

CONTRACT REQUESTS FORM (CRF)

CEC-94 (Revised 5/11)

CALIFORNIA ENERGY COMMISSION


 New Contract _____ Amendment to Existing Contract: 500-05-030 Amendment Number: 3

Division	Contract Manager:	MS-	Phone	CM Training Date
Energy Research and Development	Bryan Lee		916-327-1414	10/8/2009

Contractor's Legal Name	Federal ID Number
Electric Power Research Institute, Inc.	23-7175375

Title of Project
West Coast Regional Carbon Sequestration Partnership, Phase II

Term	Start Date	End Date	Amount
New/Original Contract	7/14/2006	6/30/2009	\$ 3,654,915

Line up the Amendment information as best as possible within the following table.

Amendment #	End Date (mm/dd/yy)	Amount
Amendment 1	6/30/2010	\$1,272,706
Amendment 2	12/15/2011	\$2,877,453
Amendment 3	12/15/2012	\$0

Business Meeting Information			
Proposed Business Meeting Date	11/2/2011	<input checked="" type="checkbox"/> Consent	<input type="checkbox"/> Discussion
Business Meeting Presenter	Bryan Lee	Time Needed:	5 minutes

Agenda Item Subject and Description
Possible approval of Amendment 3 to Contract 500-05-030 with Electric Power Research Institute (EPRI) for a no-cost time extension of 12 months ending 12/15/2012 to continue work for WESTCARB Phase III. This project will test the geologic Carbon Dioxide storage potential of the deep saline formations of the Colorado Plateau, an area of significant interest because it is home to large coal-fired power plants that supply a significant portion of California's imported electricity. Contact: Bryan Lee

Business Meeting approval is not required for the following types of contracts: *Executive Director's signature is required in all cases.*

<input type="checkbox"/> Contracts less than \$10k (<i>Policy Committee's signature is also required</i>)
<input type="checkbox"/> Amendment for a no-cost time extension. Must be first extension, less than one year and original contract less than \$100k.
<input type="checkbox"/> Contracts less than \$25k for Expert Witness in Energy Facility licensing cases and amendments.

Purpose of Contract or Purpose of Amendment, if applicable
To test the geologic CO2 storage potential of the deep saline formations of the Colorado Plateau, an area of significant interest because it is home to large coal-fired power plants that supply a significant portion of California's imported electricity. As well as produce, methodologies, plans, data, technical papers, and reports that facilitate informed decisions by policymakers, communities, and businesses on how to productively invest in CCS technology development and deployment to achieve climate change mitigation objectives.

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California Environmental Quality Act (CEQA) Compliance

1. Is Contract considered a "Project" under CEQA?
 Yes: skip to question 2 No: complete the following (PRC 21065 and 14 CCR 15378):
 Explain why contract is not considered a "Project":
 Contract will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because .

2. If contract is considered a "Project" under CEQA:
 a) Contract **IS** exempt. (Draft NOE required)
 Statutory Exemption. List PRC and/or CCR section number: PRC 21080(b)(14); 14 CCR 15277
 Categorical Exemption. List CCR section number: _____
 Common Sense Exemption. 14 CCR 15061 (b) (3)
 Explain reason why contract is exempt under the above section:
 Projects or portions of projects located in another state that will be subject to NEPA or state environmental review consistent with NEPA.
 b) Contract **IS NOT** exempt. The Contract Manager needs to consult with the Energy Commission attorney assigned to their division and the Siting Office regarding a possible Initial Study.

Budgets Information								
Contract Amount Funded		Breakdown by FY			Funding Sources			
Funding Source	Amount	FY	Amount	Approved?	Funding Source	FY	Budget List No.	Amount
ARFVTF	\$		\$					\$
ECAA	\$		\$					\$
State- ERPA	\$		\$					\$
Federal	\$		\$					\$
PIER - E	\$		\$					\$
PIER - NG	\$		\$					\$
Reimbursement	\$		\$					\$
Other	\$		\$					\$
TOTAL:	\$0	TOTAL:	\$0		TOTAL:			\$0
Reimbursement Contract #:					Federal Agreement			

Contractor's Administrator/ Officer		Contractor's Project Manager	
Name:	Wilfred Dere	Name:	Dick Rhudy
Address:	3420 Hillview Ave	Address:	3412 Hillview Ave.
City, State, Zip:	Palo Alto, CA 94304-1355	City, State, Zip:	Palo Alto, CA 94304-1395
Phone/ Fax:	650-855-2288 / 650-855-8931	Phone/ Fax:	650-855-2421 / 650-855-8759
E-Mail:	Wdere@epri.com	E-Mail:	rrhudy@epri.com

Contractor Is

Private Company (including non-profits)
 CA State Agency (including UC and CSU)
 Government Entity (i.e. city, county, federal government, air/water/school district, joint power authorities, university from another state)

Selection Process Used

Solicitation Select Type Solicitation #: _____ # of Bids: _____ Low Bid? No Yes
 Non Competitive Bid (Attach CEC 96)
 Exempt Select Exemption

Civil Service Considerations

Not Applicable (Contract is with a CA State Entity or a membership/co-sponsorship)
 Public Resources Code 25620, et seq., authorizes the Commission to contract for the subject work. (PIER)

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- The Services Contracted:
 - are not available within civil service
 - cannot be performed satisfactorily by civil service employees
 - are of such a highly specialized or technical nature that the expert knowledge, expertise, and ability are not available through the civil service system.
- The Services are of such an:
 - urgent
 - temporary, or
 - occasional nature
 that the delay to implement under civil service would frustrate their very purpose.

Justification:

EPRI is unique because of its current work as a partner specifically identified in the Department of Energy grant to the Energy Commission for the WESTCARB project.

Payment Method

- A. Reimbursement in arrears based on:
 - Itemized Monthly
 - Itemized Quarterly
 - Flat Rate
 - One-time
- B. Advanced Payment
- C. Other, explain:

Retention

- 1. Is contract subject to retention? No Yes
- If Yes, Do you plan to release retention prior to contract termination? No Yes

Justification of Rates

The contract resulted from a competitively scored federal RFP. This federal award is a continuation of the WESTCARB Phase I and EPRI was a part of Phase I.

Disabled Veteran Business Enterprise Program (DVBE)

- 1. Not Applicable
- 2. Meets DVBE Requirements DVBE Amount:\$ _____ DVBE %: _____
 - Contractor is Certified DVBE
 - Contractor is Subcontracting with a DVBE: _____
- 3. Requesting DVBE Exemption (attach CEC 95)

Is Contractor a certified Small Business (SB), Micro Business (MB) or DVBE?

- No Yes
- If yes, check appropriate box: SB MB DVBE

Is Contractor subcontracting any services?

	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
If yes, give company name and identify if they are a Small Business (SB), Micro Business (MB) and/or DVBE:		
Sandia Technologies	<input checked="" type="checkbox"/> No	<input type="checkbox"/> SB <input type="checkbox"/> MB <input type="checkbox"/> DVBE
Nexant, Inc.	<input checked="" type="checkbox"/> No	<input type="checkbox"/> SB <input type="checkbox"/> MB <input type="checkbox"/> DVBE
Massachusetts Institute of Technology	<input checked="" type="checkbox"/> No	<input type="checkbox"/> SB <input type="checkbox"/> MB <input type="checkbox"/> DVBE
	<input type="checkbox"/> No	<input type="checkbox"/> SB <input type="checkbox"/> MB <input type="checkbox"/> DVBE
	<input type="checkbox"/> No	<input type="checkbox"/> SB <input type="checkbox"/> MB <input type="checkbox"/> DVBE
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	<input type="checkbox"/> No	<input type="checkbox"/> SB <input type="checkbox"/> MB <input type="checkbox"/> DVBE

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Miscellaneous Contract Information

- 1. Will there be Work Authorizations? No Yes
- 2. Is the Contractor providing confidential information? No Yes
- 3. Is the contractor going to purchase equipment? No Yes
- 4. Check frequency of progress reports
 Monthly Quarterly _____
- 5. Will a final report be required? No Yes
- 6. Is the contract, with amendments, longer than a year? If yes, why? No Yes

The Department of General Services has agreed to give the Commission blanket authority to execute multi-year contracts to support the Commission's RD&D Programs.

The following items should be attached to this CRF

- 1. Scope of Work, Attach as Exhibit A. N/A Attached
- 2. Budget Detail, Attach as Exhibit B. N/A Attached
- 3. CEC 96, NCB Request N/A Attached
- 4. CEC 30, Survey of Prior Work N/A Attached
- 5. CEC 95, DVBE Exemption Request N/A Attached
- 6. Draft CEQA Notice of Exemption (NOE) N/A Attached
- 7. Resumes N/A Attached
- 8. CEC 105, Questionnaire for Identifying Conflicts Attached
- 9. CEC 106, IT Component Reporting Form Attached

 Contract Manager Date Office Manager Date Deputy Director Date

The following signatures are only required when contract approval is delegated to the Executive Office and not approved at a Business Meeting. See Business Meeting Information Section.

 Presiding Policy Committee Date Associate Policy Committee Date Executive Director Date

**Proposed Amendment between California Energy Commission
and
Electric Power Research Institute, Inc.**

Title: West Coast Regional Carbon Sequestration Partnership, Phase II
Amount: \$0.00
Term: 12 months
Contact: Bryan Lee
Committee Meeting: 9/15/2011

Recommendation

Approval of Amendment 3 to Contract 500-05-030 with Electric Power Research Institute (EPRI) for a no-cost time extension of 12 months ending December 15, 2012, to continue work for the West Coast Regional Carbon Sequestration Partnership (WESTCARB) Phase III. This project is completely federally funded. The time extension is required for EPRI to complete well site selection and drilling tasks. Staff recommends placing this item on the consent calendar of the Commission Business Meeting.

Issue

Carbon sequestration, also known as carbon capture and storage (CCS), could play a critical role in mitigating the impact of fossil-fuel-based electricity generation on greenhouse gas buildup in the atmosphere and associated climate change. The PIER Program is conducting research to define least-cost greenhouse gas mitigation strategies appropriate for California, including an assessment of the potential for carbon sequestration. In parallel, the Department of Energy (DOE) continues to support the WESTCARB public-private research project to conduct pilot-scale geologic CO₂ storage tests in various locations within the West Coast region to better assess the CO₂ storage capability of the region's deep geologic formations for future commercial-scale long-term storage projects.

Since 2003, the PIER program has been successful in several rounds of proposals to DOE to continue leading WESTCARB, which is identifying and validating carbon sequestration opportunities in California; the neighboring states of Alaska, Arizona, Hawaii, Nevada, Oregon, Washington; and the Canadian province of British Columbia. The 12 month no-cost time extension is required for EPRI to complete well site selection and drilling tasks located in Arizona.

Background

The Arizona Utilities CO₂ Storage Pilot was conceived as part of the WESTCARB Phase II effort to test the geologic CO₂ storage potential of the deep saline formations of the Colorado Plateau, an area of significant interest to California because it is home to large coal-fired power plants that supply a significant portion of California's imported electricity.

Five candidate project sites were evaluated, and a site on Arizona Public Service Company (APS) land near the Cholla power plant was chosen. The project attracted the participation of five industry partners who provided match funding through EPRI. The WESTCARB team (including EPRI and its industry partners) conducted public outreach and successfully obtained permits for the project from the Arizona Oil and Gas Conservation Commission, the Arizona Department of Environmental Quality, and United States Environmental Protection Agency (EPA) Region 9.

In August 2009, a well was drilled for the purpose of injecting 2,000 tons of CO₂ into a saline formation at a depth of approximately 3,500 feet. Upon completion of drilling, the project team conducted a "drill stem test," a standard procedure to roughly ascertain the injectivity of the targeted rock formation. In contrast to other area wells, the test conducted on the target formation for the Cholla well indicated

insufficient rock permeability for CO₂ injection. Further analysis of sidewall rock cores and downhole data confirmed this finding, and the well was subsequently plugged and abandoned in accordance with state and federal permitting requirements.

Despite the localized finding of low rock permeability at the Cholla site, estimates of the overall CO₂ storage potential in the Colorado Plateau remain high, but essentially unexplored; therefore, further research is warranted to verify that rock formations in other areas of Arizona are suitable for safe storage of CO₂. DOE, EPRI, and its industry partners are interested in drilling a new well and conducting a CO₂ storage capability assessment at a second location in Arizona. A new drilling location will be selected in northern or eastern Arizona based on site attributes, including technical merit, site access, public acceptance and landowner interest in hosting the project.

WESTCARB representatives, including Energy Commission project managers, met with DOE project managers, to confirm their interest in the proposed extension of the Arizona Utilities CO₂ Storage Pilot, and their ability to fund drilling and casing of a new well to a depth of 7,000 feet and associated well logging, rock coring, and a water injection test.

EPRI was originally part of the Energy Commission Phase I proposal and subsequently, continued in the Phase II proposal submitted to DOE for the WESTCARB Regional Carbon Sequestration Partnership in 2005. EPRI was selected as the partner on the proposal because of its technical ability to manage complex, large-scale research projects, and to secure the necessary industry cost-share funding required by DOE to drill the Cholla well. EPRI continues to provide over \$1,000,000 in industry cost-share for the current scope of work, directly associated with this request for no-cost extension.

Proposed Work

The proposed project consists of characterizing the geologic CO₂ storage suitability of northern or eastern Arizona by drilling and casing a 7,000-foot well, along with logging, coring, and water injection. EPRI's role in this project will consist of managing field operations, including work by drilling and well logging subcontractors, and providing support for regulatory and public outreach efforts.

EPRI and its subcontractors will arrange for selection of the well site, public outreach, and design and permitting of the well. Once permitted, a drill rig will be used to install a boring to 7,000 feet, rock core and geophysical logs will be collected at various target depths during drilling, and a perforated well casing will be cemented in place to provide access to the rock for fluid sampling and testing purposes. Hydraulic tests performed on the completed well will be used to determine the suitability of the rock formation for CO₂ storage and various fluid and rock samples will be collected and sent to Lawrence Berkeley National Lab for further site characterization under a separate DOE-National Lab agreement. The well will be plugged and abandoned at the end of the project in accordance with state and federal requirements, and the surface restored to conditions required by the site host.

Lengthy negotiations with the Hopi tribe in 2010 failed to produce a site access agreement that would have allowed WESTCARB to drill the proposed well on tribal lands under the DOE Phase II Regional Carbon Sequestration Program. The no-cost extension is required to accommodate the schedule delay caused by lengthy negotiations and resulting movement of federal funds from the DOE Phase II program into Phase 3. The DOE Phase II program ends in September 2011, while Phase III ends much later in September 2018. Moving federal funds will allow EPRI to resume site access negotiations with a new land owner in Arizona under Phase III, which was not realistic given the limited time remaining for Phase II.

Justification and Goals

This project "[will] advance energy science or technologies of value to California citizens..." (Public Resources Code 25620.(c)), and is part of a "full range of research, development, and demonstration activities that . . . are not adequately provided for by competitive and regulated markets (Public Resources Code 25620.1.(a)).

This will be accomplished by:

- Augmenting current PIER climate change mitigation research activities and expanding its program to develop additional data on CO₂ sources.
- Enhancing the methodology for determining and costing logical pathways for transporting CO₂ to appropriate geological sinks.
- Evaluating theoretical locations for new power plants considering location-specific CCS costs as well as traditional factors for continental WESTCARB states for the purpose of refining estimates of overall WESTCARB regional costs for CCS.
- Identifying opportunities for regional CCS cost reduction through emerging CO₂ capture technologies.
- Updating and expanding regional carbon supply curves.
- Validating the ability to inject CO₂ and secure storage in the vast saline reservoirs underlying northern Arizona.
- Examining how new plants with CCS would dispatch into the grid depending on where they are sited.