

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



RECIPIENT: UNIVERSITY OF NORTH DAKOTA

STATE: ND

PROJECT TITLE : Smart Holistic Zero Waste Utilization Paradigm (SHOWUP) for reusing thermosets and effectively recovering fibers via mechanical, thermal, biological, and chemical pathways

Funding Opportunity Announcement Number DE-FOA-0002960	Procurement Instrument Number DE-EE0011014	NEPA Control Number GFO-0011014-001	CID Number
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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 University of North Dakota to develop a smart image-based database and design a smart Transfer Learning-based interface to sort and tag windmill waste into different categories; use heavily damaged blades to produce syngas; recycle thermoset powders by using a mechanical milling process to build functional components, such as 3D-printed non-wind turbine components in a pilot setting; develop a pilot process to recycle green-coded turbine blades using an Ionic Liquid-based recycling process, where the polymers and fibers can be recycled for at least two cycles; validate biological agents as an effective medium for recycling green-coded turbine blades; and evaluate all steps holistically to determine overall greenhouse gas emissions, cumulative energy demand for recycled wind turbine blades, and overall life cycle analysis. The majority of proposed project activities would occur at University of North Dakota, in Grand Forks, ND. The development of the machine learning platform would occur at University of Idaho, in Moscow, ID.

Existing university health and safety policies and procedures would be followed, including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments. Air emissions would result from laboratory research. University of North Dakota would obtain and comply with all required local, state and federal permits and regulations.

All project work would be performed at existing, purpose-built laboratory facilities. No modifications to existing facilities, ground disturbing activities, or changes to the use, mission, or operation of existing facilities would be required. DOE does not anticipate any impacts to resources of concern due to the proposed award activities.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Advanced Materials & Manufacturing Technologies Office (AMMTO)
NEPA review completed by Jason Spencer, 12/27/23

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:  _____ Date: 1/4/2024
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