

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



RECIPIENT: NREL

STATE: CO

PROJECT TITLE : NREL-22-014 IESS Grid Distribution - Flatirons Campus

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-AC36-08GO28308	NREL-22-014	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
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Rationale for determination:

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) proposes to expand the existing substation at the NREL Flatirons Campus (FC) in Boulder, Colorado. A 34.5kV transformer, switchgear building, switchgear, and underground electrical feeders would be installed. The purpose of the proposed project is to enhance research capabilities at the site by providing a connection to the onsite electrical grid at the 34.5kV level.

Substation Expansion

The substation, located at the southwest corner of the FC, would be expanded to the east. Electrical infrastructure would be installed to support a new 34.5kV transformer and new switchgear building. The existing overhead 115kV electrical bus would be extended and connected to the new transformer, and a backup electric generator would be installed. Gravel ground surface, measuring approximately 270 feet x 260 feet, and additional fencing to secure the substation would be installed. Once cleared, concrete pads would be poured to support the new equipment at the substation including two transformer pads (approximately 30 feet x 26 feet), a test article pad (approximately 105 feet x 30 feet), a generator pad (approximately 5 feet x 13 feet), and a diesel tank pad (approximately 4 feet x 17 feet). To support the new switchgear building, a concrete foundation would be installed consisting of 14 caissons and approximately 40 caissons for the bus bar, lighting protection, and equipment foundations. The switchgear building would be approximately 14 feet x 60 feet. The foundation dimensions are not yet known but each caisson would be round measuring 2 feet wide and 15 feet deep.

Feeder From Substation to Second Controllable Grid Interface (CGI)

New single circuit direct bury electrical feeders would be installed and connected to a switchgear at the Second CGI, located on the north side of the campus and just east of the 5MW Dynamometer testing facility. Three 34.5kV sectionalizers would be installed along the feeder route between the substation and the Second CGI. The electrical feeder would measure approximately 3 feet wide, 6 feet deep, and 6000 feet long and would involve the excavation of approximately 6000 cubic yards of soil.

Second CGI Expansion

The Second CGI would be expanded to include a new area measuring approximately 100 feet x 80 feet, a transformer pad measuring 32 feet x 28 feet, a new equipment pad measuring 20 feet x 30 feet, and an impedance network pad measuring approximately 9 feet x 73 feet. The expanded area would consist of gravel. Additionally, a new swale measuring approximately 30 feet x 200 feet would be installed to facilitate stormwater movement on the north side of the Second CGI.

Additional Scope

The following additional scope items may also be conducted if additional funding becomes available:

- Installation of a second 34.5kV transformer and a second electrical feeder between the substation and Second CGI;
- Addition of a 34.5kV electrical switchgear at Site 4.2, the Second CGI yard, the south end of Row 2, and at the existing Gamesa Turbine;
- Installation of an electrical duct bank with vaults between the substation and Second CGI;
- Installation of a 34.5kV NEPSI filter at the Second CGI; and
- Installation of a 34.5kV impedance network and 34.5kV interconnection transformer.

Analysis

All excavation would be performed using an excavator. The soil would be moved using loaders and skid steers and unused soil would be removed from the site. Cranes would be used to unload and place electrical equipment, structural steel, and the switchgear building.

Project equipment would be purchased in late 2022 to accommodate the long lead time needed for equipment production and delivery; the equipment is expected to be delivered in early 2024. Construction would begin in early 2023 and project equipment would be installed in early 2024.

There would be two construction laydown areas measuring approximately 100 feet x 50 feet each; they would be located at the substation and Second CGI. The total area that would be disturbed by the proposed project totals approximately 7 acres. Ground disturbance would occur in areas that have been previously disturbed, and all ground disturbing activities would be conducted in accordance with existing NREL policies and procedures that guide such work. An EPA Construction General Permit for stormwater discharges would be required. Waste materials would be recycled where possible or reused or disposed offsite and the disturbed areas would be backfilled, regraded, and revegetated. Concrete washout would occur either offsite or in onsite EcoPans.

Project activities would not affect air quality, cultural resources, threatened or endangered species, floodplains, or prime farmlands. A small area of a non-jurisdictional, palustrine emergent wetland would be impacted while installing the proposed line at the intersection of the southern perimeter road and Row 2 road. The disturbed wetland area would be restored to its pre-construction vegetation and contours. 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.

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 project, DOE has determined that the proposed project fits within the scope of activities that were analyzed in Section 2.1.1 "Increasing and Enhancing Research and Support Capabilities (Zone 1 and Zone 2)" of the 2014 Final Site-Wide Environmental Assessment of the NREL NWTC (DOE/EA-1914). 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 assistance agreement:

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.

Notes:

NREL
Nicole Serio, 8/5/2022

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

 Electronically
Signed By: Lisa Jorgensen
NEPA Compliance Officer

Date: 8/9/2022

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: _____