U.S. DEPARTMENT OF STATE
AWARD/MODIFICATION OF INTERAGENCY ACQUISITION AGREEMENT

1. AGREEMENT NUMBER
a. DOS No. S-OES-08-IAA-0018
b. Other Agency:

☐ MODIFICATION NUMBER

2. NAME AND ADDRESS OF REQUESTING AGENCY
U. S. Department of State
OES/EGC; Room 2480
2201 C Street, NW
Washington, DC 20520
DUNS Number: 128-48-8819

3. NAME AND ADDRESS OF SERVICING AGENCY
Lawrence Berkeley National Laboratory
U.S. Department of Energy
Sponsored Projects Office
One Cyclotron Road; Bld. 90R2000
Berkeley, CA 94720
DUNS Number: 078-576-738

4. NAME AND TELEPHONE NUMBER OF REQUESTING AGENCY POINT OF CONTACT
Boots E. Poliquin, Esq., 202-647-6896

5. NAME AND TELEPHONE NUMBER OF SERVICING AGENCY
Lynn K. Price, 510-486-5184

6. DEPARTMENT OF STATE PAYMENT OFFICE, BILLING ADDRESS, AND NAME/TELEPHONE NUMBER OF POINT OF CONTACT
Budget Analyst
OES/EX-FMD
Rm. 2880 HST Building
Washington, DC 20520
Tel: 202-647-3623
Send original and ___2___ copies of all invoices

7. FUNDING OBLIGATIONS
a. Previous Total: $-0-_____
b. Amount of this Action: $1,897,175_____
c. Total Amount: $1,897,175_____

8. ACCOUNTING AND APPROPRIATION DATA
197278-103715-1008-8M8010-021000-2403-4122

9. PROJECT TITLE, DESCRIPTION OF WORK TO BE PERFORMED, AND DELIVERABLES
The Servicing Agency will use funds transferred by means of this Agreement to support the activities described in the Statement of Work (SOW), Attachment A. (These costs, which may also include travel and per diem expenses incurred in furtherance of the program purpose, are detailed in the budget, Attachment B).

X See attached Statement of Work.

10. STATUTORY AUTHORIZATION
X Other: Sec. 632(b) of FAA of 1961

11. PERFORMANCE PERIOD
From: October 1, 2008 To: September 30, 2011

12. METHOD OF PAYMENT
☐ SF-1080
☐ SF-1081
X OPAC (Treasury On-Line Payment and Collection System)
Agency Location Code (ALC): 19-00-000-1_____
☐ Other: _____

13. TIMING OF PAYMENT
X Advance Billing
☐ Progress Billing (Work Completed)

14. LIMITATIONS: Department of State (DOS) funds obligated on this agreement may not be exceeded. Any DOS funds not utilized for the performance of the work described In this agreement shall be returned to DOS. This agreement may be terminated by either party by providing written notice to the other party _____30_____ days prior to the intended termination date.

15. REQUESTING AGENCY APPROVAL
(Signature)

16. SERVICING AGENCY APPROVAL
(Signature)

15A. NAME AND TITLE
Sandy M. Robinson
Executive Director

16A. NAME AND TITLE
Charles W. Marshall
CONTRACTING OFFICER

15B. OFFICE
OES-DRL/EX

15C. DATE

16B. OFFICE
Lawrence Berkeley National Laboratory

16C. DATE
9/15/08

INTERAGENCY ACQUISITION AGREEMENT
S-OES-08-IAA-0018

Between the

U.S. DEPARTMENT OF STATE
(Bureau of Oceans, Environment and Science)

and the

LAWRENCE BERKELEY NATIONAL LABORATORY

for the

U.S. DEPARTMENT OF ENERGY

I. AUTHORITY AND PURPOSE

A. Authorities

This Economic Support Fund ("ESF") program activity is undertaken pursuant to the authority of Section 531(a) of the Foreign Assistance Act, 22 U.S.C. 2346(a), which provides that "the President is authorized to furnish assistance to countries and organizations, on such terms and conditions as he may determine, in order to promote economic or political stability." Funding for this ESF program is provided in Title II (Bilateral Economic Assistance) of the Foreign Operations, Export Financing, and Related Programs Appropriations Act for the fiscal year ending September 30, 2006 (P.L. 102) as carried forward by the Revised Continuing Appropriations Resolution, 2007 (P.L. 110-5).

This Agreement is undertaken pursuant to the authority of Section 632(b) of the Foreign Assistance Act.

II. TRANSFER AND OBLIGATION OF FUNDS

A. Funding in the amount of **$1,897,175** is herein obligated by this Agreement for the purpose of carrying out the activities in the statement of work (SOW), Attachment A, and in accordance with the budgets agreed to by both Parties and presented in Attachment B.
B. Costs incurred by LBNL in performing under this Agreement shall be reimbursed by the DOS up to the amount obligated.
C. To expedite reimbursement, LBNL should use the Treasury On-Line Payment and Collection System (OPAC). The DOS's Agency Locater Code Number is: 19-00-000-1. The Department of State's DUNS Number is: 128-48-8819. Department of State BETC is DISB.

D. DOS/OES fiscal data is: **197278-103715-1008-8M8010-021000-2403-4122**
E. LBNL account information is outlined below:

DUNS Number: 078-576-738
BETC Code: COLL

III. BACKGROUND

Under this Agreement, the Department of State (DOS), through the Bureau of Oceans, Environment and Science (OES), will provide to the Lawrence Berkeley National Laboratory (LBNL) funds to support the following cooperative activity in accordance with the budget agreed to by both Parties to this Agreement and presented in Attachment B.

This cooperative activity is:

Title of Activity	Amount Funded
Comprehensive Program to Improve Energy Efficiency, Increase the Use of Alternative Fuels and Raw Materials, and Reduce Emissions in the Cement Sector in China	$1,897,175
Total	**$1,897,175**

IV. SPECIAL STATUTORY AUTHORITIES

2. Type of Funds: This Agreement provides no more than $1,897,175 in Economic Support Funds (ESF).

V. EFFECTIVE DATE AND TERM OF THE AGREEMENT

This Agreement becomes effective upon the date of signature of both Parties and (unless previously terminated pursuant to Section VII) remains effective through **September 30, 2011**. This agreement permits expenditures of funds through grants, sub-grants, contracts, or subcontracts for purposes set forth in the Statement of Work, Attachment A.

The funding level of this IAA is **$1,897,175**. No provision of this Agreement is meant to imply future year funding. Both parties understand that implementation of the activities may take more than one fiscal year, however, the DOS commits to fund only **$1,897,175** for all of the activities cited herein.

VI. TERMINATION

Either party may terminate this Agreement before completion of the project, **September 30, 2011** by providing thirty (30) days written notice to the other party. Upon

termination or expiration of this Agreement, any funds not expended or sub-obligated by grant or contract for allowable expenses shall be refunded to DOS. Inactivity or lack of performance or progress under the Agreement without the consent of the DOS/OES may also be grounds for termination. If DOS cancels the order, LBNL is authorized to collect costs incurred prior to the cancellation of the order plus any termination costs.

VII. REPORTING REQUIREMENTS

The recipient agency is requested to submit financial reports every November 30, and performance reports on a quarterly basis, following the end of each calendar year quarter (March 31st, June 30th, September 30th and December 31st). Performance reports do not have a required form or format. OES encourages LBNL to compile performance reports according to the objectives/goals of the project, as outlined in the statement of work in Attachment A. For each objective/goal, reports should include:

- significant activities of the period and how activities reflect progress toward achieving goals;
- evaluation of progress on goals/objectives with quantitative and qualitative data, as appropriate;
- any problems/challenges in implementing the program and a corrective action plan;
- evaluation of accomplishments with quantifiable information on goals and objectives to date as available;
- an update on expenditures during the quarter;
- supporting documentation or products related to project activities (such as articles, meeting list and agenda, manuals, etc.).

Quarterly performance reports should also reflect the servicing agency's continued focus on measuring the project's impact on the overarching goals, problems or opportunities the project seeks to address. Assessment of the overall project impact, as appropriate, should be included in each quarterly progress report.

Two (2) copies of all reports shall be mailed or electronically submitted to the address below.

Ms. Pearl A. Paugh
Program Analyst
OES/EX-CPU, Room 2880
Department of State, Harry S. Truman Building
2201 C Street, N.W.
Washington, DC 20520-7818
Email: paughpa@state.gov

OES reserves the right to request any additional programmatic and/or financial program information during the grant period.

Attachment A

Statement of Work

Project Goal

The goal of this project is to develop, implement, and disseminate a comprehensive program to improve energy efficiency, increase the use of alternative fuels and raw materials, and reduce emissions in the cement sector in China. This will be accomplished by focusing on China's 12 largest cement plants, then expanding the project to another 30 large cement plants. The selected 42 plants produce over 30% of total Chinese cement output. The project will then be expanded to include other cement plants owned by the companies that own the 42 target cement plants and finally the results of the project will be disseminated to the remainder of China's cement industry.

The project goal will be accomplished through capacity building in the selected 42 plants using energy and GHG emissions assessments following international best practices and tools, identification and implementation of energy-efficiency technologies and measures, demonstration of the use of alternative fuels and raw materials, and measuring and tracking GHG and other pollutant emissions. These activities will demonstrate the significance of improving energy and resources efficiency and reducing GHG emissions and will assist in developing relevant guidelines and standards. The achievements of this project will be spread to the entire cement sector of China through dissemination, replication, and promotion, generating not only local and regional benefits but global benefits as well.

Project Objectives

The objectives of this project are to:

(1) Enhance the capacity of 42 key representative cement companies to improve their energy efficiency and reduce emissions;

(2) Demonstrate the substantial environmental and economic benefits for co-processing of alternative fuels and raw materials from other industries in selected cement plants; and

(3) Document and disseminate the results of this project throughout China to enhance the capacity building of the entire Chinese cement industry.

Proposed Activities

The following five activities will achieve the above-mentioned goal and objectives:

(1) Capacity Building – modifying and applying international energy efficiency and GHG emissions measurement tools combined with on-site training and demonstration energy efficiency and GHG emission management for cement manufacturing;

(2) On-Site Energy and GHG Emissions Assessments and Database Development - conducting on-site energy and GHG emissions assessments and measurements of representative cement plants to establish an energy efficiency and emissions database;

(3) Benchmarking and Potential Assessment – interpreting energy and emissions data and assessing the potential of the representative cement plants to improve their energy efficiency and manage their GHG emissions through the use of benchmarking and GHG quantification tools;

(4) Plant Demonstration on Alternative Fuels and Raw Materials and Guideline Formulation - developing an environmentally-friendly and energy-efficient system design to demonstrate the benefits for co-processing of alternative fuels and raw materials from other industries in selected cement companies, including developing relevant technical guidelines and standards for co-processing with cement production; and

(5) Documentation and Dissemination – documenting and disseminating the results of this project beyond the representative cement plants to other plants owned by their cement companies and to other cement plants throughout China to enhance the capacity building of the entire Chinese cement industry through a self-sustained training program, to establish an integrated database using worldwide recognized methodologies and tools for Chinese cement industry on energy efficiency and emissions, and to further promote the increased use of alternative fuels and raw materials in the Chinese cement sector for saving fossil fuels and raw materials and reducing GHG emissions.

Expected Results

This project is expected to reduce energy use and energy-related GHG emissions by 10-15% following implementation of identified measures. Additional process-based CO_2 emissions will also be reduced. Related cost savings are estimated to be $35-$50 million per year. Additional savings will be realized from reduced coal use due to co-processing in some plants. About 300 people will receive training in energy auditing, benchmarking, and GHG inventories. Four new guidelines for co-processing will be developed.

APP Performance Measures and Indicators

Indicator 7: Number of Improved Laws/Policies/Regulation/Agreements Related to Pollution and Urban Environment Drafted with USG Assistance

Metric and Expected Impact: This project is targeted to influence energy efficiency Laws, Policies, and Regulations governing injection of CO_2 in geologic formation. It is anticipated that it will potentially have impact on any future CCS ruling.

Indicator 8: Number of Technologies and Methodologies Developed or Tested for Broad Dissemination

Metric and Expected Impact: Because of the central role having guidelines in place to assure responsible CO_2 injection, this effort will be crucial in the deployment and testing of CCS technology.

Attachment B – Detailed Program Budget

Table 7: Budget, Separated by Activity and by Partner ($K)

Task	LBNL	NRDC	Tsinghua	Local Partners	Alliance	Total
1. Workshops	90	30	10	10		140
2.0 Tool Development and Testing						
2.1 Computer selection	10		10			*20*
2.2 Computer code adaptation	60		70			*130*
2.3 Shanghai pilot project21		10				*10*
2.4 RESNET Accreditation	20	40	20			*80*
Subotal						**240**
3. Data Compilation and Analysis						
3.1 General survey of building energy consumption			20	75		**95**
3.2 Detailed survey of typical buildings			20	75		**95**
3.3 Data analysis	40		40			**80**
3.4 Simulations	40		25			**65**
3.5 Sensitivity analysis			25			**25**
3.6 Benchmarking			20			**20**
Subtotal						380
4. Policy Development						
4.1 Incentives		100				**100**
4.2 Energy retrofit policy	100		20	20		**140**
4.3 Standards for energy use in construction materials	100		60	20		**180**
Subtotal						420
5. Monitoring and Verification						
5.1 Capacity building for Shanghai and Wuhan	20	30				**50**
5.2 Pilot projects in Shanghai and Wuhan		10		30		**40**
Subtotal						90

6. Training						
6.1 Preparation of training material		30	10		150	**190**
6.2 Training workshops	20	30			50	**100**
Subtotal						290
7. Outreach						
7.1. Workshops*						
7.2 Dissemination of Project Results	**40**	**20**	**20**	**20**		100
8.0 Management	**200**					200
9.0 Procurement Burden	**125**					125
Total	**865**	**300**	**370**	**250**	**200**	1985

Timeline of Activities

Project Activities	Quarter from the start date											
	FY08	FY09				FY10				FY 11		
	4	1	2	3	4	1	2	3	4	1	2	3
Capacity Building												
1. Tool Modification												
2. Training												
On-Site Energy and Emissions Monitoring + Database Establishment												
1. Baseline Measurements												
2. Savings Measurements												
3. Database Establishment												
Benchmarking and Potential Assessments												
1. BEST-Cement for China												
2. CO2 Quantification Tool												
Plant Demonstration on AFR and Guideline Formulation												
1. Development of a Sewage Sludge Use Decision-Making Tool												
2. Demonstration of Co-Processing in 6 Plants in China												
3. Formulation of Relevant Technical Guidelines and Standards												
Documentation and Dissemination												
1. Documentation of Project Tools, Activities, and Results												
2. Dissemination of Project Tools, Activities, and Results												

Attachment D

LBNL Indicators and Deliverables

	Indicator	42 Targeted Cement Plants – 30% Chinese Cement Production	Further Spread to 50% Chinese Cement Production	Assumptions
1	Quantity of GHG Emissions Reduced or Sequestered as a Result of USG Assistance (MtCO2eq)	Estimated 10-15% reduction in MtCO2/year per plant	Estimated 10-15% reduction in MtCO2/year per plant	Reduction in energy-related and process-based emissions following implementation of measures
2	Dollars Saved from Prevention, Mitigation or Reduction of Pollution, Including GHGs, as a Result of USG Assistance	~$35 million per year for energy savings, additional $$ savings for co-processing (see below)	~$50 million per year for energy savings, additional $$ savings for co-processing (see below)	After investment is repaid; electricity price 0.5RMB/kWh, coal price 500 RMB per tonne raw coal
3	Energy and Materials Savings due to Improved Practices as a Percentage of Overall Country's Consumption	10% cement industry energy savings	15% cement industry energy savings	Cement is ~15% of Chinese energy consumption
5	Number of People Receiving USG Supported Training in Global Climate Change Including the FCCC, GHG Inventories, Mitigation, and Adaptation Analysis	300 for in-house and field training	1500	Training in energy auditing, benchmarking, and GHG emissions inventory and management
7	Number of Improved Laws/Policies/Regulation/Agreements Related to Pollution and Urban Environment Drafted With USG Assistance	4		Guidelines formulated as a result of co-processing demonstration
8	Number of Technologies and Methodologies Developed or Tested for Broad Dissemination	2 for energy efficiency performance of the targeted plants	2 for energy efficiency performance of the entire industry	Databases developed as a result of on-site audits

This project is expected to reduce energy use and energy-related GHG emissions by 10-15% following implementation of identified measures. Additional process-based CO2 emissions will also be reduced. Related cost savings are estimated to be $35-$50 million per year. Additional savings will be realized from reduced coal use due to co-processing in some plants. About 300 people will receive training in energy auditing, benchmarking, and GHG inventories. Four new guidelines for co-processing will be developed.

At the completion of this project, results will be measured through a variety of indicators to understand the impact of the various activities undertaken. Current baseline and future savings data on energy use and emissions from 42 cement plants will be collected. The expected impact from this project will be calculated at two levels: 1) the 42 targeted cement plants that represent 30% of Chinese cement production, and 2) spread to 50% of the Chinese cement production. Table 3 shows the indicators that will be tracked in this project, as well as the estimated savings for selected indicators at the completion of this project.