PMC-ND
(1.08.09.13)

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

RECIPIENT: Exelon Corporation **STATE:** IL

PROJECT TITLE: Demonstration of electrolyzer operation at a nuclear plant to allow for dynamic participation in an organized electricity market and in-house hydrogen supply

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002022	DE-EE0008849	GFO-0008849-001	GO8849

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 Exelon Corporation for the demonstration of an end-to-end integrated grid-scale carbon-free hydrogen production, storage, and utilization plant at a nuclear generating facility. The project would also evaluate market opportunities and regulatory requirements related to the participation of integrated hydrogen production and nuclear plant facilities in organized power markets, by demonstrating dynamic control and operation of the electrolyzer and assessing the economics of dynamic participation combined with the revenue streams from hydrogen production. The project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP. This NEPA review is for BP1 only. Once additional details of project location, engineering, and design are completed, another NEPA review will be required to assess potential impacts associated BP2 activities of the project.

BP1 activities include candidate site assessment; preliminary engineering design work; the design, manufacturing, and testing of a 1 MW electrolyzer; the simulation and demonstration of the prototype electrolyzer; and optimal site selection for future scale-up. The limited scope of work in BP1 would not include physical installation at any proposed installation site.

Engineering, assessment, and design work would occur at Exelon's facility in Warrensville, IL. These activities would

include only design and assessment work within an office setting. Proton Energy System, Inc. dba NEL Hydrogen US (NEL) would complete processing, fabrication, assembly, integration, and testing of the electrolyzer stacks and system at Proton's Wallingford, CT manufacturing, laboratory, and testing facility. Idaho National Laboratory, the National Renewable Energy Laboratory, and Argonne National Laboratory are also working with the recipient but their activities are not being funded through this award and therefore will not be reviewed here. Work proposed to be conducted at these federal facilities will be subject to a NEPA review by the cognizant federal official and would meet the applicable health and safety requirements of each facility.

Activities being completed by NEL would involve typical laboratory and manufacturing process procedures in facilities that are specifically designed for these activities. These activities would include the use of hazardous materials such as hydrogen and strong acids that are normally used at this facility. The proposed project is not expected to measurably increase the volume of any hazardous material or regulated waste stream at the facility and would not result in any incremental health and safety risks to the public or project workers. Catalysts being used during the project would include nanoscale particles that could present respiratory hazards, flammability hazards, and toxicity hazards. These materials would be handled by trained employees using appropriate personal protective equipment and disposal practices. Existing risks associated with routine lab and manufacturing activity would be properly managed through Hazard Communication, Hazard Analysis, Emergency Response Plan, and Hazardous Waste Operation procedures. All project activities are consistent with activities that are conducted on a routine and controlled basis in Proton's facility. Handling, storage, and disposal of chemicals would be done per appropriate chemical hygiene plans, and in accordance with local, state, and federal regulatory requirements. All personnel are trained on Proton processes and safety procedures, and all employees regularly receive refresher training for safety work instructions, with automatic web-based reminders and training needs being reviewed biannually. All work would be conducted in accordance with established written procedures, authorized in a Safe Work Permit or Safe Operating Procedure (SOP). Any new activities and processes would be required to undergo a preliminary safety (and environmental) assessment to address hazard identification, and a subsequent readiness verification to ensure all necessary controls are in place prior to work starting. All of the chemistry and processes to be used in this project are within the capabilities of the existing equipment and procedures of the facility. No modifications, new permits, additional licenses and/or authorizations would be necessary and no ground disturbing activities, no changes in the operation of existing facilities, and no installation of equipment outdoors would occur for project activities.

DOE does not anticipate any impacts to resources of concern due to the proposed activities in BP1 at either Exelon's or Proton's facilities.

NEPA PROVISION

DOE has made a conditional NEPA determination.

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

Budget Period 1

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

Budget Period 2

Notes:

Fuel Cell Technologies Office
This NEPA determination requires 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.

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: Casey Strickland Date: 12/26/2019

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