

PMC-ND
(1.08.09.13)

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



RECIPIENT: Xylome Corporation

STATE: WI

PROJECT TITLE: Biodiesel and higher value products from stillage fiber

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001916	DE-EE0008497	GFO-0008497-001	GO8497

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Xylome Corporation to create a bioprocess that converts soluble organics and fiber present in thin stillage streams of ethanol plants into lipid suitable for biodiesel.

The proposed project would consist of nine tasks.

In tasks 1-3 Xylome would create yeast strains that secrete cellulases and hemicellulases. This would include evaluating the ability of different sequences to act as secretion signals when heterologously expressed in specific yeast strains, and demonstrating a secreted cellobiohydrolase, endoxylanase, and/or endogluconase activity.

In tasks 4-6 Xylome would mate strains of the most active cellobiohydrolases/endoxylanases/endogluconases, and demonstrate that the mated strains produce more oils than the parent strains. Xylome would also conduct evaluations of the top mated strain.

All activities in tasks 1-6 would occur at the Xylome Corporation laboratories located in Madison, Wisconsin. These activities would include the use of selected strains of yeast genetically engineered for high lipid production. These

yeasts do not pose a risk to health of humans, animals or plants. Work would include the use of up to 1,000 liters of feedstock and produce up to 100 liters of lipid suitable for biodiesel. All work would be bench scale research and production and would be conducted at the Xylome laboratories which are purpose built for the type of work being conducted.

In tasks 7-8 Xylome would work with partners to demonstrate scaled up production at existing pilot plants. Production capacity would initially be scaled up from 1 liter to 300 gallon capacity. Upon successful completion of 300 gallon capacity, production would be scaled up to 30,000 gallon capacity. Work in these tasks would be conducted at ICM Research in St. Joseph, MO and POET R&D LLC in Sioux Falls, SD at facilities that regularly conduct this type of work. This work would include use of yeast strains identified in tasks 1-6 as well as up to 90,000 gallons of feedstock at each site. The feedstock would consist of native thin stillage that is currently being used at the facilities for their other processes. No new sources of feedstock would be required or utilized.

For all work in tasks 1-8, handling of chemicals would be conducted under chemical hoods using protective gloves and clothing. All engineered strains would be disposed of by autoclaving or sterilization. No changes or modifications to facilities or permits for facilities would be required.

Xylome presented a Microbial Commercial Activity Notice (MCAN) to EPA regarding one of the currently utilized strains and received a clearance for potential commercial scale build up. However, as Xylome mates strains in this proposed project they may need to present a new MCAN to EPA for the newly mated strains.

In task 9 Xylome would prepare a commercialization plan based on the results of the scaled up production.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

This NEPA review does not require a tailored NEPA provision
Bio Energy Technology Office
NEPA review completed by Roak Parker 5/15/2019

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



Casey Strickland

NEPA Compliance Officer

Date: 5/17/2019

FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required
- Field Office Manager review required

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

Field Office Manager's Signature: _____

Field Office Manager

Date: _____