

DOCKETED

Docket Number:	08-AFC-08A
Project Title:	Hydrogen Energy Center Application for Certification Amendment
TN #:	203758
Document Title:	Exhibit A - DOE HECA Assistance Agreement (Excerpts)
Description:	N/A
Filer:	Andrea Issod
Organization:	Sierra Club
Submitter Role:	Intervenor
Submission Date:	3/2/2015 7:26:44 PM
Docketed Date:	3/3/2015

Exhibit A

NOT SPECIFIED /OTHER

ASSISTANCE AGREEMENT

1. Award No. DE-FE0000663		2. Modification No.		3. Effective Date 09/30/2009		4. CFDA No. 81.089	
5. Awarded To HYDROGEN ENERGY CALIFORNIA LLC Attn: NINA WALCHIRK 1 WORLD TRADE CENTER SUITE 1600 LONG BEACH CA 908311600				6. Sponsoring Office Brittley.Robbins@netl.doe.gov U.S. DOE/NETL Pittsburgh Campus 626 Cochrans Mill Road PO Box 10940 Pittsburgh PA 15236-0940			7. Period of Performance 10/01/2009 through 11/01/2018
8. Type of Agreement <input type="checkbox"/> Grant <input checked="" type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Other		9. Authority See Page 2 for full authority			10. Purchase Request or Funding Document No. 09FE009140		
11. Remittance Address HYDROGEN ENERGY CALIFORNIA LLC Attn: NINA WALCHIRK 1 WORLD TRADE CENTER SUITE 1600 LONG BEACH CA 908311600				12. Total Amount Govt. Share: \$308,000,000.00 Cost Share : \$2,531,577,774.00 Total : \$2,839,577,774.00			
14. Principal Investigator MAHA MAHASENAN Phone: 562-276-1502		15. Program Manager MICHAEL H. MCMILLIAN Phone: 304-285-4669			16. Administrator U.S. DOE/NETL Pittsburgh Campus 626 Cochrans Mill Road PO Box 10940 Pittsburgh PA 15236-0940		
17. Submit Payment Requests To OR for NETL (Pittsburgh) U.S. Department of Energy Oak Ridge Financial Service Center P.O. Box 4967 Oak Ridge TN 37831				18. Paying Office		19. Submit Reports To Submit most reports to FITS@netl.doe.gov See SOPO (Attachment 2) and Federal Assistance Reporting Checklist (Attachment 3)	
20. Accounting and Appropriation Data							
21. Research Title and/or Description of Project HYDROGEN ENERGY CALIFORNIA PROJECT: COMMERCIAL DEMONSTRATION OF ADVANCED IGCC W/ FULL CARBON CAPTURE							
For the Recipient				For the United States of America			
22. Signature of Person Authorized to Sign				25. Signature of Grants/Agreements Officer 			
23. Name and Title		24. Date Signed		26. Name of Officer RAYMOND D. JOHNSON		27. Date Signed 09/28/2009	

NOT SPECIFIED /OTHER

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CONTINUATION SHEET	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	DE-FE0000663	2	2

NAME OF OFFEROR OR CONTRACTOR
HYDROGEN ENERGY CALIFORNIA LLC

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>DUNS Number: 796738149 Continued from Block 9, Authority: PL 95-91 DOE Organization Act, PL 111-5 American Recovery and Reinvestment Act of 2009 and PL 109-58 Energy Policy Act 2005</p> <p>ASAP: NO Extent Competed: COMPETED Delivery: 09/30/2009 Delivery Location Code: 02601 U.S. DOE/NETL Pittsburgh Campus 626 Cochrans Mill Road PO Box 10940 Pittsburgh PA 15236-0940</p> <p>Payment: OR for NETL (Pittsburgh) U.S. Department of Energy Oak Ridge Financial Service Center P.O. Box 4967 Oak Ridge TN 37831</p> <p>Fund: 05899 Appr Year: 2009 Allottee: 31 Report Entity: 220320 Object Class: 25500 Program: 1610353 Project: 2003020 WFO: 0000000 Local Use: 0000000 TAS Agency: 89 TAS Account: 0211</p>				

July 2004

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Based upon DOE's favorable assessment and evaluation of Phase 1b deliverables, approval to proceed into Phase 1c, Project Definition/FEED, is hereby provided.

As a result of the above authorization, DOE funding for Phase 1c is made available to the Recipient. Accordingly, delete the article entitled "Funding of Phases" in its entirety and replace with the following:

"FUNDING OF PHASES

DOE has obligated \$408,000,000 for completion of the Project authorized by this agreement; however, only \$133,174,462 is available for work performed by the Recipient during Phases 1a, 1b, and 1c of the Project. For Phases 2 and 3, the remainder or \$274,825,538 will be available contingent upon the submission by the Recipient of a Decision Point Application and written approval of the Decision Point Application by the DOE Contracting Officer.

In the event that the Recipient does not submit a Decision Point Application for a subsequent Phase or DOE disapproves a Decision Point Application for a subsequent Phase, the maximum DOE liability to the Recipient is the funds that are available for the current approved Phase. In such event, DOE reserves the right to deobligate any remaining funds."

All other terms and conditions remain unchanged and in full force and effect.

END OF MODIFICATION 018

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

<p><u>DOE Program Manager/Project Officer</u> John Rockey Mail Stop P03C 3610 Collins Ferry Road, P.O. Box 880 Morgantown, WV 26507-0880 Phone: 304-285-4711 E-Mail: John.Rockey@netl.doe.gov</p>	<p><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</p>
<p><u>HECA Principal Investigator</u> Tim Bauer 30 Monument Square, Suite 235 Concord, MA 01742 Phone: 978-287-9529 E-Mail: tbauer@scsenergyllc.com</p>	<p><u>HECA Business Officer</u> Paul Meyers 30 Monument Square, Suite 235 Concord, MA 01742 Phone: 407-909-1628 E-Mail: pmeyers@scsenergyllc.com</p>

ATTACHMENT 2 – STATEMENT OF PROJECT OBJECTIVES (SOPO)

Hydrogen Energy California (HECA) Project: Commercial Demonstration of Advanced IGCC with Full Carbon Capture

A. OBJECTIVES

Hydrogen Energy California LLC (HECA LLC or Recipient), a joint venture of BP Alternative Energy North America and Rio Tinto subsidiaries, will design, build and operate a greenfield, commercial scale, fully integrated advanced Integrated Gasification Combined Cycle (IGCC) power plant with carbon capture in Kern County, California. The Hydrogen Energy California (HECA) Project (the Project) is designed to achieve at least 90% CO₂ capture efficiency while sequestering approximately two million tons per year in an enhanced oil recovery (EOR) application. The Project will employ integrated gasification combined cycle technology to nominally generate 390 MW (gross) and approximately 250 MW (net) of electricity using a 75% coal/25% petroleum coke fuel blend during the Demonstration Phase. The off-take agreements contemplated by HECA LLC will enable storage at a rate of two million tons of CO₂ per year during the DOE Demonstration Phase of the Project. The captured CO₂ will be transported via pipeline to the Elk Hills oil field approximately 4 miles away from the power plant.

Specific Project Objectives Include:

1. Achieve a minimum of 90% carbon capture efficiency during steady-state operations
2. Sequester at a rate of two million tons per year of CO₂ in an EOR application based on a 30 day running average
3. Achieve pollutant levels which meet or exceed the performance goals and technical milestones specified in subsections 402 (b)(1)(B) and 402 (b)(2) of EPACT 2005
4. Demonstrate all objectives while using at least 75% U.S.-mined coal or coal refuse, on an energy input basis, during the Demonstration Phase; and
5. Use brackish water for the plant's industrial raw water supply.

B. Scope of Project

The Project is designed to achieve at least 90% CO₂ capture efficiency during steady state operation while sequestering at the rate of two million tons per year in an enhanced oil recovery (EOR) application. During the Demonstration Phase, the Project will employ gasification technology to produce hydrogen using a 75% coal/25% petroleum coke feedstock blend, and hydrogen-fuelled combined-cycle gas turbine technology to generate 390 MW (gross) and approximately 250 MW (net) of electricity.

The Project represents an advanced IGCC with Carbon Capture and Sequestration (CCS) with a carefully thought out risk management approach. The Project will incorporate the Rectisol® process to achieve the CO₂ capture efficiency indicated above. Water quality and availability issues are addressed by utilizing local brackish groundwater treated on-site for all of its industrial water supply. The brackish groundwater will be supplied from the Buena Vista Water Storage District (BVWSD), which is a local water district with some groundwater sources not suitable for agricultural use. The Project will also incorporate a 100% Zero Liquid Discharge (ZLD) system. All Project wastewater, including wastewater generated from the IGCC, raw water treatment and cooling tower blowdown will be directed to ZLD system(s) with the recovered water recycled for reuse in the process. This further reduces the water demands of the Project. The CO₂ off-take agreement with Occidental of Elk Hills (Oxy) contemplated by

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HECA LLC will enable sequestration at a rate of over two million tons of CO₂ per year during the DOE Demonstration Phase and for the life of the Project. The captured CO₂ will be transported via pipeline to the Elk Hills oil field approximately 4 miles away from the power plant. The CO₂ will enable additional domestic oil production, which will contribute to our national energy security.

The Project will be developed in three phases: Project Definition (Phase I); Design and Construction (Phase II); and Demonstration (Phase III). Through the three Project phases, the Project team will define the basis of design for all facilities; conclude all commercial agreements; obtain all permits required for construction and operation; complete all construction, commissioning and startup activities; and demonstrate facilities performance during the Demonstration Phase. These tasks will be managed by an integrated, cross-functional team of professionals dedicated to Project development, working with service providers and vendors with proven track records.

In the Project Definition phase (Phase I), the Project is to achieve technical, commercial, regulatory and permitting certainty to the degree necessary to support approval for subsequent Project phases [REDACTED]

The following key milestones will be completed by the end of the Project Definition phase:

- Recipient completes Front End Engineering and Design.
- San Joaquin Valley Air Pollution Control District (SJVAPCD) completes emission modeling, New Source Review (NSR) and provides Determination of Compliance to the CEC.
- Project receives Prevention of Significant Deterioration (PSD) Permit from EPA.
- The CO₂ offtaker receives permits and approvals required for CO₂ EOR and sequestration.
- Project receives Decision on Certification from the California Energy Commission (CEC).
- Project receives California Public Utilities Commission (CPUC) approval of a power sales (or hydrogen sales) contract.
- Recipient receives Record of Decision (ROD) from DOE.

[REDACTED]

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During the Design and Construction Phase (Phase II), the Project will complete the following key milestones:

■ [REDACTED]

- Complete all technical design work
- Procure all equipment and material required for construction
- Complete construction of all facilities
- Commission all facilities
- Start up all facilities
- Transition to Operations

[REDACTED]

During the Demonstration Phase, staff working under the direction of the Recipient's General Manager will operate the facilities and perform testing to demonstrate plant performance. Specifically, the Recipient will complete the following key milestones:

- Perform testing required to demonstrate plant output, thermal efficiency, specific CO₂ emissions on a pounds/MW-hr basis and provide assurance of CO₂ sequestration to DOE.

C. TASKS TO BE PERFORMED

Tasks required to achieve the Project objectives are described below. Tasks are presented by Project phase.

PHASE I –Project Definition

Task 1.1 – Project Management

Subtask 1.1.1 – Planning, Supervision and Reporting

The Recipient's Project Management Team (PMT) will employ earned value management techniques meeting industry standards for tracking completion of work, keeping activities on schedule, and controlling costs to remain within the budget. Activities performed under this task will be used to provide oversight and control throughout the Phase I. The PMT will implement and manage the Project and report on activities in accordance with the approved Project Management Plan (PMP). The PMP will be updated if: Project management policies and procedures are changed, if rebaselining is required, if significant changes in scope, methods or approaches are required, or as otherwise required to ensure that the PMP is the appropriate governing plan for the work required to accomplish the Project objectives.

The PMP and updates submitted in subsequent phases will be subject to DOE approval. The PMP will be the critical document that integrates how: (a) work is executed to accomplish the Project objectives; (b) Project risks are considered; (c) the Project technical scope, cost and schedule are managed; (d) Project performance is monitored and controlled; and, (e) Project information is communicated within the Integrated Project Team (IPT) (which includes the DOE)