PMC-ND

(1.08.09.13)

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

RECIPIENT: AMP Robotics Corporation **STATE:** CO

PROJECT TITLE : Artificial Neural Networks for MSW Contamination Characterization

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002423	DE-EE0009670	GFO-0009670-001	GO9670

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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to AMP Robotics (“AMP”) to develop and test an artificial neural network (ANN) for identifying and assisting the sorting of materials from municipal solid waste (MSW) collections to recover viable feedstock for bioenergy conversion activities.

The award would start with initial verification activities for AMP to demonstrate they have the resources and capability to complete project objectives as presented in the initial award application. These activities would involve establishing a baseline for MSW characteristics and performance of preexisting AMP ANN technology. Characterization of MSW would occur in AMP laboratory facilities (Louisville, CO).

After the completion of initial verification, development of the ANN system would begin. In addition to software development, literature studies would be completed to determine applicable technologies and designs to augment existing AMP ANN technology, which was not originally developed for MSW collections. Necessary equipment would be selected, acquired, and installed at AMP’s existing materials recycling facility (MRF) (Denver, CO) and the Idaho National Laboratory (INL) (Idaho Falls, ID). During this time, Michigan Technological University (MTU) (Houghton, MI) would initiate pyrolysis activities with synthesized feedstock to establish a baseline for subsequent pyrolysis activities using MSW samples collected by AMP.

Award activities would proceed to an iterative process of MSW collection, MSW characterization, refining the ANN system to improve performance, and pyrolysis of MSW samples. This process would culminate with final verification of the ANN system at the AMP MRF, which would simulate realistic industry scenarios using unsorted MSW collections.

MSW would be collected from preexisting waste management entities that handle MSW on a regular basis. Approximately 586 cubic feet of MSW would be collected and processed over the lifetime of the award. Pyrolysis activities would yield a mixture of wax, liquid, and gas products. Approximately 5 kg of each (15 kg total) would be produced over the lifetime of the award.

All facilities at AMP, INL, and MTU are preexisting purpose-built facilities for the type of work to be conducted for this award. While activities would involve the installation of equipment, facility modifications would not be required. Award activities would involve the handling and use of hazardous materials, including MSW, solvents, and products of pyrolysis. All such handling and storage would occur within controlled settings at all locations and would follow existing

policies and procedures for handling and disposal of these materials. Award activities would involve the use of equipment with moving parts (e.g. conveyor) and use of extremely high temperatures (e.g. pyrolysis reactor). Existing corporate, university and government health, safety, and environmental policies and procedures would be followed at all facilities, including: personnel training, proper personal protective equipment (PPE), engineering controls, monitoring, and internal assessments.

Additional award activities would include those of an intellectual, academic, and analytical nature. Such activities would support the evaluation of market viability (i.e. technoeconomic analysis).

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Bioenergy Technologies Office (BETO)
NEPA review completed by Dan Cahill, 4/7/2022.

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: Electronically Signed By: Casey Strickland Date: 4/7/2022
NEPA Compliance Officer

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: _____ Date: _____
Field Office Manager