PMC-ND (1.08.09.13)

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



RECIPIENT: NREL

STATE: CO

PROJECT TITLE: NREL-22-009-Energy Materials and Processing at Scale (EMAPS) - STM

 Funding Opportunity Announcement Number
 Procurement Instrument Number
 NEPA Control Number
 CID Number

 DE-AC36-08GO28308
 NREL-22-009
 GO28308

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:

DOE/EA-1968SITEWIDE ENVIRONMENTAL ASSESSMENT, U.S. DOE NATIONAL RENEWABLE ENERGY(NREL STM)LABORATORY, SOUTH TABLE MOUNTAIN CAMPUS, GOLDEN, COLORADO

Rationale for determination:

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) proposes to design, construct, and operate the Energy Materials and Processing at Scale (EMAPS) facility at the NREL South Table Mountain (STM) campus in Golden, Colorado. The purpose of the proposed project is to construct and operate an innovative, multi-disciplinary research facility that would support the scale-up and integration of hybrid energy technologies and processes for producing materials, devices, and fuels.

EMAPS Facility

EMAPS would be located between the Energy Systems Integration Facility (ESIF) and visitor parking lot. EMAPS would be an approximately 110,000 to 125,000 square-foot, two to three-story building. EMAPS would house laboratories, administrative areas (offices, conference rooms, etc.), and building support spaces. Building occupancy would be up to approximately 200 workers.

The facility would include standard laboratory equipment needed to support research across biology, chemistry, materials science, bio/chemical catalysis, and process engineering. Research spaces would include a wet chemistry laboratory, scale up laboratory, laser laboratory, perovskite laboratory, high hazard support laboratory, biosafety level 2 laboratory, dry room, clean room, cold room, and incubator room. A flexible pilot high bay containing high, medium, and low hazard high bays, sample preparation space, and a control room would also be installed. Facility support spaces would include chemical storage, waste storage, a glass wash area, machine shop, and service corridors.

A gas pad would be installed outdoors and adjacent to EMAPS which would house nitrogen, liquid nitrogen, and argon. These gases would be stored in large tanks and piped into the building for use in the laboratories. House vacuum, reverse osmosis deionized water, and compressed air would also be installed. Specialty gas cylinders, gas cabinets, pumps, and other equipment would be installed in the service corridors of the building to service specific processes and research equipment.

Laboratory utility systems would include ventilation and other mechanical systems; IT systems; gas distribution and detection; electrical power; and emergency generator backup power. Building infrastructure needed to support the facility include electrical, information and security communications, mechanical/HVAC, hot/chilled water, domestic water, and wastewater. These systems would connect to existing systems on the STM campus, and storm water would largely drain to the central arroyo drainage system with some draining to the east arroyo detention pond. Walkways, access driveways, ramps, fencing, and landscaping would also be installed.

Preliminary Site Activities

During the design of EMAPS, the following activities would occur: (a) geotechnical and soils investigation to include bore holes of the proposed location; (b) a survey of the proposed location to include utility potholing; and (c) other surveys and fieldwork that would be needed to inform the building design.

Construction

The estimated total area of disturbance, including exterior support areas, areas of construction disturbance, and landscaping would be up to approximately 120,000 square feet (2.75 acres). Construction laydown and storage would

be located immediately adjacent to the construction site and would utilize existing hardscaped areas to minimize the overall disturbance of the project (of note, the estimated area of disturbance does not include the hardscaped areas that would be used). A traffic plan would be developed and implemented to minimize traffic disruption on the STM campus.

Operation and Maintenance

Research processes, activities, and materials used at EMAPS would be like those already occurring in laboratories on the STM campus. Research would be at both bench and at scale. Maintenance of EMAPS would include routine maintenance and repair of building systems, utilities, and research equipment.

Timeline

Design-Build activities for EMAPS are proposed to begin in December 2022, with project completion in September 2025. The building would be a permanent feature on the STM campus, with a specification of approximately 50 years of useful life. At the end of the building's useful life, it would be remodeled, repurposed, or demolished.

Impacts Analysis

All ground disturbance would occur in areas previously disturbed during the development of the STM campus, including the construction of the Research Support Facility, ESIF, and the visitor parking area. Construction activities would be conducted in accordance with existing NREL policies and procedures that guide such work. Erosion control measures would be implemented and maintained during construction to minimize any potential erosion and/or stormwater impacts, and in accordance with the EPA Construction General Permit. All disturbed areas would be restored and revegetated as appropriate.

Construction and operation of EMAPS would increase the use of water at the STM campus. During development of the STM Sitewide Environmental Assessment (DOE/EA-1968), DOE consulted with the USFWS on impacts to Platte River Water depletions resulting from operations at the NREL STM Campus. The consultation process established water usage thresholds for the STM campus. The additional water needed to support EMAPS would not exceed the USFWS consultation threshold.

Operation of EMAPS would increase the use of energy at the STM campus. Building design would integrate the 2020 Guiding Principles for Sustainable Federal Buildings and Smart Lab principles to improve overall laboratory energy efficiency. The design would also incorporate NREL's decarbonization goals where possible.

Project activities would not affect cultural resources, threatened or endangered species, wetlands, floodplains, or prime farmlands. A migratory bird nesting survey would be completed if project activities involving ground disturbance occur between March 15 and September 15. If nests or eggs are found, the area would be cordoned off with a proper buffer until nestlings fledge.

The following permits would be needed and shall be obtained when required: EPA Construction General Permit; West Metro Fire Rescue Fire for Life Safety Systems; and Air Pollution Emission Notice to Colorado Department of Public Health and Environment. Any additional permits needed shall be obtained when appropriate.

Waste generated during both construction and operation would be reused, recycled, or disposed of in accordance with applicable regulations and NREL policy and procedures. Clean topsoil unearthed from excavation activities would either be reused or disposed of offsite or staged onsite for future use. Mobile air emissions from construction equipment would be short-term and minor and are not anticipated to appreciably contribute to the local load of air pollutants. Hazardous waste generated by research activities would be managed in accordance with NREL's programs and procedures and regulatory requirements. Construction-related noise would consist of a short-term, intermittent increase in ambient noise levels and would follow applicable noise ordinances.

Individuals working on this project could be exposed to various physical, chemical, and electrical hazards during construction and operation. Existing corporate health and safety policies and procedures would be followed including employee training, work/worker authorization, proper protective equipment, engineering controls, and monitoring, as well as obtaining a Safe Work Permit. Additional policies and procedures would be implemented as necessary if new health and safety risks are identified.

Based on the review of the project, DOE has determined that the proposed project fits within the scope of activities that were analyzed in Section 3.2.2, "New Building Construction and Modifications of Existing Buildings", of the 2014 Final Site-Wide Environmental Assessment of the NREL STM (DOE/EA-1968). DOE has determined that the proposed project is bound by the environmental impact analysis contained in this EA and its respective FONSI, and no further NEPA review is required.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assisstance agreement:

A migratory bird nesting survey shall be completed if project activities involving ground disturbance occur between March 15 and September 15.

All required permits shall be obtained when appropriate.

Notes:

NREL Nicole Serio, 4/28/2022

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:	Signed By: Lisa Jorgensen	Date:	4/28/2022	
_	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: