PMC-ND
(1.08.09.13)

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

RECIPIENT: Arizona Board of Regents on behalf of Arizona State University **STATE:** AZ

PROJECT TITLE: Atmospheric CO2 Capture and Membrane Delivery

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001162	DE-EE0007093	GFO-0007093-002	GO7093

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.
B3.11 Outdoor tests and experiments on materials and equipment components	Outdoor tests and experiments for the development, quality assurance, or reliability of materials and equipment (including, but not limited to, weapon system components) under controlled conditions. Covered actions include, but are not limited to, burn tests (such as tests of electric cable fire resistance or the combustion characteristics of fuels), impact tests (such as pneumatic ejector tests using earthen embankments or concrete slabs designated and routinely used for that purpose), or drop, puncture, water-immersion, or thermal tests. Covered actions would not involve source, special nuclear, or byproduct materials, except encapsulated sources manufactured to applicable standards that contain source, special nuclear, or byproduct materials may be used for nondestructive actions such as detector/sensor development and testing and first responder field training.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Arizona State University (ASU) to develop an atmospheric CO2 capture and membrane delivery (ACED) system for boosting the productivity of microalgae growth systems.

The proposed project activities would include design, construction, and lab testing of the four subsystems required for the complete ACED system, fabrication of two complete ACED systems, outdoor demonstrations, performance evaluations, and techno-economic feasibility assessments. All activities associated with this project would be completed at the Mesa and Tempe campuses of ASU. Scoping and subsystem definition (Task 1) would take place in offices on the Tempe, AZ campus. Moisture swing sorption research activities (Tasks 2 and 3) would take place at Interdisciplinary Science and Technology Building 4 on the Tempe campus. Membrane carbonation research activities (Tasks 4, 5, 6, 7, 8, and 9) would be undertaken at the Biodesign Institute on the Tempe campus. Small-scale demonstration of the integrated ACED system (Task 9) would take place in the photobioreactor labs in Interdisciplinary Science and Technology Building 5 and atop the roof of the Engineering Research Center on the Tempe campus. Field demonstration of a complete ACED system in an open raceway pond (Task 10) would be completed at Interdisciplinary Science and Technology Building 3 and the Arizona Center for Algae Technology and Innovation on the Mesa, AZ campus. Facilities in which lab work would occur are purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed project. No change in the use, mission or operation of existing facilities would arise out of this effort. The

facilities have all applicable permits in place, and would not need additional permits for the proposed activities.

Materials used during the course of this project would be limited to natural algal cultures and wastes produced would consist of these cultures and wastewater. These would be collected and disposed of through the City of Mesa municipal wastewater system. No siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

Based on review of the project information and the above analysis, DOE has determined the research, development and testing activities 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 exclusions A9 "information gathering, analysis and dissemination," B3.6 "small-scale research and development, laboratory operations and pilot projects and B3.11 "Outdoor tests and experiments on materials and equipment components" 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 the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Bioenergy Technologies Office
This NEPA determination does not require a tailored NEPA provision.
Review completed by Rebecca McCord 3/4/2016

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 3/10/2016

NEPA Compliance Officer

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: _____ Date: _____

Field Office Manager