

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-20-027 Hydrogen Electrolyzer System - Flatirons Campus

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
	DE-AC36-08GO28308	NREL-20-027	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 1914 (NREL NWTC)** Final Site-Wide Environmental Assessment of the Department of Energy's National Wind Technology Center at the National Renewable Energy Laboratory

Rationale for determination:

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) proposes to procure, install, and operate a hydrogen electrolyzer system at the NREL Flatirons Campus (FC) in Boulder, Colorado. The purpose of the proposed project is to explore the potential for wide-scale hydrogen production and utilization via integrated systems research (e.g., to demonstrate grid services, energy storage, renewable hydrogen production, and innovative end use applications).

The proposed project would be phased. During the first phase, project equipment would be installed and operated at a temporary location at the FC (Row 3, Concrete Pad 6). During the second phase, a permanent location at the FC would be identified, and the equipment would be removed from the temporary location and installed at the permanent site for continued operation. The permanent location would be in Row 3, south of the existing PV array.

Project equipment and infrastructure that would be installed include:

- 1.25 MW PEM electrolyzer H2 skid (40' ISO containers)
- 1.25 MW PEM electrolyzer electronics skid (40' ISO containers)
- 60 HP compressor (20' ISO container)
- Fifteen 600 kg H2 storage tanks (40' unit) and associated valves
- 250 kW fuel cell (40' ISO container)
- 13.2 kV transformer and circuit breakers
- 5,000 gallon water supply tank

Installation of project equipment at the temporary location would involve adding gravel adjacent and to the south of Pad 6 to improve water drainage, which would measure approximately 100' x 30'. A shuttle lift would be used to place the equipment on the pad, and the equipment would be anchored using ground screws or concrete block anchors.

Once a permanent location is identified, an access driveway made of gravel/road base would be installed from Row 3 Road to the selected site. The location would be further graded to support a concrete pad and gravel area; the area of disturbance for the pad and surrounding gravel would be approximately 120' long, 70' wide, and 1' deep (approximately 600 sq. ft.). The equipment would be installed and anchored as above.

Project equipment would be ordered in June 2020, and installation at the temporary location would occur in December 2020 and last through September 2021. The equipment would be operated through at least September 2022, at which time the equipment would be relocated to the permanent location.

During operation, the system would consume approximately 1,900 gallons of water a week. The water would be delivered by truck, requiring one water truck delivery every two weeks. The system would also produce water that would be reused; a 55 gallon or less small buffer tank would collect the water and a pump would deliver the water back into the electrolysis water supply system.

Hydrogen produced by the system would be compressed into storage tanks, which would be vented as needed. The tanks would be vented at a maximum average rate of 22 kg/hour. The hydrogen vent mast would be designed to

prohibit the hydrogen from reaching flammable concentrations at ground level, which would be conformed via monitoring. The maximum oxygen vent rate to the atmosphere would be approximately 176 kg/hour.

Ground disturbance would occur in areas that have been previously disturbed, and erosion control measures would be used and maintained during and after the project period as needed. All ground disturbing activities would be conducted in accordance with existing NREL policies and procedures that guide such work.

Project activities would not affect cultural resources, threatened or endangered species, wetlands, floodplains, or prime farmlands, and no permits would be required. A migratory bird nesting survey shall 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.

Air emissions resulting from ground disturbing activities and equipment operation would be de minimis. Non-hazardous construction waste would be reused, recycled, or disposed of in accordance with applicable regulations and NREL policy and procedures. An EcoPan would be used to collect concrete waste, which would be recycled offsite.

Individuals working on this project could be exposed to physical and electrical hazards. Existing corporate health and safety policies and procedures would be followed including employee training, 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 proposed project, DOE has determined that this project is an activity to enhance research, which was analyzed in Section 2.1.1 "Increasing and Enhancing Research and Support Capabilities" of the 2014 Final Site-Wide Environmental Assessment of the NREL NWTC (DOE/EA-1914). DOE has determined that this activity 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 assistance agreement:

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

Notes:

NREL  
Nicole Serio, 6/16/2020

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:  Electronically Signed By: Lisa Jorgensen Date: 6/17/2020  
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