

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



RECIPIENT: Buildings Energy Efficiency Frontiers & Innovation Technologies (BENEFIT) – 2024 **STATE:** MO

PROJECT TITLE : Low-Cost, Durable, and Resistant Radiative Cooling Roof for Enhanced Energy Efficiency of Low- and Medium-Income Houses

Notice of Funding Opportunity Number
DE-FOA-0003158

Procurement Instrument Number
DE-EE0011577

NEPA Control Number
GFO-0011577-001

CID Number
GO11577

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.

B3.15 Small-scale indoor research and development projects using nanoscale materials

Siting, construction, modification, operation, and decommissioning of facilities for indoor small-scale research and development projects and small-scale pilot projects using nanoscale materials in accordance with applicable requirements (such as engineering, worker safety, procedural, and administrative regulations) necessary to ensure the containment of any hazardous materials. Construction and modification activities would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible).

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Buildings Energy Efficiency Frontiers and Innovation Technologies (BENEFIT) 2024 to develop, fabricate, and test weather resistant radiative cooling roof materials for low- and medium-income (LMI) households.

The proposed activities for this award are separated into three Budget Periods (BPs) and nine Tasks. This NEPA Determination (ND) would apply Tasks 1, 2, 3, 6, 7, 8, and 9 across all BPs. Such activities must be completed to obtain sufficient information and finalize site selection, which would be needed to conduct a meaningful of the remaining tasks, i.e., Tasks 4 and 5 in all three BPs. Activities in Tasks 1 –3 and 6 – 9 would include prototype development, fabrication, technology transfer planning, market studies, reporting, indoor and outdoor testing, film development, and Diversity, Equity, and Inclusion (DEI) promotion.

Texas A&M University (College Station, TX) would conduct simulations, studies, and provide assistance. The National Renewable Energy Laboratory (Golden, CO) would conduct material reliability testing. RockyTech Ltd (Boulder, CO) would produce roll-to-roll plastic film. The University of Missouri Columbia (Columbia, MO) would fabricate and characterize the radiative cooling film and carry out performance analyses. MIRWEC Coating (Bloomington, IN) would produce roll-to-roll coating and adhesive layers. GAF (Burgaw, NC) would perform testing of experimental roofing material at sites in North Carolina and Texas. LMI houses for prototyping the radiative cooling roof and films would be selected later, guided by Central Missouri Community Actions (Columbia, MO).

Potential exposure to hazardous materials includes solvents, polymer resins, metals, polymer granules, ultraviolet (UV) light, nanoparticles, and fluorescent dyes. UV light would be used only in a test chamber to mitigate any risks. Nanoparticles and fluorescent dyes pose respiration risk and face masks would be required during handling. Environmental Health and Safety (EHS) department instructions would be followed for transport, handling, storage, and disposal of potentially hazardous materials. Existing health, safety, and environmental policies and procedures

would be followed at all sites and facilities, including personnel training and certified personnel to carry out installation.

Outdoor testing taking place at GAF would take place at preexisting test sites on platforms used by GAF for this and other testing activities. No ground disturbing activities would occur.

DOE has considered the scale, duration, and nature of the proposed activities to determine potential impacts on sensitive resources, including those of an ecological, historical, cultural, and socioeconomic nature, and found no effects that would be expected to result from the proposed project activities.

EERE is aware of the November 12, 2024, decision in *Marin Audubon Society v. FAA*, No. 23-1067 (D.C. Cir. Nov. 12, 2024). To the extent that a court may conclude that the Council on Environmental Quality (CEQ) regulations implementing NEPA are not judicially enforceable or binding on this agency action, EERE has nonetheless elected to follow those regulations at 40 C.F.R. Parts 1500-1508, in addition to DOE's procedures/regulations implementing NEPA at 10 C.F.R. Part 1021, to meet the agency's obligations under NEPA, 42 U.S.C. §§ 4321 et seq.

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 conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

Tasks 1 – 3 and 6 – 9 in Budget Periods 1, 2, and 3

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

Tasks 4 and 5 in Budget Periods 1, 2, and 3

Notes:

Building Technologies Office (BTO)
NEPA review completed by Alex Colling on 1/5/2025.

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.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



Electronically
Signed By: Matthew Blevins

Date: 1/13/2025

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: _____

Field Office Manager

Date: _____