

PMC-EF2a

(20402)

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



RECIPIENT: Sapphire Energy

STATE: CA

PROJECT TITLE : Optimized Co-Processing of Algal Bio-Crude through a Petroleum Refinery

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000686	DE-EE0006065	GFO-0006065-001	

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:

A9 Information gathering, analysis, and dissemination	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.)
B3.6 Small-scale research and development, laboratory operations, and pilot projects	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.
B5.15 Small-scale renewable energy research and development and pilot projects	Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rational for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Sapphire Energy (Sapphire) to research and develop optimized processes by which algal-based bio-crude (bio-oil) can be used as a "drop-in" fuel (or blended product) at petroleum refineries.

Funding would be used to perform pilot scale and laboratory research and development (R&D) and computer modeling and analysis activities to convert algal bio-crude, produced at Sapphire's existing production facility, into refinery intermediates, such as gasoline, diesel and jet fuel. Pilot scale and laboratory R&D activities include hydrotreating, cat cracking, and coking. Additional activities would include outreach to secure a petroleum refinery partner for future partnerships, performance of a life-cycle assessment (LCA), completion of requirements for ASTM jet fuel certification consistent with CAAFI Fuel Readiness Level 5 and initial testing to generate data to complete EPA Title 40 Part 79 testing to enable the sale of a new non-petroleum derived on-road fuel. Activities would be executed at two existing Sapphire facilities, as well as contracted vendor facilities. Funding would not be used to produce algal bio-crude.

Primary pilot scale and laboratory R&D activities would be performed at two Sapphire facilities: Sapphire's Headquarters and R&D laboratories located at 3115 Merryfield Row, San Diego, California, 92121 and Sapphire's R&D algae-to-energy testing facility located at 9035 Advancement Avenue, West Mesa Industrial Park, Las Cruces, New Mexico 88007.

Approximately 40 barrels (bbls) of algal bio-crude, used in the proposed R&D activities, would be produced at Sapphire's algae-to-energy testing facility in Las Cruces, New Mexico. This facility was partial funded under another DOE award and is a fully permitted R&D facility. Approximately ten shipments, five gallons on average, of algal bio-crude would be shipped to R&D facilities during this project. Sapphire provided the DOE with a description of their shipment process and would comply with all applicable regulations prior to each shipment.

Sapphire completed a R&D questionnaire addressing the protocols in place for facility and laboratory safety, risk management, chemical handling and waste disposal at their two R&D facilities. Sapphire complies with standard laboratory environmental and safety procedures. All handling and disposal of gases, chemicals, effluents and hazardous wastes comply with appropriate regulations. All standard safety equipment is in place at the facilities. The facilities operate under all applicable permits to conduct laboratory research and pilot project operations, and would not need additional permits for the proposed activities. GMOs would not be used during this project.

Based on review of the project information and the above analysis, DOE has determined the proposed pilot scale and laboratory R&D activities to convert the algal bio-crude into refinery intermediates and additional computer modeling and analysis activities would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed activities are consistent with actions contained in DOE categorical exclusions A9 "information gathering, analysis and dissemination," B3.6 "small-scale research and development, laboratory operations and pilot projects," and B5.15 "small scale renewable energy research and development pilot 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.

Note to Specialist :

Obadiah Broughton 1/15/2013

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

[Handwritten Signature]

NEPA Compliance Officer

Date:

1/15/2013

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: