PMC-ND
(1.08.09.13)

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

RECIPIENT: Rutgers, the State University of New Jersey **STATE:** NJ

PROJECT TITLE: Platinum group metal-free (PGM-free) integrated tandem junction photoelectrochemical (PEC) water splitting devices

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001647	DE-EE0008083	GFO-0008083-002	GO8083

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 federal funding to Rutgers University to work towards the development of platinum group metal-free devices for the splitting of water into its elements. Rutgers University would examine the optimal pairing of previously developed low cost catalyst materials with established (high performance) and emerging (low cost) photoabsorbers. Project work would occur within existing laboratory facilities at Rutgers University in Piscataway, NJ and collaboration is expected to occur with the HydroGEN Energy Materials Network National Laboratory consortium. This is a three-year research project that includes three budget periods (BP). Only BP1 was originally negotiated and was reviewed by GFO-0008083-001 in July 2017. There was a Go/No Go decision point after BP1 that was passed so this NEPA review is for the remaining project activities in BP2 and BP3.

Project work in BP2 is designed to increase the efficiency and durability for the high-performance photoelectrochemical (PEC) device developed during BP1 and advance development of high-value thin film PEC device candidates. BP3 would test high-performance PEC cells under various light intensities as well as compare and contrast devices made for value to those made for performance and determine long-term commercial viability via cost benefit analysis. Project work would occur in existing laboratories designed for this type of work that would utilize standard laboratory equipment; therefore no modifications, new permits, additional licenses and/or authorizations would be necessary. No ground disturbing activities, no changes in operation of existing facilities, and

no installation of equipment outdoors would occur for project activities. The project would involve the use and handling of various hazardous materials, including inorganic solids and industrial solvents. All such handling would occur in-lab, using safety protocols established by and overseen by the Rutgers Environmental, Health & Safety Office to ensure project activities that involve these materials would pose no risk to the public. All hazardous materials would be managed in accordance with federal, state, and local environmental regulations. Catalysts to be synthesized during the project may be prepared in a range of particle sizes from nanometer to micrometer sized. These solid materials would be prepared in sub-gram quantities, contained in sealed vessels, and transferred in secure environments such as a fume hood or glove box. DOE does not anticipate any impacts to resources of concern due to the proposed activities of the project.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Fuel Cell Technologies Office
This NEPA determination does not require a tailored NEPA provision.

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: 12/21/2018

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