

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Michigan Technological University**STATE:** MI

**PROJECT TITLE:** The Energizer Bunny: Dual-Use Photovoltaic and Pasture-Raised Rabbit Farms: This project facilitates dual-use of land for agriculture and photovoltaics in a way that is innovative and sustainable by combining zero-emissions PV with pasture-fed rabbits – a

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002064	DE-EE0008990	GFO-0008990-001	GO8990

**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.)
- B3.1 Site characterization and environmental monitoring** Site characterization and environmental monitoring (including, but not limited to, siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools); (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; (d) Aquifer and underground reservoir response testing; (e) Installation and operation of ambient air monitoring equipment; (f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging of boreholes); (g) Sampling and characterization of water effluents, air emissions, or solid waste streams; (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); (i) Sampling of flora or fauna; and (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.
- 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 federal funding to Michigan Technological University (MTU) to investigate the technical, economic, and social impacts of coproducing pasture-fed rabbits and solar

photovoltaic (PV) power: the “rabbit agrovoltaic concept” for dual-use of land in a way that is innovative and sustainable. Specifically, the proposed project would assess the viability of rabbit farming in the same location as PV arrays as an approach to lower costs by generating two revenue streams, reducing the need for mowing, and utilizing existing structures for necessary fencing.

The proposed project would consist of one Budget Period. Technical scope of work would be comprised of desktop-based analytical activities and outreach alongside a short-term field trial of meat rabbit production for the duration of a single breeding cycle (8 months). Project management, economic analyses of the agrivoltaic setup, and preparation of articles for peer-review would be performed by the Recipient on campus in Houghton, MI. MTU personnel would also conduct focus group interviews with rabbit farmers and members of the general public in both MI and TX (the location of the proposed field test, described below).

Subrecipient Sandia National Laboratory would help monitor the impact of rabbits on PV performance during the field test and assist with data analysis and publication efforts. 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.

The agrovoltaic field trial would occur at testing facilities leased to subrecipient Group NIRE (GNIRE) by the the Reese Technology Center (RTC), an established renewable energy business and research park located on a former Air Force Base outside the city limits of Lubbock, TX. The RTC was developed for the type of research being proposed; other previous and ongoing federally funded projects at this site include the installation and operation of utility-scale wind turbines in addition to PV and battery storage systems. One such facility, Building 540 plus associated pre-existing energy management infrastructure and city water supply, would be temporarily utilized to breed and house the rabbits during the course of project work. No physical modifications would be required. GNIRE has all applicable permits and authorizations in place along with existing interconnection and power purchase agreements for the continued use and operation of this facility.

Approximately one-tenth of an acre of adjacent grassy land within RTC’s previously developed 150kW solar facility would be used for growing purposes. The rabbits would be placed underneath a planned ground-mounted 30kW PV array which would provide shade as well as protection from aerial predators while the animals pasture feed. (Buildout of this pilot-scale array is expected to be completed in early 2020 by GNIRE using external funds.) New equipment installations within the scope of the proposed project would be limited to fencing and sensors for the outdoor rabbit runs, assembly of which would utilize the tracker posts of the PV system and would not involve any ground-breaking activities or permanent structures. Outdoor work would occur entirely on previously disturbed land equipped with an existing source of groundwater adequate for small-scale agrovoltaic use. No additional permitting would be required to perform field activities.

A third-party commercial rabbitry company would be contracted to procure and maintain the rabbits in coordination with GNIRE. MTU and GNIRE staff would assist on-site with data collection and system monitoring. The proposed project would follow the Global Animal Partnership (GAP) standards for animal care, to include regular veterinary inspections. Further, all rabbits bred by the project would be raised under certified grassfed/organic feed industry standards. Because no herbicides or pesticides would be used in this environment in accordance with the GAP program, rabbit feces would be applied as fertilizer on the GNIRE field site and would not require special treatment such as composting or boiling. Minimal food or packaging waste would be generated during rabbit farming due to a primary diet of native grasses supplemented by alfalfa hay, but if necessary, any spoiled food would shredded and added to the fertilizer. Any non-organic waste would be recycled or disposed of following existing methods at RTC. Institutional health and safety practices would be followed at all times by personnel engaged in this research.

Upon conclusion of the field trial, the rabbits would be sold to external organizations and professionally harvested. Meat production is beyond the scope of the proposed project. However, the project would verify that harvesting is conducted at a USDA-inspected facility in TX to ensure proper handling of this process.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Whitney Doss Donoghue, 1/16/2020

## 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: \_\_\_\_\_

  
NEPA Compliance Officer

Date: 1/16/2020

## 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: \_\_\_\_\_