

PMC-EE2a

201002

**U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION**



RECIPIENT: Terrafore, inc.

STATE: CA

PROJECT TITLE : Using Encapsulated Phase Change Material in Thermal Storage for Baseload Concentrating Solar Power Plants

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000104	DE-EE0003589	GFO-10-493	0

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

B3.6 Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

Rational for determination:

Terrafore Inc proposes to use federal funds to research and develop novel encapsulated phase change materials for the use in thermal storage applications. The project will conclude with a demonstration of new encapsulated phase change materials systems for base-load concentrating solar power plants.

Phase 1 of this project will include identification of candidate materials, develop and testing intensified methods, make phase change materials and test with heat transfer fluid, and simulate a scale model design of TES.
Phase 2 will include detailed design of a laboratory prototype, procurement of materials and set up experiments, conducting tests on prototype, evaluation of test data and modifications to prototype, developing tank and heat exchanger models and simulations, and design specs for producing encapsulated PCM at vendor facility.
Phase 3 will include working with vendors and developing a scaled process, procurement of materials and set up experiments, conducting tests on engineered prototype, evaluation of test data and modifications as needed, conducting system trade off simulations for CSP systems, developing detailed model for PCM based system, and program management and reporting.

This project will take place within existing laboratory facilities at Southwest Research Institute and University of California – Riverside in the college of Engineering. Each of the facilities has submitted an R & D questionnaire which thoroughly addresses chemical and safety handling protocols.

This project comprises of conventional research and development to include development of a prototype for demonstration; therefore a CX B3.6 will apply.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

Eugene Brown 7/27/2010

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Kundin Ker
NEPA Compliance Officer

Date: 8/4/2010

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____
Field Office Manager

Date: _____