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(1.08.09.13)

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



**RECIPIENT:** Board of Regents, Nevada system of Higher Education on behalf of the Desert Research Institute

**STATE:** NV

**PROJECT TITLE :** Algal-Based Renewable Energy for Nevada

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
	DE-EE0000600	GFO-0000600-001	GO600

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.)
- 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.

**Rationale for determination:**

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the Board of Regents, Nevada system of Higher Education on behalf of the Desert Research Institute (DRI) to research the growth of algae in geothermal waters. DOE funding would be used for research and development activities regarding optimization routines and systems requirements for eventual energy and biomass production systems in Nevada. DOE funding would be used to build a pilot-scale field facility at the Olam Americas Inc. dehydration plant near Fernley, Nevada to demonstrate and conduct preliminary field work targeting the feasibility of growing algae and harvesting lipids in authentic geothermal fluids. DOE funding would also be used for education and workforce development on Nevada university campuses.

Laboratory work would be completed at DRI's Reno Campus, located at 2215 Raggio Pkwy, Reno, Nevada 89512. DRI completed an R&D questionnaire addressing the protocols for laboratory and facility safety, risk management and waste disposal. The laboratory complies with standard safety procedures and all processes and procedures are monitored by Environmental Health and Safety (EHS) staff. The laboratory has all applicable permits in place, and would not need additional permits for the proposed activities. All handling and disposal of gases, chemicals, hazardous wastes and liquid effluents comply with appropriate regulations.

Field based work would occur at the Brady's Hot Spring complex at the Olam Americas Inc. food dehydration plant property located 20 miles northeast of Fernley, adjacent to I-80 at Exit 65 (39.788783 and -119.017896). The area is gravel mixed with graded dirt and the complex is fenced in. The recipient would build a main algae production pond that would be between 30 and 50 ft. long and 5 ft. to 15 ft. wide. Two smaller ponds would be built at the same site ranging in size from 5 ft. to 10 ft. long and 4 ft. to 8 ft. wide. The site has been previously cleared and the ponds would cover a total of .03 to .05 acres.

The proposed ponds would be built above ground using bricks and landscaping block under a liner for the walls and floor of the pond. The ponds would be lined with a plastic pond liner or geotextile. Rebar and t-posts would be inserted into the ground for securing the walls and equipment. The depth of each pond would be 0.5 meters and the capacity would be approximately 24 cubic meters, with 10 cubic meters in the production pond and the remaining volume used for temperature control (i.e. not amended or used as growth medium) using a flow through system.

The algae grown in the inner pond containing nutrient amended water would be derived from naturally occurring algal strains and consortia originally obtained from geothermal surface water at the site or nearby. At the end of culturing, the algal material would be harvested via filtration and/or settled and the resulting water would be reused or returned to the cooling pond on the complex and would be discharged according to the NDEP permit NEV80024 that the facility



currently operates under. The water used for temperature control would be unchanged and would go directly back into the aforementioned cooling pond in a flow through system before being discharged.

Pumps, a paddle wheel and monitoring equipment would need electrical power. The complex is supplied with electrical power, but there are no outlets near the proposed pond location. A new service line would need to be run to provide power to the ponds. To supply power, the installation of solar power system is being considered but has not been defined to the extent that DOE can make a NEPA determination. This determination does not apply to the installation of any solar power system. If a solar system is not installed, power would be run from the existing facility to the ponds. If DRI chooses to install a solar power system they must submit system details to the DOE for further NEPA review.

The U.S. Fish and Wildlife Service (USFWS) Endangered Species Program website lists five species in Lyon County as threatened or endangered: Yellow-billed Cuckoo, Greater sage-grouse, Whitebark pine, Churchill Narrows and the North American wolverine. DOE has determined that the installation of algae production ponds at a previously disturbed site, within a developed area would not adversely affect the endangered species in the area. Other resources, including wetlands, floodplains, and historical or cultural resources would not be adversely affected as they are not known to occur at the proposed location.

Based on review of the project information, DOE has determined the proposed activities would not have a significant individual or cumulative impact to human health or the environment. DOE has determined that the proposed activities are consistent with actions contained in DOE categorical exclusion A9, "information gathering, analysis and dissemination," and B5.15 "small scale renewable energy research and development and pilot projects," and are 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 :

Kelly Daigle 9/10/2013

This NEPA Determination requires a tailored NEPA provision.

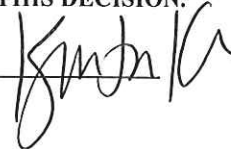
Please include the following statements in the NEPA provision:

This authorization does not include the installation of a solar power system in conjunction with the proposed project. If the Recipient intends to conduct such activities under this Award, such activities are subject to additional NEPA review and are not authorized for federal funding unless and until the Contracting Officer authorizes the expenditure of project funds (includes both federal funds and recipient cost share) for those new activities.

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

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

 Electronically Signed By: Kristin Kerwin  
NEPA Compliance Officer



Date: 9/11/2013

**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 :**