

PMIC-ND

(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY  
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY  
NEPA DETERMINATION**



RECIPIENT: Sapphire Energy

STATE: CA

**PROJECT TITLE :** Biomass Productivity Ttechnology Advancement Towards a Commercially Viable, Integrated Algal Biomass Production Unit

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000811	DE-EE0006315	GFO-0006315-002	GO6315

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:

<b>A9 Information gathering, analysis, and dissemination</b>	Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
<b>B3.6 Small-scale research and development, laboratory operations, and pilot projects</b>	Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Sapphire Energy (Sapphire) to increase intrinsic algal biomass yield using genetically engineered (GE) and non-GE approaches, improve outdoor cultivation practices, develop harvest and extraction technologies to further reduce costs, and implement process improvements to efficiently integrate the algae-to-oil pipeline. DOE funding would be used for laboratory research and development and outdoor field cultivation and implementation activities.

DOE made a previous NEPA determination (GFO-0006315-001 CXA9 8/27/2013) for process and data validation activities including further defining the technology readiness level of the overall process. This NEPA determination applies to all phases of the award which includes laboratory research and development and computer based activities at six locations and outdoor field testing at one site in New Mexico.

Outdoor field testing would occur at Sapphire Energy's Research and Development Facility located at 9035 Advancement Avenue, Las Cruces, New Mexico. The 22 acre existing facility has a total wet acreage of approximately 2.4 acres and is within the boundaries of the West Mesa Industrial Park and has all applicable permits in place. There would not be any changes to any laboratories, test sites or ponds for the proposed project. The site is a zero water discharge site and all water, with the exception of domestic water discharge, is contained within evaporation ponds on site and would not be discharged into the environment. The outdoor field experimentation of non-GE strains would utilize 12 raceways that are 100 feet long. Smaller scale experimentation would also take place using approximately 36 miniponds. The 100 foot long raceways are approximately 26,500 liters and miniponds are approximately 400 liters.

GE strains would be generated at a lab scale in pond simulators followed by outdoor field testing in miniponds. Prior to outdoor cultivation trials or laboratory research and development, the recipient is required to obtain permission from the Environmental Protection Agency (EPA) via the Toxic Substance Control Act Experimental Release Application (TERA) submission. GE organisms used in performance period one would be contained in an enclosed structure in a laboratory setting. All GE organisms would be transported, handled and disposed of in accordance with necessary permitting, packaging and documentation requirements set forth by the applicable federal agency.

Although genetically engineered strains would be used as part of the work during outdoor field testing at Sapphire Energy's Research and Development Facility, no GMOs would be used as part of the work at NREL. However, as part of the work at NREL non-GE biosafety level 1 (BSL-1) materials would be used. Prior to the start of work at NREL

using BSL-1 materials, an Institutional Biosafety Panel (IBP) Approval Form must be completed and provided to the IBP chairperson at NREL.

Computer and laboratory research development would occur at the following locations:

- Sapphire Energy, Inc.: 9035 Advancement Avenue, Las Cruces, New Mexico 88007
- Sapphire Energy, Inc.: 3115 Merryfield Row, San Diego, California 92121
- National Renewable Energy Lab: 15013 Denver West Parkway, Golden, Colorado 80401
- University of Michigan: H.H. Dow Building, 2300 Hayward St., Ann Arbor, Michigan 48109
- University of Virginia: Charlottesville, Virginia 22904
- Institute for Systems Biology (ISB): 401 Terry Ave. N., Seattle, Washington 98109

Sapphire completed an environmental questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal for all locations. The laboratories and facilities comply with standard safety procedures and all processes and procedures are monitored by appropriate staff. Sapphire Energy is required to obtain permission from the EPA via TERA submission prior to outdoor cultivation trials or laboratory research and development with GE strains and is required to complete and submit an IBP Approval Form prior to work with BSL-1 materials at NREL. Beyond these requirements, all laboratories and facilities have all applicable permits in place, and would not need additional permits for the proposed activities. All handling and disposal of gases, chemicals, wastes and liquid effluents would comply with appropriate regulations. All hazardous materials would be managed and disposed of in accordance with federal, state and local environmental regulations. No resources, including endangered species, floodplains and wetlands, would be impacted by the proposed project.

All work completed at DOE National Laboratories (NREL) may be subject to additional NEPA review by the appropriate DOE NEPA Compliance Officer.

Based on review of the project information and the above analysis, DOE has determined the proposed research and development activities and outdoor field studies would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion A9 "information gathering, analysis and dissemination," and B3.6 "small-scale research and development projects" and is categorically excluded from further NEPA review.

**NEPA PROVISION**

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Insert the following language in the award:

You are required to:  
Prior to outdoor cultivation trials or laboratory research and development involving GE strains, the recipient is required to provide proof of permission from the EPA via TERA submission.

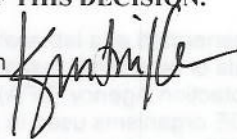
Note to Specialist :

This NEPA determination requires a tailored NEPA provision.  
May Mock 3/25/2014

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature: \_\_\_\_\_

Electronically Signed By: Kristin Kerwin  
NEPA Compliance Officer



Date: 3/26/2014

**FIELD OFFICE MANAGER DETERMINATION**

Field Office Manager review required

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