or others on its behalf for emergency repair or overhaul work under the restriction that the "limited rights data" be retained in confidence and not be further disclosed;
- (5) Release to a foreign government, or instrumentality thereof, as the interests of the United States Government may require, for information or evaluation, or for emergency repair or overhaul work by such government. This Notice shall be marked on any reproduction of this data in whole or in part; and
- (6) As otherwise allowed in this agreement, use by the Government or others on its behalf to the extent necessary to enable the Government to complete the Statement of Project Objectives (Attachment A) of this agreement.

- (b) This Notice shall be marked on any reproduction of these data, in whole or in part.

(End of notice)

(h)(3) Notwithstanding subparagraph (h)(1) of this clause, the agreement may identify and specify the delivery of restricted computer software, or the Contracting Officer may require by written request the delivery of restricted computer software that has been withheld or would otherwise be withholdable. If delivery of such computer software is so required, the Recipient may affix the following "Restricted Rights Notice" to the computer software and the Government will thereafter treat the computer software, subject to paragraphs (e) and (f) of this clause, in accordance with the Notice.

RESTRICTED RIGHTS NOTICE

- (a) This computer software is submitted with restricted rights under Government Agreement Number DE-FC26-06NT42391. It may not be used, reproduced, or disclosed by the Government except as provided in paragraph (b) of this Notice or as otherwise expressly stated in the agreement.
- (b) This computer software may be –
- (1) Used or copied for use in or with the computer or computers for which it was acquired, including use at any Government installation to which such computer or computers may be transferred;
 - (2) Used or copied for use in a backup computer if any computer for which it was acquired is

inoperative;

- (3) Reproduced for safekeeping (archives) or backup purposes;
 - (4) Modified, adapted, or combined with other computer software, provided that the modified, combined, or adapted portions of the derivative software are made subject to the same restricted rights;
 - (5) Disclosed to and reproduced for use by support service Contractors in accordance with subparagraph (b)(1) through (4) of this clause, provided the Government makes such disclosure or reproduction subject to these restricted rights;
 - (6) Used or copied for use in or transferred to a replacement computer; and
 - (7) As otherwise allowed in this agreement, use by the Government or others on its behalf to the extent necessary to enable the Government to complete the Statement of Project Objectives (Attachment A) of this agreement.
- (c) Notwithstanding the foregoing, if this computer software is published copyrighted computer software, it is licensed to the Government, without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this clause.
 - (d) Any other rights or limitations regarding the use, duplication, or disclosure of this computer software are to be expressly stated, in, or incorporated in, the agreement.
 - (e) This Notice shall be marked on any reproduction of this computer software, in whole or in part.

(End of notice)

(ii) Where it is impractical to include the Restricted Rights Notice on restricted computer software, the following short-form Notice may be used in lieu thereof:

RESTRICTED RIGHTS NOTICE

Use, reproduction, or disclosure is subject to restrictions set forth in Agreement Number DE-FC26-06NT42391 with Southern Company Services, Inc.

(End of notice)

(iii) If restricted computer software is delivered with the copyright notice of 17 U.S.C. 401, it will be presumed to be published copyrighted computer software licensed to the government without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this clause, unless the Recipient includes the following statement with such copyright notice: "Unpublished -- rights reserved under the Copyright Laws of the United States."

(i) Sub-award/Contract

The Recipient has the responsibility to obtain from its sub-recipients/contractors all data and rights therein necessary to fulfill the Recipient's obligations to the Government under this agreement. If a sub-recipient/contractor refuses to accept terms affording the Government such rights, the Recipient shall promptly bring such refusal to the attention of the Contracting Officer and not proceed with sub-award/contract award without further authorization.

(j) Additional Data Requirements

In addition to the data specified elsewhere in this agreement to be delivered, the Contracting Officer may, at anytime during agreement performance or within a period of 3 years after acceptance of all items to be

delivered under this agreement, order any data first produced or specifically used in the performance of this agreement. This clause is applicable to all data ordered under this subparagraph. Nothing contained in this subparagraph shall require the Recipient to deliver any data the withholding of which is authorized by this clause or data which are specifically identified in this agreement as not subject to this clause. When data are to be delivered under this subparagraph, the Recipient will be compensated for converting the data into the prescribed form, for reproduction, and for delivery.

- (k) The Recipient agrees, except as may be otherwise specified in this agreement for specific data items listed as not subject to this paragraph, that the Contracting Officer or an authorized representative may, up to three years after acceptance of all items to be delivered under this contract, inspect at the Recipient's facility any data withheld pursuant to paragraph (h) of this clause, for purposes of verifying the Recipient's assertion pertaining to the limited rights or restricted rights status of the data or for evaluating work performance. Where the Recipient whose data are to be inspected demonstrates to the Contracting Officer that there would be a possible conflict of interest if the inspection were made by a particular representative, the Contracting Officer shall designate an alternate inspector.

3.9 Limited Rights Data (JAN 2004)

The limited rights data subject to the "Rights in Data" clause in this award are listed below. This listing of data, which are asserted by the Recipient to be limited rights data, does not constitute an admission by the Government that the data is in fact limited rights data.

LIMITED RIGHTS DATA

Design

[REDACTED]

Operations

[REDACTED]

If a patent is issued by the United States Patent and Trademark Office or the patent office of any foreign country based on any information asserted to be limited rights data, the Government will no longer treat any data contained in such issued patent as limited rights data. In addition, if any information asserted to be limited rights data results in or becomes a Subject Invention, as that term is defined in the patent rights clause of this

agreement, the Government will only treat such data as limited rights data until the Recipient has filed its initial patent application.

The Recipient shall not introduce or utilize any limited rights data not identified in paragraph (1) above in the performance of the award without the expressed written permission of the Contracting Officer.

3.10 Restricted Computer Software (JAN 2004)

The restricted computer software subject to the provisions of the "Rights in Data" clause in this agreement are listed below. This list of software programs, which are asserted by the Recipient to be restricted computer software, does not constitute an admission by the Government that the software is in fact restricted computer software.

RESTRICTED COMPUTER SOFTWARE

[REDACTED]

The Recipient shall not introduce or utilize any restricted computer software not identified above without advance written notification of the Contracting Officer.

3.11 Protected Data (JAN 2004)

The following is a listing of data anticipated to be generated under this award that the Recipient expects will qualify as "Protected Data," as that term is defined in the "Rights in Data" clause in this award. Incorporating this listing of data into this agreement does not constitute a guarantee by the Government that the data will in fact qualify for this designation.

PROTECTED DATA

[REDACTED]

If a patent is issued by the United States Patent and Trademark Office or the patent office of any foreign country based on any information asserted to be Protected Data, the Government will no longer treat any data contained in such issued patent as Protected Data. In addition, if any information asserted to be Protected Data results in or becomes a Subject Invention, as that term is defined in the patent rights clause of this agreement, the Government will only treat such data as Protected Data until the Recipient has filed its initial patent application.

3.12 Availability of contract and other data (DEC 2003)

The Participant will, for the entire period of Participant's participation in the project at the Facility (including operation of the Facility) and for three years thereafter, whether or not under a Government Cooperative Agreement, keep and maintain all technical data, including limited rights data and data obtained from subcontractors and licensors, necessary to construct and/or operate the Facility, and all data including business and financial data necessary to evaluate the technical and economic operation of the Facility. During the entire period of construction and/or operation of the Facility, regardless of whether the Government participates past Design, the Participant shall permit the Government and its representative the right to inspect at the Facility any data kept and maintained pursuant to this paragraph.

3.13 Commercialization of Demonstration Technology. (DEC 2003)

[REDACTED]

3.14 52.227-23 Rights to Proposal Data (Technical) (JUN 1987)

Proposal dated June 10, 2004

Except for data contained on pages 1, 2, 5, 6, 8, 10, 11, 12, 14, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75; Appendix A, - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13; Appendix B - 1, 2, 3, 4, 5, 6, 7, 8; Appendix C - 1; Appendix D - 2, 3, 18, 19, 20, 21, 23, 24, 27 of the Project Narrative, it is agreed that as a condition of award of this contract, and notwithstanding the conditions of any notice appearing thereon, the Government shall have unlimited rights (as defined in the "Rights in Data - General" or the "Rights in Data - Programs Covered Under Special Data Statutes" clause contained in this contract) in and to the technical data contained in the Project Narrative portion of the proposal dated June 10, 2004. All other parts of the proposal are considered to be Limited Rights Data containing sensitive business information and corporate trade secrets of the Recipient and/or of certain subcontractors.

Request to change site from Orlando, Florida to Kemper County, Mississippi (February 2008):

Except for data contained on the 4 cover letters (dated February 12, 2008, February 11, 2008, February 11, 2008 and February 8, 2008, respectively) and pages 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 of the Site Change Request dated February, 2008, it is agreed that as a condition of award of this contract, and notwithstanding the conditions of any notice appearing thereon, the Government shall have unlimited rights (as defined in the "Rights in Data - General" or the "Rights in Data - Programs Covered Under Special Data Statutes" clause contained in this contract) in and to the technical data contained in the Site Change Request portion of the proposal dated February, 2008. All other submittals associated with the Site Change Request under this award are considered to be Limited Rights Data containing sensitive business information and corporate trade secrets of the Recipient and/or of certain subcontractors and thus are subject to the restrictions established by the agreement.

SECTION IV - LIST OF ATTACHMENTS

Attachment A -- Statement of Project Objectives

Attachment B -- Reporting Requirements

Attachment C -- Budget Page(s)

Attachment D -- Amended and Restated Repayment Agreement

ATTACHMENT A
STATEMENT OF PROJECT OBJECTIVES
As of Amendment A004

DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER

Originally this demonstration project was to be conducted at the Orlando Utilities Commission (OUC) Stanton Energy Center near Orlando, Florida; however, due to unforeseen circumstances the project demonstration was terminated at the Orlando facility in November 2007. In December 2007, Southern Company requested that the project be relocated to the Kemper County site in Mississippi. After performing a due diligence review of the site relocation request, DOE approved the request. As a result, the Statement of Project Objectives was modified to reflect the activities that were performed for the Orlando site and the activities which will be performed for the Kemper County site. Where Budget Periods and Phases overlap on work performed at both demonstration sites, the designation of "a" refers to the Orlando site and the designation of "b" refers to the Mississippi site.

Statement of Project Objectives for Activities Associated with the Orlando Site

A. Project Summary (as proposed for the Orlando demonstration site)

Southern Company Services, Inc. (SCS), in a team effort with Southern Power Company – Orlando Gasification, LLC (SPCOG), Orlando Utilities Commission (OUC), and Kellogg Brown and Root (KBR), will design, construct, and operate a coal-based 285-MW Integrated Gasification Combined Cycle (IGCC) power plant to demonstrate Transport Reactor Integrated Gasification (TRIG™) combined cycle technology. The TRIG™ plant, to be located at the Stanton Energy Center near Orlando in Orange County, Florida, will have two main islands: a Gasification Island and a Combined Cycle Island. The Gasification Island will use air-blown transport gasifier technology to generate syngas from U.S. coal (e.g., Powder River Basin coal). The syngas, cleaned in the Gasification Island, would be used for fueling the Combined Cycle Island - - a new combined cycle power generating facility - - planned for installation in 2010 by OUC and SPCOG. Except for the incremental items required for syngas operation, the Combined Cycle Island, which includes a gas turbine, heat recovery steam generator, and a steam turbine, will be built without DOE funds whereas the Gasification Island, which includes the fuel handling, Transport Gasifier (TG), syngas clean up system, and ash handling would be jointly owned by SPCOG and OUC and would be cost shared by DOE.

A key performance target for the TRIG™ plant is to achieve 80% availability without the use of a spare gasification train. In addition to demonstrating a first-of-a-kind gasification system with potential efficiency, capital cost, and operating cost advantages, this technology holds substantial potential for demonstrating the usability of abundant low-rank coals in an advanced power generation system. The project also demonstrates advanced technologies for particulate removal using high temperature-high pressure filters, mercury removal, and operation of a sulfur removal system for syngas cleanup.

Prior to the decision to terminate the demonstration at the Orlando site, the project had initiated tasks in the following three phases: (i) Project Definition, (ii) Detailed Design, and (iii) Construction.

B. Project Objectives (as proposed for the Orlando demonstration site)

The overall objective of the project is to design, construct, and operate a Transport Gasifier based advanced integrated gasification combined cycle power plant that uses U.S. coal to generate 285-MW (net) electricity. The sub-objectives of the project include:

1. To design, build, and operate a state-of-the-art coal Gasification Island utilizing KBR Transport Gasifier technology and integrate it with a Combined Cycle Island.
2. To design, construct, and operate an advanced cleanup system that includes a sulfur removal system, high temperature - high pressure particulate filter (HTHP) system, selective catalytic reduction (SCR), and a

mercury removal system.

3. To demonstrate high availability, high thermal efficiency, low cost, and low emissions of the TRIG™ electricity generation system in commercial operating mode.
4. To develop an effective commercialization strategy to accelerate the TRIG™ technology penetration in the U.S. and international markets.
5. Through reports and conference presentations, disseminate information on the development of the TRIG™ technology. The information reported should include plant efficiency, environmental status, and cost successes for ready replication into commercial practice.

C. Project Phases

The demonstration project was to be conducted in four phases; however, since the demonstration at the Orlando site was terminated during Budget Period 2a, only the first three phases were initiated. Phase IIa and Phase IIIa were initiated but not completed:

Phase I. Project Definition (Budget Period 1): This phase includes front-end engineering design, environmental permitting activities, simulated syngas combustion tests, and NEPA Record of Decision. Phase I activities include: Verification of funding and schedule commitment by SPCOG and OUC for the Combined Cycle Island and its schedule match with that of the Gasification Island, Completion of NEPA Record of Decision and scheduled site permitting activities.

Phase IIa. Detailed Design (Budget Period 2a): This phase includes detailed design engineering, equipment procurement, and continuing environmental permitting activities.

Phase IIIa. Construction (Budget Period 2a): This phase includes Gasification Island construction, installation, commissioning, startup, integration with the Combined Cycle Island, and continued engineering and environmental activities.

D. Work Statement

SCS, the Cooperative Agreement Recipient, in collaboration with the other principal Project Team members, namely SPCOG, OUC, and KBR, shall:

- i. Provide all services, materials, labor, and management necessary for the design, construction, installation, startup, and demonstration of a coal-based 285-MW TRIG™ plant at the Stanton Energy Center, near Orlando, Florida.
- ii. Obtain all necessary licenses, permits, and agreements.
- iii. Develop all detailed plant engineering and design drawings, equipment lists, plant layouts, detailed equipment specifications, construction specifications, bid packages, bid reviews, piping and instrumentation diagrams (P&ID), plant controls, instrumentation, and associated software, and other activities for the construction, installation, startup, operation, data collection, and data evaluation of the demonstration plant.
- iv. Perform all site preparation, civil engineering and utilities, buildings, enclosures, site support, and other site services.
- v. Perform system integration of the Gasifier Island with the Combined Cycle Island for electricity generation and commercial dispatch.
- vi. Prepare and deliver to DOE all reports related to the management, budget, and control of the project as described in the Cooperative Agreement.

vii. Produce and deliver to DOE all conference records, technical reports, topical reports, and informational reports as listed in the Cooperative Agreement.

viii. Closeout activities associated with the Orlando site, following the decision by OUC and SPCOG on November 14, 2007 to terminate the Gasification Island portion of the Orlando facility.

The details are given below.

1.0 Project Definition (Phase I)

The tasks in this phase include completing a detailed project management plan, financial plan, environmental information volume, NEPA requirements, and front-end engineering design. The major subcontracts shall be awarded. The major technology components shall be finalized and the process design of the TRIG™ plant shall be completed.

Task 1.1 Project Management

A detailed Project Management Plan shall be developed encompassing the four project phases. For each phase, the scope, cost, and schedule baselines shall be developed. The organizational structure for project implementation and technology commercialization shall be elaborated. The statements of work and procurement packages shall be developed for major subcontracts including Operations and Maintenance (O&M), environmental/NEPA support, design, and turbine testing. The design documents shall also address the fuel supply arrangements, electricity and by-product sale, plant emissions, waste disposal, and safety issues.

The project management shall include the following business functions to support the project: development and/or application of appropriate cost accounting, property management, procurement methods, and human resources guidelines to meet all Federal, State, and local regulations and standards. Methodologies shall be developed to track cost and scheduling activities throughout the project. The other activities shall include monitoring of actual cost against budgeted cash flows, tracking material costs, tracking progress based on labor-hours, and tracking cost and schedule variances on a monthly basis for the total project, and updating the project schedule. A checklist of the sequential activities shall be prepared from the project schedule. The project schedule diagram shall indicate the mandatory and external dependencies, important milestones, decision points, and budget periods.

A Financing Plan shall be developed that includes finalizing all financial commitments by the managements of the Southern Company and the OUC pertaining to the non-DOE cost share for all four phases of the project and the combined cycle system. The project costs and corresponding sources of funds shall be documented for each phase.

Deliverables

Deliverables marked (I) will be available for inspection on-site by DOE and deliverables marked (D) will be delivered to DOE. Notwithstanding designation of a deliverable as "(I)" DOE may call for delivery of the item pursuant to the provisions of the cooperative agreement.

(a) Formal Project Management Reports listed in the Federal Assistance Reporting checklist. (D)

(b) Project Management Plan encompassing: (i) Project Team and Structure (D), (ii) Technical Baseline (involving preliminary plans of design, construction, and demonstration/tests; process overview and block diagram; outline of the total concept from fuel receipt to electricity sale), (D) (iii) Cost Baseline, (D) (iv) Schedule Baseline (D), (v) Communications Plan (D), (vi) Management and Control Procedures (I), (vii) Work Breakdown Structure at the same level as cost information, except combined cycle (D) (viii) Technical Risk Management Plan (I), and (ix) Final Major Subcontracts (I).

Task 1.2 Environmental/NEPA Requirements

This task prepares an Environmental Information Volume (EIV), documentation for obtaining environmental permitting for the site/project, and supports preparation of an Environmental Impact Statement (EIS) for making a Record of Decision per the National Environmental Policy Act (NEPA) requirement.

This subtask shall collect and document the data required to obtain appropriate environmental permits to construct and operate the demonstration plant on an ongoing basis. These permits shall be obtained from appropriate Federal, State, and local regulatory agencies.

The following activities shall be performed.

1.2.1 Prepare an Environmental Information Volume in accordance with NETL guidance. The EIV shall contain a detailed description of the environmental aspects and projected impacts of the project and shall meet the information needs of the NEPA EIS.

1.2.2 Prepare an Environmental Compliance Plan (ECP) to implement an environmental monitoring and reporting strategy and to meet DOE reporting requirements. The strategy shall include plans for submitting a quality assurance/quality control (QA/QC) plan and a pollution prevention plan (PPP), conducting environmental monitoring, a Hazardous Substance Plan and Hazardous Waste Report, and submitting environmental status reports.

1.2.3 Prepare an Environmental Monitoring Plan (EMP), which specifies the location, duration, frequency, and substances to be monitored to evaluate air, water, and land resources, as well as waste production. The EMP shall consider requirements for compliance monitoring, and NEPA-related monitoring.

Deliverables

Environmental permitting, data and milestones (D); EIV and related NEPA-supporting documentation (D); an Environmental Compliance Plan (D); and an Environmental Monitoring Plan (D)

Task 1.3 Front End Engineering and Design

Initially a conceptual design of the project shall be performed. This shall involve an overview of all design aspects of TRIG™ plant (both Gasification Island and the Combined Cycle Island) and the basis of the Front End Engineering Design (FEED) activities. The major equipment list for the Gasification Island and the Combined Cycle Island shall be separately identified.

The FEED shall involve complete process design and about 30 percent of the total engineering design. This task shall include developing the basis for process design and the information necessary to support environmental permitting and NEPA. Cold-flow modeling shall be included for finalizing the designs of the transport gasifier mixing zone, the cyclone, and the disengager. The process design of the gasification island shall be completed and integrated with the combined cycle system. The major technology components shall be selected including gasification, sulfur removal, particulate removal, and mercury removal systems. The basis for this selection shall be documented. The major sections to be addressed include: (i) fuel delivery and handling, (ii) transport gasifier, (iii) syngas cleanup, (iv) water treatment, (v) combined cycle equipment, (vi) ash handling, and (vii) balance of plant. The project site shall be characterized with regard to topography, and soils to obtain the necessary data for designing layout and foundations of structures and buildings comprising the power plant, solids and water handling systems, and waste disposal.

Deliverables

a) Conceptual Design Report. This report shall present an overview of all design aspects of TRIG™ plant (both Gasification Island and the Combined Cycle Island) and the basis of the FEED activities. The major equipment list for the Gasification Island (D) and Combined Cycle Island shall be separately identified (I).

b) Front End Engineering and Design Report. This report shall encompass: specific technical objectives (D),

overall design basis (D), summary 'as designed' heat and material balances (critical components, Gasification Island, and the complete TRIG™ plant (D) detailed heat and material balance (I), process flow diagrams (PFD) (D), process specification sheets (I), site interfaces (D), gas turbine syngas combustion test report (I), equipment (D) and instrument lists (I), all safety reviews including Hazop (I), updated project schedule (D), controls documentation and support (D), technical specifications for procurement of all long lead (greater than 12 months) items (I), quotations on all major equipment (I), design drawings, detailed construction plan (I), topographic site map, soils report, site plan, and site and plant water balance report.

The design basis, process specifications, material and energy balances, and flow diagrams shall be included in the report separately for the Gasification Island, each of its sections, and each equipment.

Task 1.4 Long Lead Equipment Vendor Selection and Engineering

In this task, the long lead items and qualified vendors shall be identified and the necessary engineering shall be initiated. For critical path items, a detailed schedule for design, procurement, fabrication, delivery, structure construction, installation, and checkout testing shall be prepared. (Invoices against this task will not be accepted until after completion of NEPA ROD).

Deliverables

The long lead equipment report and detailed schedules of critical path items (D)

2.0 Detailed Design (Phase IIa)

The detailed design shall develop the information and documentation necessary to construct and operate the demonstration plant. In this phase, all detailed design packages, bid specifications, and engineering drawings of the plant shall be developed. This task shall develop complete facility design documents required for installation and operation of the Gasification Island, including commissioning and startup. The design documentation shall reflect the 'as-built' conditions upon completion of construction.

The design shall include a test plan development for measuring the performance of the TRIG™ plant from efficiency and emissions perspective under different operating conditions (e.g., alternate sub bituminous coal test, gasifier temperature and pressure, part load, ramp-up, shutdown), and corresponding data analysis methodologies.

2.1 Project Management

The Project Team shall perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to meet technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information shall be updated. The environmental permitting and compliance management efforts shall continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

2.2 Major Engineering Tasks

The major subtasks include structural steel and concrete, architectural, mechanical design, electrical design, instrumentation and controls, equipment procurement packages, construction bid packages, and integration of the Gasification Island with the Combined Cycle Island.

2.2.1 Structural Steel and Concrete: This subtask shall include all civil, structural, and geotechnical engineering associated with the design of the facility, including 3-D computer modeling of the process structures.

2.2.2 Architectural: This subtask shall include the design of all buildings and facilities including the administration

building, mechanical shop, and warehouse.

2.2.3 Mechanical: This subtask includes the following: (i) mechanical design of all equipment including the development of fabrication drawings and specifications for procurement, (ii) piping layout, stress analysis, and support design, generation of isometric drawings for all piping and definition of the piping and valve specifications for procurement, and, (iii) site service systems including fire protection, water supplies, sewage, and plant air.

2.2.4 Electrical Design: This subtask includes the following: (i) development of the single-line configuration to determine the electrical distribution throughout the facility, (ii) development of plans for electrical grounding, lighting, cable trays, and conduit, (iii) design of the station service and plant communication systems, (iv) development of interconnection wiring diagrams for all the equipment, programmable logic controllers, and the integrated control system (ICS), (v) design and procurement specifications for the motor control centers.

2.2.5 Instrumentation and Controls: This subtask includes the following: (i) configuration of the Southern Company standard plant data archiving system, (ii) instrument sizing, specification, and selection, (iii) instrument location drawings and installation details, (iv) instrument loop drawings, control schematics, logic diagrams, and interlock logic diagrams, (v) ICS control configuration, (vi) performance management configuration programming.

2.2.6 Construction Bid Packages: This subtask includes all engineering activity needed to prepare construction bid packages. This work includes assembly of plans, drawings, and specifications for the construction bid packages. It also includes developing a list of qualified bidders for each package, issuing each package to qualified bidders, evaluating construction bids, and preparing requisitions and purchase orders for award of construction contracts.

2.2.7 Procurement: This subtask includes the development of bid inquiry packages, bid evaluation, selection and procurement for all equipment, bulk materials, and services for the Gasification Island.

2.2.8. Integration with Combined Cycle Island: This task shall address the design and schedule related activities for the process integration of the gasification island with the Combined Cycle Island. The major equipment in the Combined Cycle Island shall include a gas turbine, a heat recovery steam generator (includes Selective Catalytic Reduction), condenser, and a steam turbine.

3.0 Construction (Phase IIIa)

The tasks in this phase include construction, installation, commissioning, and startup, and the remaining engineering and environmental compliance support.

3.1 Project Management

The Project Team shall perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to assure technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information shall be updated. The environmental compliance efforts shall continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

3.2 Site Preparation

The selected site shall be developed for installation of structures via grading and excavations, machinery and equipment foundations, and building and service facility foundations.

3.3 TRIG™ Plant Construction

The Project Team shall erect the demonstration plant and all related support systems and facilities. This task includes all equipment, materials, labor, and supervision required to install the foundations, process structures, buildings, bulks for the facility, and balance-of-plant utilities including:

- Indirects
- Site, General
- Steam Generation Area
- Turbine and Generation Area
- Fuel Facilities
- Plant Water Systems
- Electrical Distribution and Switchyard
- Plant Instrumentation and Controls
- Other
- Gasification Facilities
 - Gasification Building
 - Other Gasification Feedstocks Storage and Handling
 - Feedstock Prep
 - Gasification
 - Gasification Ash Removal/Recycle
 - Syngas Treatment
 - Syngas Cooling/Heat Recovery
 - Host Plant Interconnections

3.4 Commissioning and Startup

The Project Team shall prepare commissioning and startup/test plans, procedures, and schedules for the systems and components to be tested. Detailed test requirements and acceptance criteria shall be provided for all advanced equipment to be operated during the commissioning period. During this period most of the equipment acceptance tests shall be completed per the American Society of Mechanical Engineers Performance Test Code (PTC) procedures, modified for local, seasonal weather conditions as necessary. The Project Team shall address all preparations necessary for operating the demonstration plant including, but not limited to, the types of sample analyses necessary to evaluate component and system performance, methods of collecting, reducing, and analyzing data from various components, and, methods for storage and retrieval of raw and refined performance data.

E. Federal Assistance Reporting Checklist

The Recipient shall provide reports in accordance with the enclosed Federal Assistance Reporting Checklist and the instructions accompanying the Checklist.

F. Topical Reports

In addition to reports listed in the Federal Assistance Reporting Checklist, the Recipient shall submit the following to the Government Contracting Officer's Representative (COR). Note that the following are not to be submitted through the official NETL document control system. The due dates of the Topical Reports will be determined by the COR in discussions with the Recipient. These reports will be submitted as a draft until reviewed and approved by the COR.

- i. Conceptual Design Report
- ii. Front End Engineering Design Report

G. Briefings and Technical Presentations

The Recipient shall prepare detailed briefings for presentation to the Government Contracting Officer's Representative (COR) at a NETL site or at a different location as designated by the Government COR. The briefings shall be given by the Recipient to explain the plans, progress, and results of the project effort.

- i. Progress Review and Planning Meetings (every six months)
- ii. Project Kick-off Meeting (soon after the award)
- iii. Conceptual Design Review Meeting (before beginning FEED)
- iv. Front End Engineering Design Review Meeting (end of Phase 1)
- v. Conference Participations

H. Status Reports

Project Management Meetings

Weekly or as-needed project management meetings (either via phone conference with minutes, web/net meetings, or face-to-face) will occur to discuss progress, issues, accomplishments, deliverables, milestones, the work plan, press inquiries, upcoming events, etc.

Once a month, typically linked with invoice submission or cash advance request, the Recipient shall include in its email update current value management data as follows:

Labor Performance Indicator (LPI)
Schedule Performance Indicator (SPI)

Planned Value and Actual Cost should be reported for the current reporting month and cumulative for the project along with Estimate to Completion (ETC), Expended-to-Date (ETD), and Estimate at Completion (EAC). The projected planned and estimated cost for the upcoming reporting month should be assessed. DOE shall have inspection rights to the project management systems and data used to produce standard project progress reporting.

Schedule (Gantt Chart)

The Participant shall maintain a Gantt Chart and report on the project progress through updates to the Gantt Chart as part of the Quarterly Technical Progress Report required by the Federal Assistance Reporting Checklist, DOE Form 4600.2.

Statement of Project Objectives for Activities Associated with the Kemper County Site

A. Project Summary

Southern Company Services, Inc. (SCS), in a team effort with Mississippi Power Company (MPC), and Kellogg Brown & Root LLC (KBR), will design, construct, and operate a coal-based Integrated Gasification Combined Cycle (IGCC) power plant to demonstrate Transport Integrated Gasification (TRIG™) combined cycle (IGCC) technology with CO₂ capture and compression. The TRIG™ plant, to be located at an undeveloped, lignite-mine mouth site in Kemper County, Mississippi, will have two main islands: a Gasification Island and a Combined Cycle Island. The Gasification Island will use air-blown transport gasifier technology to generate syngas from U.S. coal (e.g., Mississippi Lignite). The syngas, cleaned in the Gasification Island, will be used for fueling the Combined Cycle Island. The Gasification Island will include two Transport Gasifiers (TG) each with its own fuel handling and ash handling systems. The Combined Cycle Island will include two gas turbines each with its own heat recovery steam generator, both feeding a single steam turbine.

A key performance target for the TRIG™ plant is to achieve 80% availability without the use of a spare gasification train. In addition to demonstrating a first-of-a-kind gasification system with potential efficiency, capital cost, and operating cost advantages, this technology holds substantial potential for demonstrating the

usability of abundant low-rank coals in an advanced power generation system. The project also demonstrates advanced technologies for particulate removal using high temperature-high pressure filters, mercury removal, and operation of a sulfur removal system for syngas cleanup.

B. Project Objectives

The overall objective of the project is to design, construct, and operate a Transport Gasifier based advanced integrated gasification combined cycle power plant that uses U.S. coal to generate approximately 600-MW (net) electricity. The sub-objectives of the project include:

1. To design, build, and operate a state-of-the-art IGCC facility utilizing KBR Transport Gasifier technology.
2. To design, construct, and operate an advanced cleanup system that includes a sulfur removal system, high temperature - high pressure particulate filter (HTHP) system, selective catalytic reduction (SCR), and a mercury removal system.
3. To design, build, and operate a CO₂ capture and compression system with the intent to capture and geologically sequester by enhanced oil recovery or otherwise at least one million tons per year of CO₂ (approximately 25% capture rate).
4. To demonstrate high availability, high thermal efficiency, low cost, and low emissions of the TRIG™ electricity generation system in commercial operating mode.
5. To develop an effective commercialization strategy to accelerate the TRIG™ technology penetration in the U.S. and international markets.
6. Through reports and conference presentations, disseminate information on the development of the TRIG™ technology. The information reported should include plant efficiency, environmental status, and cost successes for ready replication into commercial practice.

C. Project Phases

The demonstration project at the Kemper County site will be conducted in three phases:

Phase IIb. Detailed Design (Budget Period 2b): This phase includes detailed design engineering, continuing environmental permitting activities and Completion of a NEPA Record of Decision for the Kemper County site.

Phase IIIb. Construction (Budget Period 2b): This phase includes TRIG™ plant, equipment procurement, construction, installation, commissioning, startup, and continued engineering and environmental activities.

Phase IV. Demonstration (Budget Period 2b): This phase includes the commercial operation and maintenance of the TRIG™ demonstration plant with the execution of the test plan. The operating period for the demonstration plant is 48 months. Following demonstration, data analysis and process evaluations will be completed and final reports will be prepared to characterize the technical, environmental, and economic performance of the TRIG™ plant for power generation.

D. Work Statement

SCS, the Cooperative Agreement Recipient, in collaboration with the other principal Project Team members, namely MPC and KBR, shall:

- i. Provide all services, materials, labor, and management necessary for the design, construction, installation, startup, and demonstration of a coal-based TRIG™ plant at a site in Kemper County, Mississippi.

- ii. Obtain all necessary licenses, permits, and agreements.
- iii. Develop all detailed plant engineering and design drawings, equipment lists, plant layouts, detailed equipment specifications, construction specifications, bid packages, bid reviews, piping and instrumentation diagrams (P&ID), plant controls, instrumentation, and associated software, and other activities for the construction, installation, startup, operation, data collection, and data evaluation of the demonstration plant.
- iv. Perform all site preparation, civil engineering and utilities, buildings, enclosures, site support, and other site services.
- v. Prepare and deliver to DOE all reports related to the management, budget, and control of the project as described in the Cooperative Agreement.
- vi. Produce and deliver to DOE all conference records, technical reports, topical reports, and informational reports as listed in the Cooperative Agreement.

The details are given below.

1.0 Detailed Design (Phase IIb)

The detailed design will develop the information and documentation necessary to construct and operate the demonstration plant. In this phase, all detailed design packages, bid specifications, and engineering drawings of the plant will be developed. This task will develop complete facility design documents required for installation and operation of the TRIG™ plant, including commissioning and startup. The design documentation will reflect the 'as-built' conditions upon completion of construction.

The design will include a test plan development for measuring the performance of the TRIG™ plant from efficiency and emissions perspective under different operating conditions (e.g., alternate sub bituminous coal test, gasifier temperature and pressure, part load, ramp-up, shutdown), and corresponding data analysis methodologies.

1.1 Project Management

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to meet technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated. The environmental permitting and compliance management efforts will continue during this phase.

Deliverables

Deliverables marked (I) will be available for inspection on-site by DOE and deliverables marked (D) will be delivered to DOE. Notwithstanding designation of a deliverable as "(I)" DOE may call for delivery of the item pursuant to the provisions of the Cooperative Agreement

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

Project Management Plan encompassing: (i) Project Team and Structure (D), (ii) Technical Baseline (Involving preliminary plans of design, construction, and demonstration/tests; process overview and block diagram; outline of the total concept from fuel receipt to electricity sale), (D) (iii) Cost Baseline, (D) (iv) Schedule Baseline (D), (v) Communications Plan (D), (vi) Management and Control Procedures (I), (vii) Work Breakdown Structure at the same level as cost information (D) (viii) Technical Risk Management Plan (I), and (ix) Final Major Subcontracts (I).

1.2 Major Engineering Tasks

The major subtasks include structural steel and concrete, architectural, mechanical design, electrical design, instrumentation and controls, equipment procurement packages, and construction bid packages.

2.2.1 Structural Steel and Concrete: This subtask includes all civil, structural, and geotechnical engineering associated with the design of the facility, including 3-D computer modeling of the process structures.

2.2.2 Architectural: This subtask includes the design of all buildings and facilities including the administration building, mechanical shop, and warehouse.

2.2.3 Mechanical: This subtask includes the following: (i) mechanical design of all equipment including the development of fabrication drawings and specifications for procurement, (ii) piping layout, stress analysis, and support design, generation of isometric drawings for all piping and definition of the piping and valve specifications for procurement, and (iii) site service systems including fire protection, water supplies, sewage, and plant air.

2.2.4 Electrical Design: This subtask includes the following: (i) development of the single-line configuration to determine the electrical distribution throughout the facility, (ii) development of plans for electrical grounding, lighting, cable trays, and conduit, (iii) design of the station service and plant communication systems, (iv) development of interconnection wiring diagrams for all the equipment, programmable logic controllers, and the integrated control system (ICS), (v) design and procurement specifications for the motor control centers.

2.2.5 Instrumentation and Controls: This subtask includes the following: (i) configuration of the Southern Company standard plant data archiving system, (ii) instrument sizing, specification, and selection, (iii) instrument location drawings and installation details, (iv) instrument loop drawings, control schematics, logic diagrams, and interlock logic diagrams, (v) ICS control configuration, (vi) performance management configuration programming.

2.2.6 Construction Bid Packages: This subtask includes all engineering activity needed to prepare construction bid packages. This work includes assembly of plans, drawings, and specifications for the construction bid packages. It also includes developing a list of qualified bidders for each package, issuing each package to qualified bidders, evaluating the bids, and preparing requisitions and purchase orders for the award of construction contracts.

Deliverables

Detailed Design Report: This report includes the following items: (i) updated plant capital and O&M costs (D), and schedules (D), (ii) design, costs, and construction and installation schedules for each major section and each major equipment (D); TRIG™ plant Demonstration Test Plan outline (D), (iii) estimated environmental emissions, discharges, waste disposal, and compliance (D), and (iv) plant safety features, such as fire and hurricane considerations (D).

2.3 Environmental/NEPA Requirements

This Recipient shall contract with a third party, approved by DOE, for preparation of an Environmental Impact Statement (EIS) in accordance with NETL guidance.

Deliverables

EIS (D).

2.4 Commercialization Strategy Development

The Project Team will develop a commercialization strategy to market the TRIG™ technology (i) by identifying the applicable coal-based markets in different geographic regions of the world, and (ii) by developing 'TRIG™ Technology User Groups' for later dissemination of information on the demonstrated benefits of efficiency, environmental emissions, and cost compared with competing IGCC technologies for coal-based electricity generation. This strategy will include site visits for stakeholders interested in the technology.

Deliverables

A commercialization strategy document presenting target markets, technology merits and licensing revenues, and marketing approaches (I); A summary report (D).

3.0 Construction (Phase IIIb)

The tasks in this phase include construction, installation, commissioning, and startup, and the remaining engineering and environmental compliance support.

3.1 Project Management

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to assure technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated. The environmental compliance efforts will continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

3.2 Procurement: This subtask includes the development of bid inquiry packages, bid evaluation, selection and procurement for all equipment, bulk materials, and services associated with the activities under Phase IIIb.

3.3 Site Preparation

The selected site will be developed for installation of structures via grading and excavations, machinery and equipment foundations, and building and service facility foundations.

Deliverables

A site preparation plan, schedule, and layout diagram(s) (D).

3.4 TRIG™ Plant Construction

The Project Team will erect the demonstration plant and all related support systems and facilities. This task includes all equipment, materials, labor, and supervision required to install the foundations, process structures, buildings, bulks for the facility, and balance-of-plant utilities including:

- Indirects
- Site, General
- Steam Generation Area
- Turbine and Generation Area
- Fuel Facilities
- Plant Water Systems
- Electrical Distribution and Switchyard
- Plant Instrumentation and Controls
- Other
- Gasification Facilities
 - Gasification Building
 - Other Gasification Feedstock Storage and Handling
 - Feedstock Prep
 - Gasification
 - Gasification Ash Removal/Recycle
 - Syngas Treatment

- Syngas Cooling/Heat Recovery
- CO₂ Capture and Compression

Deliverables

Construction Report (D).

3.5 Commissioning and Startup

The Project Team will prepare commissioning and startup/test plans, procedures, and schedules for the systems and components to be tested. Detailed test requirements and acceptance criteria will be provided for all advanced equipment to be operated during the commissioning period. During this period most of the equipment acceptance tests will be completed per the American Society of Mechanical Engineers Performance Test Code (PTC) procedures, modified for local, seasonal weather conditions as necessary. The Project Team will address all preparations necessary for operating the demonstration plant including, but not limited to, the types of sample analyses necessary to evaluate component and system performance, methods of collecting, reducing, and analyzing data from various components, and, methods for storage and retrieval of raw and refined performance data.

Deliverables

Commissioning and Startup Report. A draft Demonstration Test Plan (including commissioning and startup) will be provided prior to start of commissioning and review comments shall be resolved (D).

4.0 Demonstration (Phase IV)

The tasks in this phase include the commercial operation and maintenance of the demonstration plant and execution of the test plan. At the conclusion of the demonstration period, data analysis and process evaluations will be completed and final reports will be prepared to characterize the technical, environmental, and economic performance of the TRIG™ plant used for power generation.

4.1 Project Management

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to meet technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated. The environmental compliance efforts will continue during this phase.

The Project Team will maintain safety and environmental compliance programs and procedures, including but not limited to: establishing operations and maintenance procedures to ensure safe and efficient operation, maintaining documentation of procedures for storage, transportation, and disposal of solid waste, and establishing safety procedures needed to comply with the Occupational Safety and Health Administration regulations.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

4.2 Operations

The Project Team will ensure that the demonstration plant is operated and maintained for commercial generation of electricity and for achieving the project objectives.

The Project Team will ensure, either directly or through appropriate subcontractors that all technical support, operators, mechanics and technicians, management, supervision, equipment, and materials are provided to operate the facility and perform testing in accordance with its commercial nature and test plans. The Project

Team will provide training for all operating personnel, with safety being the top priority.

The Project Team will determine technical performance of the demonstration plant by evaluating heat rate and other key parameters following PTC procedures, modified for local, seasonal weather conditions as necessary. The Project Team will analyze the data and produce final reports detailing environmental, process, and economic performance of the TRIG™ technology. The Project Team will ensure that the environmental performance of the demonstration plant is documented through such categories as gasification ash discharge, stack gas monitoring, water analysis, and gas cleanup performance results.

4.2.1 Test Plan

The Test Plan will be developed for the operation of the facility consistent with the commercial nature of the demonstration plant. The test program for the demonstration phase will be planned for four (4) years to achieve reliable plant operation with high thermal efficiency, low O&M costs and emissions, and a plant availability of at least 80%. Testing will involve plant measurements to improve the performance of all process equipment items and to develop a deeper understanding of the TRIG™ process. Gas measurements shall be performed. Dust measurements to determine HTHP filter particulate capture efficiency will be conducted. The test program objectives will include the following:

- i. Optimizing gasifier performance
- ii. Monitoring equipment thermal and mechanical performance
- iii. Investigating HTHP filter operational performance
- iv. Optimizing gas turbine syngas combustor performance
- v. Monitoring gas turbine internals
- vi. Monitoring and optimizing HRSG performance
- vii. Optimizing SCR performance
- viii. Optimizing and improving process control systems
- ix. Improving startup and load-following capability
- x. Evaluating the use of gasifier ash as a fuel source
- xi. Completing a full survey to characterize all the egress streams
- xii. Compiling plant repair and maintenance records
- xiii. Completing thorough inspections of all plant equipment
- xiv. Alternative sub bituminous coal test

The plant will be operated under commercial dispatch and the test data will be collected at commercially representative conditions. The final equipment inspections will be made and the test results will be reported by the end of the demonstration phase.

4.2.2 Data Analysis

The plant operating information system will be used to achieve real-time data collection and archiving such that the Project Team can perform complete measurement and characterization of input and output streams for each component being tested. The analytical procedures and QA/QC plans will be prepared and maintained for all sampling needs. The analysis of the results will be performed to evaluate performance of the process components and systems, and to fulfill the objectives of the test plan.

Deliverables

Final TRIG™ Project Report. A comprehensive final report based upon all activities accomplished during the Cooperative Agreement. The final report will include the results of process, engineering, environmental, and economic evaluations of the complete TRIG™ plant and subsystems. It will also include final process overview, significant operating achievements, operational problems, plant modifications, operation and production statistics, and recommendations for plant performance optimization, scale up, and commercialization (D).

4.3 Commercialization Strategy Implementation

The Project Team will implement the activities relating to the commercialization plan to market the TRIG™ technology, such as conducting site tours for interested stakeholders and user groups, and disseminating information on the demonstrated technology benefits. A financial model and economic analysis will be developed for a commercial stand-alone TRIG™ plant based on the final capital and O&M cost data of the demonstration plant.

Deliverables

An updated commercialization strategy report. This report includes target markets, technology merits and licensing revenues, marketing strategies, financial model and economic analysis for a commercial TRIG™ plant, a target list of stakeholders interested in the technology, and the preliminary results of marketing efforts during the four-year demonstration phase (I). A summary report (D).

E. Federal Assistance Reporting Checklist

The Recipient shall provide reports in accordance with the enclosed Federal Assistance Reporting Checklist and the instructions accompanying the Checklist.

F. Topical Reports

In addition to reports listed in the Federal Assistance Reporting Checklist, the Recipient will submit the following to the Government Contracting Officer's Representative (COR). Note that the following are not to be submitted through the official NETL document control system. The due dates of the Topical Reports will be determined by the COR in discussions with the Recipient. These reports will be submitted as a draft until reviewed and approved by the COR.

- iii. Front End Engineering Design Report
- iv. Detailed Design Report
- v. Construction Report
- vi. Commissioning and Startup Report
- vii. Commercialization Strategy Report(s)
- viii. Final TRIG™ Project Report

G. Briefings and Technical Presentations

The Recipient will prepare detailed briefings for presentation to the Government Contracting Officer's Representative (COR) at a NETL site or at a different location as designated by the Government COR. The briefings will be given by the Recipient to explain the plans, progress, and results of the project effort.

- vi. Progress Review and Planning Meetings (every six months)
- vii. Front End Engineering Design Review Meeting (beginning of Phase IIb)
- viii. Detailed Design Review Meeting (during Phase IIb)
- ix. Construction Review Meeting (during Phase IIIb)
- x. Final Review Meeting (end of Phase IV)
- xi. Drawings/Photographs/Site Visits
- xii. Conference Participations

H. Status Reports

Project Management Meetings

Weekly or as-needed project management meetings (either via phone conference with minutes, web/net meetings, or face-to-face) will occur to discuss progress, issues, accomplishments, deliverables, milestones, the work plan, press inquiries, upcoming events, etc.

Once a month typically linked with invoice submission or cash advance request, the Recipient will include in its

email update current value management data as follows:

Labor Performance Indicator (LPI)

Schedule Performance Indicator (SPI)

Planned Value and Actual Cost should be reported for the current reporting month and on a cumulative basis for the project along with Estimate to Completion (ETC), Expended-to-Date (ETD), and Estimate at Completion (EAC). The projected planned and estimated cost for the upcoming reporting month should be assessed. DOE will have inspection rights to the project management systems and data used to produce standard project progress reporting.

Schedule (Gantt Chart)

The Participant will maintain a Gantt Chart and report on the project progress through updates to the Gantt Chart as part of the Quarterly Technical Progress Report required by the Federal Assistance Reporting Checklist, DOE Form 4600.2.

ATTACHMENT B

**U.S. Department of Energy
FEDERAL ASSISTANCE REPORTING CHECKLIST
AND INSTRUCTIONS**

1. Identification Number: DE-FC26-06NT42391		2. Program/Project Title: Demonstration of a Coal-based Transport Gasifier	
3. Recipient: Southern Company Services, Inc.			
4. Reporting Requirements:	Frequency	No. Copies of	Addresses
I. MANAGEMENT REPORTING			
<input checked="" type="checkbox"/> Progress Report	Q	Electronic version to NETL>	FITS@NETL.DOE.GOV
<input checked="" type="checkbox"/> Special Status Report	A		
II. SCIENTIFIC/TECHNICAL REPORTING			
<input checked="" type="checkbox"/> Final Scientific/Technical Report DOE F 241.3	FG	Electronic version to E-link>	http://www.osti.gov/eliink-2413
<input checked="" type="checkbox"/> Topical Report DOE F 241.3	A		
<input checked="" type="checkbox"/> Journal Articles/Conference Papers/Proceedings DOE F 241.3	A		
<input type="checkbox"/> DOE 421.4, Software/Manual DOE F 241.3			(Note-software/manual must be sent to award administrator-see instructions under section B-software)
<input type="checkbox"/> Conference Record DOE F 241.3			
III. FINANCIAL REPORTING			
<input checked="" type="checkbox"/> SF-269 or SF-269A, Financial Status Report	Q, FG	Electronic Version to NETL>	FITS@NETL.DOE.GOV
<input type="checkbox"/> SF-272, Federal Cash Transactions Report			
IV. CLOSEOUT REPORTING			
<input checked="" type="checkbox"/> DOE F 2050.11, Patent Certification	FC	Electronic Version to NETL>	FITS@NETL.DOE.GOV
<input type="checkbox"/> NETL F 580.1-9, Property Certificate			
<input type="checkbox"/> SF-120, Report of Excess Personal Property			
V. OTHER REPORTING			
<input type="checkbox"/> NETL F 580.1-8, Annual Report of Property in the Custody of Contractors			
<input type="checkbox"/> NETL F 580.1-25, High Risk Property Report			
<input checked="" type="checkbox"/> Environmental Compliance Plan	A		
<input checked="" type="checkbox"/> Environmental Monitoring Plan	A		
<input checked="" type="checkbox"/> Environmental Status Report	Q		
<input checked="" type="checkbox"/> Other SEE STATEMENT OF PROJECT OBJECTIVES			
FREQUENCY CODES AND DUE DATES:			
<p>A - As required; see attached text for applicability.</p> <p>FG - Final; within ninety (90) calendar days after the project period ends.</p> <p>FC - Final - End of Effort.</p> <p>Q - Quarterly; within thirty (30) calendar days after end of the calendar quarter or portion thereof.</p> <p>S - Semiannually; within thirty (30) calendar days after end of project year and project half-year.</p> <p>YF - Yearly; 90 calendar days after the end of project year.</p> <p>YP - Yearly Property - due 15 days after period ending 9/30.</p>			
5. SPECIAL INSTRUCTIONS:			
<p>* Reports/Products must be submitted with appropriate DOE F 241. The 241 forms are available at www.osti.gov/eliink</p> <p>The forms identified in the checklist are available at http://grants.pr.doe.gov. Alternate formats are acceptable provided the contents remain consistent with the form.</p>			

GENERAL INSTRUCTIONS FOR THE PREPARATION AND SUBMISSION OF ELECTRONIC REPORTS (JAN 2005)

The Recipient must prepare and submit all scientific/technical reports (including conference papers/proceedings, journal articles, software, and topical reports, if applicable) via E-link at <http://www.osti.gov/elinke-2413> [see specific instructions below regarding form submittal and format]. If you have any technical problems with using E-Link or DOE Form 241.3, calls should be directed to OSTI at 865-576-1223. However, if your question is related to other submission issues, you should contact the award administrator identified under block 12 of the DOE F 4600.1 Notice of Financial Assistance Award face page.

For all other reports indicated on the "Federal Assistance Reporting Checklist" (including management, financial, closeout and other reporting), the Recipient must prepare and submit these via the internet at FITS@NETL.DOE.GOV.

Successful completion of this award is contingent upon submittal of the reports or items specified on the "Federal Assistance Reporting Checklist" in accordance with the following instructions:

Failure to follow these instructions can delay data entry of the report(s) into the **NETL FEDERAL INFORMATION TRACKING SYSTEM (FITS)** and result in the report being lost or considered delinquent.

The level of detail the Recipient provides in the reports must be commensurate with the scope and complexity of the effort and must be as delineated in the guidelines and instructions contained herein. The prime Recipient must be responsible for acquiring data from any contractors or sub recipients and ensuring that any information submitted is compatible with the requirements of the DOE.

GUIDELINES FOR ELECTRONIC SUBMISSION AND FILE FORMAT OF NON-SCIENTIFIC/TECHNICAL REPORTS (includes management, financial, closeout and other reporting).

Production of high-quality, electronic documents are dependent on the quality of the input that is provided. Thus, the Recipient must submit an electronic version of each report.

ELECTRONIC REPORTS MUST BE SUBMITTED IN THE ADOBE ACROBAT PORTABLE DOCUMENT FORMAT (PDF). ELECTRONIC REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE RETURNED AND THE REPORT CONSIDERED DELINQUENT. IN ADDITION, THERE CAN BE NO RESTRICTIONS ON THE PDF FILE SUBMITTED THAT WOULD AFFECT OUR ABILITY TO OPEN OR EDIT THE REPORT DOCUMENT. THEREFORE, THE ONLY SECURITY METHOD THAT WILL BE ACCEPTED IS THE ADOBE ACROBAT "NO SECURITY" OPTION. THIS WILL ENABLE US TO PROPERLY INDEX AND PROCESS REPORT FILES.

Each report must be one integrated file that contains all text, tables, diagrams, photographs, schematics, graphs, and charts. Files must not be write-protected or encrypted in any manner.

The electronic file(s) must be submitted via the Internet at: FITS@NETL.DOE.GOV. An e-mail message sent in conjunction with the file must contain the following information:

- DOE Award Number
- Type of Report(s)
- Frequency of Report(s)
- Reporting Period (if applicable)
- Name of submitting organization
- Name, phone number and fax number of preparer

MANAGEMENT REPORTING

PROGRESS REPORT

The Progress Report must provide a concise narrative describing the current status of work. The report allows Recipients to communicate developments, achievements, changes and problems. The report must include the following information:

1. The DOE award number and name of the recipient.
2. The project title and name of the project director/principal investigator.
3. Date of report and period covered by the report.
4. Executive Summary- A well organized summary that highlights the important accomplishments and new knowledge realized from the project during the reporting period. This summary must be more comprehensive than the traditional "abstract" and identify noteworthy advancements in research, design, manufacture or commercialization of technology developments. Also, summarize important breakthroughs that resolve critical science and technology risks or development barriers.
5. The Recipient enters a brief narrative discussion of the following topics: approach changes; performance variances, accomplishments, or problems; open times; and status assessment and forecast. Each of these topics is addressed, as appropriate, for a given reporting period and the report is submitted periodically, as required, during the life of the project
6. Baseline and Status Reports. The Baseline Plan is a report which is used to present projected cost and activity data. The Baseline Plan presents discrete, measurable units of the proposed work. The plan will provide a specific outline of what the Recipient intends to do through a Work Breakdown Structure and the time and cost involved. The cost data to be entered must depict projected total costs for the life of the project on a monthly basis broken down by each element of the Work Breakdown Structure. The activity data required are identification of tasks required to complete the project according to the Work Breakdown Structure and a delineation of the project's major milestones. This plan will be developed and submitted to serve as the standard against which status and progress can be measured during the performance period.

The Status Report shall provide the performance information required to determine program effectiveness and the information which DOE requires to maintain accountability for public funds. The report must show approved budget by budget period and actual costs incurred. If cost sharing is required costs must be broken out by DOE share, awardee share, and total costs. The report must show actual costs, schedule progress, and work completed to date. This data must be provided for each reporting period, broken down by month for each element of the Work Breakdown Structure.

Milestones, anticipated completion dates, and actual completion dates must be listed to show schedule status. The schedule status must identify any milestones that were not met during the reporting period and reasons why the established milestones were not met. Explanations should also provide an approximate date when the milestone will be met. Awardees may use project management software, such as Microsoft Project, to measure and report cost and schedule status.

When the status report is compared with the Baseline Plan, accomplishments can be noted, problems become apparent, and corrective action can be taken. The Status Report is a report on which the Recipient provides cost and activity data for each reporting period relative to the Baseline Plan. The information should be displayed so that the baseline for the project is clear and the status of the project relative to the baseline is clear. The report may consist of more than one page as necessary.

7. Results and Discussion - A detailed discussion of the progress performance. It is extremely important that this section includes enough relevant data, especially statistical data, to allow the project manager to justify the conclusions. With the relevant data, explain how the data was interpreted and how it relates to the original purpose of the research. Be concise in the discussion on how this research effort solved or contributed to solving the original problem. When investigation methods and/or procedures are being utilized for the first time, they shall be described in detail. This description shall contain detailed information on equipment and procedures utilized, as well as providing a rationale for their use and the accuracy of the method.
8. Conclusion - The conclusion should not simply reiterate what was already included in the "Results and Discussion" section. It should, however, summarize what has already been presented, and include any logical implications of how the successes are relevant to technology development in the future. This is extremely important, since "relevancy" continues to be a criterion of the program.

This section should not contain any trade secrets, business sensitive or classified data, or other information not subject to public release. If such information is important to reporting project progress, it should be presented in a separate appendix, following the instructions in the clause entitled "Supplemental Guidelines" regarding submission of a separate appendix for this type of restricted data.).
9. A summary of all of the significant accomplishments during this reporting period. An "accomplishment" is a significant development or finding that advances the state-of-the-art with respect to the technology of interest or significantly contributes to the understanding of a concept or technology.
10. Actual or anticipated problems or delays and actions taken or planned to resolve them. Identify any event causing a significant schedule slippage or cost growth; an environmental, safety, or health violation; or the achievement of or problems encountered for an important performance objective.
11. A description of any technology transfer activities accomplished during this reporting period. Identify and describe any activities to transfer research results or developed technology to other research stakeholders or users of the technology.

SPECIAL STATUS REPORT

The recipient must report the following events to the DOE Project Officer by e-mail as soon as possible after they occur. The e-mail correspondence should include:

1. Recipient's name and address;
2. Award title and number;
3. Date;
4. Brief statement of problem or event;
5. Anticipated impacts; and
6. Corrective action taken or recommended.

The Special Status Report should document the incidents listed below:

1. Developments that have a significant favorable impact on the project.
2. Problems, delays, or adverse conditions which materially impair the recipient's ability to meet the objectives of the award or which may require DOE to respond to questions relating to such events from the public. The recipient must report any of the following incidents and include the anticipated impact and remedial action to be taken to correct or resolve the problem/condition:

- a. Any single fatality or injuries requiring hospitalization of five or more individuals.
- b. Any significant environmental permit violation.
- c. Any verbal or written Notice of Violation of any Environmental, Safety, and Health statutes.
- d. Any incident which causes a significant process or hazard control system failure.
- e. Any event which is anticipated to cause a significant schedule slippage or cost increase.
- f. Any damage to Government-owned equipment in excess of \$50,000.
- g. Any other incident that has the potential for high visibility in the media.
- h. Any incident which causes a significant process or hazard control system failure, or is indicative of one which may lead to any of the above defined incidents, is to be reported as soon as possible, but within 5 days of discovery.

When an event results in the need to issue a written or verbal statement to the local media, the statement is to be cleared first; if possible, and coordinated with NETL Communications and Public Affairs Division, the DOE Project Officer and the Contracting Officer.

III. SCIENTIFIC/TECHNICAL REPORTING

Scientific/Technical Reporting includes: Final Scientific/Technical Report, Topical Reports, Journal Articles, Conference Proceedings and Papers, Software, and Conference Records.

FINAL SCIENTIFIC/TECHNICAL REPORT

The Final Scientific/Technical Report shall document and summarize all work performed during the award period in a comprehensive manner. It shall also present findings and/or conclusions produced as a consequence of this work. This report shall not merely be a compilation of information contained in other reports, but shall present that information in an integrated fashion, and shall be augmented with findings and conclusions drawn from the research as a whole.

TOPICAL REPORTS

Topical reports are intended to provide a comprehensive statement of the technical results of the work performed for a specific task or subtask of the Statement of Project Objectives, or detail significant new scientific or technical advances. If required, DOE shall review and approve the report outline prior to submission of the report.

Two Topical Reports (as a minimum) are required. The two required reports are the Preliminary Public Design Report and the Final Public Design Report. The purpose of the Public Design Reports is to consolidate for public use all available nonproprietary design information on the project. The Preliminary Public Design Report is based on the preliminary design information and is due at the end of preliminary design. The Final Public Design Report is based on detailed design information and is due after completion of the Design Phase of the project, 60 days prior to completion of the Construction Phase of the project. The Final Public Design Report should contain sufficient background information to provide an overview of the project and pertinent cost data. Since the scope of the reports is limited to nonproprietary information, their content will not be sufficient to provide a complete tool in designing a replicate plant. However, these reports will serve as a reference for the design considerations involved in a commercial-scale facility.

The reports should include an overview description of the technology and a summary of the mass and energy balances for the process. They should also define the overall process performance requirements and describe the evaluations and operating philosophies upon which those performance requirements are based. A summary cost estimate of capital and operating costs and, if possible, an analysis of how costs could be improved for future commercial projects should also be included.

The following deliverables are also to be included as components of the Preliminary Public Design Report addressing the preliminary design:

Process Flow Diagrams

The Participant shall provide a complete set of nonproprietary Process Flow Diagrams with all updates and modifications.

Stream Data

The Participant shall provide a complete set of all nonproprietary stream data. This would include both the expected values and ranges of flows, stream properties, and constituents at various operating conditions.

Equipment List

The Equipment List consists of a summary of the major equipment for the plant. Equipment is to be sorted by Flow Diagram, equipment type, and equipment number. General description data are to be provided for each equipment item, including, but not limited to, the number required for operation, size or capacity, major nonproprietary operating and design parameters, and manufacturer and/or vendor.

The Final Public Design Report shall include the final versions of the Preliminary Public Design Report plus the following:

Drawings

The Participant shall include a complete set of Equipment Plot and Elevation Drawings, and Process and Instrumentation Diagrams, which describe the plant configuration at the end of the demonstration period.

Plant Capital Cost Data

The Participant shall include the data and documentation for all projected costs associated with the construction of the plant, with a breakdown which would permit this information to be used for projecting future plant construction costs.

Plant Operating Cost Data

The participant shall include the data and documentation for all projected costs associated with the operation of the plant under conditions that represent reliable plant performance.

GUIDELINES FOR ELECTRONIC SUBMISSION AND ORGANIZATION OF FINAL SCIENTIFIC/TECHNICAL AND TOPICAL REPORTS

Electronic Submission. The final scientific/technical report and topical reports must be submitted electronically via the DOE Energy Link System (E-Link) at <http://www.osti.gov/mlink-2413>.

Electronic Format. REPORTS MUST BE SUBMITTED IN THE ADOBE PORTABLE DOCUMENT FORMAT (PDF) AND BE ONE INTEGRATED PDF FILE THAT CONTAINS ALL TEXT, TABLES, DIAGRAMS, PHOTOGRAPHS, SCHEMATIC, GRAPHS, AND CHARTS. ELECTRONIC REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE RETURNED AND THE REPORT CONSIDERED DELINQUENT. IN ADDITION, THERE CAN BE NO RESTRICTIONS ON THE PDF FILE SUBMITTED THAT WOULD AFFECT OUR ABILITY TO OPEN OR EDIT THE REPORT DOCUMENT. THEREFORE, THE ONLY SECURITY METHOD THAT WILL BE ACCEPTED IS THE ADOBE ACROBAT "NO SECURITY" OPTION. THIS WILL ENABLE US TO PROPERLY INDEX AND PROCESS REPORT FILES.

Materials, such as prints, videos, and books, that are essential to the report but cannot be submitted electronically, should be sent to the DOE Award Administrator at the address listed in Block 12 of the Notice of Financial Assistance Award.

Submittal Form. The report must be accompanied by a completed electronic version of DOE Form 241.3, "U.S. Department of Energy (DOE), Announcement of Scientific and Technical Information (STI)." You can complete, upload, and submit the DOE F.241.3 online via E-Link. You are encouraged not to submit Protected EAct Information in these electronic technical reports. These technical reports must also not contain any Limited Rights Data (such as trade secret, proprietary or business sensitive information), classified information, information subject to export control classification, or other information not subject to release. Such information **must** be submitted in a separate hard-copy appendix to the electronic technical and topical reports as explained under **Supplemental Guidelines** below.

Organization. The following sections should be included (as appropriate) in the final scientific/technical report and topical reports in the sequence shown. Any section denoted by an asterisk is **required** in all final technical and topical reports.

TITLE PAGE* - The Title Page of the report itself must contain the following information in the following sequence:

Report Title
Type of Report (Final Scientific/Technical or Topical)
Reporting Period Start Date
Reporting Period End Date
Principal Author(s)
Date Report was Issued (Month [spelled out] and Year [4 digits])
DOE Award Number (e.g., DE-FG26-05NT12345) and if appropriate, task number
Name and Address of Submitting Organization (This section should also contain the name and address of significant subcontractors/sub-recipients participating in the production of the report.)

DISCLAIMER* -- The Disclaimer must follow the title page, and must contain the following paragraph:

"This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof."

ABSTRACT* - should be a brief, concise summary of the report.

TABLE OF CONTENTS*

EXECUTIVE SUMMARY* - this should be a well organized summary that highlights the important accomplishments of the research during the reporting period. It should be no less than one page and no more than two pages in length, and should be single spaced. This summary must be more comprehensive than the traditional "abstract."

REPORT DETAILS - The body of the final scientific/technical or topical report should address topics such as the following:

Experimental methods: Describe, or reference all experimental methods being utilized. Also provide detail(s) about materials and equipment used. Standard methods should reference the appropriate literature, where details can be obtained. Equipment should be described only if it is not standard, or if information is not available thru the literature or other reference publications.

Results and discussions: This section should include enough relevant data, especially statistical data, to allow the project manager to justify the conclusions. Explain how the data was interpreted and how it relates to the original purpose of the research. Be concise in the discussion on how this research effort solved or contributed to solving the original problem.

Conclusion: The conclusion should not simply reiterate what was already included in "Results and Discussion" but should summarize what has already been presented, and include any logical implications of how the successes are relevant to technology development in the future. This is extremely important, since "relevancy" continues to be a criterion of the program.

GRAPHICAL MATERIALS LIST(S)

REFERENCES

BIBLIOGRAPHY

LIST OF ACRONYMS AND ABBREVIATIONS

APPENDICES (IF NECESSARY)

SUPPLEMENTAL GUIDELINES

Technical reporting SHALL NOT include Limited Rights Data (such as restricted, proprietary or business sensitive information). Limited Rights Data, if required to meet the reporting requirements, shall be submitted in a separate appendix to the technical report. This appendix SHALL NOT be submitted in an electronic format but rather submitted in ONE ORIGINAL AND THREE (3) PAPER COPIES along with the paper version of the sanitized technical report deliverable. The appendix shall not be referenced in or incorporated into the sanitized technical report deliverable under the contract. The appendix must be appropriately marked and identified. Further, if this award authorizes the awardee under the provisions of The Energy Policy Act of 1992 to request protection from public disclosure for a limited period of time of certain information developed under this award, technical reports SHALL NOT contain such Protected EPA Act Information. Such information shall be submitted in a separate appendix to the technical report that is suitable for release after the agreed upon period of protection from public disclosure has expired. The appendix shall not be referenced in or incorporated into the sanitized technical report deliverable under the contract. In accordance with the clause titled "Rights in data—programs covered under special data statutes," the appendix must be appropriately marked and identified

Company Names and Logos -- Except as indicated above, company names, logos, or similar material should not be incorporated into reports.

Copyrighted Material -- Copyrighted material should not be submitted as part of a report unless written authorization to use such material is received from the copyright owner and is submitted to DOE with the report.

Measurement Units -- All reports to be delivered under this instrument shall use the SI Metric System of Units as the primary units of measure. When reporting units in all reports, primary SI units shall be followed by their U.S. Customary Equivalents in parentheses (). **The Recipient shall insert the text of this clause, including this paragraph, in all subcontracts under this award.** Note: SI is an abbreviation for "Le Systeme International d'Unites."

ELECTRONIC MEDIA STANDARD FOR PREPARATION OF TECHNICAL REPORTS

PRESENTATION: The Recipient shall submit one quality permanent paper copy for storage (permanent or alkaline paper) and an electronic version of each technical report in PDF format. **ELECTRONIC REPORTS MUST BE SUBMITTED IN THE ADOBE ACROBAT PORTABLE DOCUMENT FORMAT (PDF). REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE REJECTED, RETURNED AND CONSIDERED DELINQUENT.** The report must be one complete integrated file containing all text, tables, diagrams, photographs, schematics, graphs, and charts. Multiple files for various report segments are unacceptable and will be rejected. The electronic file(s) may be submitted on an ISO9660-format CD-ROM.

FORMAT: The electronic file(s) must be submitted on CD-ROM and labeled as follows:

- DOE Award Number
- Type/Frequency of Report(s)
- Reporting Period (if applicable)
- Name of submitting organization
- Name, phone number and fax number of preparer

JOURNAL ARTICLES, CONFERENCE PAPERS AND PROCEEDINGS GENERATED BY LARGE BUSINESSES FOR DOE REVIEW

The Recipient shall submit to DOE for review and approval all documents generated by the Recipient, or any subcontractor, which communicate the results of scientific or technical work supported by DOE under this award, whether or not specifically identified in the award, prior to submission for publication, announcement, or presentation. Such documents include journal articles, conference papers and proceedings, etc. The Recipient shall simultaneously submit a draft version of the document to the DOE Project Officer and the DOE Patent Counsel Office prior to the publication, presentation, or announcement. The DOE Project Officer and DOE Patent Counsel shall review the draft version of the document and notify the Recipient of approval or recommended changes. The approved final version shall be submitted to the NETL AAD Document Control Coordinator.

The following information shall be provided for conference papers and proceedings, etc.

- Name of conference
- Location of conference (city, state, and country)
- Date of conference (month/day/year)
- Conference sponsor

CONFERENCE RECORD

The "Conference Record" documents for the DOE Project Officer, DOE Contracting Officer, and the Recipient an understanding of significant decisions, direction or redirection, or required actions resulting from meetings with DOE representatives. It is required for any meeting, conference, or phone conversation in which a decision is made that may change the schedule, labor, cost, or technical aspects of the award or the approved baseline plans. The report shall contain the following information as applicable:

1. Report title ("Conference Record"), number, and the date prepared.

2. Award title and number, and the Recipient's name and address.
3. Date of meeting or telephone conversation, with a list of those involved and their titles.
4. Subject(s) discussed, decisions reached, and directions given.
5. Variances from previous directions and conclusions.
6. Required actions.
7. Distribution.
8. Signature of preparer.

III. FINANCIAL REPORTING

FINANCIAL STATUS REPORT (STANDARD FORM 269 OR 269A)

This report is used for the Recipient to provide regular periodic accounting of project funds expended. The accounting may be on either a cash or accrual basis. Actual total expenditures and obligations incurred, but not paid, are reported for each reporting period for each major activity. Provision is made to identify the Federal and non-Federal share of project outlays for each identified activity.

IV. CLOSEOUT REPORTING

PATENT CERTIFICATION (DOE F 2050.11)

This certificate submitted on DOE F 2050.11 is due within 90 days after completion or termination of the award.

V. OTHER REPORTING

ENVIRONMENTAL REPORTS

In response, in part, to the requirements of the National Environmental Policy Act of 1969 (NEPA) and other related environmental statutes, the National Energy Technology Laboratory (NETL) requires the submission of various documents that assess the environmental aspects and projected impacts of all of its proposed actions. These documents may include the following: (1) Environmental Compliance Plan, (2) Environmental Monitoring Plan, and (3) Environmental Status Reports.

The environmental information provided in these documents will enable NETL to fulfill its responsibilities under NEPA (additional information about the requirements of the National Environmental Policy Act can be found in the DOE NEPA Compliance Guide and 10 CFR 1021) and to monitor the Recipient's compliance with other environmental regulations. The implementation of any task associated with a proposed action will be dependent upon DOE completing necessary NEPA documentation. Therefore, to minimize the risk of project delays, it is imperative that these reports be submitted in a timely manner.

The information contained herein specifies the basic environmental requirements for this award, but it is not to be interpreted as containing all necessary information for any given project. Likewise, certain aspects of the requirements may not be applicable. Accordingly, the level of information provided should be sufficient for DOE to assess the environmental implications of the proposed action.

A. ENVIRONMENTAL COMPLIANCE PLAN

The Environmental Compliance Plan (ECP) should outline an approach to implementing an environmental monitoring and reporting strategy. This strategy should include plans for submitting a Quality Assurance/Quality Control Plan and Pollution Prevention Plan (if an ECP is required, the format of the QA/QC Plan and Pollution Prevention Plan will be determined in conjunction with the NETL environmental staff), conducting environmental monitoring of the proposed action and submitting Environmental Status Reports. The ECP should also address any concerns and/or deviations associated with the reporting and monitoring documents. The due date for the submission of the Draft ECP will be determined based on a detailed plan that

will be developed by the DOE, SCS and MPC personnel working on NEPA.

SUGGESTED FORMAT FOR ENVIRONMENTAL COMPLIANCE PLAN (ECP):

- I. SUMMARY OF PROPOSED PROJECT
- II. FEDERAL REGULATORY COMPLIANCE (Discuss how each of the following will be complied with, if applicable.)
 - A. National Historic Preservation Act
 - B. Endangered Species Act
 - C. Fish and Wildlife Coordination Act
 - D. Floodplain/Wetlands Regulations
 - E. Coastal Zone Management Act
 - F. Farmland Protection Policy Act
 - G. American Indian Religious Freedom Act
 - H. Wild and Scenic Rivers Act
 - I. Resource Conservation & Recovery Act
 - J. Comprehensive Environmental Response, Compensation and Liability Act
 - K. Clean Air Act
 - L. Clean Water Act
 - M. Pollution Prevention Act
- III. STATE AND LOCAL REGULATORY COMPLIANCE (Discuss how any state and local regulations will be complied with.)

B. ENVIRONMENTAL MONITORING PLAN

If DOE's analysis of the potential environmental impacts of the proposed action identifies a need for environmental monitoring, the Recipient will submit a draft Environmental Monitoring Plan (EMP). After consultation with DOE, the draft EMP will be revised, as necessary and a final EMP will be prepared. The EMP may be revised as the project dictates.

The EMP should evaluate air, land, and water resources, and waste production, using three specific types of monitoring:

- A. Compliance Monitoring,
- B. Unregulated Pollutant Monitoring, and, if necessary,
- C. NEPA-related Monitoring.

Compliance monitoring, i.e., environmental and health monitoring required by Federal, State, and local regulatory agencies, should detail the location, frequency, duration, and substances being monitored. All necessary applications, permits, and licenses should be identified.

Unregulated pollutants, both the amount and type of each, should be monitored. This includes those pollutants (a) not currently regulated by State or Federal laws but for which new regulations are expected in the near future; (b) which may cause environmental or health concerns based on hazardous/toxic compound lists; and (c) which are expected in discharge streams based on test data or process chemistry.

Finally, NEPA-related monitoring should be implemented as necessary. It should identify and/or confirm the impacts of the substances produced and performance of the specific technologies as predicted in the NEPA document. It should also include reporting on any mitigation action identified in the Finding of No Significant Impact or Record of Decision as a condition of approval of the proposed action (reported annually).

C. ENVIRONMENTAL STATUS REPORT

After approval of the comprehensive EMP, and as deemed necessary by the DOE Project Manager, information from environmental monitoring should be submitted in the form of Environmental Status Reports (ESRs). The necessity of these reports will depend on the size and nature of the project; they will be required quarterly

The data reported in the ESRs will ensure that project impacts (a) do not violate applicable environmental regulations and (b) are not detrimental to human health or the environment. The information will also provide a database that can be utilized to mitigate environmental problems associated with commercializing any proposed technologies.

SUGGESTED FORMAT FOR ENVIRONMENTAL STATUS REPORTS

I. SUMMARY OF MONITORING PERFORMED (Compliance and Supplemental Monitoring)

A. MONITORING PARAMETERS

1. Location
2. Stage of Project (e.g., preconstruction, operational, etc.)
3. Source to be Monitored (e.g., stack emissions)
4. Method of Monitoring

B. DATA ANALYSIS

1. Identification/characterization of emissions, effluents, etc. and their concentration
2. Identification of problem areas/non-compliance
3. Suggestions for modifications/changes to the system
4. Recommendations to revise Monitoring Plan

II. PERMIT COMPLIANCE STATUS

- A. Attach copies of compliance reports, analyses, correspondence between the recipient and the appropriate regulatory agencies.
- B. Attach copies of all manifests, shipping documents, etc. pertaining to the disposal of wastes generated from the project.

COMMUNICATION PLANS (MAR 2002)

Knowledge dissemination is an integral part of the Federally funded RD&D process. Effective dissemination requires planned, active, and coordinated participation of governmental entities and funded research organizations.

To ensure the effective dissemination of knowledge gained during this RD&D project, the recipient will consult with NETL's Public Affairs staff to identify communication goals, objectives, and strategies. The recipient will make an initial contact for consultation within 30 days of the award date. The recipient will make subsequent contacts whenever progress on the project warrants external communication, but no less than once a quarter.

Actions and products designed to disseminate nonproprietary project-related knowledge will be coordinated with NETL's Public Affairs staff. Examples of such actions and products include, but are not limited to:

-- Press releases

- Articles in newspapers, newsletters, and magazines
- Papers in peer-reviewed journals
- Radio, television, and newspaper interviews
- Presentation of research results at conferences, workshops, and seminars
- Publication of results on web pages
- Information for government officials

POST-COMPLETION REVIEW (MAR 2002)

Within two (2) years after completion of the demonstration project, the Recipient agrees to participate with DOE in a post-completion project review meeting. The time and location of the meeting will be established by agreement of the Parties. The purpose of the meeting is to review the success of the project as well as any problems that may have arisen since project completion.

ATTACHMENT C - BUDGET PAGE(S)

ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 1

OMB Approval No. 0348-0044

Section A - Budget Summary		Estimated Unobligated Funds				New or Revised Budget	
Grant Program Function or Activity	Catalog of Federal Domestic Assistance Number	Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)	
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066	
2. Fossil Energy R&D	81.089 - BP 2a			\$14,248,983	\$17,415,424	\$31,664,407	
3. Fossil Energy R&D	81.089 - BP 2b			\$270,215,984	\$1,302,455,322	\$1,572,671,306	
4.							
5. Totals		\$0	\$0	\$293,750,000	\$1,329,155,779	\$1,622,905,779	
Section B - Budget Categories		Grant Program, Function or Activity				Total (5)	
		(1) Total - BP 1	(2)	(3)	(4)		
6. Object Class Categories							
a. Personnel		\$3,769,589				\$3,769,589	
b. Fringe Benefits		\$0				\$0	
c. Travel		\$159,413				\$159,413	
d. Equipment		\$8,401,694				\$8,401,694	
e. Supplies		\$0				\$0	
f. Contractual		\$6,002,871				\$6,002,871	
g. Construction		\$0				\$0	
h. Other		\$236,500				\$236,500	
i. Total Direct Charges (sum of 6a-6h)		\$18,570,066	\$0	\$0	\$0	\$18,570,066	
j. Indirect Charges		\$0				\$0	
k. Totals (sum of 6i-6j)		\$18,570,066	\$0	\$0	\$0	\$18,570,066	
7. Program Income						\$0	
Previous Edition Usable		Authorized for Local Reproduction				SF-424A (Rev. 4-92) Prescribed by OMB Circular A-102	

ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 2a

OMB Approval No. 0348-0044

OMB APPROVAL NO. 0548-0046

Section A - Budget Summary		Estimated Unobligated Funds				New or Revised Budget	
Grant Program Function or Activity	Catalog of Federal Domestic Assistance Number	Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)	
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066	
2. Fossil Energy R&D	81.089 - BP 2a			\$14,248,983	\$17,415,424	\$31,664,407	
3. Fossil Energy R&D	81.089 - BP 2b			\$270,215,984	\$1,302,455,322	\$1,572,671,306	
4.							
5. Totals		\$0	\$0	\$293,750,000	\$1,329,155,779	\$1,622,905,779	
Section B - Budget Categories							
Grant Program, Function or Activity							
		(1) Total - BP 2a Phase IIa	(2) Total - BP 2a Phase IIIa	(3)	(4)	Total (5)	
6. Object Class Categories							
a. Personnel		\$1,460,601	\$1,250,388			\$2,710,989	
b. Fringe Benefits		\$0	\$0			\$0	
c. Travel		\$56,034	\$17,735			\$73,769	
d. Equipment		\$1,377,290	\$18,412,507			\$19,789,797	
e. Supplies		\$0	\$0			\$0	
f. Contractual		\$8,448,269	\$285,386			\$8,733,656	
g. Construction		\$0	\$0			\$0	
h. Other		\$2,919	\$353,278			\$356,196	
i. Total Direct Charges (sum of 6a-6h)		\$11,345,113	\$20,319,295			\$31,664,407	
j. Indirect Charges		\$0	\$0			\$0	
k. Totals (sum of 6i-6j)		\$11,345,113	\$20,319,295			\$31,664,407	
7. Program Income						\$0	
Previous Edition Usable						\$0	

SF-424A (Rev. 4-92)
Prescribed by OMB Circular A-102

SF-424A (Rev. 4-92)
Prescribed by OMB Circular A-102

ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 2b

Section A - Budget Summary		Estimated Unobligated Funds				New or Revised Budget	
Grant Program Function or Activity	Catalog of Federal Domestic Assistance Number	Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)	
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066	
2. Fossil Energy R&D	81.089 - BP 2a			\$14,248,983	\$17,415,424	\$31,664,407	
3. Fossil Energy R&D	81.089 - BP 2b			\$270,215,984	\$1,302,455,322	\$1,572,671,306	
4.							
5. Totals		\$0	\$0	\$293,750,000	\$1,329,155,779	\$1,622,905,779	
Section B - Budget Categories							
Object Class Categories		Grant Program, Function or Activity				Total (5)	
		(1) Total - BP 2b Phase IIb	(2) Total - BP 2b Phase IIIb	(3) Total - BP 2b Phase IV	(4)		
a. Personnel		\$0	\$0	\$0	\$0	\$0	\$0
b. Fringe Benefits		\$0	\$0	\$0	\$0	\$0	\$0
c. Travel		\$0	\$0	\$0	\$0	\$0	\$0
d. Equipment		\$0	\$0	\$0	\$0	\$0	\$0
e. Supplies		\$0	\$0	\$0	\$0	\$0	\$0
f. Contractual		\$0	\$0	\$375,154,050	\$375,154,050	\$375,154,050	\$1,572,671,306
g. Construction		\$0	\$0	\$0	\$0	\$0	\$0
h. Other		\$0	\$0	\$0	\$0	\$0	\$0
i. Total Direct Charges (sum of 6a-6h)		\$0	\$1,197,517,256	\$375,154,050	\$375,154,050	\$1,572,671,306	\$1,572,671,306
j. Indirect Charges		\$0	\$0	\$0	\$0	\$0	\$0
k. Totals (sum of 6i-6j)		\$0	\$1,197,517,256	\$375,154,050	\$375,154,050	\$1,572,671,306	\$1,572,671,306
7. Program Income							\$0
Previous Edition Usable						SF-424A (Rev. 4-92)	
						Prescribed by OMB Circular A-102	

Previous Edition Usable

Section C - Non-Federal Resources						
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) Totals		
8. Fossil Energy Research & Development - CFDA: 81.089	\$0	\$0	\$1,329,155,779	\$1,329,155,779		
9.				\$0		
10.				\$0		
11.				\$0		
12. Total (sum of lines 8 - 11)		\$0	\$1,329,155,779	\$1,329,155,779		
Section D - Forecasted Cash Needs						
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter	
13. Federal						
14. Non-Federal						
15. Total (sum of lines 13 and 14)	\$0	\$0	\$0	\$0	\$0	
Section E - Budget Estimates of Federal Funds Needed for Balance of the Project						
(a) Grant Program		Future Funding Periods (Years)				
		(b) First	(c) Second	(d) Third	(e) Fourth	
16. Fossil Energy Research & Development - CFDA: 81.089						
17.						
18.						
19.						
20. Total (sum of lines 16-19)		\$0	\$0	\$0	\$0	
Section F - Other Budget Information						
21. Direct Charges	\$1,622,905,779					
22. Indirect Charges						
23. Remarks						

ATTACHMENT D
AMENDED AND RESTATED REPAYMENT AGREEMENT
DE-FR26-06NT42392
AMENDMENT 2

By this Amendment to the Amended and Restated Repayment Agreement by and among the United States Department of Energy (DOE), Southern Company Services, Inc. (SCS), and Kellogg Brown & Root LLC (successor to the rights and obligations of Kellogg Brown & Root, Inc.) dated May 2, 2007, the Parties acknowledge certain changes that have been made to Cooperative Agreement Number DE-FC26-06NT42391 regarding the Demonstration Project and they agree to modify the terms of the Repayment Agreement to incorporate DOE's waiver of the repayment obligation. This Amendment to the Amended and Restated Repayment Agreement will become effective on December 5, 2008.

Specifically, the Parties hereby acknowledge as follows:

- (a) The host site for the Demonstration Project has been changed from Orlando, Florida to a site owned by Mississippi Power Company in Kemper County, Mississippi.
- (b) The scope and schedule for the Demonstration Project have been modified to account for the site relocation and changes in size and configuration of the Demonstration Project.

Now, therefore, in consideration of the promises and agreements of the Parties herein expressed and other good and valuable consideration, the Parties agree that the Repayment Agreement is amended to incorporate DOE's waiver of the Obligor's repayment obligation in accordance with the terms set forth below:

WAIVER OF REPAYMENT

Whereas, DOE and SCS have been informed by the Internal Revenue Service that DOE funds provided under the Cooperative Agreement are taxable to the Recipient;

Whereas, such treatment of DOE funds is a departure from historical practice and therefore not anticipated by either DOE or SCS;

Whereas, taxation of the funds substantially reduces the effective amount of federal contribution to the Demonstration Project and jeopardizes the success of the Demonstration Project;

Whereas, SCS has requested that the Secretary of Energy waive the repayment obligation under this Repayment Agreement in order to make the DOE funds eligible for treatment as a non-taxable contribution to capital pursuant to Internal Revenue Code Section 118;

Whereas, DOE is willing to waive the repayment obligation subject to certain conditions, including commitments from SCS (and/or its affiliated companies) to sequester a portion of the carbon dioxide (CO₂) produced by the Demonstration Project; and,

Whereas, SCS and its affiliate owner of the plant, Mississippi Power Company (MPC), are willing to capture a portion of the CO₂ produced by the Demonstration Project and sequester the CO₂ in geologic formations, which may include sequestration through enhanced oil recovery operation.

Therefore, pursuant to the determination by the Secretary of Energy, dated May 22, 2008, DOE agrees that the Obligor's obligation to repay (as well as the associated reporting and retention obligations set forth in Article VI of the Repayment Agreement), pursuant to this Repayment Agreement, is waived.

Notwithstanding the foregoing, pursuant to that certain Approval Determination executed by the Secretary of Energy dated May 22, 2008 ("Approval Determination"), DOE established certain conditions regarding the

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waiver, which conditions are adopted herein as set forth below. The Approval Determination provided (and by adoption this Agreement provides) that the waiver will become void if any one of the following events occurs:

- (1) On or before the earlier of DOE's issuance of a National Environmental Policy Act, Record of Decision for the Demonstration Project or January 1, 2010, the Internal Revenue Service (IRS) agrees that Clean Coal Power Initiative (CCPI) Round II funds are not taxable to the Recipient, even if the funds are accompanied by a requirement of repayment to DOE. SCS agrees to seek a private letter ruling from the IRS if DOE advises SCS that the IRS has indicated a willingness to entertain tax-free treatment of DOE CCPI Round II funds.
- (2) On or before the earlier of DOE's issuance of a Record of Decision for the Demonstration Project or January 1, 2010, the law is amended to make CCPI funds not taxable to the Recipient.
- (3) SCS (and/or its affiliated companies) does not, with respect to the planned coal-fired power plant in Mississippi receiving CCPI Round II funds: (a) design, build, and operate the facility with the intent to capture and geologically sequester by enhanced oil recovery or otherwise one million tons per year of CO₂ (approximately 25% capture rate); and (b) establish, and actively work toward, the goal of capturing and sequestering 50% of CO₂ emissions from the plant by 2020 and thereafter.

IN WITNESS WHEREOF, the parties have caused this Amendment to the Amended and Restated Repayment Agreement to be executed as of the respective dates entered below.

UNITED STATES DEPARTMENT OF ENERGY

OBLIGOR (Kellogg Brown & Root LLC (as successor to the rights and obligations of Kellogg Brown & Root, Inc.))

Signature: 

Name: Richard D. Rogus

Title: Contracting Officer

Date: 12/5/08

[REDACTED]

OBLIGOR (Southern Company Services, Inc.)

[REDACTED]

ATTACHMENT D
AMENDED AND RESTATED REPAYMENT AGREEMENT
DE-FR26-06NT42392

[REDACTED]

[REDACTED]

...

[REDACTED]

[REDACTED]

[REDACTED]

NOT SPECIFIED /OTHER

ASSISTANCE AGREEMENT

1. Award No. DE-FC26-06NT42391		2. Modification No. 005		3. Effective Date 06/18/2009		4. CFDA No. 81.089		
5. Awarded To SOUTHERN COMPANY SERVICES INC [REDACTED]				6. Sponsoring Office Brittley.Robbins@netl.doe.gov U.S. Department of Energy-NETL Attn: Brittley Robbins (412) 386-5430 626 Cochrans Mill Road P.O. Box 10940 Pittsburgh PA 15236-0940			7. Period of Performance 02/01/2006 through 05/01/2018	
8. Type of Agreement <input type="checkbox"/> Grant <input checked="" type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Other		9. Authority PL 95-91 DOE Organization Act, as amended by PL 102-486 Energy Policy Act 1992			10. Purchase Request or Funding Document No. 09FE004595			
11. Remittance Address SOUTHERN COMPANY SERVICES INC [REDACTED]				12. Total Amount Govt. Share: \$293,750,000.00 Cost Share : \$1,329,155,779.00 Total : \$1,622,905,779.00		13. Funds Obligated This action: \$50,363,889.00 Total : \$293,750,000.00		
14. Principal Investigator [REDACTED]		15. Program Manager DIANE R. MADDEN Phone: 412-386-5931			16. Administrator NETL - Pittsburgh U.S. Department of Energy NETL 626 Cochrans Mill Road P.O. Box 10940 Pittsburgh PA 15236-0940			
17. Submit Payment Requests To Payment - Direct Payment from U.S. Dept of Treasury				18. Paying Office		19. Submit Reports To		
20. Accounting and Appropriation Data See Schedule								
21. Research Title and/or Description of Project DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER								
For the Recipient				For the United States of America				
22. Signature of Person Authorized to Sign [REDACTED]				25. Signature of Grants/Agreements Officer Raymond D. Johnson				
23. Name and Title [REDACTED]		24. Date Signed 8/7/09		26. Name of Officer RAYMOND D. JOHNSON		27. Date Signed 06/18/2009		

NOT SPECIFIED /OTHER

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
DE-FC26-06NT42391/005PAGE OF
2 3NAME OF OFFEROR OR CONTRACTOR
SOUTHERN COMPANY SERVICES INC

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>DUNS Number: 137519547</p> <p>See Page 3 of 3 (BODY) for the purpose of this modification.</p> <p>Schedule of Accounting and Appropriation Data (continued from Block 20 of the face page): Fund: 00150 Appr Year: 2005 Allottee: 31 Object Class: 220321 Program: 1610353 Amount: \$50,363,889.00</p> <p>ASAP: Y Extent Competed: NOT COMPETED Delivery Location Code: 02601 NETL - Pittsburgh U.S. Department of Energy National Energy Technology Laborato 626 Cochrans Mill Road Pittsburgh PA 15236-0940</p> <p>Payment: Payment - Direct Payment from U.S. Dept of Treasury</p>				

July 2004

A. The purposes of this modification are to:

1. Provide incremental funding
2. Revise the financial reporting requirements

B. Actions incorporated as a result of the purposes delineated in paragraph "A" above, are as follows:

1. Incremental funding in the amount of \$50,363,889 is hereby provided to fully fund the cooperative agreement. Obligations are increased as follows:

FROM: \$243,386,111 BY: \$50,363,889 TO: \$293,750,000

2. Attachment 4, Federal Assistance Reporting Checklist and Instructions, Part C. Financial Reporting is hereby amended as follows:

Effective as of the date of this modification, the SF-269, SF-269A and SF-272 have been replaced government-wide with the SF-425, Federal Financial Report. Therefore, in lieu of submitting the SF-269 on a quarterly basis with a final report submission due within 90 calendar days after the project period ends, you are required to submit the SF-425. The SF-425A is not authorized for reporting under this award. The submission instructions and frequency of reporting has not changed. A fillable version of the form is available at http://www.whitehouse.gov/omb/grants/grants_forms.aspx.

C. All other terms and conditions remain unchanged.

END OF MODIFICATION 005

For information purposes only, the following individuals are identified as points of contact under this agreement:

DOE Program Manager

Diane Revay Madden Mail Stop 922-342C
US DOE/National Energy Technology Laboratory
626 Cochrans Mill Road, P.O. Box 10940
Pittsburgh, PA 15236-0940
Phone: 412-386-5931
E-Mail: Diane.Madden@netl.doe.gov

DOE Award Administrator/Contract Specialist

Brittley K. Robbins Mail Stop 921-107
US DOE/National Energy Technology Laboratory
626 Cochrans Mill Road, P.O. Box 10940
Pittsburgh, PA 15236-0940
Phone: 412-386-5430
E-Mail: Brittley.Robbins@netl.doe.gov

Southern Company Services Principal Investigator

[REDACTED]

Southern Company Services Business Officer

[REDACTED]

ASSISTANCE AGREEMENT

1. Award No. DE-FC26-06NT42391		2. Modification No. 006		3. Effective Date 05/27/2010		4. CFDA No. 81.089	
5. Awarded To SOUTHERN COMPANY SERVICES INC [REDACTED]		6. Sponsoring Office Brittley.Robbins@netl.doe.gov U.S. Department of Energy-NETL Attn: Brittley Robbins (412) 386-5430 626 Cochrans Mill Road P.O. Box 10940 Pittsburgh PA 15236-0940				7. Period of Performance 02/01/2006 through 05/01/2018	
8. Type of Agreement <input type="checkbox"/> Grant <input checked="" type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Other		9. Authority PL 95-91 DOE Organization Act, as amended by PL 102-486 Energy Policy Act 1992			10. Purchase Request or Funding Document No. 10FE007355		
11. Remittance Address SOUTHERN COMPANY SERVICES INC [REDACTED]		12. Total Amount Govt. Share: \$293,750,000.00 Cost Share : \$1,329,155,779.00 Total : \$1,622,905,779.00		13. Funds Obligated This action: \$0.00 Total : \$293,750,000.00			
14. Principal Investigator [REDACTED]		15. Program Manager DIANE R. MADDEN Phone: 412-386-5931		16. Administrator U.S. DOE/NETL Pittsburgh Campus 626 Cochrans Mill Road PO Box 10940 Pittsburgh PA 15236-0940			
17. Submit Payment Requests To Payment - Direct Payment from U.S. Dept of Treasury		18. Paying Office Payment - Direct Payment from U.S. Dept of Treasury			19. Submit Reports To		
20. Accounting and Appropriation Data							
21. Research Title and/or Description of Project DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER							
For the Recipient				For the United States of America			
22. Signature of Person Authorized to Sign [REDACTED]				25. Signature of Grants/Agreements Officer Signature on File			
23. Name and Title [REDACTED]		24. Date Signed 6/8/10		26. Name of Officer RAYMOND D. JOHNSON		27. Date Signed 05/27/2010	

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED

DE-FC26-06NT42391/006

PAGE OF

2

4

NAME OF OFFEROR OR CONTRACTOR

SOUTHERN COMPANY SERVICES INC

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	DUNS Number: 137519547 ----- See Pages 3 and 4 for the purpose of this modification. ----- ASAP: Y Extent Competed: NOT COMPETED Davis-Bacon Act: NO Fund: 00150 Appr Year: 2005 Allottee: 31 Report Entity: 220321 Object Class: 25500 Program: 1610353 Project: 0000000 WFO: 0000000 Local Use: 0000000				

JULY 2004

A. The purposes of this modification are to:

1. Revise the Article entitled "Budget Periods and Estimated Project Costs"
2. Replace Attachment C – Budget Pages

B. Actions incorporated as a result of the purposes delineated in paragraph "A" above, are as follows:

1. Under Article 2.5 entitled "Budget Periods and Estimated Project Costs", delete paragraph (b) "Total Estimated Project Costs" in its entirety and replace with the following:

"(b) Total Estimated Project Costs"

DOE and the Recipient shall share in allowable direct and indirect project costs, on an invoice by invoice basis, in the percentages up to the amounts shown below:

TOTAL ESTIMATED PROJECT COST: \$1,622,905,779

Budget Period 1 - - Phase I -- Project Definition

DOE Share	\$ 9,285,033	50%
Recipient Share	<u>\$ 9,285,033</u>	50%
	\$18,570,066	

Budget Period 2a - - Phase II.a – Detailed Design (Orlando, FL) and Phase III.a Construction (Orlando, FL)

DOE Share	\$14,233,607	45%
Recipient Share	<u>\$17,396,631</u>	55%
	\$31,630,238	

Budget Period 2b - - Phase II.b – Detailed Design (Kemper County, MS); Phase III.b – Construction (Kemper County, MS) (subject to Article 2.38, Conditions on Award); and Phase IV – Demonstration – (subject to Article 2.38, Conditions on Award and Article 2.39, Withholding of Funds)

DOE Share	\$ 270,231,360	17.2%*
Recipient Share	<u>\$1,302,474,115</u>	82.8%
	\$1,572,705,475	

*Notwithstanding the cost share percentage identified above, DOE will share allowable costs during Phase III.b (Construction – Kemper County, MS) at a ratio of 45% of Phase III.b costs up to \$245,231,360. Accordingly, Recipient's cost share ratio during Phase III.b will adjust in an amount that corresponds to the adjustment in DOE's sharing ratio, but Recipient will be responsible for Project costs in excess of DOE's share.

Recipient acknowledges that the Government has agreed to share at a higher rate in Phase III.b of the Project with the expectation that the Recipient shall share at a higher rate during later stages of the Phase in order to achieve an overall Recipient cost-share percentage of at least 82.8% of the Budget Period 2b costs and at least 81.9% of the total allowable Project costs.

By accepting federal funds under this award, Recipient agrees that, notwithstanding the budget period cost-share percentages established in this Article, Recipient is liable for 81.9% of the total allowable Project costs, even if the Project is terminated early or is not funded to completion. If Recipient has not achieved 81.9% cost-sharing at the time of Project termination or discontinuance, Recipient shall refund sufficient funds to the Government in order to achieve a Recipient cost-share percentage of 81.9% based on total allowable Project cost.

Total Project

DOE Share	\$ 293,750,000	18.1%
Recipient Share	<u>\$1,329,155,779</u>	81.9%
	\$1,622,905,779"	

2. Delete Attachment C – Budget Pages, in its entirety and replace with the enclosed Attachment C -- Budget Pages.

C. All other terms and conditions remain unchanged.

END OF MODIFICATION 006

The following individuals are identified as points of contact under this agreement:

<u>DOE Program Manager/Project Officer</u> Diane Revay Madden Mail Stop 922-342C 626 Cochrans Mill Road, P.O. Box 10940 Pittsburgh, PA 15236-0940 Phone: 412-386-5931 E-Mail: Diane.Madden@netl.doe.gov	<u>DOE Award Administrator/Contract Specialist</u> Brittley Robbins Mail Stop 921-107 626 Cochrans Mill Road, P.O. Box 10940 Pittsburgh, PA 15236-0940 Phone: 412-386-5430 E-Mail: Brittley.Robbins@netl.doe.gov
<u>Southern Company Services Principle Investigator</u> [REDACTED]	<u>Southern Company Services Business Officer</u> [REDACTED]

ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 1

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,238
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,302,474,115	\$1,572,705,475
4.						
5. Totals		\$0	\$0	\$293,750,000	\$1,329,155,779	\$1,622,905,779
Section B - Budget Categories						
Object Class Categories		Grant Program, Function or Activity				Total (5)
		(1) Total - BP 1	(2)	(3)	(4)	
a. Personnel		\$3,769,589				\$3,769,589
b. Fringe Benefits		\$0				\$0
c. Travel		\$159,413				\$159,413
d. Equipment		\$8,401,694				\$8,401,694
e. Supplies		\$0				\$0
f. Contractual		\$6,002,871				\$6,002,871
g. Construction		\$0				\$0
h. Other		\$236,500				\$236,500
i. Total Direct Charges (sum of 6a-6h)		\$18,570,066	\$0	\$0	\$0	\$18,570,066
j. Indirect Charges		\$0			\$0	\$0
k. Totals (sum of 6i-6j)		\$18,570,066	\$0	\$0	\$0	\$18,570,066
7. Program Income						\$0

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ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 2a

OMB Approval No. 0348-0044

OMB Approval No. 0348-0044

Section A - Budget Summary							
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget			
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)	
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066	
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,238	
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,302,474,115	\$1,572,705,475	
4.							
5. Totals		\$0	\$0	\$293,750,000	\$1,329,155,779	\$1,622,905,779	
Section B - Budget Categories							
6. Object Class Categories		Grant Program, Function or Activity					Total (5)
		(1) Total - BP 2a Phase IIa	(2) Total - BP 2a Phase IIIa	(3)	(4)		
a. Personnel		\$1,460,591	\$1,261,023			\$2,721,614	
b. Fringe Benefits		\$0	\$0			\$0	
c. Travel		\$56,034	\$17,735			\$73,769	
d. Equipment		\$1,377,290	\$18,362,508			\$19,739,798	
e. Supplies		\$0	\$0			\$0	
f. Contractual		\$8,448,270	\$285,386			\$8,733,656	
g. Construction		\$0	\$0			\$0	
h. Other		\$2,919	\$358,482			\$361,401	
i. Total Direct Charges (sum of 6a-6h)		\$11,345,103	\$20,285,135			\$31,630,238	
j. Indirect Charges		\$0	\$0			\$0	
k. Totals (sum of 6i-6j)		\$11,345,103	\$20,285,135			\$31,630,238	
7. Program Income						\$0	

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ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 2b

OMB Approval No. 0348-0044

Section A - Budget Summary		Estimated Unobligated Funds				New or Revised Budget		
Grant Program Function or Activity	Catalog of Federal Domestic Assistance Number	Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)		
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066		
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,238		
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,302,474,115	\$1,572,705,475		
4.								
5. Totals		\$0	\$0	\$293,750,000	\$1,329,155,779	\$1,622,905,779		
Section B - Budget Categories		Grant Program, Function or Activity					Total (5)	
6. Object Class Categories		(1) Total - BP 2b Phase IIb	(2) Total - BP 2b Phase IIb	(3) Total - BP 2b Phase IV	(4)			
a. Personnel		\$0	\$0	\$0		\$0		
b. Fringe Benefits		\$0	\$0	\$0		\$0		
c. Travel		\$0	\$0	\$0		\$0		
d. Equipment		\$0	\$0	\$0		\$0		
e. Supplies		\$0	\$0	\$0		\$0		
f. Contractual		\$0	\$1,197,551,426	\$375,154,050		\$1,572,705,476		
g. Construction		\$0	\$0	\$0		\$0		
h. Other		\$0	\$0	\$0		\$0		
i. Total Direct Charges (sum of 6a-6h)		\$0	\$1,197,551,426	\$375,154,050	\$0	\$1,572,705,476		
j. Indirect Charges		\$0	\$0	\$0	\$0	\$0		
k. Totals (sum of 6i-6j)		\$0	\$1,197,551,426	\$375,154,050	\$0	\$1,572,705,476		
7. Program Income						\$0		

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ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Cumulative

OMB Approval No. 0348-0044

Section A - Budget Summary		Estimated Unobligated Funds			New or Revised Budget		
Grant Program Function or Activity	Catalog of Federal Domestic Assistance Number	Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)	
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066	
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,238	
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,302,474,115	\$1,572,705,475	
4.							
5. Totals		\$0	\$0	\$293,750,000	\$1,329,155,779	\$1,622,905,779	
Section B - Budget Categories							
6. Object Class Categories		Grant Program, Function or Activity				Total (5)	
		(1) Total - BP 1	(2) Total - BP 2a	(3) Total - BP 2b	(4)		
a. Personnel		\$3,769,589	\$2,721,614	\$0		\$6,491,203	
b. Fringe Benefits		\$0	\$0	\$0		\$0	
c. Travel		\$159,413	\$73,769	\$0		\$233,182	
d. Equipment		\$8,401,694	\$19,739,798	\$0		\$28,141,491	
e. Supplies		\$0	\$0	\$0		\$0	
f. Contractual		\$6,002,871	\$8,733,656	\$1,572,705,476		\$1,587,442,003	
g. Construction		\$0	\$0	\$0		\$0	
h. Other		\$236,500	\$361,401	\$0		\$597,901	
i. Total Direct Charges (sum of 6a-6h)		\$18,570,066	\$31,630,238	\$1,572,705,476		\$1,622,905,780	
j. Indirect Charges		\$0	\$0			\$0	
k. Totals (sum of 6i-6j)		\$18,570,066	\$31,630,238	\$1,572,705,476		\$1,622,905,780	
7. Program Income						\$0	

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Section C - Non-Federal Resources					
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) Totals	
8. Fossil Energy Research & Development - CFDA: 81.089	\$0	\$0	\$1,329,155,779	\$1,329,155,779	
9.				\$0	
10.				\$0	
11.				\$0	
12. Total (sum of lines 8 - 11)	\$0	\$0	\$1,329,155,779	\$1,329,155,779	
Section D - Forecasted Cash Needs					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal					
14. Non-Federal					
15. Total (sum of lines 13 and 14)	\$0	\$0	\$0	\$0	\$0
Section E - Budget Estimates of Federal Funds Needed for Balance of the Project					
(a) Grant Program	Future Funding Periods (Years)				
	(b) First	(c) Second	(d) Third	(e) Fourth	
16. Fossil Energy Research & Development - CFDA: 81.089					
17.					
18.					
19.					
20. Total (sum of lines 16-19)					
Section F - Other Budget Information					
21. Direct Charges	\$1,622,905,780	22. Indirect Charges	\$0	\$0	\$0
23. Remarks					

ASSISTANCE AGREEMENT

1. Award No. DE-FC26-06NT42391		2. Modification No. 007	3. Effective Date 09/28/2010	4. CFDA No. 81.089
5. Awarded To SOUTHERN COMPANY SERVICES INC [REDACTED]		6. Sponsoring Office Brittley.Robbins@netl.doe.gov U.S. Department of Energy-NETL Attn: Brittley Robbins (412) 386-5430 626 Cochrans Mill Road P.O. Box 10940 Pittsburgh PA 15236-0940		7. Period of Performance 02/01/2006 through 05/01/2018
8. Type of Agreement <input type="checkbox"/> Grant <input checked="" type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Other	9. Authority PL 95-91 DOE Organization Act, as amended by PL 102-486 Energy Policy Act 1992		10. Purchase Request or Funding Document No. 10FE011548	
11. Remittance Address SOUTHERN COMPANY SERVICES INC [REDACTED]		12. Total Amount Govt. Share: \$293,750,000.00 Cost Share : \$1,771,263,164.00 Total : \$2,065,013,164.00		13. Funds Obligated This action: \$0.00 Total : \$293,750,000.00
14. Principal Investigator [REDACTED]		15. Program Manager DIANE R. MADDEN Phone: 412-386-5931		16. Administrator U.S. DOE/NETL Pittsburgh Campus 626 Cochrans Mill Road PO Box 10940 Pittsburgh PA 15236-0940
17. Submit Payment Requests To Payment - Direct Payment from U.S. Dept of Treasury		18. Paying Office Payment - Direct Payment from U.S. Dept of Treasury		19. Submit Reports To
20. Accounting and Appropriation Data				
21. Research Title and/or Description of Project DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER				
For the Recipient		For the United States of America		
22. Signature of Person Authorized to Sign [REDACTED]		25. Signature of Grants/Agreements Officer Signature on File		
23. Name and Title [REDACTED]	24. Date Signed 9/29/10	26. Name of Officer RAYMOND D. JOHNSON		27. Date Signed 09/28/2010

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
DE-FC26-06NT42391/007PAGE OF
2 10

NAME OF OFFEROR OR CONTRACTOR

SOUTHERN COMPANY SERVICES INC

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	DUNS Number: 137519547 ----- See Pages 3 through 10 for the purpose of this modification. ----- ASAP: Y Extent Competed: COMPETED Davis-Bacon Act: NO Fund: 00150 Appr Year: 2005 Allottee: 31 Report Entity: 220321 Object Class: 25500 Program: 1610353 Project: 0000000 WFO: 0000000 Local Use: 0000000 TAS Agency: 89 TAS Account: 0213				

JULY 2004

Based on (1) the publication of the Record of Decision (August 2010) and the Mitigation Action Plan (September 2010) and (2) DOE's approval of the Phase IIIb Estimated Project Costs, which results in an increase in the Total Estimated Cost of the Project, DOE hereby modifies this Cooperative Agreement as follows:

A. The purposes of this modification are to:

1. Approve the budget for Phase IIIb of Budget Period 2b
2. Recognize an increase in the Total Estimated Project Costs
3. Amend Article 2.5 entitled "Budget Periods and Estimated Project Costs"
4. Replace Attachment C – Budget Pages
5. Add the Article entitled "Use of Program Income – Cost Sharing"
6. Delete Article 2.11 entitled "Continuation Application and Funding"
7. Revise Article 2.26 entitled "National Environmental Policy Act (NEPA) Requirements"
8. Revise Attachment A – Statement of Project Objectives
9. Revise Attachment B – Reporting Requirements

B. Actions incorporated as a result of the purposes delineated in paragraph "A" above, are as follows:

1. Pursuant to Article 2.38 entitled "Conditions on Award", DOE hereby approves the costs associated with Phase IIIb of Budget Period 2b. Prior approval requirements for Phase IV of Budget Period 2b remain unchanged. Therefore, delete Article 2.38 "Conditions on Award" in its entirety and replace with the following:

"2.38 Conditions on Award"

The Recipient is not authorized to proceed into Phase IV of Budget Period 2b without prior DOE approval.

(a) Estimated Cost of Award

The estimated cost of the award is based on the Recipient's revised detailed budget information dated August 2010 and reflects estimated costs available at that time. The Recipient agrees that all costs expended in Phase IIb of Budget Period 2b will be absorbed by Recipient. DOE agrees to share costs in Phase IIIb of Budget Period 2b in the amounts described in the Cooperative Agreement. DOE's agreement to share costs in Phase IV of Budget Period 2b is subject to the conditions of this Article and to DOE receiving a detailed breakdown of the expected project costs for Phase IV at least 90 days before the scheduled end of Phase IIIb. DOE will review the Phase IV detailed cost breakdown and will provide SCS with any comments on such detailed cost breakdown within ninety (90) days of receipt thereof. In the event that DOE disputes the allowability of particular cost items in the detailed cost breakdown, SCS and DOE will conduct discussions to resolve any such issues. If issues on particular cost items cannot be resolved, SCS will have the option of proceeding with the Project without seeking DOE funding for any such particular cost items."

2. Total Project costs ("Total Amount"), as reflected in Block 12 of the Assistance Agreement, have increased as follows:

<u>From</u>	<u>By</u>	<u>To</u>
DOE: \$293,750,000	DOE: \$0	DOE: \$293,750,000
Cost Share: \$1,329,155,779	Cost Share: \$442,107,385	Cost Share: \$1,771,263,164
Total: \$1,622,905,779	Total: \$442,107,385	Total: \$2,065,013,164

3. Under Article 2.5 entitled "Budget Periods and Estimated Project Costs," delete paragraph (b) "Total Estimated Project Costs" in its entirety and replace with the following:

“(b) Total Estimated Project Costs

DOE and the Recipient shall share in allowable direct and indirect project costs, on an invoice by invoice basis, in the percentage up to the amounts shown below:

TOTAL ESTIMATED PROJECT COST: \$ 2,065,013,164

Budget Period 1 (Orlando, FL) – Phase I –Project Definition

DOE Share	\$ 9,285,033	50%
Recipient Share	<u>\$ 9,285,033</u>	50%
	\$ 18,570,066	

Budget Period 2a (Orlando, FL) – Phase II.a – Detailed Design and Phase III.a Construction

DOE Share	\$ 14,233,607	45%
Recipient Share	<u>\$ 17,396,631</u>	55%
	\$ 31,630,238	

Budget Period 2b (Kemper County, MS) - Phase II.b – Detailed Design; Phase III.b – Construction; and Phase IV –Demonstration- (subject to Article 2.38, Conditions on Award and Article 2.39, Withholding of Funds)

DOE Share	\$ 270,231,360	13.4%*
Recipient Share	<u>\$ 1,744,581,500</u>	86.6%
	\$ 2,014,812,860	

*Notwithstanding the cost share percentage identified above, DOE will share allowable costs during Phase III.b (Construction) at a ratio of 45% of Phase III.b costs up to \$245,231,360. Accordingly, Recipient's cost share ratio during Phase III.b will adjust in an amount that corresponds to the adjustment in DOE's sharing ratio, but Recipient will be responsible for Project costs in excess of DOE's share.

Recipient acknowledges that the Government has agreed to share at a higher rate in Phase III.b of the Project with the expectation that the Recipient shall share at a higher rate during later stages of the Phase in order to achieve an overall Recipient cost-share percentage of at least 86.6% of the Budget Period 2b costs and at least 85.8% of the total allowable Project costs, subject to paragraph e. of this clause.

By accepting federal funds under this award, Recipient agrees that, notwithstanding the budget period cost-share percentages established in this Article, Recipient is liable for 85.8% of the total allowable Project costs, except as provided below regarding Project Costs Under Budget, even if the Project is terminated early or is not funded to completion. If Recipient has not achieved 85.8% cost-sharing at the time of Project termination or discontinuance (except as provided below regarding Project Costs Under Budget), Recipient shall refund sufficient funds to the Government in order to achieve a Recipient cost-share percentage of 85.8% based on total allowable Project cost.

Total Project (Orlando and Kemper sites)

DOE Share	\$ 293,750,000	14.2%
Recipient Share	<u>\$ 1,771,263,164</u>	85.8%
	\$ 2,065,013,164	

Project Costs Under Budget. If Recipient completes the Statement of Project Objectives at a cost that is less than the Total Project Cost stated above but greater than \$1,622,905,779, Recipient will be entitled to reimbursement from DOE in the full amount of DOE's cost share of \$293,750,000 regardless of the cost share percentage. In the event that Recipient completes the Statement of Project Objectives at a cost that is less than \$1,622,905,779, Recipient will be entitled to reimbursement from DOE in an amount that is equal to 18.1% of the allowable costs below the \$1,622,905,779 amount."

4. Delete Attachment C – Budget Pages, in its entirety and replace with the enclosed Attachment C – Budget Pages.

5. Delete Article 2.6 "Reserved" in its entirety and replace with the following:

"2.6 Use of Program Income – Cost Sharing

If any program income is earned in connection with the Project during the Project period as a result of this award, that program income may be used to meet Recipient's cost sharing requirement."

6. Delete Article 2.11 entitled "Continuation Application and Funding" in its entirety and replace with the following:

"Reserved"

7. Delete Article 2.26 entitled "National Environmental Policy Act (NEPA) Requirements" in its entirety and replace with the following:

“2.26 National Environmental Policy Act (NEPA) Requirements

DOE issued a Final Environmental Impact Statement (EIS) for the Project (DOE/EIS-0409) in May 2010 and a Record of Decision (ROD) in August 2010 (75 FR 51248). The ROD identified conditions to mitigate potential adverse impacts associated with the Project. The Mitigation Action Plan (MAP) describes the monitoring and mitigation actions to be implemented during the design, construction, and demonstration of the Project. The Recipient agrees to:

- a) flowdown to Mississippi Power Company the obligation to comply with the conditions, limitations, mitigation requirements, and monitoring requirements specified in the ROD and MAP;
- b) facilitate the ability of DOE’s authorized representatives to visit the relevant sites and facilities at reasonable times and upon reasonable notice and subject to applicable site access requirements to verify compliance with the conditions and requirements in the ROD and MAP; and
- c) flowdown to Mississippi Power Company the obligation to submit data or otherwise meet specified reporting requirements that are in the MAP.

If the Recipient finds the conditions and requirements to be unacceptable, the Recipient reserves the right to withdraw from the Project upon written notice to DOE, as prescribed under 10 CFR 600.351(a)(3).”

8. In Attachment A – Statement of Project Objectives, incorporate the following change in the section entitled *Statement of Project Objectives for Activities Associated with the Kemper County Site* under subsection B. *Project Objectives*:

Delete the first paragraph in its entirety and replace it with the following to change the net plant capacity from 600-MW to 524-MW:

“The overall objective of the project is to design, construct, and operate a Transport Gasifier based advanced integrated gasification combined cycle power plant that uses U.S. coal to generate approximately 524-MW (net) electricity. The sub-objectives of the project include:”

Delete Item #3 in its entirety and replace with the following:

“3. To design, build, and operate a CO₂ capture system (which system will be designed for 67% capture rate) and compression system with the intent to capture and geologically sequester by enhanced oil recovery or otherwise.”

9A. In Attachment B – Federal Assistance Reporting Checklist and Instructions, delete the following reports from the Federal Assistance Reporting Checklist under section V. **OTHER REPORTING**:

(1) Environmental Compliance Plan, (2) Environmental Monitoring Plan, and the (3) Environmental Status Report

and add the following reporting requirement:

(1) Environmental Report (Frequency: A; No. of Copies: Electronic version to NETL>; Addresses: Diane.Madden@netl.doe.gov; Brittley.Robbins@netl.doe.gov)

9B. In section **V. OTHER REPORTING** under subsection **ENVIRONMENTAL REPORTS** delete all text in its entirety including A. Environmental Compliance Plan, B. Environmental Monitoring Plan, and C. Environmental Status Report and replace with the following:

“ENVIRONMENTAL REPORTS

DOE issued a Final Environmental Impact Statement (EIS) for the Project (DOE/EIS-0409) in May 2010 and a Record of Decision (ROD) in August 2010 (75 FR 51248). The ROD identified conditions to mitigate potential adverse impacts associated with the Project. The Mitigation Action Plan (MAP) issued in September 2010 describes the monitoring and mitigation actions to be implemented during the design, construction, and demonstration of the Project. DOE prepared the MAP in accordance with 10 CFR § 1021.331.

The MAP contains a Table which lists the resource areas, monitoring requirements, mitigation commitments, and reporting requirements. These reports are to be submitted as per the frequency designated in the MAP Table. In addition NETL needs to be kept informed of permit compliance status and, thus, Recipient will submit copies of compliance reports that MPC has submitted to the appropriate Federal, State, and local regulatory agencies as well as any Notices of Violation. During the Demonstration Period, Recipient will also submit periodic summaries of the off-site disposal of wastes generated during the operation of the Project.

Recipient will have the right to mark information that is included in the environmental reports as confidential consistent with DOE’s regulations and the standards of the Freedom of Information Act and other applicable laws, and DOE will maintain such information as confidential and will not disclose it.”

C. Except as provided herein, all other terms and conditions and other provisions of the Cooperative Agreement remain unchanged.

END OF MODIFICATION 007

The following individuals are identified as points of contact under this agreement:

<u>DOE Program Manager/Project Officer</u> Diane Revay Madden Mail Stop 922-342C 626 Cochrans Mill Road, P.O. Box 10940 Pittsburgh, PA 15236-0940 Phone: 412-386-5931 E-Mail: Diane.Madden@netl.doe.gov	<u>DOE Award Administrator/Contract Specialist</u> Brittley Robbins Mail Stop 921-107 626 Cochrans Mill Road, P.O. Box 10940 Pittsburgh, PA 15236-0940 Phone: 412-386-5430 E-Mail: Brittley.Robbins@netl.doe.gov
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<u>Southern Company Services Principle Investigator</u>	<u>Southern Company Services Business Officer</u>
[REDACTED]	[REDACTED]

ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 1

OMB Approval No. 0348-0044

Section A - Budget Summary		Estimated Unobligated Funds				New or Revised Budget	
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)	
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066	
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,237	
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,744,581,500	\$2,014,812,860	
4.							
5. Totals				\$293,750,000	\$1,771,263,164	\$2,065,013,164	
Section B - Budget Categories							
Object Class Categories		Grant Program, Function or Activity				Total (5)	
		(1) Total - BP 1	(2)	(3)	(4)		
a. Personnel		\$3,769,589				\$3,769,589	
b. Fringe Benefits							
c. Travel		\$159,413				\$159,413	
d. Equipment		\$8,401,694				\$8,401,694	
e. Supplies							
f. Contractual		\$6,002,871				\$6,002,871	
g. Construction							
h. Other		\$236,500				\$236,500	
i. Total Direct Charges (sum of 6a-6h)		\$18,570,066				\$18,570,066	
j. Indirect Charges							
k. Totals (sum of 6i-6j)		\$18,570,066				\$18,570,066	
7. Program Income							

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ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 2a

OMB Approval No. 0348-0044

Section A - Budget Summary		Estimated Unobligated Funds				New or Revised Budget	
Grant Program Function or Activity	Catalog of Federal Domestic Assistance Number	Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)	Total (g)
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066	
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,237	
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,744,581,500	\$2,014,812,860	
4.							
5. Totals				\$293,750,000	\$1,771,263,164	\$2,065,013,164	
Section B - Budget Categories		Grant Program, Function or Activity				Total (5)	
Object Class Categories		(1) Total - BP 2a Phase IIa	(2) Total - BP 2a Phase IIIa	(3)	(4)	Total (5)	
a. Personnel		\$1,460,591	\$1,261,023			\$2,721,615	
b. Fringe Benefits							
c. Travel		\$56,034	\$17,735			\$73,769	
d. Equipment		\$1,377,290	\$18,362,507			\$19,739,797	
e. Supplies							
f. Contractual		\$8,448,269	\$285,386			\$8,733,656	
g. Construction							
h. Other		\$2,919	\$358,482			\$361,401	
i. Total Direct Charges (sum of 6a-6h)		\$11,345,103	\$20,285,134			\$31,630,237	
j. Indirect Charges							
k. Totals (sum of 6i-6j)		\$11,345,103	\$20,285,134			\$31,630,237	
7. Program Income							

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ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Budget Period 2b

OMB Approval No. 0348-0044

Section A - Budget Summary		Estimated Unobligated Funds			New or Revised Budget	
Grant Program Function or Activity	Catalog of Federal Domestic Assistance Number	Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,237
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,744,581,500	\$2,014,812,860
4.						
5. Totals				\$293,750,000	\$1,771,263,164	\$2,065,013,164
Section B - Budget Categories						
Object Class Categories		Grant Program, Function or Activity				Total (5)
		(1) Total - BP 2b Phase IIb	(2) Total - BP 2b Phase IIb	(3) Total - BP 2b Phase IV	(4)	
a. Personnel						
b. Fringe Benefits						
c. Travel						
d. Equipment						
e. Supplies						
f. Contractual			\$1,892,700,101	\$122,112,759		\$2,014,812,860
g. Construction						
h. Other						
i. Total Direct Charges (sum of 6a-6h)			\$1,892,700,101	\$122,112,759		\$2,014,812,860
j. Indirect Charges						
k. Totals (sum of 6i-6j)			\$1,892,700,101	\$122,112,759		\$2,014,812,860
7. Program Income						

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Prescribed by OMB Circular A-102

ATTACHMENT C - BUDGET PAGES

Budget Information - Non Construction Programs - Cumulative

OMB Approval No. 0348-0044

COVID Approval NO. 0346-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,237
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,744,581,500	\$2,014,812,860
4.						
5. Totals				\$293,750,000	\$1,771,263,164	\$2,065,013,164
Section B - Budget Categories						
Object Class Categories		Grant Program, Function or Activity				Total (5)
		(1) Total - BP 1	(2) Total - BP 2a	(3) Total - BP 2b	(4)	
a. Personnel		\$3,769,589	\$2,721,615			\$6,491,204
b. Fringe Benefits						
c. Travel		\$159,413	\$73,769			\$233,182
d. Equipment		\$8,401,694	\$19,739,797			\$28,141,490
e. Supplies						
f. Contractual		\$6,002,871	\$8,733,656	\$2,014,812,860		\$2,029,549,387
g. Construction						
h. Other		\$236,500	\$361,401			\$597,901
i. Total Direct Charges (sum of 6a-6h)		\$18,570,066	\$31,630,237	\$2,014,812,860		\$2,065,013,164
j. Indirect Charges						
k. Totals (sum of 6i-6j)		\$18,570,066	\$31,630,237	\$2,014,812,860		\$2,065,013,164
7. Program Income						

Previous Edition Usable

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ASSISTANCE AGREEMENT

1. Award No. DE-FC26-06NT42391		2. Modification No. 008		3. Effective Date 05/09/2011		4. CFDA No. 81.089		
5. Awarded To SOUTHERN COMPANY SERVICES INC [REDACTED]				6. Sponsoring Office Brittley.Robbins@netl.doe.gov U.S. Department of Energy-NETL Attn: Brittley Robbins (412) 386-5430 626 Cochrans Mill Road P.O. Box 10940 Pittsburgh PA 15236-0940			7. Period of Performance 02/01/2006 through 05/01/2018	
8. Type of Agreement <input type="checkbox"/> Grant <input checked="" type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Other		9. Authority PL 95-91 DOE Organization Act, as amended by PL 102-486 Energy Policy Act 1992			10. Purchase Request or Funding Document No.			
11. Remittance Address SOUTHERN COMPANY SERVICES INC [REDACTED]		12. Total Amount Govt. Share: \$293,750,000.00 Cost Share : \$1,771,263,164.00 Total : \$2,065,013,164.00						13. Funds Obligated This action: \$0.00 Total : \$293,750,000.00
14. Principal Investigator [REDACTED]		15. Program Manager DIANE R. MADDEN Phone: 412-386-5931			16. Administrator U.S. DOE/NETL Pittsburgh Campus 626 Cochrans Mill Road PO Box 10940 Pittsburgh PA 15236-0940			
17. Submit Payment Requests To Payment - Direct Payment from U.S. Dept of Treasury		18. Paying Office Payment - Direct Payment from U.S. Dept of Treasury			19. Submit Reports To			
20. Accounting and Appropriation Data See Schedule								
21. Research Title and/or Description of Project DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER								
For the Recipient				For the United States of America				
22. Signature of Person Authorized to Sign				25. Signature of Grants/Agreements Officer Signature on File				
23. Name and Title		24. Date Signed		26. Name of Officer RAYMOND D. JOHNSON		27. Date Signed 05/06/2011		

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED

DE-FC26-06NT42391/008

PAGE OF

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4

NAME OF OFFEROR OR CONTRACTOR

SOUTHERN COMPANY SERVICES INC

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>DUNS Number: 137519547</p> <p>-----</p> <p>See Pages 3 and 4 for the purpose of this modification.</p> <p>-----</p> <p>ASAP: YES Extent Competed: COMPETED Davis-Bacon</p> <p>Act: NO PI: [REDACTED]</p>				

A. The purpose of this modification is to incorporate the audit requirements associated with for-profit recipients as a reportable action and, secondly, to make the auditor's report available to the Contracting Officer in accordance with 10 CFR 600.316.

B. As a result of the purpose identified in paragraph "A" above, the following revisions are made to Attachment B, "Federal Assistance Reporting Checklist and Instructions".

Under DOE form 4600.2:

1. Section 4, Reporting Requirements, V. Other Reporting - Add:

	"Frequency	Addresses
<input checked="" type="checkbox"/> Audit of For-Profit Recipients	O/Y180	See block 5 below for addresses"

2. FREQUENCY CODES AND DUE DATES - Add:

"Y180 – Yearly; 180 days after the end of the recipient's fiscal year
O - Other; See instructions for further details."

3. Section 5, SPECIAL INSTRUCTIONS - Add:

"Audit of For-Profit Recipients must be sent to 2 different addresses in accordance with the final audit guidance. A copy for the Contracting Officer shall be submitted via FITS@NETL.DOE.GOV; a copy must also be e-mailed to the CFO at DOE-Audit-Submission@hq.doe.gov."

Under the Federal Assistance Reporting Instructions

4. Section V. Other Reporting – Add:

"Audit of For-Profit Recipients

As required by 10 CFR 600.316, as supplemented by For-Profit Audit Guidance Parts I through IV, audits must be performed of For-Profit Recipients of financial assistance awards (prime awards) and sub-awards.

For-Profit Audit Guidance Parts I through IV to assist for-profit recipients in complying with the audit requirements of 10 CFR 600.316 are posted on the Financial Assistance Forms page of the MA home page under the 'Coverage of Independent Audits' subheading,
http://management.energy.gov/business_doe/business_forms.htm."

Submission: For recipients, financial statement and compliance audit submissions are due to DOE within six months of the recipients' fiscal year-end dates. For sub-awardees, financial statement and compliance audit submissions are due to the pass-through entity within six months of the sub-awardees' fiscal year-end dates. For recipients, the compliance audits must be submitted, along with audited financial statements, to the appropriate DOE Contracting Officer at FITS@NETL.DOE.GOV as well as to the DOE Office of the Chief Financial Officer at DOE-Audit-Submissions@hq.doe.gov."

C. All other terms and conditions remain unchanged.

END OF MODIFICATION 008

The following individuals are identified as points of contact under this agreement:

<u>DOE Program Manager/Project Officer</u> Diane Revay Madden Mail Stop 922-342C 626 Cochrans Mill Road, P.O. Box 10940 Pittsburgh, PA 15236-0940 Phone: 412-386-5931 E-Mail: Diane.Madden@netl.doe.gov	<u>DOE Award Administrator/Contract Specialist</u> Brittley Robbins Mail Stop 921-107 626 Cochrans Mill Road, P.O. Box 10940 Pittsburgh, PA 15236-0940 Phone: 412-386-5430 E-Mail: Brittley.Robbins@netl.doe.gov
<u>Southern Company Services Principle Investigator</u> [REDACTED]	<u>Southern Company Services Business Officer</u> [REDACTED]

ASSISTANCE AGREEMENT

1. Award No. DE-FC26-06NT42391		2. Modification No. 0009	3. Effective Date 10/01/2014	4. CFDA No. 81.089
5. Awarded To SOUTHERN COMPANY SERVICES INC [REDACTED]		6. Sponsoring Office Office of Fossil Energy		7. Period of Performance 02/01/2006 through 04/30/2020
8. Type of Agreement <input type="checkbox"/> Grant <input checked="" type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Other	9. Authority PL 95-91 DOE Organization Act, as amended by PL 102-486 Energy Policy Act 1992		10. Purchase Request or Funding Document No. 14FE004520	
11. Remittance Address SOUTHERN COMPANY SERVICES INC [REDACTED]		12. Total Amount Govt. Share: \$293,750,000.00 Cost Share : \$1,771,263,164.00 Total : \$2,065,013,164.00		13. Funds Obligated This action: \$0.00 Total : \$293,750,000.00
14. Principal Investigator [REDACTED]	15. Program Manager DIANE R. MADDEN Phone: 412-386-5931		16. Administrator DEPT OF ENERGY NATIONAL ENERGY TECH LAB 626 Cochrans Mill Road PO Box 10940 Pittsburgh PA 15236-0940	
17. Submit Payment Requests To Payment - Direct Payment from U.S. Dept of Treasury		18. Paying Office Payment - Direct Payment from U.S. Dept of Treasury		19. Submit Reports To See Attachment B
20. Accounting and Appropriation Data See Schedule				
21. Research Title and/or Description of Project DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER				
For the Recipient		For the United States of America		
22. Signature of Person Authorized to Sign		25. Signature of Grants/Agreements Officer Signature on File		
23. Name and Title	24. Date Signed	26. Name of Officer Michael S. DeStefano		27. Date Signed 09/25/2014

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
DE-FC26-06NT42391/0009PAGE OF
2 6NAME OF OFFEROR OR CONTRACTOR
SOUTHERN COMPANY SERVICES INC

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	DUNS Number: 137519547 ----- See Pages 3 - 6 for the purpose of this amendment. ----- PERIOD OF PERFORMANCE: 02/01/2006 - 04/30/2020 BUDGET PERIOD 1: 02/01/2006 - 04/30/2007 BUDGET PERIOD 2a Phase IIa: 05/02/2007 - 11/14/2007 Phase IIIa: 05/02/2007 - 11/16/2008 BUDGET PERIOD 2b Phase IIb: 11/17/2008 - 09/27/2010 Phase IIIb: 09/28/2010 - 06/30/2015 Phase IV: 10/01/2014 - 04/30/2020 ----- POINTS OF CONTACT: DOE Contract Specialist/Award Administrator Brittley Robbins, 412-386-5430 brittley.robbs@netl.doe.gov DOE Program Manager/Project Officer Diane Revay Madden, 412-386-5931 diane.madden@netl.doe.gov Recipient Business Officer [REDACTED] Recipient Principal Investigator [REDACTED] ----- ASAP: YES Extent Competed: COMPETED Davis-Bacon Act: NO PI: [REDACTED]				

The purpose of this amendment is to:

1. Authorize continuation into Phase IV of Budget Period 2b
2. Extend the period of performance
3. Revise article 2.5 Budget Periods and Estimated Project Costs
4. Revise article 2.15 Key Personnel
5. Revise article 2.38 Conditions on Award
6. Revise article 2.39 Withholding of Funds
7. Revise Attachment A – Statement of Project Objectives
8. Revise Attachment B – Federal Assistance Reporting Instructions
9. Revise Attachment C – Budget Pages

The following changes are incorporated as a result of this amendment:

1. Based upon DOE's favorable assessment and evaluation of the project's progress, and the Continuation Application dated February 3, 2014, approval to proceed into Phase IV of Budget Period 2b is hereby provided. Phase IV covers the period of 10/01/2014 – 04/30/2020.

2. The end date of the period of performance is extended from 05/01/2018 to 04/30/2020, as reflected in Block 7 of the Assistance Agreement and the Budget Periods, Phases, and Estimated Project Costs article below.

3. In order to reflect revised period of performance dates as well as revisions to the project costs for Budget Period 2b (Phases IIIb and IV), Article 2.5 'Budget Periods and Estimated Project Costs' is deleted in its entirety and replaced with the following:

"2.5 Budget Periods, Phases, and Estimated Project Costs"

(I) Budget Periods and Phases

The Project Period of this Cooperative Agreement is divided into Budget Periods for funding purposes.

The Project is divided into major categories of work (e.g., Project Definition, Detailed Design, Construction, Demonstration) called Phases for project management planning and control. Additionally, Phases distinguish between work completed at the Orlando site and work at the Kemper County site. The Phases are aligned to specific Budget Periods and correspond to specific tasks in the Statement of Project Objectives. The parties recognize that the dates set forth in the table below are approximate and represent the period for which the majority of the work under each Phase was or will be performed, and as such, expenditures for work performed for one Phase may have occurred during another Phase.

The Project Period for this Award is 02/01/2006 through 04/30/2020 consisting of the following Budget Periods and Phases. The total Estimated Project Costs for each of the Budget Periods is described in subpart II below.

Budget Period	Phase	Start Date	End Date
Budget Period 1 (Orlando, FL)	Phase I – Project Definition	02/01/2006 ¹	04/30/2007
Budget Period 2a (Orlando, FL)	Phase II.a. – Detailed Design	05/02/2007	11/14/2007
	Phase III.a. – Construction	05/02/2007	11/16/2008
Budget Period 2b (Kemper	Phase II.b. – Detailed Design	11/17/2008	09/27/2010

¹ Pursuant to DOE Letter dated 12/20/2004, DOE authorized pre-Award costs for the period 01/03/2005 through the effective date of the Award (02/01/2006).

Budget Period	Phase	Start Date	End Date
County, MS)	Phase III.b. -- Construction	09/28/2010	06/30/2015
	Phase IV -- Demonstration	10/01/2014	04/30/2020

(II) Total Estimated Project Costs

a. Total Estimated Project Cost is the sum of the Government's share and Recipient's share of the estimated Project Costs. The Recipient's cost share must come from non-Federal sources unless otherwise allowed by law. By accepting Federal funds under this Award, Recipient agrees that, notwithstanding the Budget Period cost-share percentages established in this article, Recipient is liable for 85.8 percent of the total allowable Project costs, except as provided in paragraph V below regarding Project Costs Under Budget, even if the Project is terminated early or is not funded to its completion. If Recipient has not achieved 85.8 percent cost-sharing at the time of Project termination or discontinuance (except as provided below regarding Project Costs Under Budget), Recipient shall refund sufficient funds to the Government in order to achieve a Recipient cost-share percentage of 85.8 percent based on the total allowable Project Cost.

This cost is shared as follows:

Budget Period	Phase	Government Share			Recipient Share			Total
No.	No.	\$	%	%	\$	%	%	
1	I	\$9,285,033	50.0%	50.0%	\$9,285,033	50.0%	50.0%	\$18,570,066
2a	II.a.	\$5,105,297	45.0%	45.0%	\$6,239,807	55.0%	55.0%	\$11,345,104
	III.a.	\$9,128,310	45.0%		\$11,156,824	55.0%		\$20,285,134
2b	II.b.	\$0	0.0%	13.4%	\$0	0.0%	86.6%	\$0
	III.b.	\$245,231,360	12.3%		\$1,744,581,500	87.7%		\$1,989,812,860
	IV	\$25,000,000	100.0%		\$0	0.0%		\$25,000,000
Total Estimated Project Cost		\$293,750,000	14.2%		\$1,771,263,164	85.8%		\$2,065,013,164

b. If Recipient discovers that it may be unable to provide cost sharing of at least the amount identified above, it should immediately provide written notification to the DOE Award Administrator indicating whether Recipient will continue the Project or phase out the Project. If Recipient plans to continue the Project, the notification must describe how replacement cost sharing will be secured.

c. Recipient must maintain records of all Project costs that it claims as cost sharing, including in-kind costs, as well as records of costs to be paid by DOE. Such records are subject to audit.

d. Failure to provide the cost sharing required by this term may result in the subsequent recovery by DOE of some or all the funds provided under the Award.

e. Notwithstanding the cost share percentage identified above, DOE agreed to share allowable costs during Phase III.b (Construction) at a ratio of 45 percent of the Phase III.b costs up to \$245,231,360.

f. Recipient acknowledges that the Government has agreed to share at a higher rate in Phase III.b of the Project with the expectation that the Recipient shall share at a higher rate during later stages of the Phase in order to achieve an overall Recipient cost-share percentage of at least 86.6² percent of the Budget Period 2b costs and at least 85.8 percent of the total allowable Project Costs, subject to paragraph V. of this article.

² The Recipient share for Budget Period 2b (including Phases II.b, III.b, and IV) is 86.6%.

(III) **Budget Revisions**

The Recipient may re-budget funds within the Total Estimated Project Costs, subject to the prior approval requirements of 10 CFR § 600.315.

(IV) **Additional Funds**

The Recipient shall immediately notify the Contracting Officer in writing whenever it becomes apparent that the costs of completing that portion of the Project to be performed during a Budget Period exceeds the total estimated budget period cost. Such written notice shall, at a minimum, set forth (1) a detailed explanation of the magnitude and factors causing the cost overrun and (2) the Recipient's proposed plan to fund the increased cost.

(V) **Project Costs Under Budget**

If the Recipient completes the Statement of Project Objectives at a cost that is less than the Total Estimated Project Cost stated above but greater than \$1,622,905,779, the Recipient will be entitled to reimbursement from DOE in the full amount of DOE's cost share of \$293,750,000 regardless of the cost share percentage. In the event that the Recipient completes the Statement of Project Objectives at a cost that is less than \$1,622,905,779, the Recipient will be entitled to reimbursement from DOE in an amount that is equal to 18.1 percent of the allowable costs below the \$1,622,905,779 amount."

4. The following key personnel have changed: [REDACTED]
To reflect these changes, delete article 2.15 Key Personnel in its entirety and replace with the following:

"2.15 Key Personnel

Personnel considered to be essential and key to the work being performed hereunder are specified below:

NAME	TITLE	TELEPHONE	COMPANY
[REDACTED]	[REDACTED]	[REDACTED]	KBR
			SCS
			SCS
			SCS
			MPC

The personnel specified in this article are considered to be essential to the Project. Before removing or replacing any key personnel, the Recipient must notify the Contracting Officer reasonably in advance and submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on the project. No key personnel may be substituted without the Contracting Officer's approval."

5. DOE has reviewed and accepted the cost estimate for Phase IV of Budget Period 2b. Therefore, delete article 2.38 'Conditions on Award' in its entirety and replace with "2.38 RESERVED".

6. The withholding of funds allotment under this agreement has changed. Therefore, delete article 2.39 Withholding of Funds in its entirety and replace with the following:

"2.39 Withholding of Funds

The parties agree that \$25,000,000 (twenty-five million dollars) of the DOE-obligated funds have been deferred for payment during Phase IV of Budget Period 2b (the Demonstration Phase) in the manner set forth in items (1) - (3) below.

- (1) During Phase IV of the Project, the Recipient will submit invoices to DOE in the normal course of business as provided under the cooperative agreement and DOE will reimburse the Recipient for allowable costs in the manner provided under the cooperative agreement. Recipient costs will be limited to Recipient's labor, travel, equipment/supplies and contracts to support technology development, improvements, evaluations and demonstration activities. Costs for operating and maintenance (O&M) activities will not be billed to DOE.
- (2) Each year during Phase IV of the Project, DOE will have the right to withhold up to \$1,500,000 (one million five hundred thousand dollars) if the Recipient fails to submit to DOE all of the required reports for that year, as defined by the cooperative agreement. When the Recipient submits the delinquent report(s) and DOE has reviewed and approved the report(s), then the funds will be released for disbursement.
- (3) Once DOE has paid to the Recipient \$292,750,000 (two-hundred-ninety-two million seven-hundred-fifty thousand dollars) in DOE funds, DOE will disburse the remaining funds for allowable costs earned and invoiced by Recipient as follows:

(a) \$500,000 upon the Recipient's submission of complete final deliverables, including the Patent Certification and Final Scientific/Technical Report.

(b) \$500,000 upon DOE's acceptance of the Recipient's Final Scientific/Technical Report. DOE shall have 60 days after receipt of the Final Scientific/Technical Report (or any revised versions) to provide the Recipient with comments and/or concurrence. Upon receipt of DOE's comments, the Recipient shall have 60 days to revise the Final Scientific/Technical Report and resubmit it to DOE (if necessary). Should DOE not provide comments within the 60 days period, the Final Scientific/Technical Report shall be deemed to be accepted and the remaining funds will be disbursed."

7. Attachment A – Statement of Project Objectives is deleted in its entirety and replaced with the enclosed Attachment A. The Statement of Project Objectives has been revised to make editorial and clarifying edits as well as a revision to the tasks associated with Phase IV. These changes are within the scope of the original project and the project will continue to meet the DOE objectives.

8. Attachment B – Federal Assistance Reporting Checklist and Instructions is deleted in its entirety and replaced with the enclosed Attachment B. Changes have been made to the requirements for specific Topical Reports.

9. Attachment C – Budget Pages is deleted in its entirety and replaced with the enclosed Attachment C. The revised budget pages reflect updated costs for Phase IIb based on actual costs incurred as well as a revised estimate for Phase IV.

All other Terms and Conditions remain unchanged.

End of Amendment 0009

ATTACHMENT A - STATEMENT OF PROJECT OBJECTIVES

DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER

Originally this demonstration project was to be conducted at the Orlando Utilities Commission (OUC) Stanton Energy Center near Orlando, Florida; however, due to unforeseen circumstances the project demonstration was terminated at the Orlando facility in November 2007. In December 2007, Southern Company requested that the project be relocated to the Kemper County site in Mississippi. After performing a due diligence review of the site relocation request, DOE approved the request. As a result, the Statement of Project Objectives was modified to reflect the activities that were performed for the Orlando site and the activities which will be performed for the Kemper County site. Where Budget Periods and Phases overlap on work performed at both demonstration sites, the designation of "a" refers to the Orlando site and the designation of "b" refers to the Mississippi site.

Statement of Project Objectives for Activities Associated with the Orlando Site

A. Project Summary (as proposed for the Orlando demonstration site)

Southern Company Services, Inc. (SCS), in a team effort with Southern Power Company – Orlando Gasification, LLC (SPCOG), Orlando Utilities Commission (OUC), and Kellogg Brown and Root (KBR), will design, construct, and operate a coal-based 285-MW Integrated Gasification Combined Cycle (IGCC) power plant to demonstrate Transport Reactor Integrated Gasification (TRIG™) combined cycle technology. The TRIG™ plant, to be located at the Stanton Energy Center near Orlando in Orange County, Florida, will have two main islands: a Gasification Island and a Combined Cycle Island. The Gasification Island will use air-blown transport gasifier technology to generate syngas from U.S. coal (e.g., Powder River Basin coal). The syngas, cleaned in the Gasification Island, would be used for fueling the Combined Cycle Island - - a new combined cycle power generating facility - - planned for installation in 2010 by OUC and SPCOG. Except for the incremental items required for syngas operation, the Combined Cycle Island, which includes a gas turbine, heat recovery steam generator, and a steam turbine, will be built without DOE funds whereas the Gasification Island, which includes the fuel handling, Transport Gasifier (TG), syngas clean up system, and ash handling would be jointly owned by SPCOG and OUC and would be cost shared by DOE.

A key performance target for the TRIG™ plant is to achieve 80% availability without the use of a spare gasification train. In addition to demonstrating a first-of-a-kind gasification system with potential efficiency, capital cost, and operating cost advantages, this technology holds substantial potential for demonstrating the usability of abundant low-rank coals in an advanced power generation system. The project also demonstrates advanced technologies for particulate removal using high temperature-high pressure filters, mercury removal, and operation of a sulfur removal system for syngas cleanup.

Prior to the decision to terminate the demonstration at the Orlando site, the project had initiated tasks in the following three phases: (i) Project Definition, (ii) Detailed Design, and (iii) Construction.

B. Project Objectives (as proposed for the Orlando demonstration site)

The overall objective of the project is to design, construct, and operate a Transport Gasifier based advanced integrated gasification combined cycle power plant that uses U.S. coal to generate 285-MW (net) electricity. The sub-objectives of the project include:

1. To design, build, and operate a state-of-the-art coal Gasification Island utilizing KBR Transport Gasifier technology and integrate it with a Combined Cycle Island.
2. To design, construct, and operate an advanced cleanup system that includes a sulfur removal system, high temperature - high pressure particulate filter (HTHP) system, selective catalytic reduction (SCR), and a mercury removal system.

3. To demonstrate high availability, high thermal efficiency, low cost, and low emissions of the TRIG™ electricity generation system in commercial operating mode.
4. To develop an effective commercialization strategy to accelerate the TRIG™ technology penetration in the U.S. and international markets.
5. Through reports and conference presentations, disseminate information on the development of the TRIG™ technology. The information reported should include plant efficiency, environmental status, and cost successes for ready replication into commercial practice.

C. Project Phases

The demonstration project was to be conducted in four phases; however, since the demonstration at the Orlando site was terminated during Budget Period 2a, only the first three phases were initiated. Phase IIa and Phase IIIa were initiated but not completed:

Phase I. Project Definition (Budget Period 1): This phase includes front-end engineering design, environmental permitting activities, simulated syngas combustion tests, and NEPA Record of Decision. Phase I activities include: Verification of funding and schedule commitment by SPCOG and OUC for the Combined Cycle Island and its schedule match with that of the Gasification Island, Completion of NEPA Record of Decision and scheduled site permitting activities.

Phase IIa. Detailed Design (Budget Period 2a): This phase includes detailed design engineering, equipment procurement, and continuing environmental permitting activities.

Phase IIIa. Construction (Budget Period 2a): This phase includes Gasification Island construction, installation, commissioning, startup, integration with the Combined Cycle Island, and continued engineering and environmental activities.

D. Work Statement

SCS, the Cooperative Agreement Recipient, in collaboration with the other principal Project Team members, namely SPCOG, OUC, and KBR, shall:

- i. Provide all services, materials, labor, and management necessary for the design, construction, installation, startup, and demonstration of a coal-based 285-MW TRIG™ plant at the Stanton Energy Center, near Orlando, Florida.
- ii. Obtain all necessary licenses, permits, and agreements.
- iii. Develop all detailed plant engineering and design drawings, equipment lists, plant layouts, detailed equipment specifications, construction specifications, bid packages, bid reviews, piping and instrumentation diagrams (P&ID), plant controls, instrumentation, and associated software, and other activities for the construction, installation, startup, operation, data collection, and data evaluation of the demonstration plant.
- iv. Perform all site preparation, civil engineering and utilities, buildings, enclosures, site support, and other site services.
- v. Perform system integration of the Gasifier Island with the Combined Cycle Island for electricity generation and commercial dispatch.
- vi. Prepare and deliver to DOE all reports related to the management, budget, and control of the project as described in the Cooperative Agreement.

vii. Produce and deliver to DOE all conference records, technical reports, topical reports, and informational reports as listed in the Cooperative Agreement.

viii. Closeout activities associated with the Orlando site, following the decision by OUC and SPCOG on November 14, 2007 to terminate the Gasification Island portion of the Orlando facility.

The details are given below.

1.0 Project Definition (Phase I)

The tasks in this phase include completing a detailed project management plan, financial plan, environmental information volume, NEPA requirements, and front-end engineering design. The major subcontracts shall be awarded. The major technology components shall be finalized and the process design of the TRIG™ plant shall be completed.

Task 1.1 Project Management

A detailed Project Management Plan shall be developed encompassing the four project phases. For each phase, the scope, cost, and schedule baselines shall be developed. The organizational structure for project implementation and technology commercialization shall be elaborated. The statements of work and procurement packages shall be developed for major subcontracts including Operations and Maintenance (O&M), environmental/NEPA support, design, and turbine testing. The design documents shall also address the fuel supply arrangements, electricity and by-product sale, plant emissions, waste disposal, and safety issues.

The project management shall include the following business functions to support the project: development and/or application of appropriate cost accounting, property management, procurement methods, and human resources guidelines to meet all Federal, State, and local regulations and standards. Methodologies shall be developed to track cost and scheduling activities throughout the project. The other activities shall include monitoring of actual cost against budgeted cash flows, tracking material costs, tracking progress based on labor-hours, and tracking cost and schedule variances on a monthly basis for the total project, and updating the project schedule. A checklist of the sequential activities shall be prepared from the project schedule. The project schedule diagram shall indicate the mandatory and external dependencies, important milestones, decision points, and budget periods.

A Financing Plan shall be developed that includes finalizing all financial commitments by the managements of the Southern Company and the OUC pertaining to the non-DOE cost share for all four phases of the project and the combined cycle system. The project costs and corresponding sources of funds shall be documented for each phase.

Deliverables

Deliverables marked (I) will be available for inspection on-site by DOE and deliverables marked (D) will be delivered to DOE. Notwithstanding designation of a deliverable as "(I)" DOE may call for delivery of the item pursuant to the provisions of the cooperative agreement.

(a) Formal Project Management Reports listed in the Federal Assistance Reporting checklist. (D)

(b) Project Management Plan encompassing: (i) Project Team and Structure (D), (ii) Technical Baseline (involving preliminary plans of design, construction, and demonstration/tests; process overview and block diagram; outline of the total concept from fuel receipt to electricity sale), (D) (iii) Cost Baseline, (D) (iv) Schedule Baseline (D), (v) Communications Plan (D), (vi) Management and Control Procedures (I), (vii) Work Breakdown Structure at the same level as cost information, except combined cycle (D) (viii) Technical Risk Management Plan (I), and (ix) Final Major Subcontracts (I).

Task 1.2 Environmental/NEPA Requirements

This task prepares an Environmental Information Volume (EIV), documentation for obtaining environmental

permitting for the site/project, and supports preparation of an Environmental Impact Statement (EIS) for making a Record of Decision per the National Environmental Policy Act (NEPA) requirement.

This subtask shall collect and document the data required to obtain appropriate environmental permits to construct and operate the demonstration plant on an ongoing basis. These permits shall be obtained from appropriate Federal, State, and local regulatory agencies.

The following activities shall be performed.

1.2.1 Prepare an Environmental Information Volume in accordance with NETL guidance. The EIV shall contain a detailed description of the environmental aspects and projected impacts of the project and shall meet the information needs of the NEPA EIS.

1.2.2 Prepare an Environmental Compliance Plan (ECP) to implement an environmental monitoring and reporting strategy and to meet DOE reporting requirements. The strategy shall include plans for submitting a quality assurance/quality control (QA/QC) plan and a pollution prevention plan (PPP), conducting environmental monitoring, a Hazardous Substance Plan and Hazardous Waste Report, and submitting environmental status reports.

1.2.3 Prepare an Environmental Monitoring Plan (EMP), which specifies the location, duration, frequency, and substances to be monitored to evaluate air, water, and land resources, as well as waste production. The EMP shall consider requirements for compliance monitoring, and NEPA-related monitoring.

Deliverables

Environmental permitting, data and milestones (D); EIV and related NEPA-supporting documentation (D); an Environmental Compliance Plan (D); and an Environmental Monitoring Plan (D)

Task 1.3 Front End Engineering and Design

Initially a conceptual design of the project shall be performed. This shall involve an overview of all design aspects of TRIG™ plant (both Gasification Island and the Combined Cycle Island) and the basis of the Front End Engineering Design (FEED) activities. The major equipment list for the Gasification Island and the Combined Cycle Island shall be separately identified.

The FEED shall involve complete process design and about 30 percent of the total engineering design. This task shall include developing the basis for process design and the information necessary to support environmental permitting and NEPA. Cold-flow modeling shall be included for finalizing the designs of the transport gasifier mixing zone, the cyclone, and the disengager. The process design of the gasification island shall be completed and integrated with the combined cycle system. The major technology components shall be selected including gasification, sulfur removal, particulate removal, and mercury removal systems. The basis for this selection shall be documented. The major sections to be addressed include: (i) fuel delivery and handling, (ii) transport gasifier, (iii) syngas cleanup, (iv) water treatment, (v) combined cycle equipment, (vi) ash handling, and (vii) balance of plant. The project site shall be characterized with regard to topography, and soils to obtain the necessary data for designing layout and foundations of structures and buildings comprising the power plant, solids and water handling systems, and waste disposal.

Deliverables

a) Conceptual Design Report. This report shall present an overview of all design aspects of TRIG™ plant (both Gasification Island and the Combined Cycle Island) and the basis of the FEED activities. The major equipment list for the Gasification Island (D) and Combined Cycle Island shall be separately identified (I).

b) Front End Engineering and Design Report. This report shall encompass: specific technical objectives (D), overall design basis (D), summary 'as designed' heat and material balances (critical components, Gasification Island, and the complete TRIG™ plant (D) detailed heat and material balance (I), process flow diagrams (PFD) (D), process

specification sheets (I), site interfaces (D), gas turbine syngas combustion test report (I), equipment (D) and instrument lists (I), all safety reviews including Hazop (I), updated project schedule (D), controls documentation and support (D), technical specifications for procurement of all long lead (greater than 12 months) items (I), quotations on all major equipment (I), design drawings, detailed construction plan (I), topographic site map, soils report, site plan, and site and plant water balance report.

The design basis, process specifications, material and energy balances, and flow diagrams shall be included in the report separately for the Gasification Island, each of its sections, and each equipment.

Task 1.4 Long Lead Equipment Vendor Selection and Engineering

In this task, the long lead items and qualified vendors shall be identified and the necessary engineering shall be initiated. For critical path items, a detailed schedule for design, procurement, fabrication, delivery, structure construction, installation, and checkout testing shall be prepared. (Invoices against this task will not be accepted until after completion of NEPA ROD).

Deliverables

The long lead equipment report and detailed schedules of critical path items (D)

2.0 Detailed Design (Phase IIa)

The detailed design shall develop the information and documentation necessary to construct and operate the demonstration plant. In this phase, all detailed design packages, bid specifications, and engineering drawings of the plant shall be developed. This task shall develop complete facility design documents required for installation and operation of the Gasification Island, including commissioning and startup. The design documentation shall reflect the 'as-built' conditions upon completion of construction.

The design shall include a test plan development for measuring the performance of the TRIG™ plant from efficiency and emissions perspective under different operating conditions (e.g., alternate sub bituminous coal test, gasifier temperature and pressure, part load, ramp-up, shutdown), and corresponding data analysis methodologies.

2.1 Project Management

The Project Team shall perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to meet technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information shall be updated. The environmental permitting and compliance management efforts shall continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

2.2 Major Engineering Tasks

The major subtasks include structural steel and concrete, architectural, mechanical design, electrical design, instrumentation and controls, equipment procurement packages, construction bid packages, and integration of the Gasification island with the Combined Cycle Island.

2.2.1 Structural Steel and Concrete: This subtask shall include all civil, structural, and geotechnical engineering associated with the design of the facility, including 3-D computer modeling of the process structures.

2.2.2 Architectural: This subtask shall include the design of all buildings and facilities including the administration building, mechanical shop, and warehouse.

2.2.3 Mechanical: This subtask includes the following: (i) mechanical design of all equipment including the development of fabrication drawings and specifications for procurement, (ii) piping layout, stress analysis, and support design, generation of isometric drawings for all piping and definition of the piping and valve specifications for procurement, and, (iii) site service systems including fire protection, water supplies, sewage, and plant air.

2.2.4 Electrical Design: This subtask includes the following: (i) development of the single-line configuration to determine the electrical distribution throughout the facility, (ii) development of plans for electrical grounding, lighting, cable trays, and conduit, (iii) design of the station service and plant communication systems, (iv) development of interconnection wiring diagrams for all the equipment, programmable logic controllers, and the integrated control system (ICS), (v) design and procurement specifications for the motor control centers.

2.2.5 Instrumentation and Controls: This subtask includes the following: (i) configuration of the Southern Company standard plant data archiving system, (ii) instrument sizing, specification, and selection, (iii) instrument location drawings and installation details, (iv) instrument loop drawings, control schematics, logic diagrams, and interlock logic diagrams, (v) ICS control configuration, (vi) performance management configuration programming.

2.2.6 Construction Bid Packages: This subtask includes all engineering activity needed to prepare construction bid packages. This work includes assembly of plans, drawings, and specifications for the construction bid packages. It also includes developing a list of qualified bidders for each package, issuing each package to qualified bidders, evaluating construction bids, and preparing requisitions and purchase orders for award of construction contracts.

2.2.7 Procurement: This subtask includes the development of bid inquiry packages, bid evaluation, selection and procurement for all equipment, bulk materials, and services for the Gasification Island.

2.2.8. Integration with Combined Cycle Island: This task shall address the design and schedule related activities for the process integration of the gasification island with the Combined Cycle Island. The major equipment in the Combined Cycle Island shall include a gas turbine, a heat recovery steam generator (includes Selective Catalytic Reduction), condenser, and a steam turbine.

3.0 Construction (Phase IIIa)

The tasks in this phase include construction, installation, commissioning, and startup, and the remaining engineering and environmental compliance support.

3.1 Project Management

The Project Team shall perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to assure technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information shall be updated. The environmental compliance efforts shall continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

3.2 Site Preparation

The selected site shall be developed for installation of structures via grading and excavations, machinery and equipment foundations, and building and service facility foundations.

3.3 TRIG™ Plant Construction

The Project Team shall erect the demonstration plant and all related support systems and facilities. This task includes all equipment, materials, labor, and supervision required to install the foundations, process structures, buildings, bulks for the facility, and balance-of-plant utilities including:

- Indirects
- Site, General
- Steam Generation Area
- Turbine and Generation Area
- Fuel Facilities
- Plant Water Systems
- Electrical Distribution and Switchyard
- Plant Instrumentation and Controls
- Other
- Gasification Facilities
 - Gasification Building
 - Other Gasification Feedstocks Storage and Handling
 - Feedstock Prep
 - Gasification
 - Gasification Ash Removal/Recycle
 - Syngas Treatment
 - Syngas Cooling/Heat Recovery
 - Host Plant Interconnections

3.4 Commissioning and Startup

The Project Team shall prepare commissioning and startup/test plans, procedures, and schedules for the systems and components to be tested. Detailed test requirements and acceptance criteria shall be provided for all advanced equipment to be operated during the commissioning period. During this period most of the equipment acceptance tests shall be completed per the American Society of Mechanical Engineers Performance Test Code (PTC) procedures, modified for local, seasonal weather conditions as necessary. The Project Team shall address all preparations necessary for operating the demonstration plant including, but not limited to, the types of sample analyses necessary to evaluate component and system performance, methods of collecting, reducing, and analyzing data from various components, and, methods for storage and retrieval of raw and refined performance data.

E. Federal Assistance Reporting Checklist

The Recipient shall provide reports in accordance with the enclosed Federal Assistance Reporting Checklist and the instructions accompanying the Checklist.

F. Topical Reports

In addition to reports listed in the Federal Assistance Reporting Checklist, the Recipient shall submit the following to the Government Contracting Officer's Representative (COR). Note that the following are not to be submitted through the official NETL document control system. The due dates of the Topical Reports will be determined by the COR in discussions with the Recipient. These reports will be submitted as a draft until reviewed and approved by the COR.

- i. Conceptual Design Report
- ii. Front End Engineering Design Report

G. Briefings and Technical Presentations

The Recipient shall prepare detailed briefings for presentation to the Government Contracting Officer's Representative (COR) at a NETL site or at a different location as designated by the Government COR. The briefings shall be given by the Recipient to explain the plans, progress, and results of the project effort.

- i. Progress Review and Planning Meetings (every six months)
- ii. Project Kick-off Meeting (soon after the award)
- iii. Conceptual Design Review Meeting (before beginning FEED)
- iv. Front End Engineering Design Review Meeting (end of Phase 1)
- v. Conference Participations

H. Status Reports

Project Management Meetings

Weekly or as-needed project management meetings (either via phone conference with minutes, web/net meetings, or face-to-face) will occur to discuss progress, issues, accomplishments, deliverables, milestones, the work plan, press inquiries, upcoming events, etc.

Once a month typically linked with invoice submission or cash advance request, the Recipient shall include in its email update current value management data as follows:

Labor Performance Indicator (LPI)
Schedule Performance Indicator (SPI)

Planned Value and Actual Cost should be reported for the current reporting month and cumulative for the project along with Estimate to Completion (ETC), Expended-to-Date (ETD), and Estimate at Completion (EAC). The projected planned and estimated cost for the upcoming reporting month should be assessed. DOE shall have inspection rights to the project management systems and data used to produce standard project progress reporting.

Schedule (Gantt Chart)

The Participant shall maintain a Gantt Chart and report on the project progress through updates to the Gantt Chart as part of the Quarterly Technical Progress Report required by the Federal Assistance Reporting Checklist, DOE Form 4600.2.

Statement of Project Objectives for Activities Associated with the Kemper County Site

A. Project Summary

Southern Company Services, Inc. (SCS), in a team effort with Mississippi Power Company (MPC), and Kellogg Brown & Root LLC (KBR), will design, construct, and operate a coal-based Integrated Gasification Combined Cycle (IGCC) power plant to demonstrate Transport Integrated Gasification (TRIG™) combined cycle (IGCC) technology with CO₂ capture and compression. The TRIG™ plant, to be located at an undeveloped, lignite-mine mouth site in Kemper County, Mississippi, will have two main islands: a Gasification Island and a Combined Cycle Island. The Gasification Island will use air-blown transport gasifier technology to generate syngas from U.S. coal (e.g., Mississippi Lignite). The syngas, cleaned in the Gasification Island, will be used for fueling the Combined Cycle Island. The Gasification Island will include two Transport Gasifiers (TG) each with its own fuel handling and ash handling systems. The Combined Cycle Island will include two gas turbines each with its own heat recovery steam generator, both feeding a single steam turbine.

A key performance target for the TRIG™ plant is to achieve 80% availability without the use of a spare gasification train. In addition to demonstrating a first-of-a-kind gasification system with potential efficiency, capital cost, and operating cost advantages, this technology holds substantial potential for demonstrating the usability of abundant

low-rank coals in an advanced power generation system. The project also demonstrates advanced technologies for particulate removal using high temperature-high pressure filters, mercury removal, and operation of a sulfur removal system for syngas cleanup.

B. Project Objectives

The overall objective of the project is to design, construct, and operate a Transport Gasifier based advanced integrated gasification combined cycle power plant that uses U.S. coal to generate approximately 524-MW (net) electricity. The sub-objectives of the project include:

1. To design, build, and operate a state-of-the-art IGCC facility utilizing KBR Transport Gasifier technology.
2. To design, construct, and operate an advanced cleanup system that includes a sulfur removal system, high temperature - high pressure particulate filter (HTHP) system, selective catalytic reduction (SCR), and a mercury removal system.
3. To design, build, and operate a CO₂ capture system (capture system will be designed for a minimum 67% capture rate) and compression system with the intent to capture and geologically sequester by enhanced oil recovery or otherwise.
4. To demonstrate high availability, high thermal efficiency, low cost, and low emissions of the TRIG™ electricity generation system in commercial operating mode.
5. To develop an effective commercialization strategy to accelerate the TRIG™ technology penetration in the U.S. and international markets.
6. Through reports and conference presentations, disseminate information on the development of the TRIG™ technology. The information reported should include plant efficiency, environmental status, and cost successes for ready replication into commercial practice.

C. Project Phases

The demonstration project at the Kemper County site will be conducted in three phases:

Phase IIb. Detailed Design (Budget Period 2b): This phase includes detailed design engineering, continuing environmental permitting activities and Completion of a NEPA Record of Decision for the Kemper County site.

Phase IIIb. Construction (Budget Period 2b): This phase includes TRIG™ plant, equipment procurement, construction, installation, commissioning, startup, and continued engineering and environmental activities.

Phase IV. Demonstration (Budget Period 2b): This phase includes the commercial operation and maintenance of the TRIG™ demonstration plant with the execution of the test plan. The operating period for the demonstration plant is 48 months. Following the operating period data analysis and process evaluations, preparation of final reports to characterize the technical, environmental, and economic performance of the TRIG™ plant for power generation, and closeout activities will be completed.

D. Work Statement

SCS, the Cooperative Agreement Recipient, in collaboration with the other principal Project Team members, namely MPC and KBR, shall:

- i. Provide all services, materials, labor, and management necessary for the design, construction, installation, startup, and demonstration of a coal-based TRIG™ plant at a site in Kemper County, Mississippi.
- ii. Obtain all necessary licenses, permits, and agreements.

- iii. Develop all detailed plant engineering and design drawings, equipment lists, plant layouts, detailed equipment specifications, construction specifications, bid packages, bid reviews, piping and instrumentation diagrams (P&ID), plant controls, instrumentation, and associated software, and other activities for the construction, installation, startup, operation, data collection, and data evaluation of the demonstration plant.
- iv. Perform all site preparation, civil engineering and utilities, buildings, enclosures, site support, and other site services.
- v. Prepare and deliver to DOE all reports related to the management, budget, and control of the project as described in the Cooperative Agreement.
- vi. Produce and deliver to DOE all conference records, technical reports, topical reports, and informational reports as listed in the Cooperative Agreement.

The details are given below.

1.0 Detailed Design (Phase IIb)

The detailed design will develop the information and documentation necessary to construct and operate the demonstration plant. In this phase, all detailed design packages, bid specifications, and engineering drawings of the plant will be developed. This task will develop complete facility design documents required for installation and operation of the TRIGTM plant, including commissioning and startup. The design documentation will reflect the 'as-built' conditions upon completion of construction.

The design will include a test plan development for measuring the performance of the TRIGTM plant from efficiency and emissions perspective under different operating conditions (e.g., gasifier temperature and pressure, part load, ramp-up, shutdown), and corresponding data analysis methodologies.

1.1 Project Management

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to meet technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated. The environmental permitting and compliance management efforts will continue during this phase.

Deliverables

Deliverables marked (I) will be available for inspection on-site by DOE and deliverables marked (D) will be delivered to DOE. Notwithstanding designation of a deliverable as "(I)" DOE may call for delivery of the item pursuant to the provisions of the Cooperative Agreement

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

Project Management Plan encompassing: (i) Project Team and Structure (D), (ii) Technical Baseline (involving preliminary plans of design, construction, and demonstration/tests; process overview and block diagram; outline of the total concept from fuel receipt to electricity sale), (D) (iii) Cost Baseline, (D) (iv) Schedule Baseline (D), (v) Communications Plan (D), (vi) Management and Control Procedures (I), (vii) Work Breakdown Structure at the same level as cost information (D) (viii) Technical Risk Management Plan (I), and (ix) Final Major Subcontracts (I).

1.2 Major Engineering Tasks

The major subtasks include structural steel and concrete, architectural, mechanical design, electrical design, instrumentation and controls, equipment procurement packages, and construction bid packages.

1.2.1 Structural Steel and Concrete: This subtask includes all civil, structural, and geotechnical engineering associated with the design of the facility, including 3-D computer modeling of the process structures.

1.2.2 Architectural: This subtask includes the design of all buildings and facilities including the administration building, mechanical shop, and warehouse.

1.2.3 Mechanical: This subtask includes the following: (i) mechanical design of all equipment including the development of fabrication drawings and specifications for procurement, (ii) piping layout, stress analysis, and support design, generation of isometric drawings for all piping and definition of the piping and valve specifications for procurement, and (iii) site service systems including fire protection, water supplies, sewage, and plant air.

1.2.4 Electrical Design: This subtask includes the following: (i) development of the single-line configuration to determine the electrical distribution throughout the facility, (ii) development of plans for electrical grounding, lighting, cable trays, and conduit, (iii) design of the station service and plant communication systems, (iv) development of interconnection wiring diagrams for all the equipment, programmable logic controllers, and the integrated control system (ICS), (v) design and procurement specifications for the motor control centers.

1.2.5 Instrumentation and Controls: This subtask includes the following: (i) configuration of the Southern Company standard plant data archiving system, (ii) instrument sizing, specification, and selection, (iii) instrument location drawings and installation details, (iv) instrument loop drawings, control schematics, logic diagrams, and interlock logic diagrams, (v) ICS control configuration, (vi) performance management configuration programming.

1.2.6 Construction Bid Packages: This subtask includes all engineering activity needed to prepare construction bid packages. This work includes assembly of plans, drawings, and specifications for the construction bid packages. It also includes developing a list of qualified bidders for each package, issuing each package to qualified bidders, evaluating the bids, and preparing requisitions and purchase orders for the award of construction contracts.

Deliverables

Detailed Design Report (D): The outline of the Detailed Design Report will be determined by the COR in discussions with the Recipient. It will include, at a minimum, information on the design basis, plant description, systems descriptions, environmental performance, and capital costs.

1.3 Environmental/NEPA Requirements

This Recipient shall contract with a third party, approved by DOE, for preparation of an Environmental Impact Statement (EIS) in accordance with NETL guidance.

Deliverables

EIS (D).

1.4 Commercialization Strategy Development

The Project Team will develop a commercialization strategy to market the TRIG™ technology (i) by identifying the applicable coal-based markets in different geographic regions of the world, and (ii) by developing 'TRIG™ Technology User Groups' for later dissemination of information on the demonstrated benefits of efficiency, environmental emissions, and cost compared with competing IGCC technologies for coal-based electricity generation. This strategy will include site visits for stakeholders interested in the technology.

Deliverables

A commercialization strategy document presenting target markets, technology merits and licensing revenues, and

marketing approaches (I).

2.0 Construction (Phase IIIb)

The tasks in this phase include construction, installation, commissioning, and startup, and the remaining engineering and environmental compliance support.

2.1 Project Management

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to assure technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated. The environmental compliance efforts will continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

2.2 Procurement: This subtask includes the development of bid inquiry packages, bid evaluation, selection and procurement for all equipment, bulk materials, and services associated with the activities under Phase IIIb.

2.3 Site Preparation

The selected site will be developed for installation of structures via grading and excavations, machinery and equipment foundations, and building and service facility foundations.

Deliverables

A site preparation plan, schedule, and layout diagram(s) (D).

2.4 TRIG™ Plant Construction

The Project Team will erect the demonstration plant and all related support systems and facilities. This task includes all equipment, materials, labor, and supervision required to install the foundations, process structures, buildings, bulks for the facility, and balance-of-plant utilities including:

- Indirects
- Site, General
- Steam Generation Area
- Turbine and Generation Area
- Fuel Facilities
- Plant Water Systems
- Electrical Distribution and Switchyard
- Plant Instrumentation and Controls
- Other
- Gasification Facilities
 - Gasification Building
 - Other Gasification Feedstock Storage and Handling
 - Feedstock Prep
 - Gasification
 - Gasification Ash Removal/Recycle
 - Syngas Treatment
 - Syngas Cooling/Heat Recovery
 - CO₂ Capture and Compression

2.5 Commissioning and Startup

The Project Team will prepare commissioning and startup/test plans, procedures, and schedules for the systems and components to be tested. Detailed test requirements and acceptance criteria will be provided for all advanced equipment to be operated during the commissioning period. During this period most of the equipment acceptance tests will be completed per the American Society of Mechanical Engineers Performance Test Code (PTC) procedures, modified for local, seasonal weather conditions as necessary. The Project Team will address all preparations necessary for operating the demonstration plant including, but not limited to, the types of sample analyses necessary to evaluate component and system performance, methods of collecting, reducing, and analyzing data from various components, and, methods for storage and retrieval of raw and refined performance data. A draft Demonstration Test Plan will be provided prior to start of Demonstration Phase and review comments shall be resolved.

Deliverables

Commissioning and Startup Report (D); Demonstration Test Plan (D).

3.0 Demonstration (Phase IV)

The Project Team will ensure that the demonstration plant is operated and maintained for commercial generation of electricity and for achieving the project objectives.

The tasks in this phase include the commercial operation and maintenance of the demonstration plant and execution of the test plan. The test program for the demonstration phase will be planned for four (4) years to achieve reliable plant operation with high thermal efficiency, low O&M costs and emissions, and a plant availability of at least 80%. Following the demonstration testing, additional project performance time is included for the completion of data analysis and process evaluations, preparation of final reports to characterize the technical, environmental, and economic performance of the TRIG™ plant for power generation, and DOE project closeout activities.

3.1 Project Management, Administration, and Reporting

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, communicating, and reporting) necessary to meet the technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated as required..

The environmental compliance efforts will continue during this phase. The Project Team will maintain safety and environmental compliance programs and procedures, including but not limited to: establishing operations and maintenance procedures to ensure safe and efficient operation, maintaining documentation of procedures for storage, transportation, and disposal of solid waste, and establishing safety procedures needed to comply with the Occupational Safety and Health Administration regulations. The Project team will coordinate and ensure that all compliance requirements and reporting for NEPA and the Mitigation Action Plan are completed.

The Project Team will implement the activities relating to the commercialization plan to market the TRIG™ technology, such as conducting site tours for interested stakeholders and user groups, and disseminating information on the demonstrated technology and its benefits through activities such as publications and conference presentations.

The Project Team will prepare and deliver to DOE all technical reports, financial reports, topical reports, and informational reports as described in the Cooperative Agreement.

3.2 Technical Support

The Project Team will provide Gasification Technology personnel to support production during startup and for the first six months post COD. After this time, Gasification Technology personnel will focus primarily on problems that do not immediately impact production at the plant. A core group of technology experts will be assigned to the Kemper Plant during the demonstration phase for technical support and analysis to support the DOE test plan activities.

Technical support will include, but not limited to, providing process engineering for the entire gasification island, equipment inspection, I&C and gas analysis, overall integration, refractory expertise, management of change and Hazop, and solids handling and processing. Technical support will also include the implementation of process enhancements to equipment, controls, and procedures so that the expected long-term availability can be achieved.

Gasification Technology personnel will serve as the vendor representative for TRIG™ core equipment (gasifier, ash cooling and depressurization, and coal feeders). These personnel will be involved in, but not limited to, troubleshooting problems that arise during operations, evaluating operating data to identify potential areas that can optimize system performance, updating RAM analysis, evaluating catalyst performance and potential improvements, monitoring and assessing particulate filter elements, performing dynamic simulation and transient analysis, and developing heat and material balances.

Gasification Technology personnel will support the Monitoring and Diagnostic center through consultation or direct monitoring for identifying undesirable conditions, and identifying Performance and Reliability issues. These personnel will be responsible for the development of monitoring protocols for TRIG™ equipment for use in the Monitoring and Diagnostic center. Gasification Technology personnel will also review alarms and will evaluate and make recommendations on the suitability of the alarms or alternate alarming strategies. These personnel will work with plant staff to create standard OIS screen templates and designs based on the business needs for TRIG™ equipment not currently in the existing power plant fleet.

3.3 Reference Plant Cost Estimates for TRIG™ Systems Based on Kemper Data

The Project Team will prepare a Reference Plant Cost Estimate for TRIG™ based on Kemper capital and O&M data.

3.4 Test Plan Implementation and Data Analysis

The Project Team will implement and revise the Test Plan as required, for the operation of the facility consistent with the commercial nature of the demonstration plant. The plant will be operated under commercial dispatch and the test data will be collected at commercially representative conditions. The data collected will be used to improve the performance of all process equipment items and to develop a deeper understanding of the TRIG™ process. The test program objectives will include the following:

- i. Optimizing gasifier performance
- ii. Monitoring and optimizing equipment process and mechanical performance
- iii. Investigating HTHP filter operational performance
- iv. Optimizing gas turbine syngas combustor performance
- v. Monitoring gas turbine internals
- vi. Monitoring and optimizing HRSG performance
- vii. Optimizing and improving process control systems
- viii. Improving startup and load-following capability
- ix. Completing a full survey to characterize all the egress streams
- x. Compiling plant repair and maintenance records
- xi. Completing thorough inspections of all plant equipment
- xii. Demonstrating, improving, and documenting availability

The test plan document includes the types of sample analysis necessary to evaluate component and system performance, methods of collecting, reducing, and analyzing data from various components, and methods for storage and retrieval of raw and refined performance data for the TRIG™ components.

The plant operating information system will be used to achieve real-time data collection and archiving such that the Project Team can perform complete measurement and characterization of input and output streams for each component being tested. The analytical procedures and QA/QC plans will be prepared and maintained for all sampling needs. The analysis of the results will be performed to evaluate performance of the process components and systems, and to fulfill the objectives of the test plan.

The Project Team will determine technical performance of the demonstration plant by evaluating heat rate and other key parameters following Performance Test Code procedures, modified for local, seasonal weather conditions as necessary. The Project Team will ensure that the environmental performance of the demonstration plant is documented through such categories as gasification ash discharge, stack gas monitoring, water analysis, and gas cleanup performance results.

3.5 Final Project Report

The Project Team will prepare the Final Project Report which will include the results of process, engineering, environmental, and economic evaluations of the complete TRIGTM plant and subsystems. It will also include final process overview, significant operating achievements, operational problems, plant modifications, operation and production statistics, and recommendations for plant performance optimization, scale up, and commercialization. The results of the final equipment inspections and the test results will also be included in the Final Project Report.

3.6 DOE Closeout Activities

The Project Team will complete the documentation and other items necessary for the closeout of the Cooperative Agreement.

Phase IV Deliverables

Updated Project Management Plan (D)

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D)

Reference Plant Cost Estimates for TRIGTM Systems Report (D)

Final TRIGTM Project Report (D)

E. Federal Assistance Reporting Checklist

The Recipient shall provide reports in accordance with the enclosed Federal Assistance Reporting Checklist and the instructions accompanying the Checklist.

F. Topical Reports

In addition to reports listed in the Federal Assistance Reporting Checklist, the Recipient will submit the following to the Government Contracting Officer's Representative (COR). Note that the following are not to be submitted through the official NETL document control system. The due dates of the Topical Reports will be determined by the COR in discussions with the Recipient. These reports will be submitted as a draft until reviewed and approved by the COR.

- i. Front End Engineering Design Report
- ii. Detailed Design Report
- iii. Commissioning and Startup Report
- iv. Reference Plant Cost Estimates for TRIG™ Systems Report
- v. Final TRIG™ Project Report

G. Briefings and Technical Presentations

The Recipient will prepare detailed briefings for presentation to the Government Contracting Officer's Representative (COR) at a NETL site or at a different location as designated by the Government COR. The briefings will be given by the Recipient to explain the plans, progress, and results of the project effort.

- i. Progress Review and Planning Meetings (every six months)
- ii. Front End Engineering Design Review Meeting (beginning of Phase IIb)
- iii. Detailed Design Review Meeting (during Phase IIb)
- iv. Construction Review Meetings (during Phase IIIb)
- v. Final Review Meeting (end of Phase IV)
- vi. Drawings/Photographs/Site Visits
- vii. Participation at Conferences

H. Status Reports

Project Management Meetings

Weekly or as-needed project management meetings (either via phone conference with minutes, web/net meetings, or face-to-face) will occur to discuss progress, issues, accomplishments, deliverables, milestones, the work plan, press inquiries, upcoming events, etc.

Once a month typically linked with invoice submission or cash advance request, the Recipient will include in its email update current value management data as follows:

Labor Performance Indicator (LPI)
Schedule Performance Indicator (SPI)

Planned Value and Actual Cost should be reported for the current reporting month and on a cumulative basis for the project along with Estimate to Completion (ETC), Expended-to-Date (ETD), and Estimate at Completion (EAC). The projected planned and estimated cost for the upcoming reporting month should be assessed. DOE will have inspection rights to the project management systems and data used to produce standard project progress reporting.

During the Phase IV Demonstration Phase, the Recipient is not required to report earned value management data.

Project Schedule

The Participant will prepare a project schedule including milestones for Phase III.b using Primavera. Project progress will be reflected in updates to the schedule.

During Phase IV, the Participant will prepare a milestone chart and progress will be reflected in updates to the chart.

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DOE F 4600.2

(10/2001)

All Other Editions are Obsolete

ATTACHMENT B

**U.S. Department of Energy
FEDERAL ASSISTANCE REPORTING CHECKLIST
AND INSTRUCTIONS**

1. Identification Number: DE-FC26-06NT42391		2. Program/Project Title: Demonstration of a Coal-based Transport Gasifier	
3. Recipient: Southern Company Services, Inc.			
4. Reporting Requirements:	Frequency	No. Copies of	Addresses
I. MANAGEMENT REPORTING <input checked="" type="checkbox"/> Progress Report <input checked="" type="checkbox"/> Special Status Report			
II. SCIENTIFIC/TECHNICAL REPORTING <input checked="" type="checkbox"/> Final Scientific/Technical Report DOE F 241.3 <input checked="" type="checkbox"/> Topical Report DOE F 241.3 <input checked="" type="checkbox"/> Journal Articles/Conference Papers/Proceedings DOE F 241.3 <input type="checkbox"/> DOE 421.4, Software/Manual DOE F 241.3 <input type="checkbox"/> Conference Record DOE F 241.3			
III. FINANCIAL REPORTING <input checked="" type="checkbox"/> SF-425 Federal Financial Report			
IV. CLOSEOUT REPORTING <input checked="" type="checkbox"/> DOE F 2050.11, Patent Certification <input type="checkbox"/> NETL F 580.1-9, Property Certificate <input type="checkbox"/> SF-120, Report of Excess Personal Property			
V. OTHER REPORTING <input checked="" type="checkbox"/> Environmental Report <input type="checkbox"/> NETL F 580.1-8, Annual Report of Property in the Custody of Contractors <input type="checkbox"/> NETL F 580.1-25, High Risk Property Report <input checked="" type="checkbox"/> Audit of For Profit Recipients <input checked="" type="checkbox"/> Other SEE STATEMENT OF PROJECT OBJECTIVES			
	Q A	Electronic version to NETL>	FITS@NETL.DOE.GOV
	FG A A	Electronic version to E-link>	http://www.osti.gov/elink-2413 (Note-software/manual must be sent to award administrator-see instructions under section B-software)
	Q, FG	Electronic Version to NETL>	FITS@NETL.DOE.GOV
	FC	Electronic Version to NETL>	FITS@NETL.DOE.GOV
	A	Electronic Version to NETL>	Diane.Madden@netl.doe.gov Brittley.Robbins@netl.doe.gov
	O/Y180		See block 5 below for addresses
FREQUENCY CODES AND DUE DATES: A - As required; see attached text for applicability. FG - Final; within ninety (90) calendar days after the project period ends. FC - Final - End of Effort. Q - Quarterly; within thirty (30) calendar days after end of the calendar quarter or portion thereof. S - Semiannually; within thirty (30) calendar days after end of project year and project half-year. YF - Yearly; 90 calendar days after the end of project year. YP - Yearly Property - due 15 days after period ending 9/30. Y180 - Yearly; 180 days after the end of the recipient's fiscal year. O - Other; See instructions for further details.			
5. SPECIAL INSTRUCTIONS: * Reports/Products must be submitted with appropriate DOE F 241. The 241 forms are available at www.osti.gov/elink The forms identified in the checklist are available at http://grants.pr.doe.gov . Alternate formats are acceptable provided the contents remain consistent with the form. Audit of For-Profit Recipients must be sent to 2 different addresses in accordance with the final audit guidance. A copy for the Contracting Officer shall be submitted via FITS@NETL.DOE.GOV ; a copy must also be e-mailed to the CFO at DOE-Audit-Submission@hq.doe.gov .			

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GENERAL INSTRUCTIONS FOR THE PREPARATION AND SUBMISSION OF ELECTRONIC REPORTS (JAN 2005)

The Recipient must prepare and submit all scientific/technical reports (including conference papers/proceedings, journal articles, software, and topical reports, if applicable) via E-link at <http://www.osti.gov/mlink-2413> [see specific instructions below regarding form submittal and format]. If you have any technical problems with using E-Link or DOE Form 241.3, calls should be directed to OSTI at 865-576-1223. However, if your question is related to other submission issues, you should contact the DOE Contract Specialist.

For all other reports indicated on the "Federal Assistance Reporting Checklist" (including management, financial, closeout and other reporting), the Recipient must prepare and submit these via the internet at FITS@NETL.DOE.GOV.

Successful completion of this award is contingent upon submittal of the reports or items specified on the "Federal Assistance Reporting Checklist" in accordance with the following instructions:

Failure to follow these instructions can delay data entry of the report(s) into the **NETL FEDERAL INFORMATION TRACKING SYSTEM (FITS)** and result in the report being lost or considered delinquent.

The level of detail the Recipient provides in the reports must be commensurate with the scope and complexity of the effort and must be as delineated in the guidelines and instructions contained herein. The prime Recipient must be responsible for acquiring data from any contractors or sub recipients and ensuring that any information submitted is compatible with the requirements of the DOE.

GUIDELINES FOR ELECTRONIC SUBMISSION AND FILE FORMAT OF NON-SCIENTIFIC/TECHNICAL REPORTS (includes management, financial, closeout and other reporting).

Production of high-quality, electronic documents are dependent on the quality of the input that is provided. Thus, the Recipient must submit an electronic version of each report.

ELECTRONIC REPORTS MUST BE SUBMITTED IN THE ADOBE ACROBAT PORTABLE DOCUMENT FORMAT (PDF). ELECTRONIC REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE RETURNED AND THE REPORT CONSIDERED DELINQUENT. IN ADDITION, THERE CAN BE NO RESTRICTIONS ON THE PDF FILE SUBMITTED THAT WOULD AFFECT OUR ABILITY TO OPEN OR EDIT THE REPORT DOCUMENT. THEREFORE, THE ONLY SECURITY METHOD THAT WILL BE ACCEPTED IS THE ADOBE ACROBAT "NO SECURITY" OPTION. THIS WILL ENABLE US TO PROPERLY INDEX AND PROCESS REPORT FILES.

Each report must be one integrated file that contains all text, tables, diagrams, photographs, schematics, graphs, and charts. Files must not be write-protected or encrypted in any manner.

The electronic file(s) must be submitted via the Internet at: FITS@NETL.DOE.GOV. An e-mail message sent in conjunction with the file **must** contain the following information:

DOE Award Number
Type of Report(s)
Frequency of Report(s)

Reporting Period (if applicable)
Name of submitting organization
Name, phone number and fax number of preparer

MANAGEMENT REPORTING

PROGRESS REPORT

The Progress Report must provide a concise narrative describing the current status of work. The report allows Recipients to communicate developments, achievements, changes and problems. The report must include the following information:

1. The DOE award number and name of the recipient.
2. The project title and name of the project director/principal investigator.
3. Date of report and period covered by the report.
4. Executive Summary- A well organized summary that highlights the important accomplishments and new knowledge realized from the project during the reporting period. This summary must be more comprehensive than the traditional "abstract" and identify noteworthy advancements in research, design, manufacture or commercialization of technology developments. Also, summarize important breakthroughs that resolve critical science and technology risks or development barriers.
5. The Recipient enters a brief narrative discussion of the following topics: approach changes; performance variances, accomplishments, or problems; open times; and status assessment and forecast. Each of these topics is addressed, as appropriate, for a given reporting period and the report is submitted periodically, as required, during the life of the project
6. Baseline and Status Reports. The Baseline Plan is a report which is used to present projected cost and activity data. The Baseline Plan presents discrete, measurable units of the proposed work. The plan will provide a specific outline of what the Recipient intends to do through a Work Breakdown Structure and the time and cost involved. The cost data to be entered must depict projected total costs for the life of the project on a monthly basis broken down by each element of the Work Breakdown Structure. The activity data required are identification of tasks required to complete the project according to the Work Breakdown Structure and a delineation of the project's major milestones. This plan will be developed and submitted to serve as the standard against which status and progress can be measured during the performance period.

The Status Report shall provide the performance information required to determine program effectiveness and the information which DOE requires to maintain accountability for public funds. The report must show approved budget by budget period and actual costs incurred. If cost sharing is required costs must be broken out by DOE share, awardee share, and total costs. The report must show actual costs, schedule progress, and work completed to date. This data must be provided for each reporting period, broken down by month for each element of the Work Breakdown Structure.

Milestones, anticipated completion dates, and actual completion dates must be listed to

show schedule status. The schedule status must identify any milestones that were not met during the reporting period and reasons why the established milestones were not met. Explanations should also provide an approximate date when the milestone will be met. Awardees may use project management software, such as Microsoft Project, to measure and report cost and schedule status.

When the status report is compared with the Baseline Plan, accomplishments can be noted, problems become apparent, and corrective action can be taken. The Status Report is a report on which the Recipient provides cost and activity data for each reporting period relative to the Baseline Plan. The information should be displayed so that the baseline for the project is clear and the status of the project relative to the baseline is clear. The report may consist of more than one page as necessary.

7. Results and Discussion - A detailed discussion of the progress performance. It is extremely important that this section includes enough relevant data, especially statistical data, to allow the project manager to justify the conclusions. With the relevant data, explain how the data was interpreted and how it relates to the original purpose of the research. Be concise in the discussion on how this research effort solved or contributed to solving the original problem. When investigation methods and/or procedures are being utilized for the first time, they shall be described in detail. This description shall contain detailed information on equipment and procedures utilized, as well as providing a rationale for their use and the accuracy of the method.

8. Conclusion - The conclusion should not simply reiterate what was already included in the "Results and Discussion" section. It should, however, summarize what has already been presented, and include any logical implications of how the successes are relevant to technology development in the future. This is extremely important, since "relevancy" continues to be a criterion of the program.

This section should not contain any trade secrets, business sensitive or classified data, or other information not subject to public release. If such information is important to reporting project progress, it should be presented in a separate appendix, following the instructions in the clause entitled "Supplemental Guidelines" regarding submission of a separate appendix for this type of restricted data.).

9. A summary of all of the significant accomplishments during this reporting period. An "accomplishment" is a significant development or finding that advances the state-of-the-art with respect to the technology of interest or significantly contributes to the understanding of a concept or technology.
10. Actual or anticipated problems or delays and actions taken or planned to resolve them. Identify any event causing a significant schedule slippage or cost growth; an environmental, safety, or health violation; or the achievement of or problems encountered for an important performance objective.
11. A description of any technology transfer activities accomplished during this reporting period. Identify and describe any activities to transfer research results or developed technology to other research stakeholders or users of the technology.

SPECIAL STATUS REPORT

The recipient must report the following events to the DOE Project Officer by e-mail as soon as possible after they occur. The e-mail correspondence should include:

1. Recipient's name and address;
2. Award title and number;
3. Date;
4. Brief statement of problem or event;
5. Anticipated impacts; and
6. Corrective action taken or recommended.

The Special Status Report should document the incidents listed below:

1. Developments that have a significant favorable impact on the project.
2. Problems, delays, or adverse conditions which materially impair the recipient's ability to meet the objectives of the award or which may require DOE to respond to questions relating to such events from the public. The recipient must report any of the following incidents and include the anticipated impact and remedial action to be taken to correct or resolve the problem/condition:
 - a. Any single fatality or injuries requiring hospitalization of five or more individuals.
 - b. Any significant environmental permit violation.
 - c. Any verbal or written Notice of Violation of any Environmental, Safety, and Health statutes.
 - d. Any incident which causes a significant process or hazard control system failure.
 - e. Any event which is anticipated to cause a significant schedule slippage or cost increase.
 - f. Any damage to Government-owned equipment in excess of \$50,000.
 - g. Any other incident that has the potential for high visibility in the media.
 - h. Any incident which causes a significant process or hazard control system failure, or is indicative of one which may lead to any of the above defined incidents, is to be reported as soon as possible, but within 5 days of discovery.

When an event results in the need to issue a written or verbal statement to the local media, the statement is to be cleared first; if possible, and coordinated with NETL Communications and Public Affairs Division, the DOE Project Officer and the Contracting Officer.

III. SCIENTIFIC/TECHNICAL REPORTING

Scientific/Technical Reporting includes: Final Scientific/Technical Report, Topical Reports, Journal Articles, Conference Proceedings and Papers, Software, and Conference Records.

FINAL SCIENTIFIC/TECHNICAL REPORT

The Final Scientific/Technical Report shall document and summarize all work performed during the award period in a comprehensive manner. It shall also present findings and/or conclusions produced as a consequence of this work. This report shall not merely be a compilation of information contained in other reports, but shall present that information in an integrated fashion, and shall be augmented with findings and conclusions drawn from the research as a whole.

TOPICAL REPORTS

Topical reports are intended to provide a comprehensive statement of the technical results of the work performed for a specific task or subtask of the Statement of Project Objectives, or detail significant new scientific or technical advances. If required, DOE shall review and approve the report outline prior to submission of the report.

Two Topical Reports (as a minimum) are required. The two required reports are the Preliminary Public Design Report and the Final Public Design Report. The purpose of the Public Design Reports is to consolidate for public use all available nonproprietary design information on the project. The Preliminary Public Design Report is based on the preliminary design information and is due at the end of preliminary design. The Final Public Design Report is based on detailed design information and is due six months after COD. The Final Public Design Report should contain sufficient background information to provide an overview of the project and pertinent cost data. Since the scope of the reports is limited to nonproprietary information, their content will not be sufficient to provide a complete tool in designing a replicate plant. However, these reports will serve as a reference for the design considerations involved in a commercial-scale facility.

The reports should include an overview description of the technology and a summary of the mass and energy balances for the process. They should also define the overall process performance requirements and describe the evaluations and operating philosophies upon which those performance requirements are based and a summary cost estimate of capital costs.

The following deliverables are also to be included as components of the Preliminary Public Design Report addressing the preliminary design:

Process Flow Diagrams

The Participant shall provide a complete set of nonproprietary Process Flow Diagrams with all updates and modifications.

Stream Data

The Participant shall provide a complete set of all nonproprietary stream data. This would include both the expected values and ranges of flows, stream properties, and constituents at various operating conditions.

Equipment List

The Equipment List consists of a summary of the major equipment for the plant. Equipment is to be sorted by Flow Diagram, equipment type, and equipment number. General description data are to be provided for each equipment item, including, but not limited to, the number required for operation, size or capacity, major nonproprietary operating and design parameters, and manufacturer and/or vendor.

The Final Public Design Report shall include the final versions of the Preliminary Public Design Report plus the following:

Drawings

The Participant shall include a complete set of Equipment Plot and Elevation Drawings, and Process and Instrumentation Diagrams, which describe the plant configuration at the end of the construction period.

Plant Capital Cost Data

The Participant shall include a summary cost estimate of capital costs associated with the construction of the plant.

GUIDELINES FOR ELECTRONIC SUBMISSION AND ORGANIZATION OF FINAL SCIENTIFIC/TECHNICAL AND TOPICAL REPORTS

Electronic Submission. The final scientific/technical report and topical reports must be submitted electronically via the DOE Energy Link System (E-Link) at <http://www.osti.gov/elink-2413>.

Electronic Format. REPORTS MUST BE SUBMITTED IN THE ADOBE PORTABLE DOCUMENT FORMAT (PDF) AND BE ONE INTEGRATED PDF FILE THAT CONTAINS ALL TEXT, TABLES, DIAGRAMS, PHOTOGRAPHS, SCHEMATIC, GRAPHS, AND CHARTS. ELECTRONIC REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE RETURNED AND THE REPORT CONSIDERED DELINQUENT. IN ADDITION, THERE CAN BE NO RESTRICTIONS ON THE PDF FILE SUBMITTED THAT WOULD AFFECT OUR ABILITY TO OPEN OR EDIT THE REPORT DOCUMENT. THEREFORE, THE ONLY SECURITY METHOD THAT WILL BE ACCEPTED IS THE ADOBE ACROBAT "NO SECURITY" OPTION. THIS WILL ENABLE US TO PROPERLY INDEX AND PROCESS REPORT FILES.

Materials, such as prints, videos, and books, that are essential to the report but cannot be submitted electronically, should be sent to the DOE Contract Specialist.

Submittal Form. The report must be accompanied by a completed electronic version of **DOE Form 241.3, "U.S. Department of Energy (DOE), Announcement of Scientific and Technical Information (STI)."** You can complete, upload, and submit the DOE F.241.3 online via E-Link. You are encouraged not to submit Protected EAct Information in these electronic technical reports. These technical reports must also not contain any Limited Rights Data (such as trade secret, proprietary or business sensitive information), classified information, information subject to export control classification, or other information not subject to release. Such information **must** be submitted in a separate hard-copy appendix to the electronic technical and topical reports as explained under **Supplemental Guidelines** below.

Organization. The following sections should be included (as appropriate) in the final scientific/technical report and topical reports in the sequence shown. Any section denoted by an asterisk is **required** in all final technical and topical reports.

TITLE PAGE* - The Title Page of the report itself must contain the following information in the following sequence:

Report Title
Type of Report (Final Scientific/Technical or Topical)
Reporting Period Start Date

Reporting Period End Date
Principal Author(s)
Date Report was Issued (Month [spelled out] and Year [4 digits])
DOE Award Number (e.g., DE-FG26-05NT12345) and if appropriate, task number
Name and Address of Submitting Organization (This section should also contain the name and address of significant subcontractors/sub-recipients participating in the production of the report.)

DISCLAIMER* -- The Disclaimer must follow the title page, and must contain the following paragraph:

“This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.”

ABSTRACT* - should be a brief, concise summary of the report.

TABLE OF CONTENTS*

EXECUTIVE SUMMARY* - this should be a well-organized summary that highlights the important accomplishments of the research during the reporting period. It should be no less than one page and no more than two pages in length, and should be single spaced. This summary must be more comprehensive than the traditional “abstract.”

REPORT DETAILS - The body of the final scientific/technical or topical report should address topics such as the following:

Experimental methods: Describe, or reference all experimental methods being utilized. Also provide detail(s) about materials and equipment used. Standard methods should reference the appropriate literature, where details can be obtained. Equipment should be described only if it is not standard, or if information is not available thru the literature or other reference publications.

Results and discussions: This section should include enough relevant data, especially statistical data, to allow the project manager to justify the conclusions. Explain how the data was interpreted and how it relates to the original purpose of the research. Be concise in the discussion on how this research effort solved or contributed to solving the original problem.

Conclusion: The conclusion should not simply reiterate what was already

included in "Results and Discussion" but should summarize what has already been presented, and include any logical implications of how the successes are relevant to technology development in the future. This is extremely important, since "relevancy" continues to be a criterion of the program.

GRAPHICAL MATERIALS LIST(S)

REFERENCES

BIBLIOGRAPHY

LIST OF ACRONYMS AND ABBREVIATIONS

APPENDICES (IF NECESSARY)

SUPPLEMENTAL GUIDELINES

Technical reporting SHALL NOT include Limited Rights Data (such as restricted, proprietary or business sensitive information). Limited Rights Data, if required to meet the reporting requirements, shall be submitted in a separate appendix to the technical report. This appendix SHALL NOT be submitted in an electronic format but rather submitted in ONE ORIGINAL AND THREE (3) PAPER COPIES along with the paper version of the sanitized technical report deliverable. The appendix shall not be referenced in or incorporated into the sanitized technical report deliverable under the contract. The appendix must be appropriately marked and identified. Further, if this award authorizes the awardee under the provisions of The Energy Policy Act of 1992 to request protection from public disclosure for a limited period of time of certain information developed under this award, technical reports SHALL NOT contain such Protected EAct Information. Such information shall be submitted in a separate appendix to the technical report that is suitable for release after the agreed upon period of protection from public disclosure has expired. The appendix shall not be referenced in or incorporated into the sanitized technical report deliverable under the contract. In accordance with the clause titled "Rights in data—programs covered under special data statutes," the appendix must be appropriately marked and identified

Company Names and Logos -- Except as indicated above, company names, logos, or similar material should not be incorporated into reports.

Copyrighted Material -- Copyrighted material should not be submitted as part of a report unless written authorization to use such material is received from the copyright owner and is submitted to DOE with the report.

Measurement Units -- All reports to be delivered under this instrument shall use the SI Metric System of Units as the primary units of measure. When reporting units in all reports, primary SI units shall be followed by their U.S. Customary Equivalents in parentheses (). **The Recipient shall insert the text of this clause, including this paragraph, in all subcontracts under this award.** Note: SI is an abbreviation for "Le Systeme International d'Unites."

ELECTRONIC MEDIA STANDARD FOR PREPARATION OF TECHNICAL REPORTS

PRESENTATION: The Recipient shall submit one quality permanent paper copy for storage (permanent or alkaline paper) and an electronic version of each technical report in PDF format. ELECTRONIC REPORTS MUST BE SUBMITTED IN THE ADOBE ACROBAT PORTABLE DOCUMENT FORMAT (PDF). REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE REJECTED, RETURNED AND CONSIDERED DELINQUENT. The report must be one complete integrated file containing all text, tables, diagrams, photographs,

schematics, graphs, and charts. Multiple files for various report segments are unacceptable and will be rejected. The electronic file(s) may be submitted on an ISO9660-format CD-ROM.

FORMAT: The electronic file(s) must be submitted on CD-ROM and labeled as follows:

DOE Award Number
Type/Frequency of Report(s)
Reporting Period (if applicable)
Name of submitting organization
Name, phone number and fax number of preparer

JOURNAL ARTICLES, CONFERENCE PAPERS AND PROCEEDINGS GENERATED BY LARGE BUSINESSES FOR DOE REVIEW

The Recipient shall submit to DOE for review and approval all documents generated by the Recipient, or any subcontractor, which communicate the results of scientific or technical work supported by DOE under this award, whether or not specifically identified in the award, prior to submission for publication, announcement, or presentation. Such documents include journal articles, conference papers and proceedings, etc. The Recipient shall simultaneously submit a draft version of the document to the DOE Project Officer and the DOE Patent Counsel Office prior to the publication, presentation, or announcement. The DOE Project Officer and DOE Patent Counsel shall review the draft version of the document and notify the Recipient of approval or recommended changes. The approved final version shall be submitted to the NETL AAD Document Control Coordinator.

The following information shall be provided for conference papers and proceedings, etc.

- Name of conference
- Location of conference (city, state, and country)
- Date of conference (month/day/year)
- Conference sponsor

CONFERENCE RECORD

The "Conference Record" documents for the DOE Project Officer, DOE Contracting Officer, and the Recipient an understanding of significant decisions, direction or redirection, or required actions resulting from meetings with DOE representatives. It is required for any meeting, conference, or phone conversation in which a decision is made that may change the schedule, labor, cost, or technical aspects of the award or the approved baseline plans. The report shall contain the following information as applicable:

1. Report title ("Conference Record"), number, and the date prepared.
2. Award title and number, and the Recipient's name and address.
3. Date of meeting or telephone conversation, with a list of those involved and their titles.
4. Subject(s) discussed, decisions reached, and directions given.
5. Variances from previous directions and conclusions.
6. Required actions.
7. Distribution.
8. Signature of preparer.

III. FINANCIAL REPORTING

FEDERAL FINANCIAL REPORT (STANDARD FORM 425)

Recipients must complete the SF-425 as identified on the Reporting Checklist in accordance with the report instructions. The SF-425A is not authorized for reporting under this award. A fillable version of the SF-425 is available at http://www.whitehouse.gov/omb/grants/grants_forms.aspx.

IV. CLOSEOUT REPORTING

PATENT CERTIFICATION (DOE F 2050.11)

This certificate submitted on DOE F 2050.11 is due within 90 days after completion or termination of the award.

V. OTHER REPORTING

ENVIRONMENTAL REPORTS

DOE issued a Final Environmental Impact Statement for the Project (DOE/EIS-0409) in May 2010 and a Record of Decision (ROD) in August 2010 (75 FR 51248). The ROD identified conditions to mitigate potential adverse impacts associated with the project. The Mitigation Action Plan (MAP) issued in September 2010 describes the monitoring and mitigation actions to be implemented during the design, construction, and demonstration of the Project. DOE prepared the MAP in accordance with 10 CFR § 1021.331.

The MAP contains a Table which lists the resource areas, monitoring requirements, mitigation commitments, and reporting requirements. These reports are to be submitted as per the frequency designated in the MAP Table. In addition NETL needs to be kept informed of permit compliance status and, thus, Recipient will submit copies of compliance reports that MPC has submitted to the appropriate Federal, State, and local regulatory agencies as well as any Notices of Violation. During the Demonstration Period, Recipient will also submit periodic summaries of the off-site disposal of wastes generated during the operation of the Project.

Recipient will have the right to mark information that is included in the environmental report as confidential consistent with DOE's regulations and the standards of the Freedom of Information Act and other applicable laws, and DOE will maintain such information as confidential and will not disclose it.

COMMUNICATION PLANS (MAR 2002)

Knowledge dissemination is an integral part of the Federally funded RD&D process. Effective dissemination requires planned, active, and coordinated participation of governmental entities and funded research organizations.

To ensure the effective dissemination of knowledge gained during this RD&D project, the recipient will consult with NETL's Public Affairs staff to identify communication goals, objectives, and strategies. The recipient will make an initial contact for consultation within 30 days of the award date. The recipient will make subsequent contacts whenever progress on the project warrants external communication, but no less than once a quarter.

Actions and products designed to disseminate nonproprietary project-related knowledge will be coordinated with NETL's Public Affairs staff. Examples of such actions and products include, but are not limited to:

- Press releases
- Articles in newspapers, newsletters, and magazines
- Papers in peer-reviewed journals
- Radio, television, and newspaper interviews
- Presentation of research results at conferences, workshops, and seminars
- Publication of results on web pages
- Information for government officials

POST-COMPLETION REVIEW (MAR 2002)

Within two (2) years after completion of the demonstration project, the Recipient agrees to participate with DOE in a post-completion project review meeting. The time and location of the meeting will be established by agreement of the Parties. The purpose of the meeting is to review the success of the project as well as any problems that may have arisen since project completion.

AUDIT OF FOR-PROFIT RECIPIENTS

As required by 10 CFR 600.316, as supplemented by For-Profit Audit Guidance Parts I through IV, audits must be performed of For-Profit Recipients of financial assistance.

For-Profit Audit Guidance Parts I through IV to assist for-profit recipients in complying with the audit requirements of 10 CFR 600.316 are posted on the Financial Assistance Forms page of the MA home page under the 'Coverage of Independent Audits' subheading, <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>.

Submission: The compliance audit report(s) is due to DOE within six months of the recipients' fiscal year-end date. The compliance audit report must be submitted, along with audited financial statements (if applicable), to the appropriate DOE Contracting Officer at FITS@NETL.DOE.GOV as well as to the DOE Office of the Chief Financial Officer at DOE-Audit-Submissions@hq.doe.gov.

ATTACHMENT C - BUDGET PAGES**Budget Information - Non Construction Programs - Budget Period 1**

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066
2.						
3.						
4.						
5. Totals				\$9,285,033	\$9,285,033	\$18,570,066
Section B - Budget Categories						
6. Object Class Categories		Grant Program, Function or Activity				Total (5)
		(1) Total - BP 1	(2)	(3)	(4)	
a. Personnel		\$3,769,589				\$3,769,589
b. Fringe Benefits						
c. Travel		\$159,413				\$159,413
d. Equipment		\$8,401,694				\$8,401,694
e. Supplies						
f. Contractual		\$6,002,871				\$6,002,871
g. Construction						
h. Other		\$236,500				\$236,500
i. Total Direct Charges (sum of 6a-6h)		\$18,570,066				\$18,570,066
j. Indirect Charges						
k. Totals (sum of 6i-6j)		\$18,570,066				\$18,570,066
7. Program Income						

SF-424A (Rev. 4-92)
Prescribed by OMB Circular A-102

ATTACHMENT C - BUDGET PAGES
Budget Information - Non Construction Programs - Budget Period 2a

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,237
2.						
3.						
4.						
5. Totals				\$14,233,607	\$17,396,631	\$31,630,237
Section B - Budget Categories						
6. Object Class Categories	Grant Program, Function or Activity				Total (5)	
	(1) Total - BP 2a Phase IIa	(2) Total - BP 2a Phase IIIa	(3)	(4)		
a. Personnel	\$1,460,591	\$1,261,023			\$2,721,615	
b. Fringe Benefits						
c. Travel	\$56,034	\$17,735			\$73,769	
d. Equipment	\$1,377,290	\$18,362,507			\$19,739,797	
e. Supplies						
f. Contractual	\$8,448,269	\$285,386			\$8,733,656	
g. Construction						
h. Other	\$2,919	\$358,482			\$361,401	
i. Total Direct Charges (sum of 6a-6h)	\$11,345,103	\$20,285,134			\$31,630,237	
j. Indirect Charges						
k. Totals (sum of 6i-6j)	\$11,345,103	\$20,285,134			\$31,630,237	
7. Program Income						

ATTACHMENT C - BUDGET PAGES
Budget Information - Non Construction Programs - Budget Period 2b

OMB Approval No. 0348-0044

Section A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal	Non-Federal	Federal	Non-Federal	Total
		(c)	(d)	(e)	(f)	(g)
1. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,744,581,500	\$2,014,812,860
2.						
3.						
4.						
5. Totals				\$270,231,360	\$1,744,581,500	\$2,014,812,860

Section B - Budget Categories

6. Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) Total - BP 2b Phase IIb	(2) Total - BP 2b Phase IIIb	(3) Total - BP 2b Phase IV	(4)	
a. Personnel			\$9,640,787		\$9,640,787
b. Fringe Benefits			\$4,350,230		\$4,350,230
c. Travel			\$1,365,053		\$1,365,053
d. Equipment			\$34,479		\$34,479
e. Supplies			\$30,248		\$30,248
f. Contractual		\$1,989,812,860	\$1,749,186		\$1,991,562,046
g. Construction					
h. Other			\$503,491		\$503,491
i. Total Direct Charges (sum of 6a-6h)		\$1,989,812,860	\$17,673,474		\$2,007,486,334
j. Indirect Charges			\$7,326,526		\$7,326,526
k. Totals (sum of 6i-6j)		\$1,989,812,860	\$25,000,000		\$2,014,812,860
7. Program Income					

ATTACHMENT C - BUDGET PAGES**Budget Information - Non Construction Programs - Cumulative**

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,237
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,744,581,500	\$2,014,812,860
4.						
5. Totals				\$293,750,000	\$1,771,263,164	\$2,065,013,164
Section B - Budget Categories						
6. Object Class Categories		Grant Program, Function or Activity				Total (5)
		(1) Total - BP 1	(2) Total - BP 2a	(3) Total - BP 2b	(4)	
a. Personnel		\$3,769,589	\$2,721,615	\$9,640,787		\$16,131,991
b. Fringe Benefits				\$4,350,230		\$4,350,230
c. Travel		\$159,413	\$73,769	\$1,365,053		\$1,598,235
d. Equipment		\$8,401,694	\$19,739,797	\$34,479		\$28,175,969
e. Supplies				\$30,248		\$30,248
f. Contractual		\$6,002,871	\$8,733,656	\$1,991,562,046		\$2,006,298,573
g. Construction						
h. Other		\$236,500	\$361,401	\$503,491		\$1,101,392
i. Total Direct Charges (sum of 6a-6h)		\$18,570,066	\$31,630,237	\$2,007,486,334		\$2,057,686,638
j. Indirect Charges				\$7,326,526		\$7,326,526
k. Totals (sum of 6i-6j)		\$18,570,066	\$31,630,237	\$2,014,812,860		\$2,065,013,164
7. Program Income						

Section C - Non-Federal Resources					
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) Totals	
8. Fossil Energy Research & Development - CFDA: 81.089			\$1,771,263,164	\$1,771,263,164	
9.					
10.					
11.					
12. Total (sum of lines 8 - 11)			\$1,771,263,164	\$1,771,263,164	
Section D - Forecasted Cash Needs					
	Total for 1st Year (2010)	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
13. Federal	*	*	*	*	*
14. Non-Federal	*	*	*	*	*
15. Total (sum of lines 13 and 14)	*	*	*	*	*
Section E - Budget Estimates of Federal Funds Needed for Balance of the Project					
(a) Grant Program	Future Funding Periods (Years)				
	(b) First	(c) Second	(d) Third	(e) Fourth	
16. Fossil Energy Research & Development - CFDA: 81.089	*	*	*	*	
17.					
18.					
19.					
20. Total (sum of lines 16-19)					
Section F - Other Budget Information					
21. Direct Charges	\$2,057,686,638	22. Indirect Charges			
23. Remarks	*See Project Management Plan and any updates thereto				

ASSISTANCE AGREEMENT

1. Award No. DE-FC26-06NT42391		2. Modification No. 0010	3. Effective Date 10/01/2014	4. CFDA No. 81.089
5. Awarded To SOUTHERN COMPANY SERVICES INC [REDACTED]		6. Sponsoring Office Office of Fossil Energy		7. Period of Performance 02/01/2006 through 04/30/2020
8. Type of Agreement <input type="checkbox"/> Grant <input checked="" type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Other	9. Authority PL 95-91 DOE Organization Act, as amended by PL 102-486 Energy Policy Act 1992		10. Purchase Request or Funding Document No.	
11. Remittance Address SOUTHERN COMPANY SERVICES INC [REDACTED]		12. Total Amount Govt. Share: \$293,750,000.00 Cost Share : \$1,771,263,164.00 Total : \$2,065,013,164.00		13. Funds Obligated This action: \$0.00 Total : \$293,750,000.00
14. Principal Investigator [REDACTED]	15. Program Manager DIANE R. MADDEN Phone: 412-386-5931		16. Administrator DEPT OF ENERGY NATIONAL ENERGY TECH LAB 626 Cochrans Mill Road PO Box 10940 Pittsburgh PA 15236-0940	
17. Submit Payment Requests To Payment - Direct Payment from U.S. Dept of Treasury		18. Paying Office Payment - Direct Payment from U.S. Dept of Treasury		19. Submit Reports To See Attachment B
20. Accounting and Appropriation Data See Schedule				
21. Research Title and/or Description of Project DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER				
For the Recipient		For the United States of America		
22. Signature of Person Authorized to Sign		25. Signature of Grants/Agreements Officer Signature on File		
23. Name and Title	24. Date Signed	26. Name of Officer Michael S. DeStefano		27. Date Signed 09/29/2014

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED

DE-FC26-06NT42391/0010

PAGE OF

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NAME OF OFFEROR OR CONTRACTOR

SOUTHERN COMPANY SERVICES INC

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>DUNS Number: 137519547</p> <p>-----</p> <p>The purpose of this amendment is to issue an Amended and Restated Cooperative Agreement.</p> <p>As of the start of Phase IV - Demonstration, the Amended and Restated Cooperative Agreement (attached hereto) applies.</p> <p>-----</p> <p>PERIOD OF PERFORMANCE: 02/01/2006 - 04/30/2020</p> <p>BUDGET PERIOD 1: 02/01/2006 - 04/30/2007</p> <p>BUDGET PERIOD 2a</p> <p>Phase IIa: 05/02/2007 - 11/14/2007</p> <p>Phase IIIa: 05/02/2007 - 11/16/2008</p> <p>BUDGET PERIOD 2b</p> <p>Phase IIb: 11/17/2008 - 09/27/2010</p> <p>Phase IIIb: 09/28/2010 - 06/30/2015</p> <p>Phase IV: 10/01/2014 - 04/30/2020</p> <p>-----</p> <p>POINTS OF CONTACT:</p> <p>DOE Contract Specialist/Award Administrator</p> <p>Brittley Robbins, 412-386-5430</p> <p>brittley.robbs@netl.doe.gov</p> <p>DOE Program Manager/Project Officer</p> <p>Diane Revay Madden, 412-386-5931</p> <p>diane.madden@netl.doe.gov</p> <p>Recipient Business Officer</p> <p>[REDACTED]</p> <p>Recipient Principal Investigator</p> <p>[REDACTED]</p> <p>-----</p> <p>ASAP: YES Extent Competed: COMPETED Davis-Bacon</p> <p>Act: NO PI: [REDACTED]</p>				

Amended and Restated Cooperative Agreement
DE-FC26-06NT42391
As of Amendment 0010

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(FORMERLY DOE F 4600.2 – NOTICE OF FINANCIAL ASSISTANCE AWARD)

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SECTION II - SPECIAL TERMS AND CONDITIONS

2.1 Prevailing Regulations (SEPT 2004)

As indicated on the face page, Block 18c, this award is subject to the DOE Assistance Regulations of Title 10, Code of Federal Regulations, Part 600. This set of regulations may be found in most major libraries or on the World Wide Web at: <http://ecfr.gpoaccess.gov>.

2.2 Order of Precedence (AUG 2001)

In the event of any inconsistency among the provisions of this agreement, the inconsistency shall be resolved by giving precedence as follows: (a) applicable public laws; (b) 10 CFR Part 600; (c) the special terms and conditions; and (d) other documents, exhibits and attachments.

2.3 Definitions (MAR 2002)

“Cooperative Agreement” means this agreement between the United States Department of Energy (DOE) and the Recipient, DOE Instrument number DE-FC26-06NT42391, and any subsequent amendments.

“Recipient” or “Participant” means Southern Company Services, Inc. and its successors and assigns.

“Repayment Agreement” means the agreement made by Southern Company Services, Inc.; Kellogg Brown & Root, Inc; and DOE in DOE Cooperative Agreement Number DE-FC26-06NT42391 on January 30, 2006, as amended and restated on May 2, 2007 and again on December 5, 2008, to repay the DOE share of costs paid under this Cooperative Agreement. The Repayment Agreement is agreement number DE-FR26-06NT42392.

“United States” means the United States of America and its 50 States, the District of Columbia, the Commonwealth of Puerto Rico, and any possession or trust territory of the United States.

2.4 Substantial Involvement Between DOE and the Recipient (MAR 2002)

(a) Recipient Role

The Recipient shall be responsible for all aspects of Project performance as set forth in the Statement of Project Objectives. All services, personnel, facilities, equipment, materials, and supplies shall be furnished by the Recipient, unless otherwise specified under this Cooperative Agreement. The Recipient Project Director shall serve as its authorized representative for the technical elements of all work to be performed under this Cooperative Agreement. The Recipient Business Officer shall serve as its authorized representative for administrative elements dealing with the Cooperative Agreement.

(b) DOE Role

DOE shall monitor the Recipient’s progress in performing the Project and shall have a substantial role in Project decision making.

The DOE Contracting Officer is the only Government Representative authorized to accept the reports and other deliverables the Recipient is required to provide under this Cooperative Agreement. The DOE Project Officer (same as Contracting Officer’s Representative) shall have the authority to comment on those technical reports, plans, and other technical information the Recipient is required to submit to DOE for review and comment.

The DOE Project Officer shall have the authority to issue written technical advice which suggests redirecting the Project work (e.g., by changing the emphasis among different tasks), or pursuing specific lines of inquiry likely to assist in accomplishing the Statement of Project Objectives. The DOE Project Officer is not authorized to issue, and the Recipient must not follow, any technical advice which constitutes work which is

not within the scope of the Statement of Project Objectives; which in any manner causes an increase or decrease in the total estimated cost or in the time required for performance of the Project; which has the effect of changing any of the terms or conditions of the Cooperative Agreement; or which interferes with the Recipient's right to perform the Project in accordance with the terms and conditions of this Cooperative Agreement.

(c) No Government Obligation to Third Parties

In connection with the performance of the Project, the Government shall have no obligation or responsibility to any contractor, subcontractor or other person who is not a party to this Cooperative Agreement. The foregoing limitation shall apply notwithstanding the Contracting Officer's prior approval of or consent to any contract awarded by the Recipient. The Recipient shall be responsible, without recourse to DOE, except for amounts DOE is otherwise obligated to pay pursuant to the provisions of this Cooperative Agreement for the resolution and satisfaction of all pre-award protests, contract administration issues, and contract disputes arising out of contracts awarded by the Recipient for acquisitions related to the Project.

2.5 Budget Periods, Phases, and Estimated Project Costs

(I) Budget Periods and Phases

The Project Period of this Cooperative Agreement is divided into Budget Periods for funding purposes.

The Project is divided into major categories of work (e.g., Project Definition, Detailed Design, Construction, Demonstration) called Phases for project management planning and control. Additionally, Phases distinguish between work completed at the Orlando site and work at the Kemper County site. The Phases are aligned to specific Budget Periods and correspond to specific tasks in the Statement of Project Objectives. The parties recognize that the dates set forth in the table below are approximate and represent the period for which the majority of the work under each Phase was or will be performed, and as such, expenditures for work performed for one Phase may have occurred during another Phase.

The Project Period for this Award is 02/01/2006 through 04/30/2020 consisting of the following Budget Periods and Phases. The total Estimated Project Costs for each of the Budget Periods is described in subpart II below.

Budget Period	Phase	Start Date	End Date
Budget Period 1 (Orlando, FL)	Phase I – Project Definition	02/01/2006 ¹	04/30/2007
Budget Period 2a (Orlando, FL)	Phase II.a. – Detailed Design	05/02/2007	11/14/2007
	Phase III.a. – Construction	05/02/2007	11/16/2008
Budget Period 2b (Kemper County, MS)	Phase II.b. – Detailed Design	11/17/2008	09/27/2010
	Phase III.b. – Construction	09/28/2010	06/30/2015
	Phase IV – Demonstration	10/01/2014	04/30/2020

(II) Total Estimated Project Costs

a. Total Estimated Project Cost is the sum of the Government's share and Recipient's share of the estimated Project Costs. The Recipient's cost share must come from non-Federal sources unless otherwise allowed by law. By accepting Federal funds under this Award, Recipient agrees that, notwithstanding the Budget Period cost-share

¹ Pursuant to DOE Letter dated 12/20/2004, DOE authorized pre-Award costs for the period 01/03/2005 through the effective date of the Award (02/01/2006).

percentages established in this article, Recipient is liable for 85.8 percent of the total allowable Project costs, except as provided in paragraph V below regarding Project Costs Under Budget, even if the Project is terminated early or is not funded to its completion. If Recipient has not achieved 85.8 percent cost-sharing at the time of Project termination or discontinuance (except as provided below regarding Project Costs Under Budget), Recipient shall refund sufficient funds to the Government in order to achieve a Recipient cost-share percentage of 85.8 percent based on the total allowable Project Cost.

This cost is shared as follows:

Budget Period	Phase	Government Share			Recipient Share			Total
No.	No.	\$	%	%	\$	%	%	
1	I	\$9,285,033	50.0%	50.0%	\$9,285,033	50.0%	50.0%	\$18,570,066
2a	II.a.	\$5,105,297	45.0%	45.0%	\$6,239,807	55.0%	55.0%	\$11,345,104
	III.a.	\$9,128,310	45.0%		\$11,156,824	55.0%		\$20,285,134
2b	II.b.	\$0	0.0%	13.4%	\$0	0.0%	86.6%	\$0
	III.b.	\$245,231,360	12.3%		\$1,744,581,500	87.7%		\$1,989,812,860
	IV	\$25,000,000	100.0%		\$0	0.0%		\$25,000,000
Total Estimated Project Cost		\$293,750,000	14.2%		\$1,771,263,164	85.8%		\$2,065,013,164

b. If Recipient discovers that it may be unable to provide cost sharing of at least the amount identified above, it should immediately provide written notification to the DOE Award Administrator indicating whether Recipient will continue the Project or phase out the Project. If Recipient plans to continue the Project, the notification must describe how replacement cost sharing will be secured.

c. Recipient must maintain records of all Project costs that it claims as cost sharing, including in-kind costs, as well as records of costs to be paid by DOE. Such records are subject to audit.

d. Failure to provide the cost sharing required by this term may result in the subsequent recovery by DOE of some or all the funds provided under the Award.

e. Notwithstanding the cost share percentage identified above, DOE agreed to share allowable costs during Phase III.b (Construction) at a ratio of 45 percent of the Phase III.b costs up to \$245,231,360.

f. Recipient acknowledges that the Government has agreed to share at a higher rate in Phase III.b of the Project with the expectation that the Recipient shall share at a higher rate during later stages of the Phase in order to achieve an overall Recipient cost-share percentage of at least 86.6² percent of the Budget Period 2b costs and at least 85.8 percent of the total allowable Project Costs, subject to paragraph V. of this article.

(III) Budget Revisions

The Recipient may re-budget funds within the Total Estimated Project Costs, subject to the prior approval requirements of 10 CFR § 600.315.

(IV) Additional Funds

The Recipient shall immediately notify the Contracting Officer in writing whenever it becomes apparent that the costs of completing that portion of the Project to be performed during a Budget Period exceeds the total estimated budget period cost. Such written notice shall, at a minimum, set forth (1) a detailed explanation of the magnitude and factors causing the cost overrun and (2) the Recipient's proposed plan to fund the increased cost.

² The Recipient share for Budget Period 2b (including Phases II.b, III.b, and IV) is 86.6%.

(V) **Project Costs Under Budget**

If the Recipient completes the Statement of Project Objectives at a cost that is less than the Total Estimated Project Cost stated above but greater than \$1,622,905,779, the Recipient will be entitled to reimbursement from DOE in the full amount of DOE's cost share of \$293,750,000 regardless of the cost share percentage. In the event that the Recipient completes the Statement of Project Objectives at a cost that is less than \$1,622,905,779, the Recipient will be entitled to reimbursement from DOE in an amount that is equal to 18.1 percent of the allowable costs below the \$1,622,905,779 amount.

2.6 Use of Program Income – Cost Sharing

If any program income is earned in connection with the Project during the Project period as a result of this award, that program income may be used to meet Recipient's cost sharing requirement.

2.7 Cost Overruns

The estimated DOE cost-share set forth in Section 2.5 (II) is the maximum amount permitted by law. The Government shall not share in any additional cost overruns. Therefore, Southern Company Services, Inc. shall be responsible for all further cost overruns that may occur in order to complete the Project in accordance with the Statement of Project Objectives contained in the Cooperative Agreement.

2.8 Allowable Pre-award Costs (MAR 1999)

The Recipient is entitled to reimbursement by DOE of its share of pre-award costs in the amount not to exceed \$7,200,670, per the pre-award cost authorization letter to Recipient from DOE dated December 20, 2004. These costs are limited to work associated with performance of work detailed in Recipient's letter of December 16, 2004, incurred during the period starting on January 3, 2005 through the effective start date of this award (Block 7, DOE F 4600.1).

2.9 Cost Sharing (MAR 2002)

In order to be recognized as allowable cost sharing, a cost must be otherwise allowable in accordance with the applicable Federal cost principles and DOE Regulations (10 CFR § 600.313) governing cost sharing. Cost sharing may be in various forms or combinations, including, but not limited to, cash outlays and in-kind contributions. All allowable Project costs, whether in-cash or in-kind, shall be shared by DOE when such costs are incurred by applying the share ratios set forth in the Cooperative Agreement.

Provided below is a non-exclusive list of costs that are unallowable as Project costs and cost sharing:

- Costs incurred in negotiating a Cooperative Agreement with DOE are not allowable as direct charges to the Project.
- Allowable costs under past, present, or future Federal Government contracts, grants or Cooperative Agreements may not be charged against this Cooperative Agreement. Likewise, the Recipient may not charge costs allowable under this Project, including any portion of its cost share to the Federal Government under any other contracts, grants, or Cooperative Agreements.
- Only the operating costs directly associated with the proposed work effort (i.e., incremental costs distinct from the daily operational costs) may be recognized as allowable costs for cost-sharing purposes if adequately supported and properly documented.
- DOE will not share in the acquisition costs of any fuel other than coal, under this Clean Coal Power Initiative, unless prior written approval is obtained from the DOE Contracting Officer. The cost of natural gas for flare operation and gasifier start-up and commissioning is, however, an allowable cost and includes natural gas for initial and subsequent startups. The DOE share of natural gas cost for Budget Period 2b shall not exceed \$7,468,046.

- Previously expended research or development costs are unallowable.
- DOE shall not accept valuation for property sold, transferred, exchanged, or manipulated in any way to acquire a new basis for depreciation purposes or to establish a fair use value in circumstances that would amount to a transaction for the purpose of the Cooperative Agreement.
- Interest on borrowings (however represented) and other financial costs such as bond discounts, cost of financing and refinancing capital (net worth plus long-term liabilities), are unallowable Project costs. This includes interest on funds borrowed for construction.
- DOE will not share in both the direct cost and depreciation on the same item. Depreciation is not allowable for cost sharing on any item charged to the Project as a direct cost. For example, DOE will cost share the direct cost on equipment or facilities purchased or constructed for the Project; but, will not also cost share the depreciation.
- The value of patents and data contributed to the Project is unallowable.
- Facilities capital cost of money shall be an unallowable cost on all real property or equipment acquired by or on behalf of the Recipient in connection with the performance of the Project.
- Forgone fees, forgone profits, or forgone revenues as well as replacement power costs are not allowable costs.
- Fee or profit paid to any member of the proposing team having a substantial and direct interest in the commercialization of the demonstration technology is unallowable. Competitive subcontracts, where a proposing team member is selected for award of a subcontract, placed with the prior written consent of the Contracting Officer and subcontracts for routine supplies and services are not covered by this prohibition.
- Business losses are unallowable.

NOTE: See Federal Acquisition Regulations (FAR) 31.2 for the complete Cost Principles and Procedures applicable to Commercial Organizations.

2.10 Payment Procedures *Reimbursement Through the Automated Standard Application for Payments (ASAP) System (OCT 2004)

- (a) Method of Payment. Payment will be made by reimbursement through the Department of Treasury's ASAP system.
- (b) Requesting Reimbursement. Requests for reimbursements must be made through the ASAP system. Your requests for reimbursement should coincide with your normal billing pattern, but not more frequently than every two weeks. Each request must be limited to the amount of disbursements made for the federal share of direct project costs and the proportionate share of allowable indirect costs incurred during that billing period.
- (c) Adjusting payment requests for available cash. You must disburse any funds that are available from repayments to and interest earned on a revolving fund, program income, rebates, refunds, contract settlements, audit recoveries, credits, discounts, and interest earned on any of those funds before requesting additional cash payments from DOE.
- (d) Payments. All payments are made by electronic funds transfer to the bank account identified on the ASAP Bank Information Form that you filed with the U.S. Department of Treasury.
- (e) Invoice documentation shall include the following information:

- (1) Name and address of recipient/vendor.
- (2) Invoice date.
- (3) Award number.
- (4) Project Billing Cost Report: Detailed breakdown on the monthly expenses showing Travel and Living Expenses, Direct Materials, Outside Services, Direct Labor, Overheads/Fringe Benefits less cost shares. This is shown for the current period and cumulative.
- (5) DOE Allowable Overhead Calculations: Showing the labor, allowable and unallowable overheads.
- (6) Name (where practicable), title, phone number and complete mailing address of responsible official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).
- (7) Name (where practicable), title, phone number and complete mailing address of the person to be notified in the event of a defective invoice.
- (8) Total charges for the month by Work Order Sub: Total charges, labor dollars, labor hours, overheads, employee expenses, outside services, resource usage, and other expenses.
- (9) Current month SCS billing that summarizes expenses on the Project.

2.11 Reserved

2.12 Property Management and Disposition

Equipment procured under this award to the Recipient will be installed at the premises of Mississippi Power Company (Teaming Member, subcontractor and host site to the Project) (hereinafter referred to as the "hosting entity"). Such hosting entity is the owner of the facility at which the Project is to be performed and will take title to the procured equipment. Such title vesting in the hosting entity will not void DOE's ability to share financial benefit from any property disposition.

Title to all real property, equipment and supplies (excluding Government-furnished property) acquired by or on behalf of the hosting entity in connection with performance of the Project shall vest upon acquisition and completion of the Project in the above referenced hosting entity. The hosting entity shall make such property available for use in the Project. During the period of the Cooperative Agreement, the hosting entity may, with the DOE Contracting Officer's prior approval, encumber its title to or dispose of such property. Should said property be sold during the Project period, DOE shall share in the sale proceeds at DOE's overall project cost-share ratio. After completion of the demonstration period the hosting entity retains unconditional title and has no further obligation to DOE with respect to the property. The Contracting Officer grants consent for the purchase of equipment, fuels, materials, and services consistent with Recipient's application.

The cost of disposal of the Demonstration Facility is an allowable cost only if proposed and included in the cost estimate for Demonstration/Operations.

The use, management, and disposition of all government-furnished property shall be governed by 10 CFR §§ 600.320 thru 600.324.

2.13 Real Property - None (JAN 1999)

No land is anticipated to be procured under this award.

2.14 Federally Owned Property (Government-Furnished) - None (JAN 1999)

It is not anticipated that any Government-furnished property will be provided under this award.

2.15 Key Personnel

Personnel considered to be essential and key to the work being performed hereunder are specified below:

NAME	TITLE	TELEPHONE	COMPANY
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[REDACTED]

[REDACTED]

[REDACTED]

KBR
SCS
SCS
SCS

MPC

The personnel specified in this article are considered to be essential to the Project. Before removing or replacing any key personnel, the Recipient must notify the Contracting Officer reasonably in advance and submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on the project. No key personnel may be substituted without the Contracting Officer's approval.

2.16 Project Site and Access

The Project shall be performed principally at the Mississippi Power Company site in Kemper County, MS. At the request of the DOE Contracting Officer or the COR, the Recipient shall provide Government officials and interested members of the public as determined by DOE with access to the Project site(s) to observe project operations at reasonable times, with reasonable limitations on the number of people during each visit, and subject to compliance with applicable site safety and security requirements.

2.17 Paperwork Reduction – Cooperative Agreements (SEPT 2002)

The award is subject to the requirements of the Paperwork Reduction Act of 1980 as implemented by the Office of Management and Budget rules, "Controlling Paperwork Burdens on the Public," published at 5 CFR 1320.

The Recipient shall submit any proposed sponsored information collection to the person identified on the DOE F 4600.1 (Award Face Page, Block 12). The proposal shall be submitted at least 120 days prior to the intended date of information collection. DOE will seek the requisite approval from the Office of Management and Budget (OMB) and will promptly notify the Recipient of the disposition of the request.

2.18 Public Access to Information (APR 2000)

The Freedom of Information Act, as amended, and the DOE implementing regulations (10 CFR 1004) require DOE to release certain documents and records regarding awards to any person who provides a written request. The intended use of the information will not be a criterion for release.

2.19 Compliance with Buy American Act (OCT 2004)

In accepting this award, the Recipient agrees to comply with sections 2 through 4 of the Act of March 3, 1933 (41 U.S.C. 10a-10c, popularly known as the "Buy American Act"). The Recipient should review the provisions of the Act to ensure that expenditures made under this award are in accordance with it.

2.20 Notice Regarding the Purchase of American-Made Equipment and Products – Sense of Congress (OCT 2004)

It is the sense of the Congress that, to the greatest extent practicable, all equipment and products purchased with funds made available under this award should be American-made.

2.21 Lobbying Restrictions (OCT 2004)

By accepting funds under this award, Recipient agrees that none of the funds obligated on the award shall be made available for any activity or the publication or distribution of literature that in any way tends to promote public support or opposition to any legislative proposal on which Congressional action is not complete. This restriction is in addition to those prescribed elsewhere in statute and regulation.

2.22 Notice Regarding Unallowable Costs and Lobbying Activities (NOV 1998)

Recipients of financial assistance are cautioned to carefully review the allowable cost and other provisions applicable to expenditures under their particular award instruments. If financial assistance funds are spent for purposes or in amounts inconsistent with the allowable cost or any other provisions governing expenditures in an award instrument, the government may pursue a number of remedies against the Recipient, including in appropriate circumstances, recovery of such funds, termination of the award, suspension or debarment of the Recipient from future awards, and criminal prosecution for false statements.

Particular care should be taken by the Recipient to comply with the provisions prohibiting the expenditure of funds for lobbying and related activities. Financial assistance awards may be used to describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not to encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

2.23 Reporting (NOV 1998)

Failure to comply with the reporting requirements contained in this award will be considered a material noncompliance with the terms of the award. Noncompliance may result in a withholding of future payments, suspension or termination of the current award, and withholding of future awards. A willful failure to perform, a history of failure to perform, or of unsatisfactory performance of this and/or other financial assistance awards, may also result in a debarment action to preclude future awards by Federal agencies.

2.24 Recipient Press Releases (APR 1998)

The DOE policy and procedure on planned press releases requires that all Recipient press releases be reviewed and approved by DOE prior to issuance. Therefore, the Recipient shall, at least ten (10) days prior to the planned issue date, submit a draft copy to the Contracting Officer of any planned press releases related to work performed under this award. The Contracting Officer will then obtain necessary reviews and clearances and provide the Recipient with the results of such reviews prior to the planned issue date.

2.25 Publication of Results/Acknowledgment Statement (MAR 2004)

Publications, as well as reports prepared under this award shall contain the following acknowledgment statement:

"This () was prepared with the support of the U.S. Department of Energy, under Award Number DE-FC26-06NT42391. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the DOE".

2.26 National Environmental Policy Act (NEPA) Requirements

DOE issued a Final Environmental Impact Statement (EIS) for the Project (DOE/EIS-0409) in May 2010 and a Record of Decision (ROD) in August 2010 (75 FR 51248). The ROD identified conditions to mitigate potential adverse impacts associated with the Project. The Mitigation Action Plan (MAP) describes the monitoring and mitigation actions to be implemented during the design, construction, and demonstration of the Project. The Recipient agrees to:

- a) flowdown to Mississippi Power Company the obligation to comply with the conditions, limitations, mitigation requirements, and monitoring requirements specified in the ROD and MAP;
- b) facilitate the ability of DOE's authorized representatives to visit the relevant sites and facilities at reasonable times and upon reasonable notice and subject to applicable site access requirements to verify compliance with the conditions and requirements in the ROD and MAP; and
- c) flowdown to Mississippi Power Company the obligation to submit data or otherwise meet specified reporting requirements that are in the MAP.

If the Recipient finds the conditions and requirements to be unacceptable, the Recipient reserves the right to withdraw

from the Project upon written notice to DOE, as prescribed under 10 CFR 600.351(a)(3).

2.27 Environmental, Safety & Health (OCT 2003)

The recipient must comply with applicable Federal, State, and local environmental, safety and health laws and regulations for work performed under this award.

2.28 Hazardous Wastes Manifests and Labels (MAR 2003)

The Recipient shall not identify, on wastes manifests or container labels or otherwise, DOE or NETL as the owner or generator of hazardous wastes without written permission, signed by either the NETL Director or both the NETL Contracting Officer and the NETL ES&H Division Director, unless expressly and specifically permitted by the award.

2.29 Permits and Licenses

Within sixty (60) days of the award date (identified in Block 21 on the face page) of amendment A004 to this Cooperative Agreement, the Recipient shall submit to the DOE Project Officer a list of ES&H approvals that, in the Recipient's opinion, shall be required to complete the work under this award. The list shall include the topic of the approval being sought, the approving authority, and the expected submittal/approval schedule. The DOE Project Officer shall be notified as specific items are added or removed from the list and processed through their approval cycles.

The Recipient agrees to include this clause in first-tier subcontracts and agrees to enforce the terms of this clause.

2.30 Insurance

(a) Within 120 days of the award date (identified in Block 21 on the face page) of amendment A004 to this Cooperative Agreement, the Recipient must submit to DOE an updated risk management plan for this Project. The insurance requirements on the part of the Recipient for this Project shall be as set forth in its submitted plan. Such plan must be approved by a letter from the DOE Contracting Officer. The Recipient shall provide evidence that DOE has been named as an additional insured on the appropriate policies.

(b) Indemnity

The Recipient shall indemnify the Government and its officers, agents, or employees for any and all liability, including litigation expenses and attorneys' fees, arising from suits, actions, or claims of any character for death, bodily injury, or loss of or damage to property or to the environment, resulting from the fault or negligence of the Recipient in performing the Project under this Cooperative Agreement.

2.31 Limitation of DOE Liability (MAR 2002)

Awards under this part are subject to the requirement that the maximum DOE obligation to the recipient is the amount shown in the Assistance Agreement as the amount of DOE funds obligated. DOE shall not be obligated to make any additional, supplemental, continuation, renewal or other awards for the same or any other purpose.

2.32 Termination (MAR 2002)

The Cooperative Agreement may be terminated in accordance with 10 CFR 600.351.

2.33 Records Retention, Access, and Disclosure (MAR 2002)

(a) Period of Retention

The Recipient shall retain all financial and performance records, supporting documents, statistical records, and other records of the Recipient which are required to be retained by the terms of this Cooperative Agreement, and any other records the Recipient reasonably considers to be pertinent to this Cooperative

Agreement. The period of required retention shall be from the date each such record is created or received by the Recipient until three years after one of the following dates, whichever is latest: the expiration date of this Cooperative Agreement; the date the Recipient's final expenditure report is submitted to DOE; or if this Cooperative Agreement is terminated in its entirety, the effective date of the termination. If any claim, litigation, negotiation, investigation, audit, or other action involving the records starts before the expiration of the three-year retention period, the Recipient shall retain the records until such action is completed and all related issues are resolved, or until the end of the three-year retention period, whichever is later.

(b) Authorized Copies

Copies made by microfilm, photocopying, or similar methods may be substituted for original records. Records originally created by computer may be retained on an electronic medium, provided such medium is "read only" or is protected in such a manner that the electronic record can be authenticated as an original record.

(c) Access to Records

Subject to any legitimate claims of Attorney/Client Privilege as determined by a court of competent jurisdiction, DOE and the Comptroller General of the United States, or any of their authorized representatives, shall have the right of access to any books, documents, papers, or other records (including those on electronic media) which are pertinent to this Cooperative Agreement. The purpose of such access is limited to the making of audits, examinations, excerpts, and transcripts. The right of access described in this paragraph shall last as long as the Recipient retains records which are pertinent to this Cooperative Agreement.

(d) Restrictions on Public Disclosure

The Federal Freedom of Information Act 5 USC Section 552 does not apply to records the Recipient is required to retain by the terms of this Cooperative Agreement to the extent that the records are not also in the possession of the Government. Unless otherwise required by law or a court of competent jurisdiction, the Recipient shall not be required to disclose such records to the public.

2.34 Severability (MAR 2002)

If a court of competent jurisdiction or the DOE Financial Assistance Appeals Board determines that any part of this Cooperative Agreement is invalid, void, unenforceable, or inconsistent with any applicable Federal statute or regulation, such part shall be deemed to have been amended or deleted to conform to such determination.

2.35 Performance of Work in the United States (AUG 2003)

The Recipient agrees that at least 75% of the direct labor cost for the project (including subcontractor labor) will be incurred in the United States unless the Recipient can demonstrate to the satisfaction of the DOE that the United States economic interest will be better served through a greater percentage of work performed outside the United States.

2.36 RESERVED

2.37 Annual Indirect Cost Proposal and Reconciliation (OCT 2004)

- (a) In accordance with the applicable cost principles, Recipient must submit an annual indirect cost proposal, reconciled to Recipient's financial statements, within six months after the close of each fiscal year, unless Recipient has negotiated a predetermined or fixed indirect rate(s), or fixed amount for indirect or facilities and administration (F&A) costs.
- (b) Recipient should submit its annual indirect cost proposal directly to the cognizant agency for negotiating and approving indirect costs. If DOE is the cognizant agency, send your proposal to the Cognizant Department of Energy Office (CDO). If Recipient does not have a cognizant agency or if Recipient does not know the DOE CDO, contact the DOE Contract Specialist.

2.38 RESERVED

2.39 Withholding of Funds

The parties agree that \$25,000,000 (twenty-five million dollars) of the DOE-obligated funds have been deferred for payment during Phase IV of Budget Period 2b (the Demonstration Phase) in the manner set forth in items (1) - (3) below.

- (1) During Phase IV of the Project, the Recipient will submit invoices to DOE in the normal course of business as provided under the cooperative agreement and DOE will reimburse the Recipient for allowable costs in the manner provided under the cooperative agreement. Recipient costs will be limited to Recipient's labor, travel, equipment/supplies and contracts to support technology development, improvements, evaluations and demonstration activities. Costs for operating and maintenance (O&M) activities will not be billed to DOE.
- (2) Each year during Phase IV of the Project, DOE will have the right to withhold up to \$1,500,000 (one million five hundred thousand dollars) if the Recipient fails to submit to DOE all of the required reports for that year, as defined by the cooperative agreement. When the Recipient submits the delinquent report(s) and DOE has reviewed and approved the report(s), then the funds will be released for disbursement.
- (3) Once DOE has paid to the Recipient \$292,750,000 (two-hundred-ninety-two million seven-hundred-fifty thousand dollars) in DOE funds, DOE will disburse the remaining funds for allowable costs earned and invoiced by Recipient as follows:
 - (a) \$500,000 upon the Recipient's submission of complete final deliverables, including the Patent Certification and Final Scientific/Technical Report.
 - (b) \$500,000 upon DOE's acceptance of the Recipient's Final Scientific/Technical Report. DOE shall have 60 days after receipt of the Final Scientific/Technical Report (or any revised versions) to provide the Recipient with comments and/or concurrence. Upon receipt of DOE's comments, the Recipient shall have 60 days to revise the Final Scientific/Technical Report and resubmit it to DOE (if necessary). Should DOE not provide comments within the 60 days period, the Final Scientific/Technical Report shall be deemed to be accepted and the remaining funds will be disbursed.

SECTION III -INTELLECTUAL PROPERTY PROVISIONS

3.1 Intellectual Property Provisions (JAN 2004)

The patent and technical data clauses included in this section apply to this award. As used in these applicable clauses, the term "Patent Counsel" refers to the following point of contact:

Intellectual Property Law Division
U.S. Department of Energy
Chicago Operations Office
9800 South Cass Avenue
Argonne, IL 60439

In reading these provisions, any reference to "contractor" shall mean "recipient", and any reference to "contract" or "subcontract" shall mean "award" or "sub-award".

The Recipient shall include intellectual property clauses in any sub-award in accordance with requirements of the clauses in this section and of 10 CFR Parts 600.136 or 600.325 as appropriate.

3.2 Confidential Business Information (JAN 2004)

Information represented to the Department as being confidential business information, and which does not include "Technical Data" as that term is defined in the "Rights in Data" clause in this agreement, shall be submitted as an attachment to the required reports and will be withheld from disclosure outside the U.S. Government to the extent permitted by law. Such attachment and each page therein shall be stamped with the following legend and no other:

CONFIDENTIAL BUSINESS INFORMATION

The Recipient considers the material furnished herein to contain confidential business information which is to be withheld from disclosure outside the U.S. Government to the extent permitted by law.

3.3 52.227-1 Authorization and Consent (JUL 1995) - Alternate I (APR 1984)

- (a) The Government authorizes and consents to all use and manufacture of any invention described in and covered by a United States patent in the performance of this contract or any subcontract at any tier.
- (b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold); however, omission of this clause from any

subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.

3.4 52.227-2 Notice and Assistance Regarding Patent and Copyright Infringement (AUG 1996)

- (a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.
- (b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government.
- (c) The Contractor agrees to include, and require inclusion of, this clause in all subcontracts at any tier for supplies or services (including construction and architect-engineer subcontracts and those for material, supplies, models, samples, or design or testing services) expected to exceed the simplified acquisition threshold at FAR 2.101.

3.5 52.227-3 Patent Indemnity (APR 1984)

- (a) The Contractor shall indemnify the Government and its officers, agents, and employees against liability, including costs, for infringement of any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secrecy Order under 35 U.S.C. 181) arising out of the manufacture or delivery of supplies, the performance of services, or the construction, alteration, modification, or repair of real property (hereinafter referred to as "construction work") under this contract, or out of the use or disposal by or for the account of the Government of such supplies or construction work.
- (b) This indemnity shall not apply unless the Contractor shall have been informed as soon as practicable by the Government of the suit or action alleging such infringement and shall have been given such opportunity as is afforded by applicable laws, rules, or regulations to participate in its defense. Further, this indemnity shall not apply to -
 - (1) An infringement resulting from compliance with specific written instructions of the Contracting Officer directing a change in the supplies to be delivered or in the materials or equipment to be used, or directing a manner of performance of the contract not normally used by the Contractor;
 - (2) An infringement resulting from addition to or change in supplies or components furnished or construction work performed that was made subsequent to delivery or performance; or

- (3) A claimed infringement that is unreasonably settled without the consent of the Contractor, unless required by final decree of a court of competent jurisdiction.

3.6 952.227-9 Refund of Royalties (FEB 1995)

- (a) The contract price includes certain amounts for royalties payable by the Contractor or subcontractors or both, which amounts have been reported to the Contracting Officer.
- (b) The term "royalties" as used in this clause refers to any costs or charges in the nature of royalties, license fees, patent or license amortization costs, or the like, for the use of or for rights in patents and patent applications in connection with performing this contract or any subcontract here-under. The term also includes any costs or charges associated with the access to, use of, or other right pertaining to data that is represented to be proprietary and is related to the performance of this contract or the copying of such data or data that is copyrighted.
- (c) The Contractor shall furnish to the Contracting Officer, before final payment under this contract, a statement of royalties paid or required to be paid in connection with performing this contract and subcontracts hereunder together with the reasons.
- (d) The Contractor will be compensated for royalties reported under paragraph (c) of this clause, only to the extent that such royalties were included in the contract price and are determined by the Contracting Officer to be properly chargeable to the Government and allocable to the contract. To the extent that any royalties that are included in the contract price are not, in fact, paid by the Contractor or are determined by the Contracting Officer not to be properly chargeable to the government and allocable to the contract, the contract price shall be reduced. Repayment or credit to the Government shall be made as the Contracting Officer directs. The approval by DOE of any individual payments or royalties shall not prevent the Government from contesting at any time the enforceability, validity, scope of, or title to, any patent or the proprietary nature of data pursuant to which a royalty or other payment is to be or has been made.
- (e) If, at any time within 3 years after final payment under this contract, the Contractor for any reason is relieved in whole or in part from the payment of the royalties included in the final contract price as adjusted pursuant to paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer of that fact and shall reimburse the Government in a corresponding amount.
- (f) The substance of this clause, including this paragraph (f), shall be included in any subcontract in which the amount of royalties reported during negotiation of the subcontract exceeds \$250.

3.7 Patent Rights (Large Business Firms) - No Waiver (OCT 2003)

- (a) Definitions

DOE patent waiver regulations, as used in this clause, means the Department of Energy patent waiver regulations in effect on the date of award. See 10 CFR Part 784.

Invention, as used in this clause, means any invention or discovery which is or may be patentable or otherwise protectable under title 35 of the United States Code or any novel variety of plant that is or may be protectable under the Plant Variety Protection Act (7 U.S.C. 2321, et seq.).

Patent Counsel, as used in this clause, means the Department of Energy Patent Counsel assisting the awarding activity.

Subject invention, as used in this clause, means any invention of the Recipient conceived or first actually reduced to practice in the course of or under this agreement.

(b) Allocations of Principal Rights

- (1) Assignment to the Government. The Recipient agrees to assign to the Government the entire right, title, and interest throughout the world in and to each subject invention, except to the extent that rights are retained by the Recipient under subparagraph (b)(2) and paragraph (d) of this clause.
- (2) Greater rights determinations. The Recipient, or an employee-inventor after consultation with the Recipient, may request greater rights than the nonexclusive license in the foreign patent rights provided in paragraph (d) of this clause on identified inventions in accordance with the DOE patent waiver regulation. Each determination of greater rights under this agreement shall be subject to paragraph (c) of this clause, unless otherwise provided in the greater rights determination, and to the reservations and conditions deemed to be appropriate by the Secretary of Energy or designee.

(c) Minimum Rights Acquired by the Government

With respect to each subject invention to which the Department of Energy grants the Recipient principal or exclusive rights, the Recipient agrees to grant to the Government: A nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced each subject invention throughout the world by or on behalf of the Government of the United States (including any Government agency); "march-in rights" as set forth in 37 CFR 401.14(a)(J); preference for U.S. industry as set forth in 37 CFR 401.14(a)(I); periodic reports upon request, no more frequently than annually, on the utilization or intent of utilization of a subject invention in a manner consistent with 35 U.S.C. 202(c)(5); and such Government rights in any instrument transferring rights in a subject invention.

(d) Minimum Rights to the Recipient

- (1) The Recipient is hereby granted a revocable, nonexclusive, royalty-free license in each patent application filed in any country on a subject invention and any resulting patent in which the

Government obtains title, unless the Recipient fails to disclose the subject invention within the times specified in subparagraph (e)(2) of this clause. The Recipient's license extends to its domestic subsidiaries and affiliates, if any, within the corporate structure of which the Recipient is a part and includes the right to grant sublicenses of the same scope to the extent the Recipient was legally obligated to do so at the time the agreement was awarded. The license is transferable only with the approval of DOE except when transferred to the successor of that part of the Recipient's business to which the invention pertains.

- (2) The Recipient may request the right to acquire patent rights to a subject invention in any foreign country where the Government has elected not to secure such rights, subject to the minimum rights acquired by the Government similar to paragraph (c) of this clause. Such request must be made in writing to the Patent Counsel as part of the disclosure required by subparagraph (e)(2) of this clause, with a copy to the DOE Contracting Officer. DOE approval, if given, will be based on a determination that this would best serve the national interest.

(e) Invention Identification, Disclosures, and Reports

- (1) The Recipient shall establish and maintain active and effective procedures to assure that subject inventions are promptly identified and disclosed to Recipient personnel responsible for patent matters within 6 months of conception and/or first actual reduction to practice, whichever occurs first in the performance of work under this agreement. These procedures shall include the maintenance of laboratory notebooks or equivalent records and other records as are reasonably necessary to document the conception and/or the first actual reduction to practice of subject inventions, and records that show that the procedures for identifying and disclosing the inventions are followed. Upon request, the Recipient shall furnish the Contracting Officer a description of such procedures for evaluation and for determination as to their effectiveness.
- (2) The Recipient shall disclose each subject invention to the DOE Patent Counsel with a copy to the Contracting Officer within 2 months after the inventor discloses it in writing to Recipient personnel responsible for patent matters or, if earlier, within 6 months after the Recipient becomes aware that a subject invention has been made, but in any event before any on sale, public use, or publication of such invention known to the Recipient. The disclosure to DOE shall be in the form of a written report and shall identify the agreement under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding, to the extent known at the time of the disclosure, of the nature, purpose, operation, and physical, chemical, biological, or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale, or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to DOE, the Recipient shall promptly notify Patent Counsel of the acceptance of any manuscript describing the invention for publication or of any on sale or

public use planned by the Recipient. The report should also include any request for a greater rights determination in accordance with subparagraph (b)(2) of this clause. When an invention is disclosed to DOE under this paragraph, it shall be deemed to have been made in the manner specified in Sections (a)(1) and (a)(2) of 42 U.S.C. 5908, unless the Recipient contends in writing at the time the invention is disclosed that it was not so made.

- (3) The Recipient shall furnish the Contracting Officer a final report, within 3 months after completion of the work listing all subject inventions or containing a statement that there were no such inventions, and listing all sub-awards/contracts at any tier containing a patent rights clause or containing a statement that there were no such sub-awards/contracts.
- (4) The Recipient agrees to require, by written agreement, its employees, other than clerical and non-technical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the Recipient each subject invention made under sub-award/contract in order that the Recipient can comply with the disclosure provisions of paragraph (c) of this clause, and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by subparagraph (e)(2) of this clause.
- (5) The Recipient agrees, subject to FAR 27.302(j), that the Government may duplicate and disclose subject invention disclosures and all other reports and papers furnished or required to be furnished pursuant to this clause.

(f) Examination of Records Relating to Inventions

- (1) The Contracting Officer or any authorized representative shall, until 3 years after final payment under this agreement, have the right to examine any books (including laboratory notebooks), records, and documents of the Recipient relating to the conception or first actual reduction to practice of inventions in the same field of technology as the work under this agreement to determine whether –
 - (i) Any such inventions are subject inventions;
 - (ii) The Recipient has established and maintains the procedures required by subparagraphs (e)(1) and (4) of this clause;
 - (iii) The Recipient and its inventors have complied with the procedures.
- (2) If the Contracting Officer learns of an unreported Recipient invention which the Contracting Officer believes may be a subject invention, the Recipient may be required to disclose the invention to DOE for a determination of ownership rights.
- (3) Any examination of records under this paragraph will be subject to appropriate conditions to protect the confidentiality of the information involved.

(g) Sub-Award/Contract

- (1) The recipient shall include the clause PATENT RIGHTS (SMALL BUSINESS FIRMS AND NONPROFIT ORGANIZATIONS) (suitably modified to identify the parties) in all sub-awards/contracts, regardless of tier, for experimental, developmental, demonstration, or research work to be performed by a small business firm or domestic nonprofit organization, except where the work of the sub-award/contract is subject to an Exceptional Circumstances Determination by DOE. In all other sub-awards/contracts, regardless of tier, for experimental, developmental, demonstration, or research work, the Recipient shall include this clause (suitably modified to identify the parties), or an alternate clause as directed by the contracting officer. The Recipient shall not, as part of the consideration for awarding the sub-award/contract, obtain rights in the sub-recipient's/contractor's subject inventions.
- (2) In the event of a refusal by a prospective sub-recipient/contractor to accept such a clause the Recipient:
 - (i) Shall promptly submit a written notice to the Contracting Officer setting forth the sub-recipient/contractor's reasons for such refusal and other pertinent information that may expedite disposition of the matter; and
 - (ii) Shall not proceed with such sub-award/contract without the written authorization of the Contracting Officer.
- (3) In the case of sub-awards/contracts at any tier, DOE, the sub-recipient/contractor, and Recipient agree that the mutual obligations of the parties created by this clause constitute a contract between the sub-recipient/contractor and DOE with respect to those matters covered by this clause.
- (4) The Recipient shall promptly notify the Contracting Officer in writing upon the award of any sub-award/contract at any tier containing a patent rights clause by identifying the sub-recipient/contractor, the applicable patent rights clause, the work to be performed under the sub-award/contract, and the dates of award and estimated completion. Upon request of the Contracting Officer, the Recipient shall furnish a copy of such sub-award/contract, and, no more frequently than annually, a listing of the sub-awards/contracts that have been awarded.
- (5) The Recipient shall identify all subject inventions of a sub-recipient/contractor of which it acquires knowledge in the performance of this agreement and shall notify the Patent Counsel, with a copy to the contracting officer, promptly upon identification of the inventions.

(h) Atomic Energy

(1) No claim for pecuniary award of compensation under the provisions of the Atomic Energy Act of 1954, as amended, shall be asserted with respect to any invention or discovery made or conceived in the course of or under this agreement.

(2) Except as otherwise authorized in writing by the Contracting Officer, the Recipient will obtain patent agreements to effectuate the provisions of subparagraph (h)(1) of this clause from all persons who perform any part of the work under this agreement, except non-technical personnel, such as clerical employees and manual laborers.

(i) Publication

It is recognized that during the course of the work under this agreement, the Recipient or its employees may from time to time desire to release or publish information regarding scientific or technical developments conceived or first actually reduced to practice in the course of or under this agreement. In order that public disclosure of such information will not adversely affect the patent interests of DOE or the Recipient, patent approval for release of publication shall be secured from Patent Counsel prior to any such release or publication.

(j) Forfeiture of Rights in Unreported Subject Invention

(1) The Recipient shall forfeit and assign to the Government, at the request of the Secretary of Energy or designee, all rights in any subject invention which the Recipient fails to report to Patent Counsel within six months after the time the Recipient:

(i) Files or causes to be filed a United States or foreign patent application thereon; or

(ii) Submits the final report required by subparagraph (e)(3) of this clause, whichever is later,

(2) However, the Recipient shall not forfeit rights in a subject invention if, within the time specified in subparagraph (e)(2) of this clause, the Recipient:

(i) Prepares a written decision based upon a review of the record that the invention was neither conceived nor first actually reduced to practice in the course of or under the agreement and delivers the decision to Patent Counsel, with a copy to the Contracting Officer, or

(ii) Contending that the invention is not a subject invention, the Recipient nevertheless discloses the invention and all facts pertinent to this contention to the Patent Counsel, with a copy of the Contracting Officer; or

(iii) Establishes that the failure to disclose did not result from the Recipient's fault or negligence.

(3) Pending written assignment of the patent application and patents on a subject invention determined by the Secretary of Energy or designee to be forfeited (such determination to be a final decision under the

Disputes clause of this agreement), the Recipient shall be deemed to hold the invention and the patent applications and patents pertaining thereto in trust for the Government. The forfeiture provision of this paragraph (j) shall be in addition to and shall not supersede other rights and remedies which the Government may have with respect to subject inventions.

3.8 Rights in Data – Programs Covered Under Special Data Statutes (OCT 2003)

(a) Definitions

Computer Data Bases, as used in this clause, means a collection of data in a form capable of, and for the purpose of, being stored in, processed, and operated on by a computer. The term does not include computer software.

Computer software, as used in this clause, means (i) computer programs which are data comprising a series of instructions, rules, routines, or statements, regardless of the media in which recorded, that allow or cause a computer to perform a specific operation or series of operations and (ii) data comprising source code listings, design details, algorithms, processes, flow charts, formulae and related material that would enable the computer program to be produced, created or compiled. The term does not include computer data bases.

Data, as used in this clause, means recorded information, regardless of form or the media on which it may be recorded. The term includes technical data and computer software. The term does not include information incidental to administration, such as financial, administrative, cost or pricing or management information.

Form, fit, and function data, as used in this clause, means data relating to items, components, or processes that are sufficient to enable physical and functional interchangeability as well as data identifying source, size, configuration, mating and attachment characteristics, functional characteristics, and performance requirements except that for computer software it means data identifying source, functional characteristics, and performance requirements but specifically excludes the source code, algorithm, process, formulae, and flow charts of the software.

Limited rights data, as used in this clause, means data (other than computer software) developed at private expense that embody trade secrets or are commercial or financial and confidential or privileged.

Restricted computer software, as used in this clause, means computer software developed at private expense and that is a trade secret; is commercial or financial and confidential or privileged; or is published copyrighted computer software; including modifications of such computer software.

Protected data, as used in this clause, means technical data or commercial or financial data first produced in the performance of the award which, if it had been obtained from and first produced by a non-federal party, would be a trade secret or commercial or financial information that is privileged or confidential

under the meaning of 5 U.S.C. 552(b)(4) and which data is marked as being protected data by a party to the award.

Protected rights, as used in this clause, mean the rights in protected data set forth in the Protected Rights Notice of paragraph (g) of this clause.

Technical data, as used in this clause, means that data which are of a scientific or technical nature. Technical data does not include computer software, but does include manuals and instructional materials and technical data formatted as a computer data base.

Unlimited rights, as used in this clause, means the right of the Government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose whatsoever, and to have or permit others to do so.

(b) Allocation of Rights

(1) Except as provided in paragraph (c) of this clause regarding copyright, the Government shall have unlimited rights in –

- (i) Data specifically identified in this agreement as data to be delivered without restriction;
- (ii) Form, fit, and function data delivered under this agreement;
- (iii) Data delivered under this agreement (except for restricted computer software) that constitute manuals or instructional and training material for installation, operation, or routine maintenance and repair of items, components, or processes delivered or furnished for use under this agreement; and
- (iv) All other data delivered under this agreement unless provided otherwise for protected data in accordance with paragraph (g) of this clause or for limited rights data or restricted computer software in accordance with paragraph (h) of this clause.

(2) The Recipient shall have the right to –

- (i) Protect rights in protected data delivered under this agreement in the manner and to the extent provided in paragraph (g) of this clause;
- (ii) Withhold from delivery those data which are limited rights data or restricted computer software to the extent provided in paragraph (h) of this clause;

- (iii) Substantiate use of, add, or correct protected rights or copyrights notices and to take other appropriate action, in accordance with paragraph (e) of this clause; and
- (iv) Establish claim to copyright subsisting in data first produced in the performance of this agreement to the extent provided in subparagraph (c)(1) of this clause.

(c) Copyright

- (1) Data first produced in the performance of this agreement. Except as otherwise specifically provided in this agreement, the Recipient may establish, without the prior approval of the Contracting Officer, claim to copyright subsisting in any data first produced in the performance of this agreement. If claim to copyright is made, the Recipient shall affix the applicable copyright notice of 17 U.S.C. 401 or 402 and acknowledgment of Government sponsorship (including agreement number) to the data when such data are delivered to the Government, as well as when the data are published or deposited for registration as a published work in the U.S. Copyright Office. For such copyrighted data, including computer software, the Recipient grants to the Government, and others acting on its behalf, a paid-up nonexclusive, irrevocable, worldwide license to reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, by or on behalf of the Government, for all such data.
- (2) Data not first produced in the performance of this agreement. The Recipient shall not, without prior written permission of the Contracting Officer, incorporate in data delivered under this agreement any data that are not first produced in the performance of this agreement and that contain the copyright notice of 17 U.S.C. 401 or 402, unless the Recipient identifies such data and grants to the Government, or acquires on its behalf, a license of the same scope as set forth in subparagraph (c)(1) of this clause; provided, however, that if such data are computer software, the Government shall acquire a copyright license as set forth in subparagraph (h)(3) of this clause if included in this agreement or as otherwise may be provided in a collateral agreement incorporated or made a part of this agreement.
- (3) Removal of copyright notices. The Government agrees not to remove any copyright notices placed on data pursuant to this paragraph (c), and to include such notices on all reproductions of the data.

(d) Release, Publication and Use of Data

- (1) The Recipient shall have the right to use, release to others, reproduce, distribute, or publish any data first produced or specifically used by the Recipient in the performance of this contract, except to the extent such data may be subject to the Federal export control or national security laws or regulations, or unless otherwise provided in this paragraph of this clause or expressly set forth in this contract.

- (2) The Recipient agrees that to the extent it receives or is given access to data necessary for the performance of this agreement which contain restrictive markings, the Recipient shall treat the data in accordance with such markings unless otherwise specifically authorized in writing by the Contracting Officer.

(e) Unauthorized Marking of Data

- (1) Notwithstanding any other provisions of this agreement concerning inspection or acceptance, if any data delivered under this agreement are marked with the notices specified in subparagraph (h)(2) or (h)(3) of this clause and use of such is not authorized by this clause, or if such data bears any other restrictive or limiting markings not authorized by this agreement, the Contracting Officer may at any time either return the data to the Recipient or cancel or ignore the markings. However, the following procedures shall apply prior to canceling or ignoring the markings.
 - (i) The Contracting Officer shall make written inquiry to the Recipient affording the Recipient 30 days from receipt of the inquiry to provide written justification to substantiate the propriety of the markings;
 - (ii) If the Recipient fails to respond or fails to provide written justification to substantiate the propriety of the markings within the 30-day period (or a longer time not exceeding 90 days approved in writing by the Contracting Officer for good cause shown), the Government shall have the right to cancel or ignore the markings at any time after said period and the data will no longer be made subject to any disclosure prohibitions.
 - (iii) If the Recipient provides written justification to substantiate the propriety of the markings within the period set in subdivision (e)(1)(i) of this clause, the Contracting Officer shall consider such written justification and determine whether or not the markings are to be cancelled or ignored. If the Contracting Officer determines that the markings are authorized, the Recipient shall be so notified in writing. If the Contracting Officer determines, with concurrence of the head of the contracting activity, that the markings are not authorized, the Contracting Officer shall furnish the Recipient a written determination, which determination shall become the final agency decision regarding the appropriateness of the markings unless the Recipient files suit in a court of competent jurisdiction within 90 days of receipt of the Contracting Officer's decision. The Government shall continue to abide by the markings under this subdivision (e)(1)(iii) until final resolution of the matter either by the Contracting Officer's determination become final (in which instance the Government shall thereafter have the right to cancel or ignore the markings at any time and the data

will no longer be made subject to any disclosure prohibitions), or by final disposition of the matter by court decision if suit is filed.

- (2) The time limits in the procedures set forth in subparagraph (e)(1) of this clause may be modified in accordance with agency regulations implementing the Freedom of Information Act (5 U.S.C. 552) if necessary to respond to a request thereunder.

(f) Omitted or Incorrect Markings

- (1) Data delivered to the Government without either the limited rights or restricted rights notice as authorized by paragraph (g) of this clause, or the copyright notice required by paragraph (c) of this clause, shall be deemed to have been furnished with unlimited rights, and the Government assumes no liability for the disclosure, use, or reproduction of such data. However, to the extent the data has not been disclosed without restriction outside the Government, the Recipient may request, within 6 months (or a longer time approved by the Contracting Officer for good cause shown) after delivery of such data, permission to have notices placed on qualifying data at the Recipient's expense, and the Contracting Officer may agree to do so if the Recipient –

- (i) Identifies the data to which the omitted notice is to be applied;
- (ii) Demonstrates that the omission of the notice was inadvertent;
- (iii) Establishes that the use of the proposed notice is authorized; and
- (iv) Acknowledges that the Government has no liability with respect to the disclosure, use, or reproduction of any such data made prior to the addition of the notice or resulting from the omission of the notice.

- (2) The Contracting Officer may also:

- (i) Permit correction at the Recipient's expense of incorrect notices if the Recipient identifies the data on which correction of the notice is to be made, and demonstrates that the correct notice is authorized; or
- (ii) Correct any incorrect notices.

(g) Rights to Protected Data

- (1) The Recipient may, with the concurrence of DOE, claim and mark as protected data, any data first produced in the performance of this award that would have been treated as a trade secret if developed at private expense. Any such claimed "protected data" will be clearly marked with the following Protected Rights Notice, and will be treated in

accordance with such Notice, subject to the provisions of paragraphs (e) and (f) of this clause.

PROTECTED RIGHTS NOTICE

These protected data were produced under Agreement Number DE-FC26-06NT42391 with the U.S. Department of Energy and may not be published, disseminated, or disclosed to others outside the Government until five years after the completion of the Demonstration Phase, unless express written authorization is obtained from the recipient. Upon expiration of the period of protection set forth in this Notice, the Government shall have unlimited rights in this data. This Notice shall be marked on any reproduction of this data, in whole or in part.

(End of notice).

- (2) Any such marked Protected Data may be disclosed under obligations of confidentiality for the following purposes:

- (i) For evaluation purposes under the restriction that the "Protected Data" be retained in confidence and not be further disclosed;
- (ii) To subcontractors or other team members performing work under the Government's Clean Coal Power Initiative program of which this award is a part, for information or use in connection with the work performed under their activity, and under the restriction that the Protected Data be retained in confidence and not be further disclosed.; or

(iii) As otherwise allowed in this agreement, use by the Government or others on its behalf to the extent necessary to enable the Government to complete the Statement of Project Objectives (Attachment A) of this agreement.

- (3) The obligations of confidentiality and restrictions on publication and dissemination shall end for any Protected Data:

- (i) At the end of the protected period;
- (ii) If the data becomes publicly known or available from other sources without a breach of the obligation of confidentiality with respect to the Protected Data;
- (iii) If the same data is independently developed by someone who did not have access to the Protected Data and such data is made available without obligations of confidentiality; or
- (iv) If the Recipient disseminates or authorizes another to disseminate such data without obligations of confidentiality.

- (4) However, the Recipient agrees that the following types of data are not considered to be protected and shall be provided to the Government when required by this award without any claim that the data are Protected Data. The parties agree that notwithstanding the following lists of types of data, nothing precludes the Government from seeking delivery of additional data in accordance with this award, or from making publicly available additional non-protected data, nor does the following list constitute any admission by the Government that technical data not on the list is Protected Data.

UNLIMITED RIGHTS DATA

[REDACTED]

Design

[REDACTED]

[REDACTED]

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[REDACTED]

(5) The Government's sole obligation with respect to any protected data shall be as set forth in this paragraph.

(h) Protection of Limited Rights Data

(1) When data other than that listed in subparagraphs (b)(1)(i), (ii), and (iii) of this clause are specified to be delivered under this agreement and such data qualify as either limited rights data or restricted computer software, the Recipient, if the Recipient desires to continue protection of such data, shall withhold such data and not furnish them to the Government under this agreement. As a condition to this withholding the Recipient shall identify the data being withheld and furnish form, fit, and function data in lieu thereof.

(2) Notwithstanding subparagraph (h)(1) of this clause, the agreement may identify and specify the delivery of limited rights data, or the Contracting Officer may require by written request the delivery of limited rights data that has been withheld or would otherwise be withholdable. If delivery of such data is so required, the Recipient may affix the following "Limited Rights Notice" to the data and the Government will thereafter treat the data, in accordance with such Notice:

LIMITED RIGHTS NOTICE

(a) These data are submitted with limited rights under Government Agreement Number DE-FC26-06NT42391. These data may be reproduced and used by the Government with the express limitation that they will not, without written permission of the Recipient, be used for purposes of manufacture nor disclosed outside the Government; except that the Government may disclose these data outside the Government for the following purposes, if any, provided that the Government makes such disclosure subject to prohibition against further use and disclosure:

- (1) Use (except for manufacture) by Federal support services contractors within the scope of their contracts;
- (2) This "limited rights data" may be disclosed for evaluation purposes under the restriction that the "limited rights data" be retained in confidence and not be further disclosed;
- (3) This "limited rights data" may be disclosed to other contractors participating in the Government's program of which this Recipient is a part for information or use (except for manufacture) in connection with the work performed under their awards and under the restriction that the "limited rights data" be retained in confidence and not be further disclosed;
- (4) This "limited rights data" may be used by the Government or others on its behalf for emergency repair or overhaul work under the restriction that the "limited rights data" be retained in confidence and not be further disclosed;

(5) Release to a foreign government, or instrumentality thereof, as the interests of the United States Government may require, for information or evaluation, or for emergency repair or overhaul work by such government. This Notice shall be marked on any reproduction of this data in whole or in part; and

(6) As otherwise allowed in this agreement, use by the Government or others on its behalf to the extent necessary to enable the Government to complete the Statement of Project Objectives (Attachment A) of this agreement.

(b) This Notice shall be marked on any reproduction of these data, in whole or in part.

(End of notice)

(h)(3) Notwithstanding subparagraph (h)(1) of this clause, the agreement may identify and specify the delivery of restricted computer software, or the Contracting Officer may require by written request the delivery of restricted computer software that has been withheld or would otherwise be withholdable. If delivery of such computer software is so required, the Recipient may affix the following "Restricted Rights Notice" to the computer software and the Government will thereafter treat the computer software, subject to paragraphs (e) and (f) of this clause, in accordance with the Notice.

RESTRICTED RIGHTS NOTICE

(a) This computer software is submitted with restricted rights under Government Agreement Number DE-FC26-06NT42391. It may not be used, reproduced, or disclosed by the Government except as provided in paragraph (b) of this Notice or as otherwise expressly stated in the agreement.

(b) This computer software may be –

- (1) Used or copied for use in or with the computer or computers for which it was acquired, including use at any Government installation to which such computer or computers may be transferred;
- (2) Used or copied for use in a backup computer if any computer for which it was acquired is inoperative;
- (3) Reproduced for safekeeping (archives) or backup purposes;
- (4) Modified, adapted, or combined with other computer software, provided that the modified, combined, or adapted portions of the derivative software are made subject to the same restricted rights;

- (5) Disclosed to and reproduced for use by support service Contractors in accordance with subparagraph (b)(1) through (4) of this clause, provided the Government makes such disclosure or reproduction subject to these restricted rights;
- (6) Used or copied for use in or transferred to a replacement computer; and
- (7) As otherwise allowed in this agreement, use by the Government or others on its behalf to the extent necessary to enable the Government to complete the Statement of Project Objectives (Attachment A) of this agreement.
- (c) Notwithstanding the foregoing, if this computer software is published copyrighted computer software, it is licensed to the Government, without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this clause.
- (d) Any other rights or limitations regarding the use, duplication, or disclosure of this computer software are to be expressly stated, in, or incorporated in, the agreement.
- (e) This Notice shall be marked on any reproduction of this computer software, in whole or in part.

(End of notice)

(ii) Where it is impractical to include the Restricted Rights Notice on restricted computer software, the following short-form Notice may be used in lieu thereof:

RESTRICTED RIGHTS NOTICE

Use, reproduction, or disclosure is subject to restrictions set forth in Agreement Number DE-FC26-06NT42391 with Southern Company Services, Inc.

(End of notice)

(iii) If restricted computer software is delivered with the copyright notice of 17 U.S.C. 401, it will be presumed to be published copyrighted computer software licensed to the government without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this clause, unless the Recipient includes the following statement with such copyright notice: "Unpublished -- rights reserved under the Copyright Laws of the United States."

(i) Sub-award/Contract

The Recipient has the responsibility to obtain from its sub-recipients/contractors all data and rights therein necessary to fulfill the Recipient's obligations to the Government under this agreement. If a sub-recipient/contractor refuses to accept terms affording the Government such rights, the Recipient shall

promptly bring such refusal to the attention of the Contracting Officer and not proceed with sub-award/contract award without further authorization.

(j) Additional Data Requirements

In addition to the data specified elsewhere in this agreement to be delivered, the Contracting Officer may, at anytime during agreement performance or within a period of 3 years after acceptance of all items to be delivered under this agreement, order any data first produced or specifically used in the performance of this agreement. This clause is applicable to all data ordered under this subparagraph. Nothing contained in this subparagraph shall require the Recipient to deliver any data the withholding of which is authorized by this clause or data which are specifically identified in this agreement as not subject to this clause. When data are to be delivered under this subparagraph, the Recipient will be compensated for converting the data into the prescribed form, for reproduction, and for delivery.

(k) The Recipient agrees, except as may be otherwise specified in this agreement for specific data items listed as not subject to this paragraph, that the Contracting Officer or an authorized representative may, up to three years after acceptance of all items to be delivered under this contract, inspect at the Recipient's facility any data withheld pursuant to paragraph (h) of this clause, for purposes of verifying the Recipient's assertion pertaining to the limited rights or restricted rights status of the data or for evaluating work performance. Where the Recipient whose data are to be inspected demonstrates to the Contracting Officer that there would be a possible conflict of interest if the inspection were made by a particular representative, the Contracting Officer shall designate an alternate inspector.

3.9 Limited Rights Data (JAN 2004)

The limited rights data subject to the "Rights in Data" clause in this award are listed below. This listing of data, which are asserted by the Recipient to be limited rights data, does not constitute an admission by the Government that the data is in fact limited rights data.

LIMITED RIGHTS DATA

Design

[REDACTED]

Operations

[REDACTED]

If a patent is issued by the United States Patent and Trademark Office or the patent office of any foreign country based on any information asserted to be limited rights data, the Government will no longer treat any data contained in such issued patent as limited rights data. In addition, if any information asserted to be limited rights data results in or becomes a Subject Invention, as that term is defined in the patent rights clause of this agreement, the Government will only treat such data as limited rights data until the Recipient has filed its initial patent application.

The Recipient shall not introduce or utilize any limited rights data not identified in paragraph (1) above in the performance of the award without the expressed written permission of the Contracting Officer.

3.10 Restricted Computer Software (JAN 2004)

The restricted computer software subject to the provisions of the "Rights in Data" clause in this agreement are listed below. This list of software programs, which are asserted by the Recipient to be restricted computer software, does not constitute an admission by the Government that the software is in fact restricted computer software.

RESTRICTED COMPUTER SOFTWARE

[REDACTED]

[REDACTED]

The Recipient shall not introduce or utilize any restricted computer software not identified above without advance written notification of the Contracting Officer.

3.11 Protected Data (JAN 2004)

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The following is a listing of data anticipated to be generated under this award that the Recipient expects will qualify as "Protected Data," as that term is defined in the "Rights in Data" clause in this award. Incorporating this listing of data into this agreement does not constitute a guarantee by the Government that the data will in fact qualify for this designation.

PROTECTED DATA

[REDACTED]

[REDACTED]

If a patent is issued by the United States Patent and Trademark Office or the patent office of any foreign country based on any information asserted to be Protected Data, the Government will no longer treat any data contained in such issued patent as Protected Data. In addition, if any information asserted to be Protected Data results in or becomes a Subject Invention, as that term is defined in the patent rights clause of this agreement, the Government will only treat such data as Protected Data until the Recipient has filed its initial patent application.

3.12 Availability of contract and other data (DEC 2003)

The Participant will, for the entire period of Participant's participation in the project at the Facility (including operation of the Facility) and for three years thereafter, whether or not under a Government Cooperative Agreement, keep and maintain all technical data, including limited rights data and data obtained from subcontractors and licensors, necessary to construct and/or operate the Facility, and all data including business and financial data necessary to evaluate the technical and economic operation of the Facility. During the entire period of construction and/or operation of the Facility, regardless of whether the Government participates past Design, the Participant shall permit the Government and its representative the right to inspect at the Facility any data kept and maintained pursuant to this paragraph.

3.13 Commercialization of Demonstration Technology. (DEC 2003)

([REDACTED])

[REDACTED]

3.14 52.227-23 Rights to Proposal Data (Technical) (JUN 1987)

Proposal dated June 10, 2004

Except for data contained on pages 1, 2, 5, 6, 8, 10, 11, 12, 14, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75; Appendix A, - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13; Appendix B – 1, 2, 3, 4, 5, 6, 7, 8; Appendix C – 1; Appendix D – 2, 3, 18, 19, 20, 21, 23, 24, 27 of the Project Narrative, it is agreed that as a condition of award of this contract, and notwithstanding the conditions of any notice appearing thereon, the Government shall have unlimited rights (as defined in the “Rights in Data - General” or the “Rights in Data – Programs Covered Under Special Data Statutes” clause contained in this contract) in and to the technical data contained in the Project Narrative portion of the proposal dated June 10, 2004. All other parts of the proposal are considered to be Limited Rights Data containing sensitive business information and corporate trade secrets of the Recipient and/or of certain subcontractors.

Request to change site from Orlando, Florida to Kemper County, Mississippi (February 2008):

Except for data contained on the 4 cover letters (dated February 12, 2008, February 11, 2008, February 11, 2008 and February 8, 2008, respectively) and pages 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 of the Site Change Request dated February, 2008, it is agreed that as a condition of award of this contract, and notwithstanding the conditions of any notice appearing thereon, the Government shall have unlimited rights (as defined in the "Rights in Data - General" or the "Rights in Data – Programs Covered Under Special Data Statutes" clause contained in this contract) in and to the technical data contained in the Site Change Request portion of the proposal dated February, 2008. All other submittals associated with the Site Change Request under this award are considered to be Limited Rights Data containing sensitive business information and corporate trade secrets of the Recipient and/or of certain subcontractors and thus are subject to the restrictions established by the agreement.

Amended and Restated Cooperative Agreement
DE-FC26-06NT42391
As of Amendment 0010

SECTION IV - LIST OF ATTACHMENTS

Attachment A – Statement of Project Objectives

Attachment B – Reporting Requirements

Attachment C – Budget Page(s)

Attachment D – Amended and Restated Repayment Agreement

ATTACHMENT A - STATEMENT OF PROJECT OBJECTIVES

DEMONSTRATION OF A COAL-BASED TRANSPORT GASIFIER

Originally this demonstration project was to be conducted at the Orlando Utilities Commission (OUC) Stanton Energy Center near Orlando, Florida; however, due to unforeseen circumstances the project demonstration was terminated at the Orlando facility in November 2007. In December 2007, Southern Company requested that the project be relocated to the Kemper County site in Mississippi. After performing a due diligence review of the site relocation request, DOE approved the request. As a result, the Statement of Project Objectives was modified to reflect the activities that were performed for the Orlando site and the activities which will be performed for the Kemper County site. Where Budget Periods and Phases overlap on work performed at both demonstration sites, the designation of "a" refers to the Orlando site and the designation of "b" refers to the Mississippi site.

Statement of Project Objectives for Activities Associated with the Orlando Site

A. Project Summary (as proposed for the Orlando demonstration site)

Southern Company Services, Inc. (SCS), in a team effort with Southern Power Company – Orlando Gasification, LLC (SPCOG), Orlando Utilities Commission (OUC), and Kellogg Brown and Root (KBR), will design, construct, and operate a coal-based 285-MW Integrated Gasification Combined Cycle (IGCC) power plant to demonstrate Transport Reactor Integrated Gasification (TRIG™) combined cycle technology. The TRIG™ plant, to be located at the Stanton Energy Center near Orlando in Orange County, Florida, will have two main islands: a Gasification Island and a Combined Cycle Island. The Gasification Island will use air-blown transport gasifier technology to generate syngas from U.S. coal (e.g., Powder River Basin coal). The syngas, cleaned in the Gasification Island, would be used for fueling the Combined Cycle Island - a new combined cycle power generating facility - planned for installation in 2010 by OUC and SPCOG. Except for the incremental items required for syngas operation, the Combined Cycle Island, which includes a gas turbine, heat recovery steam generator, and a steam turbine, will be built without DOE funds whereas the Gasification Island, which includes the fuel handling, Transport Gasifier (TG), syngas clean up system, and ash handling would be jointly owned by SPCOG and OUC and would be cost shared by DOE.

A key performance target for the TRIG™ plant is to achieve 80% availability without the use of a spare gasification train. In addition to demonstrating a first-of-a-kind gasification system with potential efficiency, capital cost, and operating cost advantages, this technology holds substantial potential for demonstrating the usability of abundant low-rank coals in an advanced power generation system. The project also demonstrates advanced technologies for particulate removal using high temperature-high pressure filters, mercury removal, and operation of a sulfur removal system for syngas cleanup.

Prior to the decision to terminate the demonstration at the Orlando site, the project had initiated tasks in the following three phases: (i) Project Definition, (ii) Detailed Design, and (iii) Construction.

B. Project Objectives (as proposed for the Orlando demonstration site)

The overall objective of the project is to design, construct, and operate a Transport Gasifier based advanced integrated gasification combined cycle power plant that uses U.S. coal to generate 285-MW (net) electricity. The sub-objectives of the project include:

1. To design, build, and operate a state-of-the-art coal Gasification Island utilizing KBR Transport Gasifier technology and integrate it with a Combined Cycle Island.
2. To design, construct, and operate an advanced cleanup system that includes a sulfur removal system, high temperature - high pressure particulate filter (HTHP) system, selective catalytic reduction (SCR), and a mercury removal system.

3. To demonstrate high availability, high thermal efficiency, low cost, and low emissions of the TRIG™ electricity generation system in commercial operating mode.
4. To develop an effective commercialization strategy to accelerate the TRIG™ technology penetration in the U.S. and international markets.
5. Through reports and conference presentations, disseminate information on the development of the TRIG™ technology. The information reported should include plant efficiency, environmental status, and cost successes for ready replication into commercial practice.

C. Project Phases

The demonstration project was to be conducted in four phases; however, since the demonstration at the Orlando site was terminated during Budget Period 2a, only the first three phases were initiated. Phase IIa and Phase IIIa were initiated but not completed:

Phase I. Project Definition (Budget Period 1): This phase includes front-end engineering design, environmental permitting activities, simulated syngas combustion tests, and NEPA Record of Decision. Phase I activities include: Verification of funding and schedule commitment by SPCOG and OUC for the Combined Cycle Island and its schedule match with that of the Gasification Island, Completion of NEPA Record of Decision and scheduled site permitting activities.

Phase IIa. Detailed Design (Budget Period 2a): This phase includes detailed design engineering, equipment procurement, and continuing environmental permitting activities.

Phase IIIa. Construction (Budget Period 2a): This phase includes Gasification Island construction, installation, commissioning, startup, integration with the Combined Cycle Island, and continued engineering and environmental activities.

D. Work Statement

SCS, the Cooperative Agreement Recipient, in collaboration with the other principal Project Team members, namely SPCOG, OUC, and KBR, shall:

- i. Provide all services, materials, labor, and management necessary for the design, construction, installation, startup, and demonstration of a coal-based 285-MW TRIG™ plant at the Stanton Energy Center, near Orlando, Florida.
- ii. Obtain all necessary licenses, permits, and agreements.
- iii. Develop all detailed plant engineering and design drawings, equipment lists, plant layouts, detailed equipment specifications, construction specifications, bid packages, bid reviews, piping and instrumentation diagrams (P&ID), plant controls, instrumentation, and associated software, and other activities for the construction, installation, startup, operation, data collection, and data evaluation of the demonstration plant.
- iv. Perform all site preparation, civil engineering and utilities, buildings, enclosures, site support, and other site services.
- v. Perform system integration of the Gasifier Island with the Combined Cycle Island for electricity generation and commercial dispatch.
- vi. Prepare and deliver to DOE all reports related to the management, budget, and control of the project as described in the Cooperative Agreement.

vii. Produce and deliver to DOE all conference records, technical reports, topical reports, and informational reports as listed in the Cooperative Agreement.

viii. Closeout activities associated with the Orlando site, following the decision by OUC and SPCOG on November 14, 2007 to terminate the Gasification Island portion of the Orlando facility.

The details are given below.

1.0 Project Definition (Phase I)

The tasks in this phase include completing a detailed project management plan, financial plan, environmental information volume, NEPA requirements, and front-end engineering design. The major subcontracts shall be awarded. The major technology components shall be finalized and the process design of the TRIG™ plant shall be completed.

Task 1.1 Project Management

A detailed Project Management Plan shall be developed encompassing the four project phases. For each phase, the scope, cost, and schedule baselines shall be developed. The organizational structure for project implementation and technology commercialization shall be elaborated. The statements of work and procurement packages shall be developed for major subcontracts including Operations and Maintenance (O&M), environmental/NEPA support, design, and turbine testing. The design documents shall also address the fuel supply arrangements, electricity and by-product sale, plant emissions, waste disposal, and safety issues.

The project management shall include the following business functions to support the project: development and/or application of appropriate cost accounting, property management, procurement methods, and human resources guidelines to meet all Federal, State, and local regulations and standards. Methodologies shall be developed to track cost and scheduling activities throughout the project. The other activities shall include monitoring of actual cost against budgeted cash flows, tracking material costs, tracking progress based on labor-hours, and tracking cost and schedule variances on a monthly basis for the total project, and updating the project schedule. A checklist of the sequential activities shall be prepared from the project schedule. The project schedule diagram shall indicate the mandatory and external dependencies, important milestones, decision points, and budget periods.

A Financing Plan shall be developed that includes finalizing all financial commitments by the managements of the Southern Company and the OUC pertaining to the non-DOE cost share for all four phases of the project and the combined cycle system. The project costs and corresponding sources of funds shall be documented for each phase.

Deliverables

Deliverables marked (I) will be available for inspection on-site by DOE and deliverables marked (D) will be delivered to DOE. Notwithstanding designation of a deliverable as "(I)" DOE may call for delivery of the item pursuant to the provisions of the cooperative agreement.

(a) Formal Project Management Reports listed in the Federal Assistance Reporting checklist. (D)

(b) Project Management Plan encompassing: (i) Project Team and Structure (D), (ii) Technical Baseline (involving preliminary plans of design, construction, and demonstration/tests; process overview and block diagram; outline of the total concept from fuel receipt to electricity sale), (D) (iii) Cost Baseline, (D) (iv) Schedule Baseline (D), (v) Communications Plan (D), (vi) Management and Control Procedures (I), (vii) Work Breakdown Structure at the same level as cost information, except combined cycle (D) (viii) Technical Risk Management Plan (I), and (ix) Final Major Subcontracts (I).

Task 1.2 Environmental/NEPA Requirements

This task prepares an Environmental Information Volume (EIV), documentation for obtaining environmental

permitting for the site/project, and supports preparation of an Environmental Impact Statement (EIS) for making a Record of Decision per the National Environmental Policy Act (NEPA) requirement.

This subtask shall collect and document the data required to obtain appropriate environmental permits to construct and operate the demonstration plant on an ongoing basis. These permits shall be obtained from appropriate Federal, State, and local regulatory agencies.

The following activities shall be performed.

1.2.1 Prepare an Environmental Information Volume in accordance with NETL guidance. The EIV shall contain a detailed description of the environmental aspects and projected impacts of the project and shall meet the information needs of the NEPA EIS.

1.2.2 Prepare an Environmental Compliance Plan (ECP) to implement an environmental monitoring and reporting strategy and to meet DOE reporting requirements. The strategy shall include plans for submitting a quality assurance/quality control (QA/QC) plan and a pollution prevention plan (PPP), conducting environmental monitoring, a Hazardous Substance Plan and Hazardous Waste Report, and submitting environmental status reports.

1.2.3 Prepare an Environmental Monitoring Plan (EMP), which specifies the location, duration, frequency, and substances to be monitored to evaluate air, water, and land resources, as well as waste production. The EMP shall consider requirements for compliance monitoring, and NEPA-related monitoring.

Deliverables

Environmental permitting, data and milestones (D); EIV and related NEPA-supporting documentation (D); an Environmental Compliance Plan (D); and an Environmental Monitoring Plan (D)

Task 1.3 Front End Engineering and Design

Initially a conceptual design of the project shall be performed. This shall involve an overview of all design aspects of TRIG™ plant (both Gasification Island and the Combined Cycle Island) and the basis of the Front End Engineering Design (FEED) activities. The major equipment list for the Gasification Island and the Combined Cycle Island shall be separately identified.

The FEED shall involve complete process design and about 30 percent of the total engineering design. This task shall include developing the basis for process design and the information necessary to support environmental permitting and NEPA. Cold-flow modeling shall be included for finalizing the designs of the transport gasifier mixing zone, the cyclone, and the disengager. The process design of the gasification island shall be completed and integrated with the combined cycle system. The major technology components shall be selected including gasification, sulfur removal, particulate removal, and mercury removal systems. The basis for this selection shall be documented. The major sections to be addressed include: (i) fuel delivery and handling, (ii) transport gasifier, (iii) syngas cleanup, (iv) water treatment, (v) combined cycle equipment, (vi) ash handling, and (vii) balance of plant. The project site shall be characterized with regard to topography, and soils to obtain the necessary data for designing layout and foundations of structures and buildings comprising the power plant, solids and water handling systems, and waste disposal.

Deliverables

a) Conceptual Design Report. This report shall present an overview of all design aspects of TRIG™ plant (both Gasification Island and the Combined Cycle Island) and the basis of the FEED activities. The major equipment list for the Gasification Island (D) and Combined Cycle Island shall be separately identified (I).

b) Front End Engineering and Design Report. This report shall encompass: specific technical objectives (D), overall design basis (D), summary 'as designed' heat and material balances (critical components, Gasification Island, and the complete TRIG™ plant (D) detailed heat and material balance (I), process flow diagrams (PFD) (D), process

specification sheets (I), site interfaces (D), gas turbine syngas combustion test report (I), equipment (D) and instrument lists (I), all safety reviews including Hazop (I), updated project schedule (D), controls documentation and support (D), technical specifications for procurement of all long lead (greater than 12 months) items (I), quotations on all major equipment (I), design drawings, detailed construction plan (I), topographic site map, soils report, site plan, and site and plant water balance report.

The design basis, process specifications, material and energy balances, and flow diagrams shall be included in the report separately for the Gasification Island, each of its sections, and each equipment.

Task 1.4 Long Lead Equipment Vendor Selection and Engineering

In this task, the long lead items and qualified vendors shall be identified and the necessary engineering shall be initiated. For critical path items, a detailed schedule for design, procurement, fabrication, delivery, structure construction, installation, and checkout testing shall be prepared. (Invoices against this task will not be accepted until after completion of NEPA ROD).

Deliverables

The long lead equipment report and detailed schedules of critical path items (D)

2.0 Detailed Design (Phase IIa)

The detailed design shall develop the information and documentation necessary to construct and operate the demonstration plant. In this phase, all detailed design packages, bid specifications, and engineering drawings of the plant shall be developed. This task shall develop complete facility design documents required for installation and operation of the Gasification Island, including commissioning and startup. The design documentation shall reflect the 'as-built' conditions upon completion of construction.

The design shall include a test plan development for measuring the performance of the TRIG™ plant from efficiency and emissions perspective under different operating conditions (e.g., alternate sub bituminous coal test, gasifier temperature and pressure, part load, ramp-up, shutdown), and corresponding data analysis methodologies.

2.1 Project Management

The Project Team shall perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to meet technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information shall be updated. The environmental permitting and compliance management efforts shall continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

2.2 Major Engineering Tasks

The major subtasks include structural steel and concrete, architectural, mechanical design, electrical design, instrumentation and controls, equipment procurement packages, construction bid packages, and integration of the Gasification island with the Combined Cycle Island.

2.2.1 Structural Steel and Concrete: This subtask shall include all civil, structural, and geotechnical engineering associated with the design of the facility, including 3-D computer modeling of the process structures.

2.2.2 Architectural: This subtask shall include the design of all buildings and facilities including the administration building, mechanical shop, and warehouse.

2.2.3 Mechanical: This subtask includes the following: (i) mechanical design of all equipment including the development of fabrication drawings and specifications for procurement, (ii) piping layout, stress analysis, and support design, generation of isometric drawings for all piping and definition of the piping and valve specifications for procurement, and, (iii) site service systems including fire protection, water supplies, sewage, and plant air.

2.2.4 Electrical Design: This subtask includes the following: (i) development of the single-line configuration to determine the electrical distribution throughout the facility, (ii) development of plans for electrical grounding, lighting, cable trays, and conduit, (iii) design of the station service and plant communication systems, (iv) development of interconnection wiring diagrams for all the equipment, programmable logic controllers, and the integrated control system (ICS), (v) design and procurement specifications for the motor control centers.

2.2.5 Instrumentation and Controls: This subtask includes the following: (i) configuration of the Southern Company standard plant data archiving system, (ii) instrument sizing, specification, and selection, (iii) instrument location drawings and installation details, (iv) instrument loop drawings, control schematics, logic diagrams, and interlock logic diagrams, (v) ICS control configuration, (vi) performance management configuration programming.

2.2.6 Construction Bid Packages: This subtask includes all engineering activity needed to prepare construction bid packages. This work includes assembly of plans, drawings, and specifications for the construction bid packages. It also includes developing a list of qualified bidders for each package, issuing each package to qualified bidders, evaluating construction bids, and preparing requisitions and purchase orders for award of construction contracts.

2.2.7 Procurement: This subtask includes the development of bid inquiry packages, bid evaluation, selection and procurement for all equipment, bulk materials, and services for the Gasification Island.

2.2.8. Integration with Combined Cycle Island: This task shall address the design and schedule related activities for the process integration of the gasification island with the Combined Cycle Island. The major equipment in the Combined Cycle Island shall include a gas turbine, a heat recovery steam generator (includes Selective Catalytic Reduction), condenser, and a steam turbine.

3.0 Construction (Phase IIIa)

The tasks in this phase include construction, installation, commissioning, and startup, and the remaining engineering and environmental compliance support.

3.1 Project Management

The Project Team shall perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to assure technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information shall be updated. The environmental compliance efforts shall continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

3.2 Site Preparation

The selected site shall be developed for installation of structures via grading and excavations, machinery and equipment foundations, and building and service facility foundations.

3.3 TRIG™ Plant Construction

The Project Team shall erect the demonstration plant and all related support systems and facilities. This task includes all equipment, materials, labor, and supervision required to install the foundations, process structures, buildings, bulks for the facility, and balance-of-plant utilities including:

- Indirects
- Site, General
- Steam Generation Area
- Turbine and Generation Area
- Fuel Facilities
- Plant Water Systems
- Electrical Distribution and Switchyard
- Plant Instrumentation and Controls
- Other
- Gasification Facilities
 - Gasification Building
 - Other Gasification Feedstocks Storage and Handling
 - Feedstock Prep
 - Gasification
 - Gasification Ash Removal/Recycle
 - Syngas Treatment
 - Syngas Cooling/Heat Recovery
 - Host Plant Interconnections

3.4 Commissioning and Startup

The Project Team shall prepare commissioning and startup/test plans, procedures, and schedules for the systems and components to be tested. Detailed test requirements and acceptance criteria shall be provided for all advanced equipment to be operated during the commissioning period. During this period most of the equipment acceptance tests shall be completed per the American Society of Mechanical Engineers Performance Test Code (PTC) procedures, modified for local, seasonal weather conditions as necessary. The Project Team shall address all preparations necessary for operating the demonstration plant including, but not limited to, the types of sample analyses necessary to evaluate component and system performance, methods of collecting, reducing, and analyzing data from various components, and, methods for storage and retrieval of raw and refined performance data.

E. Federal Assistance Reporting Checklist

The Recipient shall provide reports in accordance with the enclosed Federal Assistance Reporting Checklist and the instructions accompanying the Checklist.

F. Topical Reports

In addition to reports listed in the Federal Assistance Reporting Checklist, the Recipient shall submit the following to the Government Contracting Officer's Representative (COR). Note that the following are not to be submitted through the official NETL document control system. The due dates of the Topical Reports will be determined by the COR in discussions with the Recipient. These reports will be submitted as a draft until reviewed and approved by the COR.

- i. Conceptual Design Report
- ii. Front End Engineering Design Report

G. Briefings and Technical Presentations

The Recipient shall prepare detailed briefings for presentation to the Government Contracting Officer's Representative (COR) at a NETL site or at a different location as designated by the Government COR. The briefings shall be given by the Recipient to explain the plans, progress, and results of the project effort.

- i. Progress Review and Planning Meetings (every six months)
- ii. Project Kick-off Meeting (soon after the award)
- iii. Conceptual Design Review Meeting (before beginning FEED)
- iv. Front End Engineering Design Review Meeting (end of Phase 1)
- v. Conference Participations

H. Status Reports

Project Management Meetings

Weekly or as-needed project management meetings (either via phone conference with minutes, web/net meetings, or face-to-face) will occur to discuss progress, issues, accomplishments, deliverables, milestones, the work plan, press inquiries, upcoming events, etc.

Once a month typically linked with invoice submission or cash advance request, the Recipient shall include in its email update current value management data as follows:

Labor Performance Indicator (LPI)
Schedule Performance Indicator (SPI)

Planned Value and Actual Cost should be reported for the current reporting month and cumulative for the project along with Estimate to Completion (ETC), Expended-to-Date (ETD), and Estimate at Completion (EAC). The projected planned and estimated cost for the upcoming reporting month should be assessed. DOE shall have inspection rights to the project management systems and data used to produce standard project progress reporting.

Schedule (Gantt Chart)

The Participant shall maintain a Gantt Chart and report on the project progress through updates to the Gantt Chart as part of the Quarterly Technical Progress Report required by the Federal Assistance Reporting Checklist, DOE Form 4600.2.

Statement of Project Objectives for Activities Associated with the Kemper County Site

A. Project Summary

Southern Company Services, Inc. (SCS), in a team effort with Mississippi Power Company (MPC), and Kellogg Brown & Root LLC (KBR), will design, construct, and operate a coal-based Integrated Gasification Combined Cycle (IGCC) power plant to demonstrate Transport Integrated Gasification (TRIG™) combined cycle (IGCC) technology with CO₂ capture and compression. The TRIG™ plant, to be located at an undeveloped, lignite-mine mouth site in Kemper County, Mississippi, will have two main islands: a Gasification Island and a Combined Cycle Island. The Gasification Island will use air-blown transport gasifier technology to generate syngas from U.S. coal (e.g., Mississippi Lignite). The syngas, cleaned in the Gasification Island, will be used for fueling the Combined Cycle Island. The Gasification Island will include two Transport Gasifiers (TG) each with its own fuel handling and ash handling systems. The Combined Cycle Island will include two gas turbines each with its own heat recovery steam generator, both feeding a single steam turbine.

A key performance target for the TRIG™ plant is to achieve 80% availability without the use of a spare gasification train. In addition to demonstrating a first-of-a-kind gasification system with potential efficiency, capital cost, and operating cost advantages, this technology holds substantial potential for demonstrating the usability of abundant

low-rank coals in an advanced power generation system. The project also demonstrates advanced technologies for particulate removal using high temperature-high pressure filters, mercury removal, and operation of a sulfur removal system for syngas cleanup.

B. Project Objectives

The overall objective of the project is to design, construct, and operate a Transport Gasifier based advanced integrated gasification combined cycle power plant that uses U.S. coal to generate approximately 524-MW (net) electricity. The sub-objectives of the project include:

1. To design, build, and operate a state-of-the-art IGCC facility utilizing KBR Transport Gasifier technology.
2. To design, construct, and operate an advanced cleanup system that includes a sulfur removal system, high temperature - high pressure particulate filter (HTHP) system, selective catalytic reduction (SCR), and a mercury removal system.
3. To design, build, and operate a CO₂ capture system (capture system will be designed for a minimum 67% capture rate) and compression system with the intent to capture and geologically sequester by enhanced oil recovery or otherwise.
4. To demonstrate high availability, high thermal efficiency, low cost, and low emissions of the TRIG™ electricity generation system in commercial operating mode.
5. To develop an effective commercialization strategy to accelerate the TRIG™ technology penetration in the U.S. and international markets.
6. Through reports and conference presentations, disseminate information on the development of the TRIG™ technology. The information reported should include plant efficiency, environmental status, and cost successes for ready replication into commercial practice.

C. Project Phases

The demonstration project at the Kemper County site will be conducted in three phases:

Phase IIb. Detailed Design (Budget Period 2b): This phase includes detailed design engineering, continuing environmental permitting activities and Completion of a NEPA Record of Decision for the Kemper County site.

Phase IIIb. Construction (Budget Period 2b): This phase includes TRIG™ plant, equipment procurement, construction, installation, commissioning, startup, and continued engineering and environmental activities.

Phase IV. Demonstration (Budget Period 2b): This phase includes the commercial operation and maintenance of the TRIG™ demonstration plant with the execution of the test plan. The operating period for the demonstration plant is 48 months. Following the operating period data analysis and process evaluations, preparation of final reports to characterize the technical, environmental, and economic performance of the TRIG™ plant for power generation, and closeout activities will be completed.

D. Work Statement

SCS, the Cooperative Agreement Recipient, in collaboration with the other principal Project Team members, namely MPC and KBR, shall:

- i. Provide all services, materials, labor, and management necessary for the design, construction, installation, startup, and demonstration of a coal-based TRIG™ plant at a site in Kemper County, Mississippi.
- ii. Obtain all necessary licenses, permits, and agreements.

- iii. Develop all detailed plant engineering and design drawings, equipment lists, plant layouts, detailed equipment specifications, construction specifications, bid packages, bid reviews, piping and instrumentation diagrams (P&ID), plant controls, instrumentation, and associated software, and other activities for the construction, installation, startup, operation, data collection, and data evaluation of the demonstration plant.
- iv. Perform all site preparation, civil engineering and utilities, buildings, enclosures, site support, and other site services.
- v. Prepare and deliver to DOE all reports related to the management, budget, and control of the project as described in the Cooperative Agreement.
- vi. Produce and deliver to DOE all conference records, technical reports, topical reports, and informational reports as listed in the Cooperative Agreement.

The details are given below.

1.0 Detailed Design (Phase IIb)

The detailed design will develop the information and documentation necessary to construct and operate the demonstration plant. In this phase, all detailed design packages, bid specifications, and engineering drawings of the plant will be developed. This task will develop complete facility design documents required for installation and operation of the TRIG™ plant, including commissioning and startup. The design documentation will reflect the 'as-built' conditions upon completion of construction.

The design will include a test plan development for measuring the performance of the TRIG™ plant from efficiency and emissions perspective under different operating conditions (e.g., gasifier temperature and pressure, part load, ramp-up, shutdown), and corresponding data analysis methodologies.

1.1 Project Management

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to meet technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated. The environmental permitting and compliance management efforts will continue during this phase.

Deliverables

Deliverables marked (I) will be available for inspection on-site by DOE and deliverables marked (D) will be delivered to DOE. Notwithstanding designation of a deliverable as "(I)" DOE may call for delivery of the item pursuant to the provisions of the Cooperative Agreement

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

Project Management Plan encompassing: (i) Project Team and Structure (D), (ii) Technical Baseline (involving preliminary plans of design, construction, and demonstration/tests; process overview and block diagram; outline of the total concept from fuel receipt to electricity sale), (D) (iii) Cost Baseline, (D) (iv) Schedule Baseline (D), (v) Communications Plan (D), (vi) Management and Control Procedures (I), (vii) Work Breakdown Structure at the same level as cost information (D) (viii) Technical Risk Management Plan (I), and (ix) Final Major Subcontracts (I).

1.2 Major Engineering Tasks

The major subtasks include structural steel and concrete, architectural, mechanical design, electrical design, instrumentation and controls, equipment procurement packages, and construction bid packages.

1.2.1 Structural Steel and Concrete: This subtask includes all civil, structural, and geotechnical engineering associated with the design of the facility, including 3-D computer modeling of the process structures.

1.2.2 Architectural: This subtask includes the design of all buildings and facilities including the administration building, mechanical shop, and warehouse.

1.2.3 Mechanical: This subtask includes the following: (i) mechanical design of all equipment including the development of fabrication drawings and specifications for procurement, (ii) piping layout, stress analysis, and support design, generation of isometric drawings for all piping and definition of the piping and valve specifications for procurement, and (iii) site service systems including fire protection, water supplies, sewage, and plant air.

1.2.4 Electrical Design: This subtask includes the following: (i) development of the single-line configuration to determine the electrical distribution throughout the facility, (ii) development of plans for electrical grounding, lighting, cable trays, and conduit, (iii) design of the station service and plant communication systems, (iv) development of interconnection wiring diagrams for all the equipment, programmable logic controllers, and the integrated control system (ICS), (v) design and procurement specifications for the motor control centers.

1.2.5 Instrumentation and Controls: This subtask includes the following: (i) configuration of the Southern Company standard plant data archiving system, (ii) instrument sizing, specification, and selection, (iii) instrument location drawings and installation details, (iv) instrument loop drawings, control schematics, logic diagrams, and interlock logic diagrams, (v) ICS control configuration, (vi) performance management configuration programming.

1.2.6 Construction Bid Packages: This subtask includes all engineering activity needed to prepare construction bid packages. This work includes assembly of plans, drawings, and specifications for the construction bid packages. It also includes developing a list of qualified bidders for each package, issuing each package to qualified bidders, evaluating the bids, and preparing requisitions and purchase orders for the award of construction contracts.

Deliverables

Detailed Design Report (D): The outline of the Detailed Design Report will be determined by the COR in discussions with the Recipient. It will include, at a minimum, information on the design basis, plant description, systems descriptions, environmental performance, and capital costs.

1.3 Environmental/NEPA Requirements

This Recipient shall contract with a third party, approved by DOE, for preparation of an Environmental Impact Statement (EIS) in accordance with NETL guidance.

Deliverables

EIS (D).

1.4 Commercialization Strategy Development

The Project Team will develop a commercialization strategy to market the TRIG™ technology (i) by identifying the applicable coal-based markets in different geographic regions of the world, and (ii) by developing 'TRIG™ Technology User Groups' for later dissemination of information on the demonstrated benefits of efficiency, environmental emissions, and cost compared with competing IGCC technologies for coal-based electricity generation. This strategy will include site visits for stakeholders interested in the technology.

Deliverables

A commercialization strategy document presenting target markets, technology merits and licensing revenues, and

marketing approaches (I).

2.0 Construction (Phase IIIb)

The tasks in this phase include construction, installation, commissioning, and startup, and the remaining engineering and environmental compliance support.

2.1 Project Management

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, and communicating) necessary to assure technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated. The environmental compliance efforts will continue during this phase.

Deliverables

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D).

2.2 Procurement: This subtask includes the development of bid inquiry packages, bid evaluation, selection and procurement for all equipment, bulk materials, and services associated with the activities under Phase IIIb.

2.3 Site Preparation

The selected site will be developed for installation of structures via grading and excavations, machinery and equipment foundations, and building and service facility foundations.

Deliverables

A site preparation plan, schedule, and layout diagram(s) (D).

2.4 TRIG™ Plant Construction

The Project Team will erect the demonstration plant and all related support systems and facilities. This task includes all equipment, materials, labor, and supervision required to install the foundations, process structures, buildings, bulks for the facility, and balance-of-plant utilities including:

- Indirects
- Site, General
- Steam Generation Area
- Turbine and Generation Area
- Fuel Facilities
- Plant Water Systems
- Electrical Distribution and Switchyard
- Plant Instrumentation and Controls
- Other
- Gasification Facilities
 - Gasification Building
 - Other Gasification Feedstock Storage and Handling
 - Feedstock Prep
 - Gasification
 - Gasification Ash Removal/Recycle
 - Syngas Treatment
 - Syngas Cooling/Heat Recovery
 - CO₂ Capture and Compression

2.5 Commissioning and Startup

The Project Team will prepare commissioning and startup/test plans, procedures, and schedules for the systems and components to be tested. Detailed test requirements and acceptance criteria will be provided for all advanced equipment to be operated during the commissioning period. During this period most of the equipment acceptance tests will be completed per the American Society of Mechanical Engineers Performance Test Code (PTC) procedures, modified for local, seasonal weather conditions as necessary. The Project Team will address all preparations necessary for operating the demonstration plant including, but not limited to, the types of sample analyses necessary to evaluate component and system performance, methods of collecting, reducing, and analyzing data from various components, and, methods for storage and retrieval of raw and refined performance data. A draft Demonstration Test Plan will be provided prior to start of Demonstration Phase and review comments shall be resolved.

Deliverables

Commissioning and Startup Report (D); Demonstration Test Plan (D).

3.0 Demonstration (Phase IV)

The Project Team will ensure that the demonstration plant is operated and maintained for commercial generation of electricity and for achieving the project objectives.

The tasks in this phase include the commercial operation and maintenance of the demonstration plant and execution of the test plan. The test program for the demonstration phase will be planned for four (4) years to achieve reliable plant operation with high thermal efficiency, low O&M costs and emissions, and a plant availability of at least 80%. Following the demonstration testing, additional project performance time is included for the completion of data analysis and process evaluations, preparation of final reports to characterize the technical, environmental, and economic performance of the TRIG™ plant for power generation, and DOE project closeout activities.

3.1 Project Management, Administration, and Reporting

The Project Team will perform all project management activities (i.e., planning, tracking, executing, controlling, communicating, and reporting) necessary to meet the technical, cost, and schedule goals per the Cooperative Agreement. The technical, cost, and schedule information will be updated as required..

The environmental compliance efforts will continue during this phase. The Project Team will maintain safety and environmental compliance programs and procedures, including but not limited to: establishing operations and maintenance procedures to ensure safe and efficient operation, maintaining documentation of procedures for storage, transportation, and disposal of solid waste, and establishing safety procedures needed to comply with the Occupational Safety and Health Administration regulations. The Project team will coordinate and ensure that all compliance requirements and reporting for NEPA and the Mitigation Action Plan are completed.

The Project Team will implement the activities relating to the commercialization plan to market the TRIG™ technology, such as conducting site tours for interested stakeholders and user groups, and disseminating information on the demonstrated technology and its benefits through activities such as publications and conference presentations.

The Project Team will prepare and deliver to DOE all technical reports, financial reports, topical reports, and informational reports as described in the Cooperative Agreement.

3.2 Technical Support

The Project Team will provide Gasification Technology personnel to support production during startup and for the first six months post COD. After this time, Gasification Technology personnel will focus primarily on problems that do not immediately impact production at the plant. A core group of technology experts will be assigned to the Kemper Plant during the demonstration phase for technical support and analysis to support the DOE test plan activities.

Technical support will include, but not limited to, providing process engineering for the entire gasification island, equipment inspection, I&C and gas analysis, overall integration, refractory expertise, management of change and Hazop, and solids handling and processing. Technical support will also include the implementation of process enhancements to equipment, controls, and procedures so that the expected long-term availability can be achieved.

Gasification Technology personnel will serve as the vendor representative for TRIG™ core equipment (gasifier, ash cooling and depressurization, and coal feeders). These personnel will be involved in, but not limited to, troubleshooting problems that arise during operations, evaluating operating data to identify potential areas that can optimize system performance, updating RAM analysis, evaluating catalyst performance and potential improvements, monitoring and assessing particulate filter elements, performing dynamic simulation and transient analysis, and developing heat and material balances.

Gasification Technology personnel will support the Monitoring and Diagnostic center through consultation or direct monitoring for identifying undesirable conditions, and identifying Performance and Reliability issues. These personnel will be responsible for the development of monitoring protocols for TRIG™ equipment for use in the Monitoring and Diagnostic center. Gasification Technology personnel will also review alarms and will evaluate and make recommendations on the suitability of the alarms or alternate alarming strategies. These personnel will work with plant staff to create standard OIS screen templates and designs based on the business needs for TRIG™ equipment not currently in the existing power plant fleet.

3.3 Reference Plant Cost Estimates for TRIG™ Systems Based on Kemper Data

The Project Team will prepare a Reference Plant Cost Estimate for TRIG™ based on Kemper capital and O&M data.

3.4 Test Plan Implementation and Data Analysis

The Project Team will implement and revise the Test Plan as required, for the operation of the facility consistent with the commercial nature of the demonstration plant. The plant will be operated under commercial dispatch and the test data will be collected at commercially representative conditions. The data collected will be used to improve the performance of all process equipment items and to develop a deeper understanding of the TRIG™ process. The test program objectives will include the following:

- i. Optimizing gasifier performance
- ii. Monitoring and optimizing equipment process and mechanical performance
- iii. Investigating HTHP filter operational performance
- iv. Optimizing gas turbine syngas combustor performance
- v. Monitoring gas turbine internals
- vi. Monitoring and optimizing HRSG performance
- vii. Optimizing and improving process control systems
- viii. Improving startup and load-following capability
- ix. Completing a full survey to characterize all the egress streams
- x. Compiling plant repair and maintenance records
- xi. Completing thorough inspections of all plant equipment
- xii. Demonstrating, improving, and documenting availability

The test plan document includes the types of sample analysis necessary to evaluate component and system performance, methods of collecting, reducing, and analyzing data from various components, and methods for storage and retrieval of raw and refined performance data for the TRIG™ components.

The plant operating information system will be used to achieve real-time data collection and archiving such that the Project Team can perform complete measurement and characterization of input and output streams for each component being tested. The analytical procedures and QA/QC plans will be prepared and maintained for all sampling needs. The analysis of the results will be performed to evaluate performance of the process components and systems, and to fulfill the objectives of the test plan.

The Project Team will determine technical performance of the demonstration plant by evaluating heat rate and other key parameters following Performance Test Code procedures, modified for local, seasonal weather conditions as necessary. The Project Team will ensure that the environmental performance of the demonstration plant is documented through such categories as gasification ash discharge, stack gas monitoring, water analysis, and gas cleanup performance results.

3.5 Final Project Report

The Project Team will prepare the Final Project Report which will include the results of process, engineering, environmental, and economic evaluations of the complete TRIGTM plant and subsystems. It will also include final process overview, significant operating achievements, operational problems, plant modifications, operation and production statistics, and recommendations for plant performance optimization, scale up, and commercialization. The results of the final equipment inspections and the test results will also be included in the Final Project Report.

3.6 DOE Closeout Activities

The Project Team will complete the documentation and other items necessary for the closeout of the Cooperative Agreement.

Phase IV Deliverables

Updated Project Management Plan (D)

Formal Project Management Reports listed in the Federal Assistance Reporting checklist (D)

Reference Plant Cost Estimates for TRIGTM Systems Report (D)

Final TRIGTM Project Report (D)

E. Federal Assistance Reporting Checklist

The Recipient shall provide reports in accordance with the enclosed Federal Assistance Reporting Checklist and the instructions accompanying the Checklist.

F. Topical Reports

In addition to reports listed in the Federal Assistance Reporting Checklist, the Recipient will submit the following to the Government Contracting Officer's Representative (COR). Note that the following are not to be submitted through the official NETL document control system. The due dates of the Topical Reports will be determined by the COR in discussions with the Recipient. These reports will be submitted as a draft until reviewed and approved by the COR.

- i. Front End Engineering Design Report
- ii. Detailed Design Report
- iii. Commissioning and Startup Report
- iv. Reference Plant Cost Estimates for TRIG™ Systems Report
- v. Final TRIG™ Project Report

G. Briefings and Technical Presentations

The Recipient will prepare detailed briefings for presentation to the Government Contracting Officer's Representative (COR) at a NETL site or at a different location as designated by the Government COR. The briefings will be given by the Recipient to explain the plans, progress, and results of the project effort.

- i. Progress Review and Planning Meetings (every six months)
- ii. Front End Engineering Design Review Meeting (beginning of Phase IIb)
- iii. Detailed Design Review Meeting (during Phase IIb)
- iv. Construction Review Meetings (during Phase IIIb)
- v. Final Review Meeting (end of Phase IV)
- vi. Drawings/Photographs/Site Visits
- vii. Participation at Conferences

H. Status Reports

Project Management Meetings

Weekly or as-needed project management meetings (either via phone conference with minutes, web/net meetings, or face-to-face) will occur to discuss progress, issues, accomplishments, deliverables, milestones, the work plan, press inquiries, upcoming events, etc.

Once a month typically linked with invoice submission or cash advance request, the Recipient will include in its email update current value management data as follows:

Labor Performance Indicator (LPI)
Schedule Performance Indicator (SPI)

Planned Value and Actual Cost should be reported for the current reporting month and on a cumulative basis for the project along with Estimate to Completion (ETC), Expended-to-Date (ETD), and Estimate at Completion (EAC). The projected planned and estimated cost for the upcoming reporting month should be assessed. DOE will have inspection rights to the project management systems and data used to produce standard project progress reporting.

During the Phase IV Demonstration Phase, the Recipient is not required to report earned value management data.

Project Schedule

The Participant will prepare a project schedule including milestones for Phase III.b using Primavera. Project progress will be reflected in updates to the schedule.

During Phase IV, the Participant will prepare a milestone chart and progress will be reflected in updates to the chart.

ATTACHMENT B

U.S. Department of Energy FEDERAL ASSISTANCE REPORTING CHECKLIST AND INSTRUCTIONS

1. Identification Number: DE-FC26-06NT42391	2. Program/Project Title: Demonstration of a Coal-based Transport Gasifier		
3. Recipient: Southern Company Services, Inc.			
4. Reporting Requirements: I. MANAGEMENT REPORTING <input checked="" type="checkbox"/> Progress Report <input checked="" type="checkbox"/> Special Status Report II. SCIENTIFIC/TECHNICAL REPORTING <input checked="" type="checkbox"/> Final Scientific/Technical Report DOE F 241.3 <input checked="" type="checkbox"/> Topical Report DOE F 241.3 <input checked="" type="checkbox"/> Journal Articles/Conference Papers/Proceedings DOE F 241.3 <input type="checkbox"/> DOE 421.4, Software/Manual DOE F 241.3 <input type="checkbox"/> Conference Record DOE F 241.3 III. FINANCIAL REPORTING <input checked="" type="checkbox"/> SF-425 Federal Financial Report IV. CLOSEOUT REPORTING <input checked="" type="checkbox"/> DOE F 2050.11, Patent Certification <input type="checkbox"/> NETL F 580.1-9, Property Certificate <input type="checkbox"/> SF-120, Report of Excess Personal Property V. OTHER REPORTING <input checked="" type="checkbox"/> Environmental Report <input type="checkbox"/> NETL F 580.1-8, Annual Report of Property in the Custody of Contractors <input type="checkbox"/> NETL F 580.1-25, High Risk Property Report <input checked="" type="checkbox"/> Audit of For Profit Recipients <input checked="" type="checkbox"/> Other SEE STATEMENT OF PROJECT OBJECTIVES	Frequency Q A FG A A Q, FG FC A O/Y180	No. of Copies Electronic version to NETL> Electronic version to E-link> Electronic Version to NETL> Electronic Version to NETL> Electronic Version to NETL>	Addresses FITS@NETL.DOE.GOV http://www.osti.gov/elink-2413 (Note-software/manual must be sent to award administrator-see instructions under section B-software) FITS@NETL.DOE.GOV FITS@NETL.DOE.GOV Diane.Madden@netl.doe.gov Brittley.Robbins@netl.doe.gov See block 5 below for addresses
FREQUENCY CODES AND DUE DATES: A - As required; see attached text for applicability. FG - Final; within ninety (90) calendar days after the project period ends. FC - Final - End of Effort. Q - Quarterly; within thirty (30) calendar days after end of the calendar quarter or portion thereof. S - Semiannually; within thirty (30) calendar days after end of project year and project half-year. YF - Yearly; 90 calendar days after the end of project year. YP - Yearly Property - due 15 days after period ending 9/30. Y180 - Yearly; 180 days after the end of the recipient's fiscal year. O - Other; See instructions for further details.			
5. SPECIAL INSTRUCTIONS: * Reports/Products must be submitted with appropriate DOE F 241. The 241 forms are available at www.osti.gov/elink The forms identified in the checklist are available at http://grants.pr.doe.gov . Alternate formats are acceptable provided the contents remain consistent with the form. Audit of For-Profit Recipients must be sent to 2 different addresses in accordance with the final audit guidance. A copy for the Contracting Officer shall be submitted via FITS@NETL.DOE.GOV ; a copy must also be e-mailed to the CFO at DOE-Audit-Submission@hq.doe.gov .			

GENERAL INSTRUCTIONS FOR THE PREPARATION AND SUBMISSION OF ELECTRONIC REPORTS (JAN 2005)

The Recipient must prepare and submit all scientific/technical reports (including conference papers/proceedings, journal articles, software, and topical reports, if applicable) via E-link at <http://www.osti.gov/elink-2413> [see specific instructions below regarding form submittal and format]. **If you have any technical problems with using E-Link or DOE Form 241.3, calls should be directed to OSTI at 865-576-1223. However, if your question is related to other submission issues, you should contact the DOE Contract Specialist.**

For all other reports indicated on the "Federal Assistance Reporting Checklist" (including management, financial, closeout and other reporting), the Recipient must prepare and submit these via the internet at FITS@NETL.DOE.GOV.

Successful completion of this award is contingent upon submittal of the reports or items specified on the "Federal Assistance Reporting Checklist" in accordance with the following instructions:

Failure to follow these instructions can delay data entry of the report(s) into the **NETL FEDERAL INFORMATION TRACKING SYSTEM (FITS)** and result in the report being lost or considered delinquent.

The level of detail the Recipient provides in the reports must be commensurate with the scope and complexity of the effort and must be as delineated in the guidelines and instructions contained herein. The prime Recipient must be responsible for acquiring data from any contractors or sub recipients and ensuring that any information submitted is compatible with the requirements of the DOE.

GUIDELINES FOR ELECTRONIC SUBMISSION AND FILE FORMAT OF NON-SCIENTIFIC/TECHNICAL REPORTS (includes management, financial, closeout and other reporting).

Production of high-quality, electronic documents are dependent on the quality of the input that is provided. Thus, the Recipient must submit an electronic version of each report.

ELECTRONIC REPORTS MUST BE SUBMITTED IN THE ADOBE ACROBAT PORTABLE DOCUMENT FORMAT (PDF). ELECTRONIC REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE RETURNED AND THE REPORT CONSIDERED DELINQUENT. IN ADDITION, THERE CAN BE NO RESTRICTIONS ON THE PDF FILE SUBMITTED THAT WOULD AFFECT OUR ABILITY TO OPEN OR EDIT THE REPORT DOCUMENT. THEREFORE, THE ONLY SECURITY METHOD THAT WILL BE ACCEPTED IS THE ADOBE ACROBAT "NO SECURITY" OPTION. THIS WILL ENABLE US TO PROPERLY INDEX AND PROCESS REPORT FILES.

Each report must be one integrated file that contains all text, tables, diagrams, photographs, schematics, graphs, and charts. Files must not be write-protected or encrypted in any manner.

The electronic file(s) must be submitted via the Internet at: FITS@NETL.DOE.GOV. An e-mail message sent in conjunction with the file **must** contain the following information:

DOE Award Number
Type of Report(s)
Frequency of Report(s)

Reporting Period (if applicable)
Name of submitting organization
Name, phone number and fax number of preparer

MANAGEMENT REPORTING

PROGRESS REPORT

The Progress Report must provide a concise narrative describing the current status of work. The report allows Recipients to communicate developments, achievements, changes and problems. The report must include the following information:

1. The DOE award number and name of the recipient.
2. The project title and name of the project director/principal investigator.
3. Date of report and period covered by the report.
4. Executive Summary- A well organized summary that highlights the important accomplishments and new knowledge realized from the project during the reporting period. This summary must be more comprehensive than the traditional "abstract" and identify noteworthy advancements in research, design, manufacture or commercialization of technology developments. Also, summarize important breakthroughs that resolve critical science and technology risks or development barriers.
5. The Recipient enters a brief narrative discussion of the following topics: approach changes; performance variances, accomplishments, or problems; open times; and status assessment and forecast. Each of these topics is addressed, as appropriate, for a given reporting period and the report is submitted periodically, as required, during the life of the project
6. Baseline and Status Reports. The Baseline Plan is a report which is used to present projected cost and activity data. The Baseline Plan presents discrete, measurable units of the proposed work. The plan will provide a specific outline of what the Recipient intends to do through a Work Breakdown Structure and the time and cost involved. The cost data to be entered must depict projected total costs for the life of the project on a monthly basis broken down by each element of the Work Breakdown Structure. The activity data required are identification of tasks required to complete the project according to the Work Breakdown Structure and a delineation of the project's major milestones. This plan will be developed and submitted to serve as the standard against which status and progress can be measured during the performance period.

The Status Report shall provide the performance information required to determine program effectiveness and the information which DOE requires to maintain accountability for public funds. The report must show approved budget by budget period and actual costs incurred. If cost sharing is required costs must be broken out by DOE share, awardee share, and total costs. The report must show actual costs, schedule progress, and work completed to date. This data must be provided for each reporting period, broken down by month for each element of the Work Breakdown Structure.

Milestones, anticipated completion dates, and actual completion dates must be listed to

show schedule status. The schedule status must identify any milestones that were not met during the reporting period and reasons why the established milestones were not met. Explanations should also provide an approximate date when the milestone will be met. Awardees may use project management software, such as Microsoft Project, to measure and report cost and schedule status.

When the status report is compared with the Baseline Plan, accomplishments can be noted, problems become apparent, and corrective action can be taken. The Status Report is a report on which the Recipient provides cost and activity data for each reporting period relative to the Baseline Plan. The information should be displayed so that the baseline for the project is clear and the status of the project relative to the baseline is clear. The report may consist of more than one page as necessary.

7. Results and Discussion - A detailed discussion of the progress performance. It is extremely important that this section includes enough relevant data, especially statistical data, to allow the project manager to justify the conclusions. With the relevant data, explain how the data was interpreted and how it relates to the original purpose of the research. Be concise in the discussion on how this research effort solved or contributed to solving the original problem. When investigation methods and/or procedures are being utilized for the first time, they shall be described in detail. This description shall contain detailed information on equipment and procedures utilized, as well as providing a rationale for their use and the accuracy of the method.

8. Conclusion - The conclusion should not simply reiterate what was already included in the "Results and Discussion" section. It should, however, summarize what has already been presented, and include any logical implications of how the successes are relevant to technology development in the future. This is extremely important, since "relevancy" continues to be a criterion of the program.

This section should not contain any trade secrets, business sensitive or classified data, or other information not subject to public release. If such information is important to reporting project progress, it should be presented in a separate appendix, following the instructions in the clause entitled "Supplemental Guidelines" regarding submission of a separate appendix for this type of restricted data.).

9. A summary of all of the significant accomplishments during this reporting period. An "accomplishment" is a significant development or finding that advances the state-of-the-art with respect to the technology of interest or significantly contributes to the understanding of a concept or technology.
10. Actual or anticipated problems or delays and actions taken or planned to resolve them. Identify any event causing a significant schedule slippage or cost growth; an environmental, safety, or health violation; or the achievement of or problems encountered for an important performance objective.
11. A description of any technology transfer activities accomplished during this reporting period. Identify and describe any activities to transfer research results or developed technology to other research stakeholders or users of the technology.

SPECIAL STATUS REPORT

The recipient must report the following events to the DOE Project Officer by e-mail as soon as possible after they occur. The e-mail correspondence should include:

1. Recipient's name and address;
2. Award title and number;
3. Date;
4. Brief statement of problem or event;
5. Anticipated impacts; and
6. Corrective action taken or recommended.

The Special Status Report should document the incidents listed below:

1. Developments that have a significant favorable impact on the project.
2. Problems, delays, or adverse conditions which materially impair the recipient's ability to meet the objectives of the award or which may require DOE to respond to questions relating to such events from the public. The recipient must report any of the following incidents and include the anticipated impact and remedial action to be taken to correct or resolve the problem/condition:
 - a. Any single fatality or injuries requiring hospitalization of five or more individuals.
 - b. Any significant environmental permit violation.
 - c. Any verbal or written Notice of Violation of any Environmental, Safety, and Health statutes.
 - d. Any incident which causes a significant process or hazard control system failure.
 - e. Any event which is anticipated to cause a significant schedule slippage or cost increase.
 - f. Any damage to Government-owned equipment in excess of \$50,000.
 - g. Any other incident that has the potential for high visibility in the media.
 - h. Any incident which causes a significant process or hazard control system failure, or is indicative of one which may lead to any of the above defined incidents, is to be reported as soon as possible, but within 5 days of discovery.

When an event results in the need to issue a written or verbal statement to the local media, the statement is to be cleared first; if possible, and coordinated with NETL Communications and Public Affairs Division, the DOE Project Officer and the Contracting Officer.

III. SCIENTIFIC/TECHNICAL REPORTING

Scientific/Technical Reporting includes: Final Scientific/Technical Report, Topical Reports, Journal Articles, Conference Proceedings and Papers, Software, and Conference Records.

FINAL SCIENTIFIC/TECHNICAL REPORT

The Final Scientific/Technical Report shall document and summarize all work performed during the award period in a comprehensive manner. It shall also present findings and/or conclusions produced as a consequence of this work. This report shall not merely be a compilation of information contained in other reports, but shall present that information in an integrated fashion, and shall be augmented with findings and conclusions drawn from the research as a whole.

TOPICAL REPORTS

Topical reports are intended to provide a comprehensive statement of the technical results of the work performed for a specific task or subtask of the Statement of Project Objectives, or detail significant new scientific or technical advances. If required, DOE shall review and approve the report outline prior to submission of the report.

Two Topical Reports (as a minimum) are required. The two required reports are the Preliminary Public Design Report and the Final Public Design Report. The purpose of the Public Design Reports is to consolidate for public use all available nonproprietary design information on the project. The Preliminary Public Design Report is based on the preliminary design information and is due at the end of preliminary design. The Final Public Design Report is based on detailed design information and is due six months after COD. The Final Public Design Report should contain sufficient background information to provide an overview of the project and pertinent cost data. Since the scope of the reports is limited to nonproprietary information, their content will not be sufficient to provide a complete tool in designing a replicate plant. However, these reports will serve as a reference for the design considerations involved in a commercial-scale facility.

The reports should include an overview description of the technology and a summary of the mass and energy balances for the process. They should also define the overall process performance requirements and describe the evaluations and operating philosophies upon which those performance requirements are based and a summary cost estimate of capital costs.

The following deliverables are also to be included as components of the Preliminary Public Design Report addressing the preliminary design:

Process Flow Diagrams

The Participant shall provide a complete set of nonproprietary Process Flow Diagrams with all updates and modifications.

Stream Data

The Participant shall provide a complete set of all nonproprietary stream data. This would include both the expected values and ranges of flows, stream properties, and constituents at various operating conditions.

Equipment List

The Equipment List consists of a summary of the major equipment for the plant. Equipment is to be sorted by Flow Diagram, equipment type, and equipment number. General description data are to be provided for each equipment item, including, but not limited to, the number required for operation, size or capacity, major nonproprietary operating and design parameters, and manufacturer and/or vendor.

The Final Public Design Report shall include the final versions of the Preliminary Public Design Report plus the following:

Drawings

The Participant shall include a complete set of Equipment Plot and Elevation Drawings, and Process and Instrumentation Diagrams, which describe the plant configuration at the end of the construction period.

Plant Capital Cost Data

The Participant shall include a summary cost estimate of capital costs associated with the construction of the plant.

GUIDELINES FOR ELECTRONIC SUBMISSION AND ORGANIZATION OF FINAL SCIENTIFIC/TECHNICAL AND TOPICAL REPORTS

Electronic Submission. The final scientific/technical report and topical reports must be submitted electronically via the DOE Energy Link System (E-Link) at <http://www.osti.gov/mlink-2413>.

Electronic Format. REPORTS MUST BE SUBMITTED IN THE ADOBE PORTABLE DOCUMENT FORMAT (PDF) AND BE ONE INTEGRATED PDF FILE THAT CONTAINS ALL TEXT, TABLES, DIAGRAMS, PHOTOGRAPHS, SCHEMATIC, GRAPHS, AND CHARTS. ELECTRONIC REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE RETURNED AND THE REPORT CONSIDERED DELINQUENT. IN ADDITION, THERE CAN BE NO RESTRICTIONS ON THE PDF FILE SUBMITTED THAT WOULD AFFECT OUR ABILITY TO OPEN OR EDIT THE REPORT DOCUMENT. THEREFORE, THE ONLY SECURITY METHOD THAT WILL BE ACCEPTED IS THE ADOBE ACROBAT "NO SECURITY" OPTION. THIS WILL ENABLE US TO PROPERLY INDEX AND PROCESS REPORT FILES.

Materials, such as prints, videos, and books, that are essential to the report but cannot be submitted electronically, should be sent to the DOE Contract Specialist.

Submittal Form. The report must be accompanied by a completed electronic version of **DOE Form 241.3, "U.S. Department of Energy (DOE), Announcement of Scientific and Technical Information (STI)."** You can complete, upload, and submit the DOE F.241.3 online via E-Link. You are encouraged not to submit Protected EAct Information in these electronic technical reports. These technical reports must also not contain any Limited Rights Data (such as trade secret, proprietary or business sensitive information), classified information, information subject to export control classification, or other information not subject to release. Such information **must** be submitted in a separate hard-copy appendix to the electronic technical and topical reports as explained under **Supplemental Guidelines** below.

Organization. The following sections should be included (as appropriate) in the final scientific/technical report and topical reports in the sequence shown. Any section denoted by an asterisk is **required** in all final technical and topical reports.

TITLE PAGE* - The Title Page of the report itself must contain the following information in the following sequence:

Report Title
Type of Report (Final Scientific/Technical or Topical)
Reporting Period Start Date

Reporting Period End Date
Principal Author(s)
Date Report was Issued (Month [spelled out] and Year [4 digits])
DOE Award Number (e.g., DE-FG26-05NT12345) and if appropriate, task number
Name and Address of Submitting Organization (This section should also contain the name and address of significant subcontractors/sub-recipients participating in the production of the report.)

DISCLAIMER* -- The Disclaimer must follow the title page, and must contain the following paragraph:

“This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.”

ABSTRACT* - should be a brief, concise summary of the report.

TABLE OF CONTENTS*

EXECUTIVE SUMMARY* - this should be a well-organized summary that highlights the important accomplishments of the research during the reporting period. It should be no less than one page and no more than two pages in length, and should be single spaced. This summary must be more comprehensive than the traditional “abstract.”

REPORT DETAILS - The body of the final scientific/technical or topical report should address topics such as the following:

Experimental methods: Describe, or reference all experimental methods being utilized. Also provide detail(s) about materials and equipment used. Standard methods should reference the appropriate literature, where details can be obtained. Equipment should be described only if it is not standard, or if information is not available thru the literature or other reference publications.

Results and discussions: This section should include enough relevant data, especially statistical data, to allow the project manager to justify the conclusions. Explain how the data was interpreted and how it relates to the original purpose of the research. Be concise in the discussion on how this research effort solved or contributed to solving the original problem.

Conclusion: The conclusion should not simply reiterate what was already

included in "Results and Discussion" but should summarize what has already been presented, and include any logical implications of how the successes are relevant to technology development in the future. This is extremely important, since "relevancy" continues to be a criterion of the program.

GRAPHICAL MATERIALS LIST(S)

REFERENCES

BIBLIOGRAPHY

LIST OF ACRONYMS AND ABBREVIATIONS

APPENDICES (IF NECESSARY)

SUPPLEMENTAL GUIDELINES

Technical reporting SHALL NOT include Limited Rights Data (such as restricted, proprietary or business sensitive information). Limited Rights Data, if required to meet the reporting requirements, shall be submitted in a separate appendix to the technical report. This appendix SHALL NOT be submitted in an electronic format but rather submitted in ONE ORIGINAL AND THREE (3) PAPER COPIES along with the paper version of the sanitized technical report deliverable. The appendix shall not be referenced in or incorporated into the sanitized technical report deliverable under the contract. The appendix must be appropriately marked and identified. Further, if this award authorizes the awardee under the provisions of The Energy Policy Act of 1992 to request protection from public disclosure for a limited period of time of certain information developed under this award, technical reports SHALL NOT contain such Protected EAct Information. Such information shall be submitted in a separate appendix to the technical report that is suitable for release after the agreed upon period of protection from public disclosure has expired. The appendix shall not be referenced in or incorporated into the sanitized technical report deliverable under the contract. In accordance with the clause titled "Rights in data—programs covered under special data statutes," the appendix must be appropriately marked and identified

Company Names and Logos -- Except as indicated above, company names, logos, or similar material should not be incorporated into reports.

Copyrighted Material -- Copyrighted material should not be submitted as part of a report unless written authorization to use such material is received from the copyright owner and is submitted to DOE with the report.

Measurement Units -- All reports to be delivered under this instrument shall use the SI Metric System of Units as the primary units of measure. When reporting units in all reports, primary SI units shall be followed by their U.S. Customary Equivalents in parentheses (). **The Recipient shall insert the text of this clause, including this paragraph, in all subcontracts under this award.** Note: SI is an abbreviation for "Le Systeme International d'Unites."

ELECTRONIC MEDIA STANDARD FOR PREPARATION OF TECHNICAL REPORTS

PRESENTATION: The Recipient shall submit one quality permanent paper copy for storage (permanent or alkaline paper) and an electronic version of each technical report in PDF format. ELECTRONIC REPORTS MUST BE SUBMITTED IN THE ADOBE ACROBAT PORTABLE DOCUMENT FORMAT (PDF). REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE REJECTED, RETURNED AND CONSIDERED DELINQUENT. The report must be one complete integrated file containing all text, tables, diagrams, photographs,

schematics, graphs, and charts. Multiple files for various report segments are unacceptable and will be rejected. The electronic file(s) may be submitted on an ISO9660-format CD-ROM.

FORMAT: The electronic file(s) must be submitted on CD-ROM and labeled as follows:

DOE Award Number
Type/Frequency of Report(s)
Reporting Period (if applicable)
Name of submitting organization
Name, phone number and fax number of preparer

JOURNAL ARTICLES, CONFERENCE PAPERS AND PROCEEDINGS GENERATED BY LARGE BUSINESSES FOR DOE REVIEW

The Recipient shall submit to DOE for review and approval all documents generated by the Recipient, or any subcontractor, which communicate the results of scientific or technical work supported by DOE under this award, whether or not specifically identified in the award, prior to submission for publication, announcement, or presentation. Such documents include journal articles, conference papers and proceedings, etc. The Recipient shall simultaneously submit a draft version of the document to the DOE Project Officer and the DOE Patent Counsel Office prior to the publication, presentation, or announcement. The DOE Project Officer and DOE Patent Counsel shall review the draft version of the document and notify the Recipient of approval or recommended changes. The approved final version shall be submitted to the NETL AAD Document Control Coordinator.

The following information shall be provided for conference papers and proceedings, etc.

- Name of conference
- Location of conference (city, state, and country)
- Date of conference (month/day/year)
- Conference sponsor

CONFERENCE RECORD

The "Conference Record" documents for the DOE Project Officer, DOE Contracting Officer, and the Recipient an understanding of significant decisions, direction or redirection, or required actions resulting from meetings with DOE representatives. It is required for any meeting, conference, or phone conversation in which a decision is made that may change the schedule, labor, cost, or technical aspects of the award or the approved baseline plans. The report shall contain the following information as applicable:

1. Report title ("Conference Record"), number, and the date prepared.
2. Award title and number, and the Recipient's name and address.
3. Date of meeting or telephone conversation, with a list of those involved and their titles.
4. Subject(s) discussed, decisions reached, and directions given.
5. Variances from previous directions and conclusions.
6. Required actions.
7. Distribution.
8. Signature of preparer.

III. FINANCIAL REPORTING

FEDERAL FINANCIAL REPORT (STANDARD FORM 425)

Recipients must complete the SF-425 as identified on the Reporting Checklist in accordance with the report instructions. The SF-425A is not authorized for reporting under this award. A fillable version of the SF-425 is available at http://www.whitehouse.gov/omb/grants/grants_forms.aspx.

IV. CLOSEOUT REPORTING

PATENT CERTIFICATION (DOE F 2050.11)

This certificate submitted on DOE F 2050.11 is due within 90 days after completion or termination of the award.

V. OTHER REPORTING

ENVIRONMENTAL REPORTS

DOE issued a Final Environmental Impact Statement for the Project (DOE/EIS-0409) in May 2010 and a Record of Decision (ROD) in August 2010 (75 FR 51248). The ROD identified conditions to mitigate potential adverse impacts associated with the project. The Mitigation Action Plan (MAP) issued in September 2010 describes the monitoring and mitigation actions to be implemented during the design, construction, and demonstration of the Project. DOE prepared the MAP in accordance with 10 CFR § 1021.331.

The MAP contains a Table which lists the resource areas, monitoring requirements, mitigation commitments, and reporting requirements. These reports are to be submitted as per the frequency designated in the MAP Table. In addition NETL needs to be kept informed of permit compliance status and, thus, Recipient will submit copies of compliance reports that MPC has submitted to the appropriate Federal, State, and local regulatory agencies as well as any Notices of Violation. During the Demonstration Period, Recipient will also submit periodic summaries of the off-site disposal of wastes generated during the operation of the Project.

Recipient will have the right to mark information that is included in the environmental report as confidential consistent with DOE's regulations and the standards of the Freedom of Information Act and other applicable laws, and DOE will maintain such information as confidential and will not disclose it.

COMMUNICATION PLANS (MAR 2002)

Knowledge dissemination is an integral part of the Federally funded RD&D process. Effective dissemination requires planned, active, and coordinated participation of governmental entities and funded research organizations.

To ensure the effective dissemination of knowledge gained during this RD&D project, the recipient will consult with NETL's Public Affairs staff to identify communication goals, objectives, and strategies. The recipient will make an initial contact for consultation within 30 days of the award date. The recipient will make subsequent contacts whenever progress on the project warrants external communication, but no less than once a quarter.

Actions and products designed to disseminate nonproprietary project-related knowledge will be coordinated with NETL's Public Affairs staff. Examples of such actions and products include, but are not limited to:

- Press releases
- Articles in newspapers, newsletters, and magazines
- Papers in peer-reviewed journals
- Radio, television, and newspaper interviews
- Presentation of research results at conferences, workshops, and seminars
- Publication of results on web pages
- Information for government officials

POST-COMPLETION REVIEW (MAR 2002)

Within two (2) years after completion of the demonstration project, the Recipient agrees to participate with DOE in a post-completion project review meeting. The time and location of the meeting will be established by agreement of the Parties. The purpose of the meeting is to review the success of the project as well as any problems that may have arisen since project completion.

AUDIT OF FOR-PROFIT RECIPIENTS

As required by 10 CFR 600.316, as supplemented by For-Profit Audit Guidance Parts I through IV, audits must be performed of For-Profit Recipients of financial assistance.

For-Profit Audit Guidance Parts I through IV to assist for-profit recipients in complying with the audit requirements of 10 CFR 600.316 are posted on the Financial Assistance Forms page of the MA home page under the 'Coverage of Independent Audits' subheading, <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>.

Submission: The compliance audit report(s) is due to DOE within six months of the recipients' fiscal year-end date. The compliance audit report must be submitted, along with audited financial statements (if applicable), to the appropriate DOE Contracting Officer at FITS@NETL.DOE.GOV as well as to the DOE Office of the Chief Financial Officer at DOE-Audit-Submissions@hq.doe.gov.

Amended and Restated Cooperative Agreement
DE-FC26-06NT42391
As of Amendment 0010

ATTACHMENT C - BUDGET PAGES
Budget Information - Non Construction Programs - Budget Period 1

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066
2.						
3.						
4.						
5. Totals				\$9,285,033	\$9,285,033	\$18,570,066
Section B - Budget Categories						
6. Object Class Categories	Grant Program, Function or Activity				Total (5)	
	(1) Total - BP 1	(2)	(3)	(4)		
a. Personnel	\$3,769,589				\$3,769,589	
b. Fringe Benefits						
c. Travel	\$159,413				\$159,413	
d. Equipment	\$8,401,694				\$8,401,694	
e. Supplies						
f. Contractual	\$6,002,871				\$6,002,871	
g. Construction						
h. Other	\$236,500				\$236,500	
i. Total Direct Charges (sum of 6a-6h)	\$18,570,066				\$18,570,066	
j. Indirect Charges						
k. Totals (sum of 6i-6j)	\$18,570,066				\$18,570,066	
7. Program Income						

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Prescribed by OMB Circular A-102

Amended and Restated Cooperative Agreement
 DE-FC26-06NT42391
 As of Amendment 0010

ATTACHMENT C - BUDGET PAGES
Budget Information - Non Construction Programs - Budget Period 2a

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,237
2.						
3.						
4.						
5. Totals				\$14,233,607	\$17,396,631	\$31,630,237

Section B - Budget Categories					
6. Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) Total - BP 2a Phase IIa	(2) Total - BP 2a Phase IIIa	(3)	(4)	
a. Personnel	\$1,460,591	\$1,261,023			\$2,721,615
b. Fringe Benefits					
c. Travel	\$56,034	\$17,735			\$73,769
d. Equipment	\$1,377,290	\$18,362,507			\$19,739,797
e. Supplies					
f. Contractual	\$8,448,269	\$285,386			\$8,733,656
g. Construction					
h. Other	\$2,919	\$358,482			\$361,401
i. Total Direct Charges (sum of 6a-6h)	\$11,345,103	\$20,285,134			\$31,630,237
j. Indirect Charges					
k. Totals (sum of 6i-6j)	\$11,345,103	\$20,285,134			\$31,630,237
7. Program Income					

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Amended and Restated Cooperative Agreement
DE-FC26-06NT42391
As of Amendment 0010

ATTACHMENT C - BUDGET PAGES
Budget Information - Non Construction Programs - Budget Period 2b

OMB Approval No. 0348-0044

Section A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,744,581,500	\$2,014,812,860
2.						
3.						
4.						
5. Totals				\$270,231,360	\$1,744,581,500	\$2,014,812,860

Section B - Budget Categories

6. Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) Total - BP 2b Phase IIb	(2) Total - BP 2b Phase IIIb	(3) Total - BP 2b Phase IV	(4)	
a. Personnel			\$9,640,787		\$9,640,787
b. Fringe Benefits			\$4,350,230		\$4,350,230
c. Travel			\$1,365,053		\$1,365,053
d. Equipment			\$34,479		\$34,479
e. Supplies			\$30,248		\$30,248
f. Contractual		\$1,989,812,860	\$1,749,186		\$1,991,562,046
g. Construction					
h. Other			\$503,491		\$503,491
i. Total Direct Charges (sum of 6a-6h)		\$1,989,812,860	\$17,673,474		\$2,007,486,334
j. Indirect Charges			\$7,326,526		\$7,326,526
k. Totals (sum of 6i-6j)		\$1,989,812,860	\$25,000,000		\$2,014,812,860
7. Program Income					

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Amended and Restated Cooperative Agreement
DE-FC26-06NT42391
As of Amendment 0010

ATTACHMENT C - BUDGET PAGES
Budget Information - Non Construction Programs - Cumulative

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal	Non-Federal	Federal	Non-Federal	Total
		(c)	(d)	(e)	(f)	(g)
1. Fossil Energy R&D	81.089 - BP 1			\$9,285,033	\$9,285,033	\$18,570,066
2. Fossil Energy R&D	81.089 - BP 2a			\$14,233,607	\$17,396,631	\$31,630,237
3. Fossil Energy R&D	81.089 - BP 2b			\$270,231,360	\$1,744,581,500	\$2,014,812,860
4.						
5. Totals				\$293,750,000	\$1,771,263,164	\$2,065,013,164
Section B - Budget Categories						
6. Object Class Categories		Grant Program, Function or Activity				Total (5)
		(1) Total - BP 1	(2) Total - BP 2a	(3) Total - BP 2b	(4)	
a. Personnel		\$3,769,589	\$2,721,615	\$9,640,787		\$16,131,991
b. Fringe Benefits				\$4,350,230		\$4,350,230
c. Travel		\$159,413	\$73,769	\$1,365,053		\$1,598,235
d. Equipment		\$8,401,694	\$19,739,797	\$34,479		\$28,175,969
e. Supplies				\$30,248		\$30,248
f. Contractual		\$6,002,871	\$8,733,656	\$1,991,562,046		\$2,006,298,573
g. Construction						
h. Other		\$236,500	\$361,401	\$503,491		\$1,101,392
i. Total Direct Charges (sum of 6a-6h)		\$18,570,066	\$31,630,237	\$2,007,486,334		\$2,057,686,638
j. Indirect Charges				\$7,326,526		\$7,326,526
k. Totals (sum of 6i-6j)		\$18,570,066	\$31,630,237	\$2,014,812,860		\$2,065,013,164
7. Program Income						

SF-424A (Rev. 4-92)

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Section C - Non-Federal Resources					
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) Totals	
8. Fossil Energy Research & Development - CFDA: 81.089			\$1,771,263,164	\$1,771,263,164	
9.					
10.					
11.					
12. Total (sum of lines 8 - 11)			\$1,771,263,164	\$1,771,263,164	
Section D - Forecasted Cash Needs					
	Total for 1st Year (2010)	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
13. Federal	*	*	*	*	*
14. Non-Federal	*	*	*	*	*
15. Total (sum of lines 13 and 14)	*	*	*	*	*
Section E - Budget Estimates of Federal Funds Needed for Balance of the Project					
(a) Grant Program	Future Funding Periods (Years)				
	(b) First	(c) Second	(d) Third	(e) Fourth	
16. Fossil Energy Research & Development - CFDA: 81.089	*	*	*	*	
17.					
18.					
19.					
20. Total (sum of lines 16-19)					
Section F - Other Budget Information					
21. Direct Charges	\$2,057,686,638		22. Indirect Charges		
23. Remarks	*See Project Management Plan and any updates thereto				

ATTACHMENT D
AMENDED AND RESTATED REPAYMENT AGREEMENT
DE-FR26-06NT42392
AMENDMENT 2

By this Amendment to the Amended and Restated Repayment Agreement by and among the United States Department of Energy (DOE), Southern Company Services, Inc. (SCS), and Kellogg Brown & Root LLC (successor to the rights and obligations of Kellogg Brown & Root, Inc.) dated May 2, 2007, the Parties acknowledge certain changes that have been made to Cooperative Agreement Number DE-FC26-06NT42391 regarding the Demonstration Project and they agree to modify the terms of the Repayment Agreement to incorporate DOE's waiver of the repayment obligation. This Amendment to the Amended and Restated Repayment Agreement will become effective on December 5, 2008.

Specifically, the Parties hereby acknowledge as follows:

- (a) The host site for the Demonstration Project has been changed from Orlando, Florida to a site owned by Mississippi Power Company in Kemper County, Mississippi.
- (b) The scope and schedule for the Demonstration Project have been modified to account for the site relocation and changes in size and configuration of the Demonstration Project.

Now, therefore, in consideration of the promises and agreements of the Parties herein expressed and other good and valuable consideration, the Parties agree that the Repayment Agreement is amended to incorporate DOE's waiver of the Obligors' repayment obligation in accordance with the terms set forth below:

WAIVER OF REPAYMENT

Whereas, DOE and SCS have been informed by the Internal Revenue Service that DOE funds provided under the Cooperative Agreement are taxable to the Recipient;

Whereas, such treatment of DOE funds is a departure from historical practice and therefore not anticipated by either DOE or SCS;

Whereas, taxation of the funds substantially reduces the effective amount of federal contribution to the Demonstration Project and jeopardizes the success of the Demonstration Project;

Whereas, SCS has requested that the Secretary of Energy waive the repayment obligation under this Repayment Agreement in order to make the DOE funds eligible for treatment as a non-taxable contribution to capital pursuant to Internal Revenue Code Section 118;

Whereas, DOE is willing to waive the repayment obligation subject to certain conditions, including commitments from SCS (and/or its affiliated companies) to sequester a portion of the carbon dioxide (CO₂) produced by the Demonstration Project; and,

Whereas, SCS and its affiliate owner of the plant, Mississippi Power Company (MPC), are willing to capture a portion of the CO₂ produced by the Demonstration Project and sequester the CO₂ in geologic formations, which may include sequestration through enhanced oil recovery operation.

Therefore, pursuant to the determination by the Secretary of Energy, dated May 22, 2008, DOE agrees that the Obligors' obligation to repay (as well as the associated reporting and retention obligations set forth in Article VI of the Repayment Agreement), pursuant to this Repayment Agreement, is waived.

Notwithstanding the foregoing, pursuant to that certain Approval Determination executed by the Secretary of Energy dated May 22, 2008 ("Approval Determination"), DOE established certain conditions regarding the

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waiver, which conditions are adopted herein as set forth below. The Approval Determination provided (and by adoption this Agreement provides) that the waiver will become void if any one of the following events occurs:

- (1) On or before the earlier of DOE's issuance of a National Environmental Policy Act, Record of Decision for the Demonstration Project or January 1, 2010, the Internal Revenue Service (IRS) agrees that Clean Coal Power Initiative (CCPI) Round II funds are not taxable to the Recipient, even if the funds are accompanied by a requirement of repayment to DOE. SCS agrees to seek a private letter ruling from the IRS if DOE advises SCS that the IRS has indicated a willingness to entertain tax-free treatment of DOE CCPI Round II funds.
- (2) On or before the earlier of DOE's issuance of a Record of Decision for the Demonstration Project or January 1, 2010, the law is amended to make CCPI funds not taxable to the Recipient.
- (3) SCS (and/or its affiliated companies) does not, with respect to the planned coal-fired power plant in Mississippi receiving CCPI Round II funds: (a) design, build, and operate the facility with the intent to capture and geologically sequester by enhanced oil recovery or otherwise one million tons per year of CO₂ (approximately 25% capture rate); and (b) establish, and actively work toward, the goal of capturing and sequestering 50% of CO₂ emissions from the plant by 2020 and thereafter.

IN WITNESS WHEREOF, the parties have caused this Amendment to the Amended and Restated Repayment Agreement to be executed as of the respective dates entered below.

UNITED STATES DEPARTMENT OF ENERGY

**OBLIGOR (Kellogg Brown & Root LLC (as
successor to the rights and obligations of
Kellogg Brown & Root, Inc.)**

Signature: 

Name: Richard D. Rogus
Title: Contracting Officer

Date: 12/5/08

Signature: [REDACTED]

Name:
Title:

Date:

OBLIGOR (Southern Company Services, Inc.)

Signature:

[REDACTED]

Name:

Date:

Title:

ATTACHMENT D
AMENDED AND RESTATED REPAYMENT AGREEMENT
DE-FR26-06NT42392

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]