

PMC-ND
(1.08.09.13)

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



RECIPIENT:Case Western Reserve University

STATE: OH

PROJECT TITLE : Transforming Ordinary Building into Smart Buildings via Low-Cost, Self-Powering Wireless Sensors & Sensor Networks

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001027	DE-EE0006719	GFO-0006719-001	

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), 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 federal funding to Case Western Reserve University to design and demonstrate a low-cost, compact, easy-to-deploy, maintenance-free sensor node technology, housed in a microchip and circuit board, and a network of such sensors, which enable the wireless, networked monitoring of multiphysical parameters and could transform today's ordinary buildings into smart buildings with environmental awareness.

The proposed project activities would include the design, development, fabrication and testing of an energy harvesting wireless sensor system. Design, development, and fabrication activities would occur at the research and development facility on the campus of Case Western Reserve University in Cleveland, OH. Device testing would also occur on the campus of Case Western Reserve University in Cleveland, OH. All research and development activities would take place in existing facilities designed for this type of research; therefore, no modifications or new permits, additional licenses and/or authorizations would be necessary.

The project would generate solid waste, including extra material after cutting (such as PCB board) and shaping (such as packaging material). The recyclable waste would be placed in recycle bins which are collected by Case Western Reserve University Custodial Services on a weekly basis. The non-recyclable waste would be placed in trash bins which are collected by Case Western Reserve University Custodial Services on a daily basis. Materials such as acetone (1-2 gallon) and IPA (1-2 gallon) would be used to clean samples and components during the experiments. They would be stored in the chemical cabinets in the research labs and periodically collected in the labeled and dated waste bottles. These materials are managed in accordance with federal, state and local EHS regulations. All transport, handling, and disposal are managed through the university's Environmental Health and Safety Department.

Based on review of the project information and the above analysis, DOE has determined the proposed project would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that this project is consistent with actions outlined in DOE categorical exclusions A9 "Information gathering, analysis, and dissemination" and B3.6 "Small-scale research and development, laboratory operations, and pilot projects" and is therefore categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

This NEPA determination does not require a tailored NEPA provision.
Review completed by Rebecca McCord 08/18/2014.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Justin Ke Date: 8/18/2014
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

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

Field Office Manager's Signature: _____ Date: _____
Field Office Manager

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Case Western Reserve University to design and demonstrate a low-cost coupled, easy-to-deploy, maintenance-free sensor node technology, housed in a microchip and circuit board, and a subset of such sensor, which enable the wireless, networked monitoring of multifunctional parameters and could transform today's energy intensive buildings into smart buildings with environmental awareness.

The proposed project activities would include the design, development, fabrication and testing of an energy harvesting wireless sensor system. Design, development, and fabrication activities would occur at the research and development facility on the campus of Case Western Reserve University in Cleveland, OH. Device testing would also occur on the campus of Case Western Reserve University in Cleveland, OH. All research and development activities would take place in existing facilities designed for this type of research. Therefore, no modifications or new permits, additional licenses and/or authorizations would be necessary.

The project would generate solid waste, including extra material after cutting (such as PCB board) and grinding (such as prototyping materials). The recyclable waste would be placed in labels bins which are collected by Case Western Reserve University Custodial Services on a weekly basis. The non-recyclable waste would be placed in trash bins which are collected by Case Western Reserve University Custodial Services on a daily basis. Materials such as solvents (1-2 gallon and 1/4 (1-2 gallon) would be used in clean samples and components during the experiments. They would be stored in the chemical cabinets in the research lab and periodically collected in the labeled and dated waste bottles. These materials are managed in accordance with federal, state and local EHS regulations. All transport, handling, and disposal are managed through the university's Environmental Health and Safety Department.

Based on review of the project information and the above analysis, DOE has determined the proposed project will not have a significant individual or cumulative impact on human health and/or environment. DOE has determined that the project is consistent with actions outlined in DOE categorical exclusion AB "initiation, gathering, analysis, and determination" and B15 "small-scale research and development, laboratory operations, and pilot projects" and is therefore categorically excluded from further NEPA review.